



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
DECEMBER 2022

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Contract No. SPW 12/2021

Shek Wu Hui Effluent Polishing Plant – Main Work

Monthly Environmental Monitoring & Audit Report

December 2022

(January 2023)

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – **December 2022** 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 **16th** 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 December 2022 to 31 December 2022**. 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
- Backfilling
- Sewage, utility and pipe works
- ABWF works
- Construction of Outfall at Ng Tung River

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

- ELS works
- Sheet piling
- Excavation
- RC works

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

- Formwork and Falsework at Sidestream Treatment Facilities
- Penstock and Stoplog Installation at SAS PS
- MVAC, Plumbing and Electrical Installation at Workshop No.2
- MFA, AFA and SPR System Installation at SDB
- EOT and Monorail Installation at SDB
- T&C for Electrical Installation at UV No.1
- Bio-Gas Holding tank Installation at Bio-Gas Tank
- EOT and Monorail Installation at CHP

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

- [Improvement Works for Temporary Primary Sludge Thickener and its accessories](#)

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. [Power failure was encountered at AM2a during the period from 14 to 23 Dec 2022, so the 24hr AQM for AM2a were temporarily suspended.](#)

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.](#)

Water Quality Monitoring

- x. Water quality monitoring was conducted at two monitoring stations three days per week in the reporting month.
- xi. [Eighteen \(18\) limit level exceedances and five \(5\) action level exceedances were recorded in the reporting month. After investigations, all recorded exceedances were considered non-project related.](#)

Site Inspections and Audit

- xii. The Environmental Team (ET) conducted weekly site inspections on 6(DE/2018/03 and DE/2018/04), 9(DC/2018/06 and DC/2018/07), 13(DE/2018/03 and DE/2018/04), 15(DC/2018/06 and DC/2018/07), 20, and 28 December 2022 and biweekly landscape inspection on 13, 15 and 28 December 2022. IEC attended the joint site inspection on 28 December 2022. No non-compliance was found during the site inspection while reminders on environmental measures were recommended.

Complaints, Notifications of Summons and Successful Prosecutions

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

Reporting Changes

- xiv. Due to close proximity to construction works and heavy machines from another construction project, presence of physical barrier and safety concerns, adjustment for the location of AM2/NM2 were proposed in accordance to Section 2.2.4.6 of the EM&A Manual. It was adjusted from Fu Tei Au to footbridge between Fu Tei Au and SWHSTW. The proposal has sought approval from ER and IEC, and agreement from EPD.

Future Key Issues

- xv. 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
- Backfilling
- Sewage, utility and pipe works
- ABWF works
- Construction of Outfall at Ng Tung River

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

- ELS works
- Sheet piling
- RC works
- Excavation

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

- Formwork and Falsework at Sidestream Treatment Facilities
- Plumbing, MVAC and Electrical Installation at Workshop No.2
- Penstock and Stoplog Installation at SAS PS
- SPR, MFA and AFA Installation at SDB
- EOT and Monorail Installation at SDB
- Bio-Gas Holding tank Installation at Bio-Gas Tank
- EOT and Monorail Installation at CHP
- Steam Boiler Transportation at CHP

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

- Improvement Works for Temporary Primary Sludge Thickener and its accessories
- E&M Installation 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 installation works at Portion B-2, Inert Works

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	CPC	Mr. Hanes Hui	2594 7459
AECOM	Supervisor Representative	Resident Engineer	Mr. Alex Leung	3907 6145
Kwan Lee - Chun Wo Joint Venture	Contractor (DC/2018/06)	Environmental Engineer	Ms. Ruby Hui	6218 6408
		Assistant Environmental Engineer	Mr. Marco Chan	6235 6017
	Contractor (DC/2018/07)	Environmental Engineer	Ms. Tiffany Choi	9789 1027
JEC	Contractor (DE/2018/03)	Environmental Officer	Ms. Juliet Ting	6826 7319
Bestwise	Contractor (DE/2018/04)	Environmental Officer	Mr. Albus Cheung	9731 0831
Meinhardt Infrastructure and Environment Ltd.	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	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
- Backfilling
- Sewage, utility and pipe works
- ABWF works
- Construction of Outfall at Ng Tung River

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

- ELS works
- Sheet piling
- Excavation
- RC works

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

- Formwork and Falsework at Sidestream Treatment Facilities
- Penstock and Stoplog Installation at SAS PS
- MVAC, Plumbing and Electrical Installation at Workshop No.2
- MFA, AFA and SPR System Installation at SDB
- EOT and Monorail Installation at SDB
- T&C for Electrical Installation at UV No.1
- Bio-Gas Holding tank Installation at Bio-Gas Tank
- EOT and Monorail Installation at CHP

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

- Improvement Works for Temporary Primary Sludge Thickener and its accessories

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	6	Section 4, SDB, Outfall
	Tower Crane	2	Near Workshop No.2 and Gate 2
	Mobile generator	1	Near Workshop No.2
	Scissor lift platform	4	SDB and CHP
DC/2018/07	Excavator	17	BR2, Inlet, Area C, Area D, MFB, PST and SAS
	Generator	7	BR2, MFB, PST and Inlet
	Air compressor	1	Inlet
	Mobile Crane	4	PST, Inlet and BR2
	Road Work Machine	1	Inlet
DE/2018/03	Generator	6	UV No.1, Sidestream and Workshop No.2
	Tower Crane	1	Sidestream
DE/2018/04	-	-	-

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
- Backfilling
- Sewage, utility and pipe works
- ABWF works
- Construction of Outfall at Ng Tung River

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

- ELS works
- Sheet piling
- RC works
- Excavation

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

- Formwork and Falsework at Sidestream Treatment Facilities
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- EOT and Monorail Installation at SDB
- Bio-Gas Holding tank Installation at Bio-Gas Tank
- EOT and Monorail Installation at CHP
- Steam Boiler Transportation at CHP

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

- Improvement Works for Temporary Primary Sludge Thickener and its accessories
- E&M Installation 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 installation works at Portion B-2, Inert Works

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-RN1155-22	28 Nov 2022	28 Feb 2023	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
Special Waste	17144	17 Nov 2022	28 Feb 2023	Valid
Construction Noise Permit	GW-RN1155-22	28 Nov 2022	28 Feb 2023	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-RN1190-22	8 Dec 2022	7 Apr 2023	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	Pending for revision
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
NM2*	Footbridge between Fu Tei Au and SWHSTW
NM3	Man Kok Village

1. Remark: Due to close proximity to construction works and heavy machines from another construction project, presence of physical barrier and safety concerns, adjustment for the location of AM2/NM2 were proposed in accordance to Section 2.2.4.6 of the EM&A Manual. It was adjusted from Fu Tei Au to footbridge between Fu Tei Au and SWHSTW. The proposal has sought approval from ER and IEC, and agreement from EPD on 28 Decem2022.

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
Integrated Sound Level Meter	NTi XL2	A2A-15269-EO
Acoustic Calibrator	LD CAL200	13098

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
AM2 ^{*(1)}	Footbridge between Fu Tei Au and SWHSTW	1-hour TSP
AM1a*	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

Remarks

- (1) Due to close proximity to construction works and heavy machines from another construction project, presence of physical barrier and safety concerns, adjustment for the location of AM2/NM2 were proposed in accordance to Section 2.2.4.6 of the EM&A Manual. It was adjusted from Fu Tei Au to footbridge between Fu Tei Au and the SWHSTW. The proposal has sought approval from ER and IEC, and agreement from EPD on 28 December 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
Portable direct reading dust meter	Met One BT- 645 / Met One AEROCET831	R14332 W15448
High Volume Sampler	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model no. G3101)	HVS001 (Serial number: 0401-1105) HVS003 (Serial number: 1096-2305)
Wind Anemometer	YGY-FSXY1	YG 21071630T0924

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

WIND DATA

4.2.10. Hong Wind data monitoring equipment was set up at roof floor (about 4/F) of the SWHSTW control room for logging wind speed and wind direction such that the wind sensors were clear of obstructions or turbulence caused by building. The wind data monitoring equipment was re-calibrated at least once every six months and the wind directions were divided into 16 sections of 22.5 degrees each. The wind data obtained from the on-site wind station during the reporting period is provided in [Appendix 4.3](#).

EVENT AND ACTION PLAN

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

Table 4.7 Action and Limit Level for Air Quality Monitoring

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

4.3 Ecological Monitoring

- 4.3.1. 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 5.6](#).

Table 4.8 Ecological Monitoring Stations

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

Point Count Location P7	At Intersection between Sheung Yue River and Shek Sheung River	Yes
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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

4.4 Water Quality Monitoring

WATER QUALITY MONITORING STATIONS

4.4.1. Water quality monitoring was undertaken at 2 monitoring stations in the reporting month. The proposed water quality monitoring stations of the Project are shown in **Table 4.10** and [Figure 4.4](#).

Table 4.10 Water Quality Stations for Water Quality Monitoring

Stations	Description
M1	Impact Station, downstream of the proposed outfall
C1	Control Station, upstream of the proposed outfall

WATER QUALITY PARAMETERS, FREQUENCY AND DURATION

- 4.4.2. The levels of dissolved oxygen (DO), salinity, temperature, turbidity and pH shall be measured in situ while suspended solids (SS) is determined by laboratory analysis at all the designated monitoring stations.
- 4.4.3. In association with the water quality parameters, other relevant data shall also be recorded, such as monitoring location / position, time, DO saturation, weather conditions, and any special phenomena underway near the monitoring station.
- 4.4.4. During the course of the construction works at the outfall at Ng Tung River, impact monitoring shall be undertaken three days per week, with sampling/measurement at the monitoring stations. The ET should carry out spot check to ensure that the Contractor has undertaken all recommended control measures to prevent direct contact of pollutants with rainwater or runoff, and measures to abate contaminants in the stormwater runoff.
- 4.4.5. The interval between two sets of monitoring should not be less than 36 hours except where there are exceedances of Action and/or Limit Levels, in which case the monitoring frequency will be increased.
- 4.4.6. Replicate in-situ measurements should be carried out in each sampling event.

SAMPLING PROCEDURES AND MONITORING EQUIPMENT

Dissolved Oxygen and Temperature Measuring Equipment

- 4.4.7. The instrument should be a portable, weatherproof dissolved oxygen measuring instrument complete with cable, sensor, comprehensive operation manuals, and use a DC power source. It should be capable of measuring:
 - a dissolved oxygen level in the range of 0-20 mg/l and 0-200% saturation
 - a temperature of 0-45 degree Celsius

- 4.4.8. It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables should be available for replacement where necessary. (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).
- 4.4.9. Should salinity compensation not be build-in in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

Turbidity Measurement Instrument

- 4.4.10. The instrument should be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment should use a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and be complete with a cable (e.g. Hach model 2100P or an approved similar instrument).

Sampler

- 4.4.11. Due to low water level as mentioned in Section 6.4.3 of the EIA report, bucket sampler (Approximate 1L) will be use instead of water sampler in order to obtain surface water sample without disturb the stream sediment and collect representative results.

Salinity

- 4.4.12. A portable salinometer capable of measuring salinity in the range of 0-70 ppt shall be provided for measuring salinity of the water at each of monitoring location.

MONITORING METHODOLOGY

4.4.13. Monitoring Procedure

- (a) The condition near the monitoring stations shall be observed and recorded on the data log sheet.
- (b) Check of sensors and electrodes with certified standard solutions before each use.
- (c) Wet bulb calibration for a DO meter should be carried out before measurement.
- (d) Sample would be taken using bucket sampler at surface level.
- (e) Transfer the sampled water carefully into cleaned water bottles (2x 1000ml) provided by the laboratory at the spot after the collection of the water sample for the subsequent laboratory Suspended Solid testing.
- (f) Transfer the sampled water from the bucket sampler to the rinsed water container for in-situ measurement (In case of the in-situ measurement cannot be carried at spot due to safety and adverse weather condition, sampled water from the bucket sampler will be transfer to cleaned water bottles provided by laboratory. Then, In-situ measurement will be conducted at a safe location which sampled water inside cleaned water bottle will be transfer to the rinsed water container for in-situ measurement) In-situ measurement shall be measured in duplicate.

- (g) Parameters including Water Temperature (°C), pH (units), Salinity (ppt), DO (mg/L), DO saturation (%) will be measured by the Multifunctional Meter and Turbidity (NTU) will be measured by turbid meter. (Water Temperature and Salinity will be measured as reference parameters)
- (h) Record the result on the data log sheet and record any special finding during / after in-situ measurement.
- (i) The water sample bottles will be stored in a cool box (at cooled to 4°C without being frozen), which shall be delivered to HOKLAS laboratory (ALS Technichem (HK) Pty Ltd) for further testing to determine the level of SS.

4.4.14. Maintenance and Calibration

- (a) The responses of sensors and electrodes of the water quality monitoring equipment were cleaned and checked at regular intervals.
- (b) DO meter (Multifunctional Meter) and turbid meter was certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three monthly intervals.

4.4.15. Brand and model of the equipment are given in **Table 4.11**.

Table 4.11 Water Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Multifunctional Meter	YSI Professional Plus	19H100656
Turbid meter	Xin Rui WGZ-3B	2202001

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

LABORATORY MEASUREMENT / ANALYSIS

4.4.17. Analysis of suspended solids has been carried out in a HOKLAS accredited laboratory, which is ALS Technichem (HK) Pty Ltd.

EVENT AND ACTION PLAN

4.4.18. The Action and Limit levels for water quality are defined in **Table 4.12**. Should the monitoring results of the water quality parameters at impact station exceed the water quality criteria, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.12 Action and Limit Level for Water Quality Monitoring

Parameter (Unit)	Depth	Action Level	Limit Level
DO (mg/L)	Middle	≤ 7.8 mg/L	≤ 7.7 mg/L
Turbidity (NTU)	Depth-average	≥ 14.6 NTU or 120% of upstream control station's Turbidity at the same tide of the same day	≥ 15.6 NTU or 130% of upstream control station's Turbidity at the same tide of the same day
SS (mg/L)	Depth-average	≥ 18.8 mg/L or 120% of upstream control station's SS at the same tide of the same day	≥ 19.5 mg/L or 130% of upstream control station's SS at the same tide of the same day

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	55.2 – 59.4	75 dB
NM2	59.2 – 69.7	
NM3	62.5 – 69.3	

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/m ³)		Action Level, (µg/m ³)	Limit Level, (µg/m ³)
	Average	Range		
AM1	32	23 - 53	320	500
AM2	36	18 - 56	322	500

Table 5.3 Summary Table of 24-hour TSP Monitoring Results

Monitoring Station	Concentration (µg/m ³)		Action Level, (µg/m ³)	Limit Level, (µg/m ³)
	Average	Range		
AM1a	44	24 – 74	189	500
AM2a	94	84 – 116	187	500

- 5.2.2 Power failure was encountered at AM2a during the period from 14 to 23 Dec 2022, so the 24hr AQM for AM2a were temporarily suspended.
- 5.2.3 No action or limit level exceedance was recorded in this reporting period.
- 5.2.4 According to our field observations, the major dust source identified were nearby road traffic.
- 5.2.5 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.

5.3 Ecology Monitoring Results

5.3.1 Details of ecological Monitoring results in the reporting month are provided in [Appendix 5.4](#) and [Appendix 5.5](#).

Table 5.4 Abundance of Representative Waterbirds in the Reporting Month

Species Name	Common Name	Chinese Name	Abundance
<i>Egretta garzetta</i>	Little Egret	小白鷺	88
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	49
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	33
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	49
<i>Ardea alba</i>	Great Egret	大白鷺	28
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	26
Total			273

- 5.3.2 No Action Level or Limit Level was triggered for ecological monitoring in the reporting month.
- 5.3.3 Site observation in the reporting month shows that construction activities are similar to previous months. The photos are provided in [Appendix 5.6](#).
- 5.3.4 In recent months, it is found that there are different construction sites for example construction of footbridge, excavation and sheet-piling, and human activities such as grazing, fishing and landscape planting around the project site. The photos are provided in [Appendix 5.6](#). These construction and human activities may affect activities of the waterbird. Although, there is no significant impact reduction in number of waterbird, but it is recommended that construction site should continue keeping the good site practice to minimize disturbance caused to waterbirds.

5.4 Water Quality Monitoring Results

5.4.1 Water quality monitoring results measured in this reporting period are reviewed and summarized. Details of water monitoring results and graphical presentation can be referred in [Table 5.5](#) and [Appendix 5.7](#). The laboratory analysis results can be referred in [Appendix 5.8](#).

Table 5.5 Summary Table of Water Quality Monitoring Results

Parameter	C1		M1		Action Level, (µg/m3)	Limit Level, (µg/m3)
	Range	Average	Range	Average		
DO (mg/L)	5.6 – 8.5	7.2	5.5 – 9.1	7.2	≤ 7.8 mg/L	≤ 7.7 mg/L
Turbidity (NTU)	7.3 – 33.3	17.7	9.1 – 39.0	16.0	≥ 14.6 NTU or When M1 ≥ 120% of C1	≥ 15.6 NTU or When M1 ≥ 130% of C1
SS (mg/L)	4.2 – 72.3	15.0	7.4 – 27.3	11.4	≥ 18.8 mg/L or When M1 ≥ 120% of C1	≥ 19.5 mg/L or When M1 ≥ 130% of C1

- 5.4.2 Eighteen (18) limit level exceedances and five (5) action level exceedances were recorded in the reporting month.
- 5.4.3 NOEs were sent to IEC and RE after the exceedances recorded. Investigations were conducted for all exceedances recorded in the reporting month. Investigation reports were sent to IEC and RE before the submission of monthly EM&A report. The submitted investigation reports were annexed in [Appendix 5.10](#).
- 5.4.4 After investigations, all recorded exceedances were considered non-project related.
- 5.4.5 Since the construction works of a footbridge under another construction project was found on Ng Tung River in November 2022, the baseline measured in October and November 2019 may not reflect the updated ambient environment condition of Ng Tung River.
- 5.4.6 The water quality monitoring for the Project commenced on 23 November 2022. Continuous exceedances were recorded since the commencement of water quality monitoring. According to the information from the Contractor, only preparation works for outfall construction were conducted on 23 November to 5 December 2022, during which were no water quality-related construction work conducted. However, continuous exceedances were still recorded in this period. That means the Action and Limit levels identified from baseline monitoring cannot be a practicable alarm to reflect the pollution contributed by the Project. Therefore, the ET will propose new Action and Limit levels for ensuring any pollution contributed by the Project to Ng Tung River can be recorded effectively.

5.5 Waste Management

- 5.4.1 The quantities of waste for disposal in the Reporting Period are summarized in **Table 5.6** to **5.9**. The Monthly Summary Waste Flow Table is shown in [Appendix 5.9](#). Whenever possible, materials were reused on-site as far as practicable.

Table 5.6 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 (2022)
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)	2.558	4.051	15.906
Metals (in '000kg)	0.000	0.000	2.379
Paper / Cardboard Packing (in '000kg)	0.000	0.000	0.010
Plastics (in '000kg)	0.000	0.000	0.023
Chemical Wastes (in '000kg)	0.000	0.000	0.000
General Refuses (in '000m ³)	0.152	0.104	1.521

Table 5.7 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 (2022)
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)	0.000	0.000	3.608

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
(in '000m ³)			
Disposal as Public Fill (Inert) (in '000m ³)	12.967	13.033	59.335
Metals (in '000kg)	0.000	0.000	23.300
Paper / Cardboard Packing (in '000kg)	0.000	0.000	0.010
Plastics (in '000kg)	0.000	0.000	0.026
Chemical Wastes (in '000kg)	0.000	0.000	0.000
General Refuses (in '000m ³)	0.027	0.655	0.902

Table 5.8 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 (2022)
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 '000kg)	0.000	0.000	15479.440
Metals (in '000kg)	0.000	0.000	0.000
Paper / Cardboard Packing (in '000kg)	0.131	0.000	1.324
Plastics (in '000kg)	0.005	0.000	0.040
Chemical Wastes (in '000kg)	0.000	0.000	0.000

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
General Refuses (in '000kg)	2.240	16.270	32.420

Table 5.9 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 (2022)
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	1.300	8.140

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 Power failure was encountered at AM2a during the period from 14 to 23 Dec 2022, so the 24hr AQM for AM2a were temporarily suspended.

6.3 Water Quality Monitoring

6.3.1 Eighteen (18) limit level exceedances and five (5) action level exceedances were recorded in the reporting month. After investigations, all recorded exceedances were considered non-project related.

6.3.2 Since the construction works of a footbridge under another construction project was found on Ng Tung River in November 2022, the baseline measured in October and November 2019 may not reflect the updated ambient environment condition of Ng Tung River.

6.3.3 The water quality monitoring for the Project commenced on 23 November 2022. Continuous exceedances were recorded since the commencement of water quality monitoring. According to the information from the Contractor, only preparation works for outfall construction were conducted on 23 November to 5 December 2022, during which were no water quality-related construction work conducted. However, continuous exceedances were still recorded in this period. That means the Action and Limit levels identified from baseline monitoring cannot be a practicable alarm to reflect the pollution contributed by the Project. Therefore, the ET will propose new Action and Limit levels for ensuring any pollution contributed by the Project to Ng Tung River can be recorded effectively.

6.4 Ecological Monitoring

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

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

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

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

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

7 Environmental Site Audit

7.1.1. Within this reporting month, weekly environmental site audits were conducted on 6(DE/2018/03 and DE/2018/04), 9(DC/2018/06 and DC/2018/07), 13(DE/2018/03 and DE/2018/04), 15(DC/2018/06 and DC/2018/07), 20, and 28 December 2022 and biweekly landscape inspection on 13, 15 and 28 December 2022. IEC attended the joint site inspection on 28 December 2022.

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
20221209_1	9-Dec-2022	Silt was observed at vehicle exit. The Contractor was advised to provide wheel washing to the leaving vehicle.	Wheel washing was provided to leaving vehicle, no silt was observed at exit.	Rectified on 15-Dec-22.
20221215_1	15-Dec-2022	Soil was observed outside of site boundary near SDB. The Contractor was advised to provide preventive measures to ensure no construction material will be dropped into public area during the transporting process.	The soil at outside of site boundary near SDB was removed.	Rectified on 20-Dec-22.
20221228_1	28-Dec-2022	The stockpile should be watering to remain surface wet. (DC/2018/06)	Watering was provided to stockpile.	Rectified on 3-Jan-23.
20221228_1	28-Dec-2022	The chemical containers should be placed properly inside the drip tray with enough capacity	Watering was provided to stockpile.	Rectified on 3-Jan-23.

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

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20221209_2	9-Dec-2022	The Contractor was reminded to update the CNP, which displayed at site entrance.	The CNP at site entrance was updated	Rectified on 20-Dec-22.

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

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20221228_4	28-Dec-2022	Dust measures (water spraying or regular cleaning) should be adopted for the dusty ground. (DE/2018/03)	The dusty material on the ground was removed.	Rectified on 3-Jan-23.

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	4
December 2022	0
Total	4

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 • Sewage, utility and pipe works • Backfilling • ABWF works • Construction of Outfall at Ng Tung River 	<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 • 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. • Implement proper water mitigation measures on Outfall works for preventing water pollution.

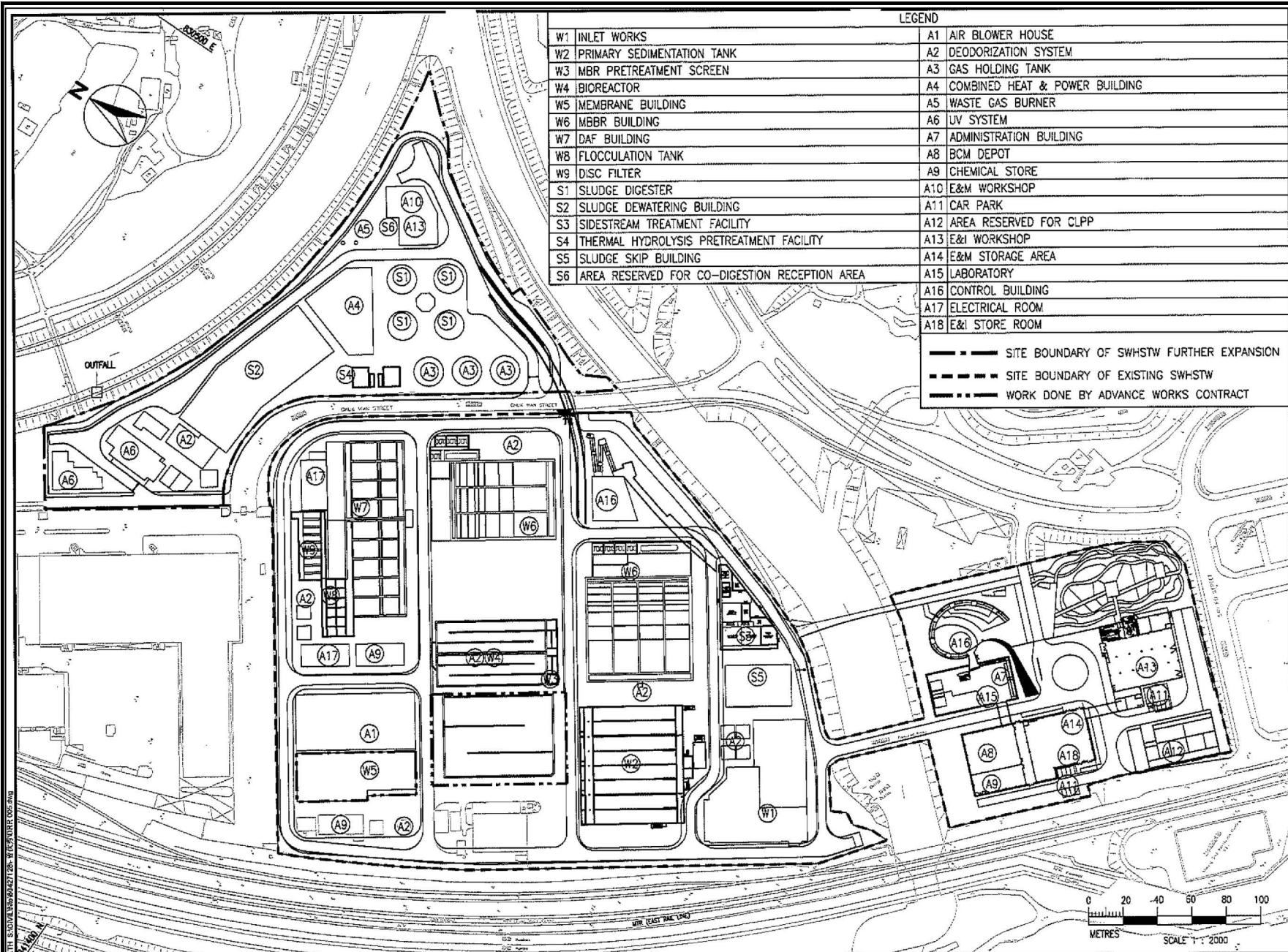
Contract No.	Key Construction Works	Recommended Mitigation Measures
DC/2018/07	<ul style="list-style-type: none"> • ELS works • Sheet piling • RC works • Excavation 	<ul style="list-style-type: none"> • Implement proper dust mitigation measures on dusty surface and stockpiles • Implement proper measures 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.
DE/2018/03	<ul style="list-style-type: none"> • Formwork and Falsework • Plumbing, MVAC and Electrical Installation • Penstock and Stoplog Installation • SPR, MFA and AFA Installation • EOT and Monorail Installation • Bio-Gas Holding tank Installation • Steam Boiler Transportation 	<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

Contract No.	Key Construction Works	Recommended Mitigation Measures
		ULSD as fuel for diesel-powered machinery.
DE/2018/04	<ul style="list-style-type: none"> • Improvement Works for Temporary Primary Sludge Thickener and its accessories • E&M Installation 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 installation works at Portion B-2, Inert Works 	<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.



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	

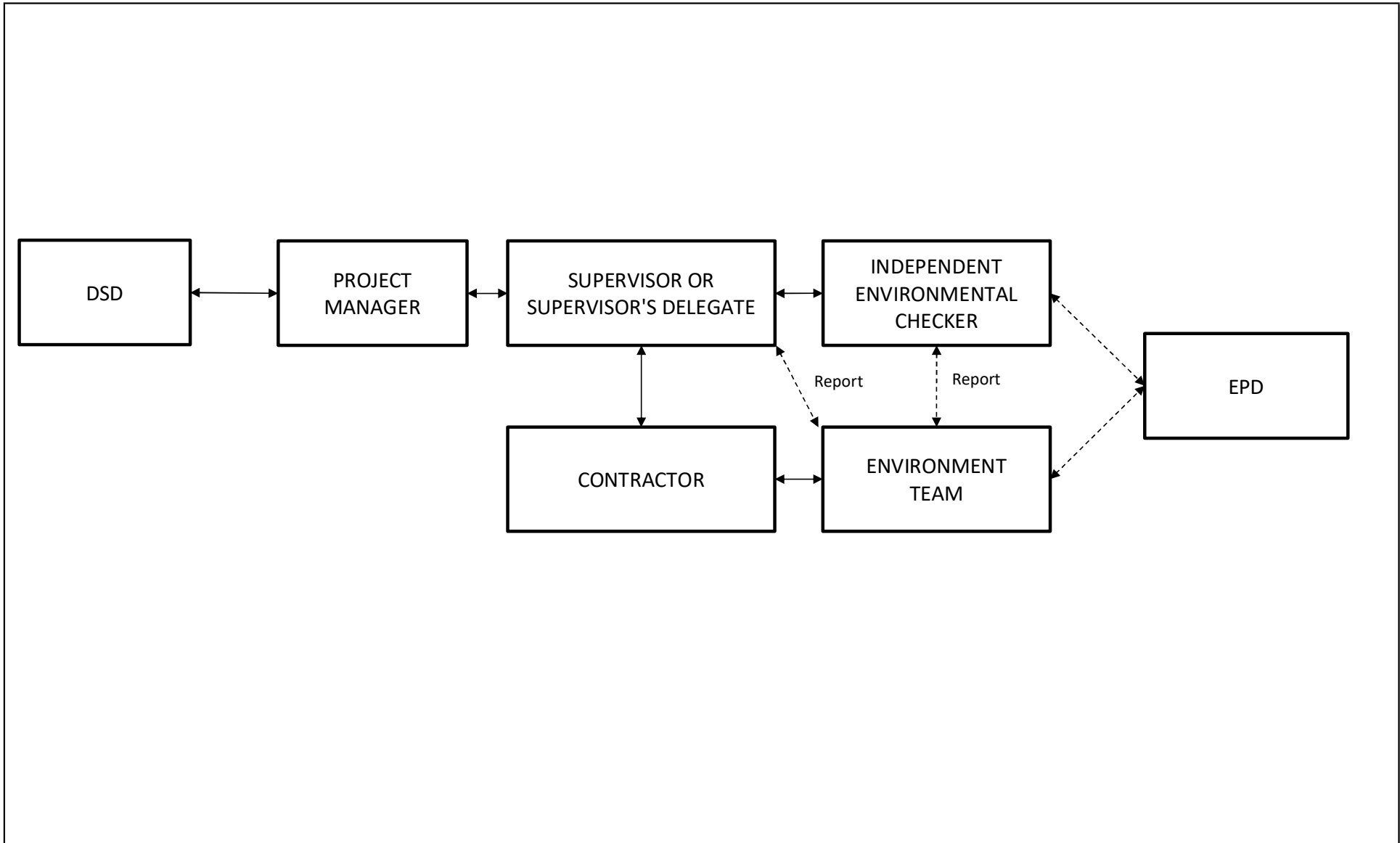
Shek Wu Hui Effluent Polishing Plant
 General Site Layout of SWHEPP

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



Figure 2.2

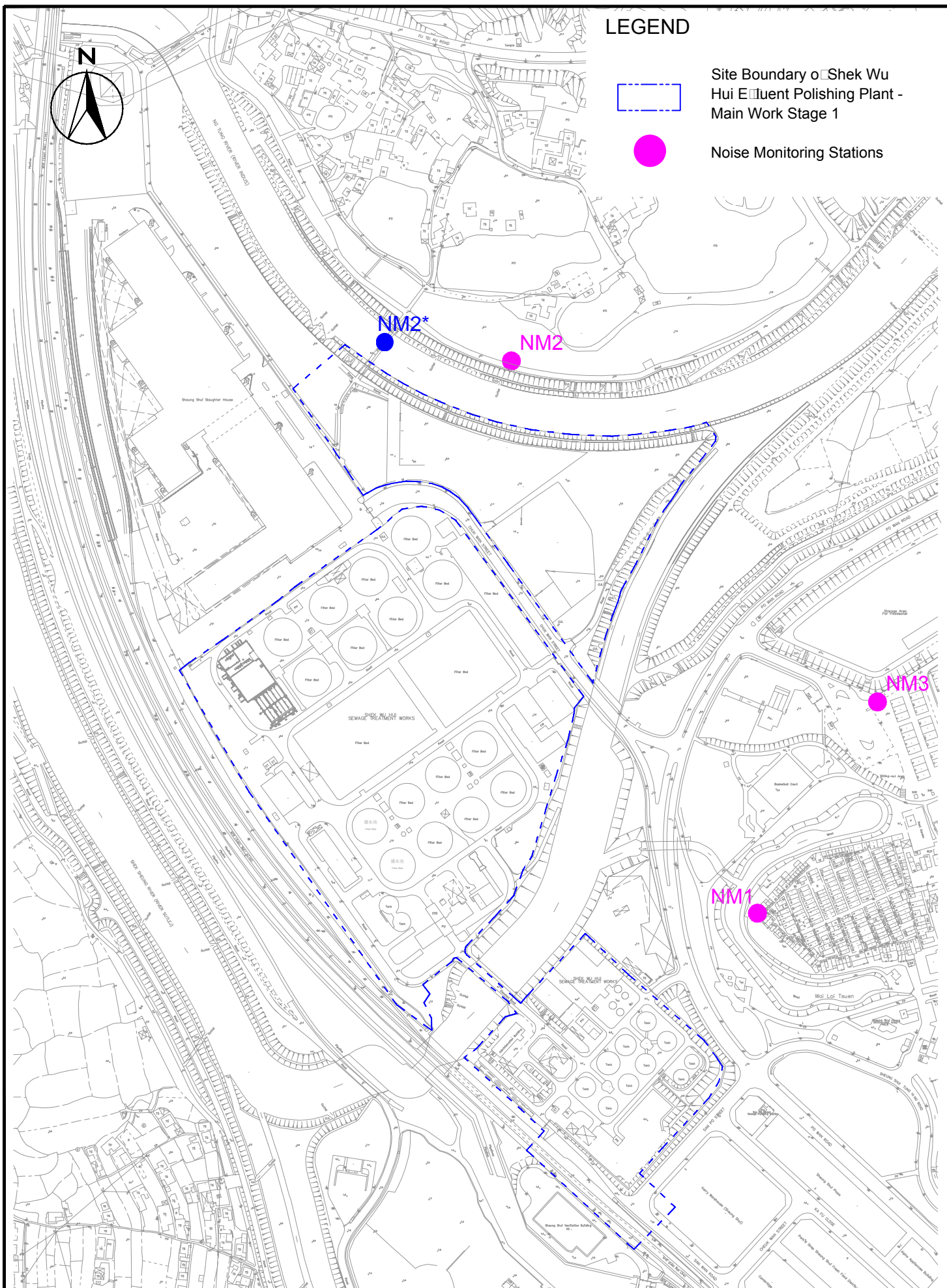
Project Organization Chart



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



LEGEND



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



Noise Monitoring Stations

Shek Wu Hui Effluent Polishing Plant

Location of Noise Monitoring Stations

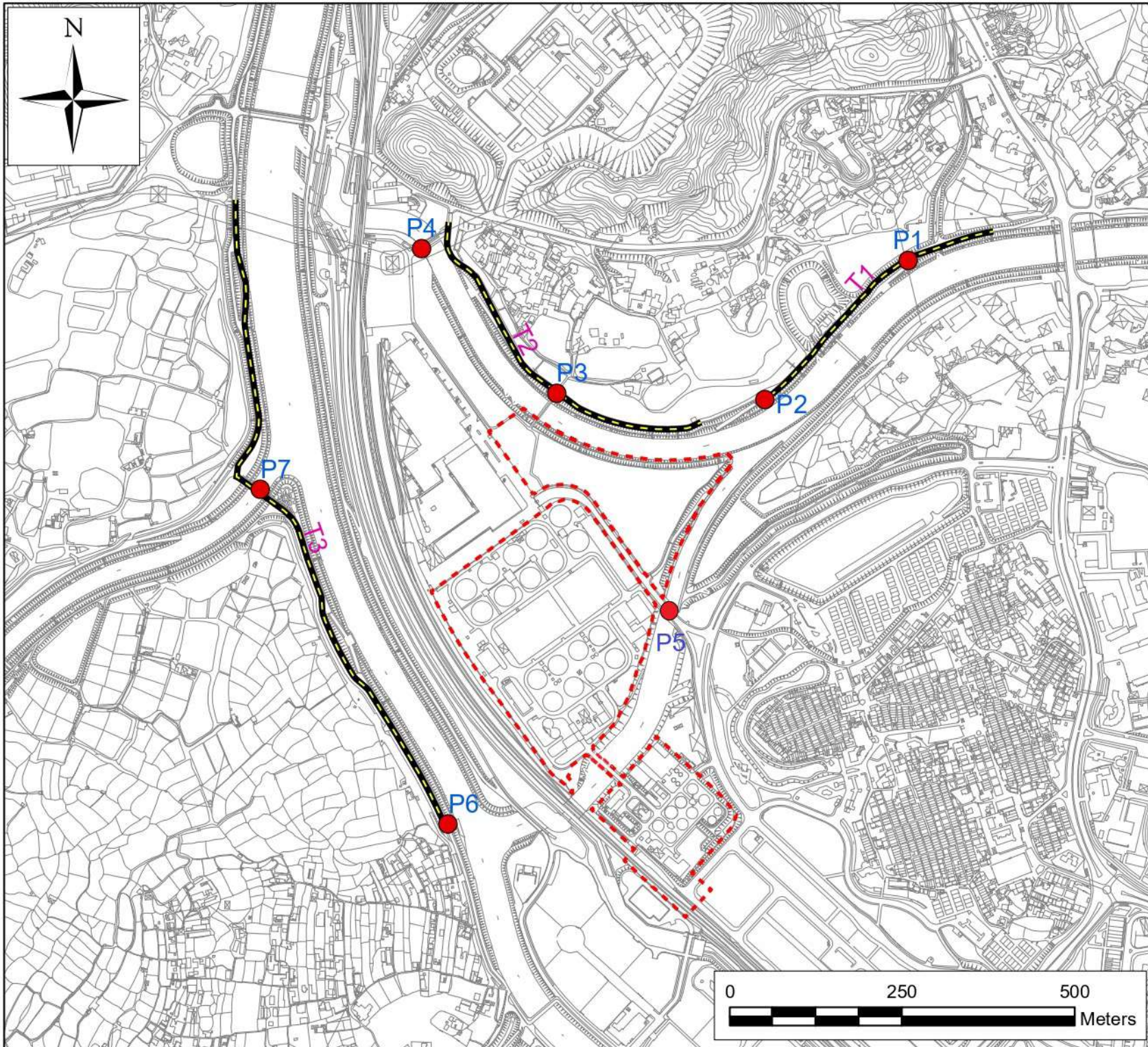
SCALE	1:4000 A4	DATE	SEP 2019	
CHECK	JM	DRAWN	SY	
JOB No.	MA19019	FIGURE NO.	3	REVISION
				-

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. -

Figure 4.4

Locations of Water Quality Monitoring Stations



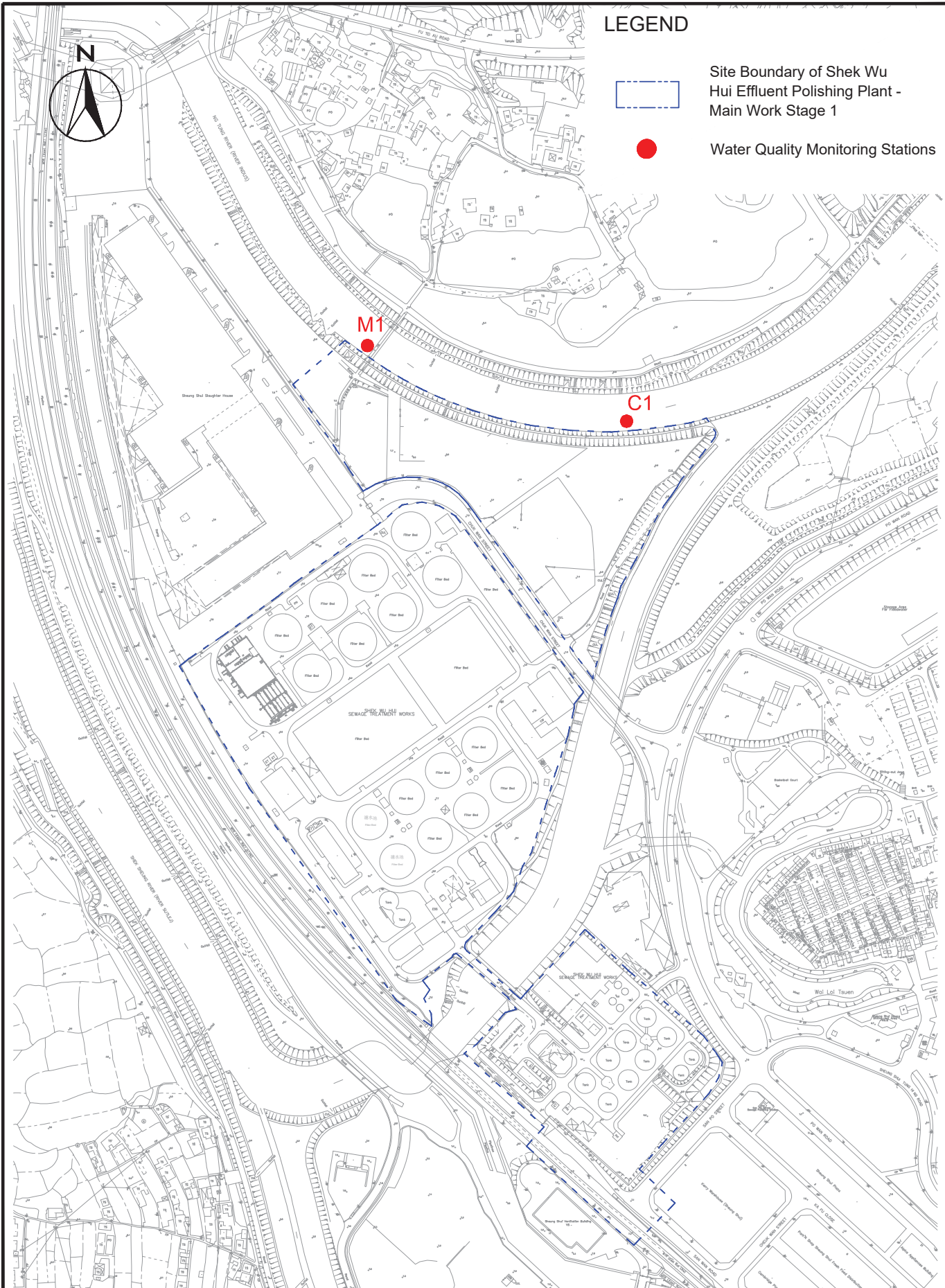
LEGEND



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



Water Quality Monitoring Stations



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

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CHECK	JM	DRAWN	SY
JOB No.		FIGURE NO.	5
		REV	-



Appendix 2.1

Layout Plan of Construction Activities and Site Record Photos

Portion C DC/2018/06

Section 4
- Outfall construction work
- PME: 1 excavator

Section 4
- Pipe work
- PME: 1 excavator

Dull green barrier

Section 4
- Pipe work
- PME: 1 excavator

CHP
- RC works & ABWF
- PME: 2 scissor lift platforms

PMEs: Tower crane
with generator

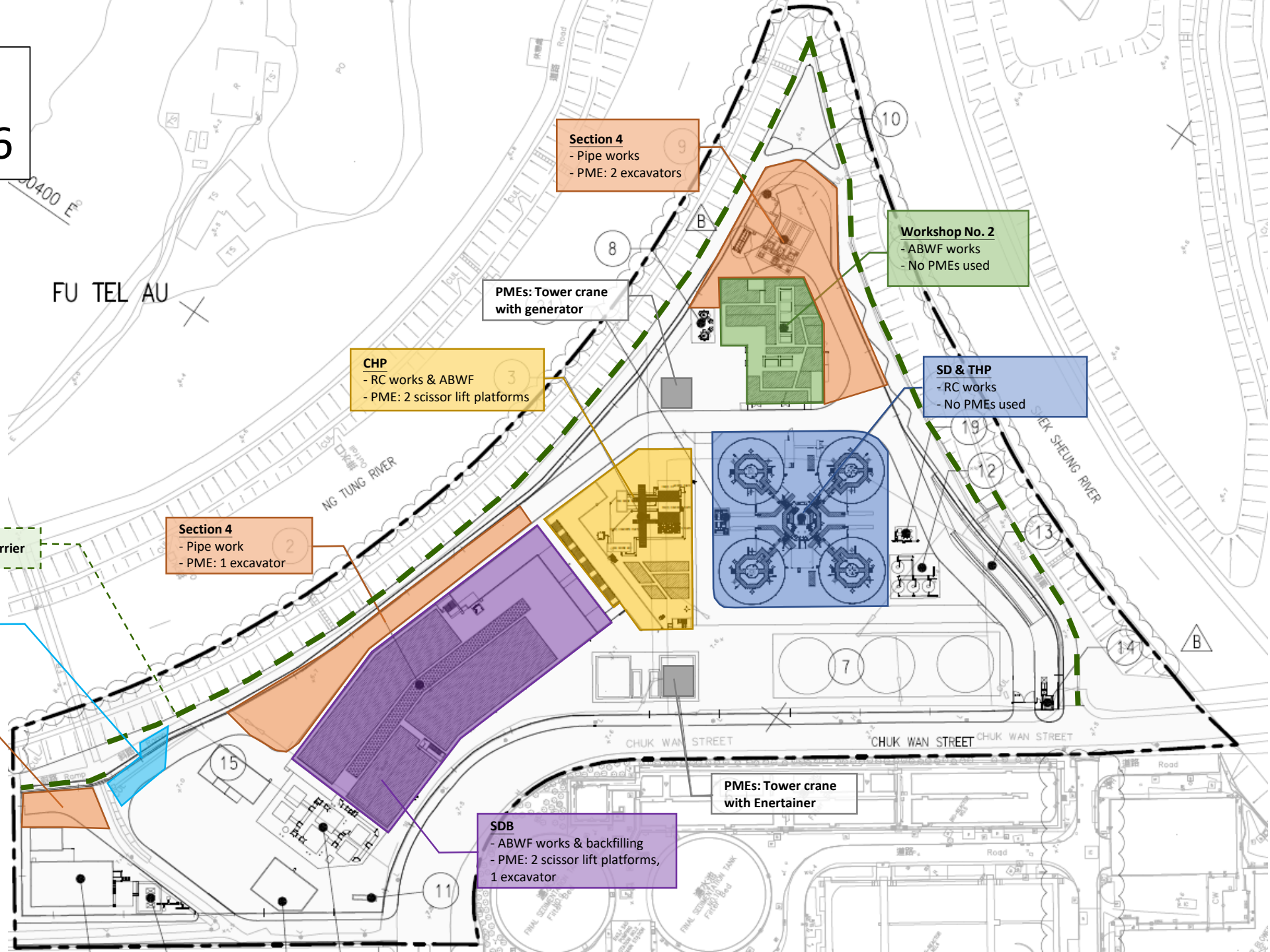
Section 4
- Pipe works
- PME: 2 excavators

Workshop No. 2
- ABWF works
- No PMEs used

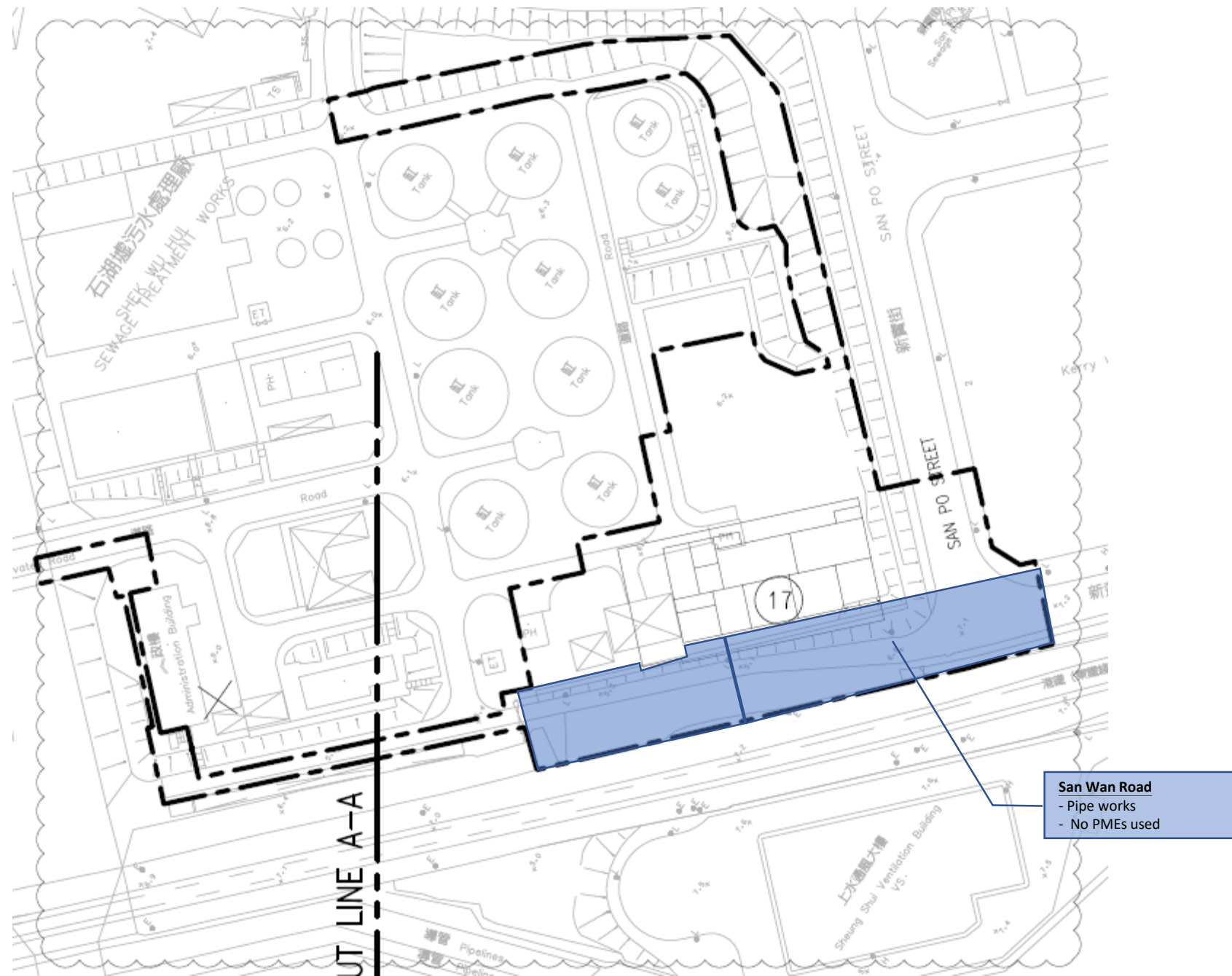
SD & THP
- RC works
- No PMEs used

SDB
- ABWF works & backfilling
- PME: 2 scissor lift platforms,
1 excavator

PMEs: Tower crane
with Enerainer

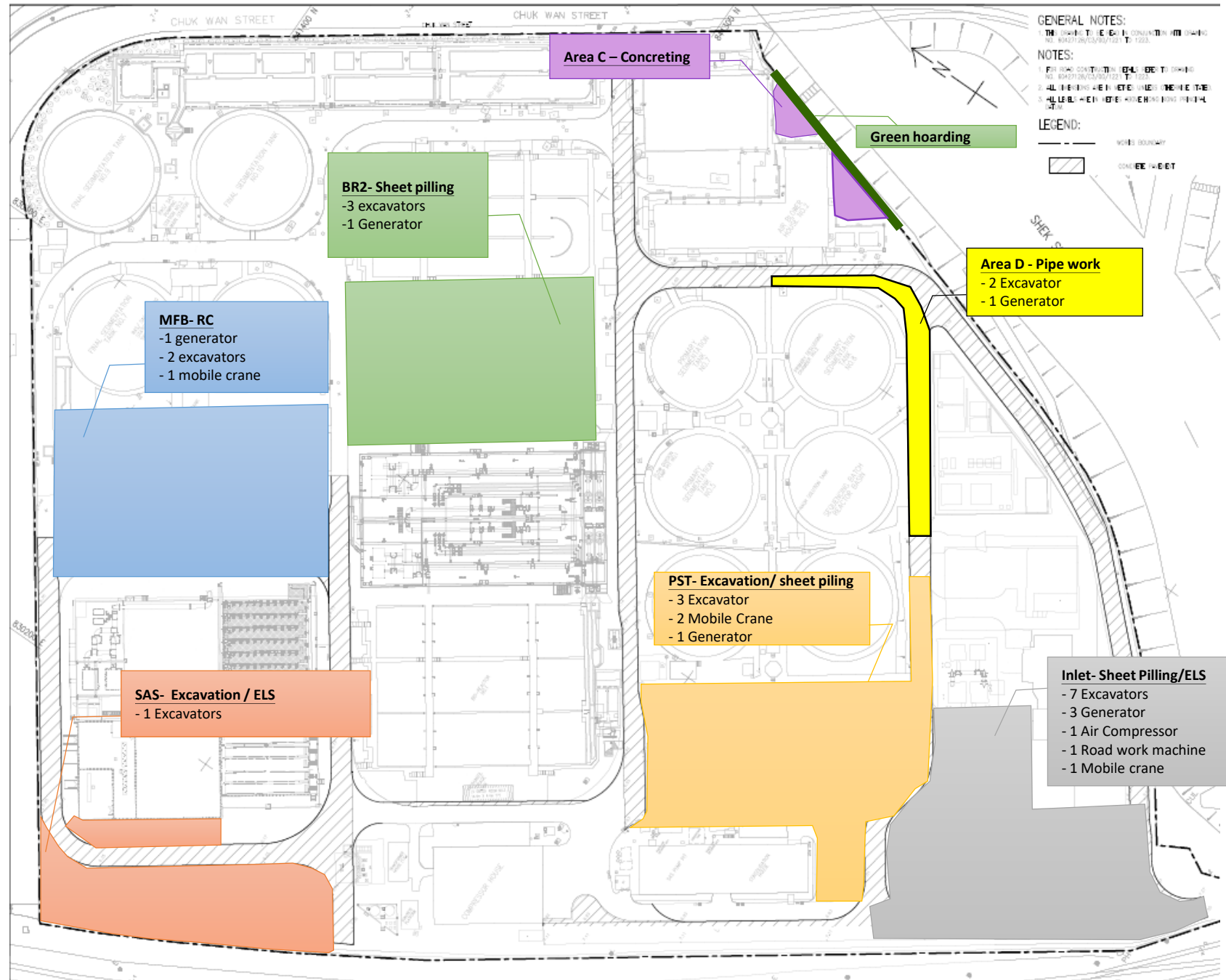


Portion A
DC/2018/06

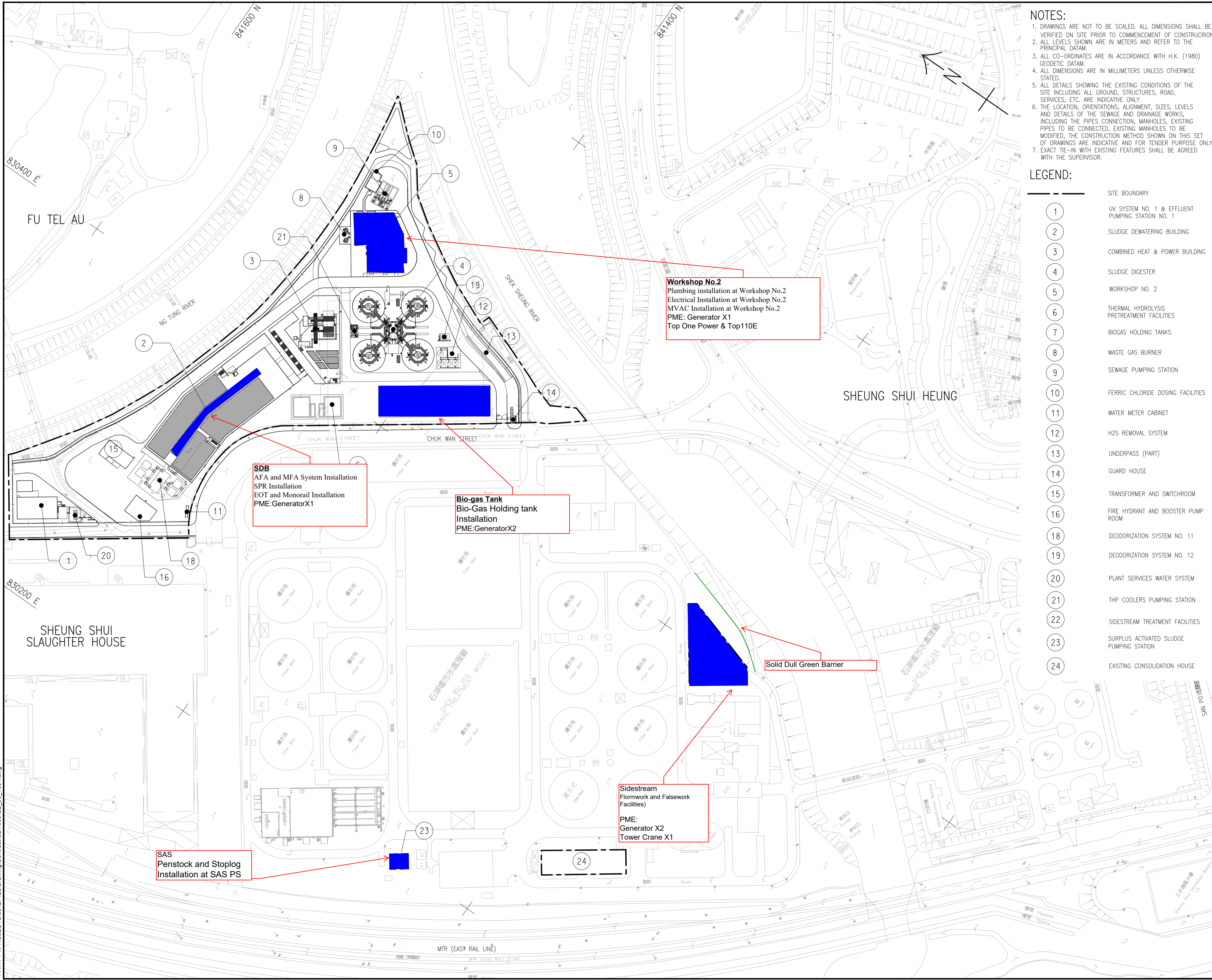


San Wan Road
- Pipe works
- No PMEs used

Portion B
DC/2018/07



Plot File by: GuoX 26/03/2019
 PATH: P:\PROJECTS\0427128\Drawing\Contract\C21\00\02_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

Workshop No.2
 Plumbing installation at Workshop No.2
 Electrical Installation at Workshop No.2
 MVAC Installation at Workshop No.2
 PME: Generator X1
 Top One Power & Top110E

SDB
 AFA and MFA System Installation
 SPR Installation
 EOT and Monorail Installation
 PME:GeneratorX1

Bio-gas Tank
 Bio-Gas Holding tank Installation
 Installation
 PME:GeneratorX2

Solid Dull Green Barrier

Sidestream
 Formwork and Falsework Facilities
 PME: Generator X2
 Tower Crane X1

SAS
 Penstock and Stoplog Installation at SAS PS



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

STATUS
 圖樣

SCALE
 A1 1:1000

DIMENSION UNIT
 METRES

KEY PLAN
 索引圖

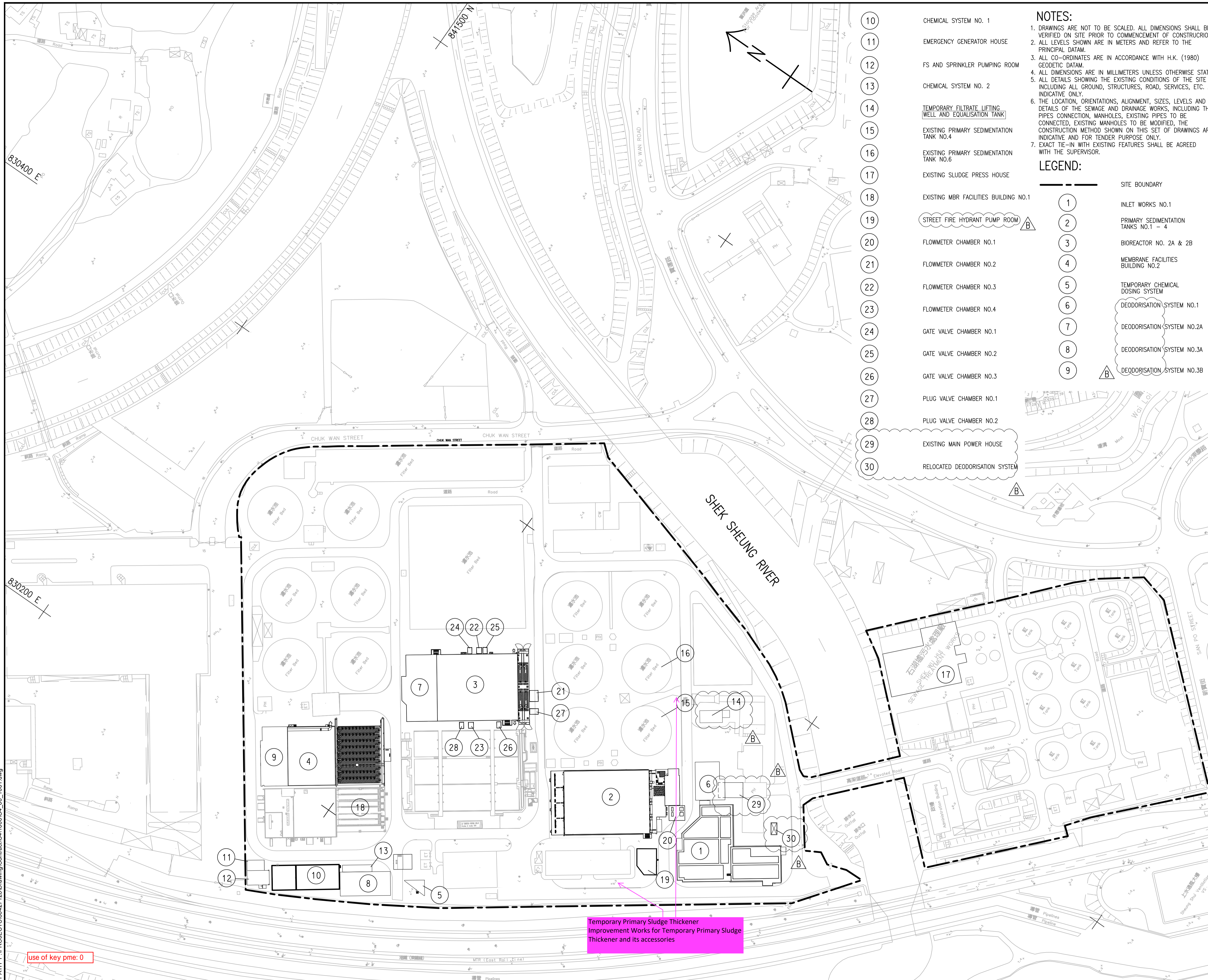
PROJECT NO.
 60427128

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 PUMP 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:

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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.
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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

CLIENT

 渠務署
 Drainage Services Department

CONSULTANT
 土亞顧問公司
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分列工程師有限公司

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

Use of key pme: 0

Temporary Primary Sludge Thickener Improvement Works for Temporary Primary Sludge Thickener and its accessories

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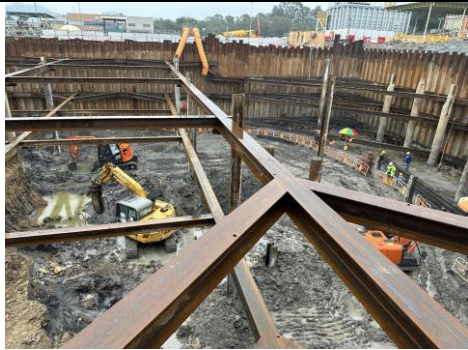


Site Record Photos



DC/2018/06

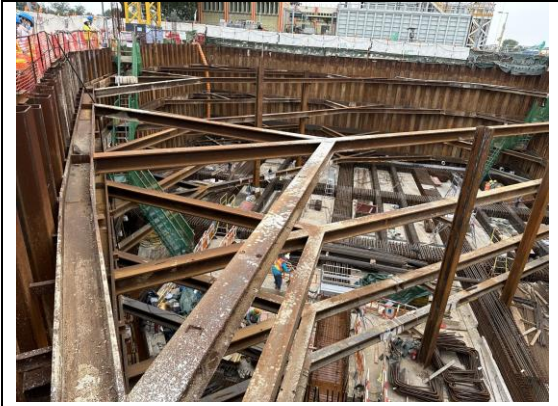
			
SD&THP	Section 4	SDB	Biogas Holding Tank

DC/2018/07

			
BR2	MFB	PST	Inlet



DE/2018/03



Sidestream



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"> 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; 						^
	<ul style="list-style-type: none"> Speed control for the trucks carrying contaminated materials should be enforced; 						^
	<ul style="list-style-type: none"> Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary; and 						^
	<ul style="list-style-type: none"> Other measures as detailed in this 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
Water Quality Impact							
S5.2.2.1	Construction Site Runoff Practices and measures provided in the Practice Note for Professional Persons on Construction Site Drainage, (PROPECC PN1/94) should be followed where applicable.	Control construction runoff	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^
S5.2.2.2 – S5.2.2.3	Sewage from Workforce <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; Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures 	Handling of site sewage	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^ ^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Remark
Waste Management							
S6.2.2.1	<p>Good Site Practices and Waste Reduction Measures</p> <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	<p>Waste Reduction Measures</p> <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 Disposal of waste should be done at licensed waste disposal facilities 						^
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 						^
<ul style="list-style-type: none"> Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. 	^						
S6.2.5.3	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. 	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"> The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used. 	^						
<ul style="list-style-type: none"> 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. 	^						
<ul style="list-style-type: none"> In order to minimize the impacts of the demolition works, the generated wastes must be cleared as quickly as possible after demolition. Therefore, the demolition and clearance works should be undertaken simultaneously. To facilitate proper segregation of inert and non-inert C&D material arising from demolition works, selective demolition method should be adopted. 	^						
S6.2.5.4	Chemical Waste	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	^
	<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. 						*
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	<p>Good Site Practices Measures</p> <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. 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. 	Minimize the impact to the landscape and visual	Contractor	Work Sites	Prior to construction and construction phase		N/A
							N/A
S7.3.2.1	<p>MM4 - Tree Protection & Preservation</p> <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 character. Woodland tree seedlings and/or shrubs should be planted where slope gradient and site conditions allow. In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping 	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure manmade slopes are as visually amenable as possible.	Designer / Contractor	Work Sites	Prior to construction, construction phase and operation phase	GEO Publication (1999) - Use of Vegetation as Surface Protection on Slope; GEO Publication No. 1/2011- Technical Guidelines on Landscape Treatment for Slopes	N/A
S7.3.2.1	MM7 - Compensatory Planting						

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Remark
	<ul style="list-style-type: none"> 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		N/A
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.



Water Quality Monitoring

Parameter (Unit)	Depth	Action Level	Limit Level
DO (mg/L)	Middle	≤ 7.8 mg/L	≤ 7.7 mg/L
Turbidity (NTU)	Depth- average	≥ 14.6 NTU or 120% of upstream control station's Turbidity at the same tide of the same day	≥ 15.6 NTU or 130% of upstream control station's Turbidity at the same tide of the same day
SS (mg/L)	Depth- average	≥ 18.8 mg/L or 120% of upstream control station's SS at the same tide of the same day	≥ 19.5 mg/L or 130% of upstream control station's SS at the same tide of the same day



Appendix 4.2

Copies of Calibration Certificates

Certificate of Calibration

Calibration Certification Information			
Cal. Date: June 28, 2022	Rootsmeter S/N: 438320	Ta: 296	°K
Operator: Jim Tisch		Pa: 755.1	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3880		

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	1.0240	6.4	4.00
3	5	6	1	0.9130	7.9	5.00
4	7	8	1	0.8690	8.8	5.50
5	9	10	1	0.7180	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)	
0.9961	0.6870	1.4144	0.9958	0.6867	0.8854	
0.9918	0.9686	2.0003	0.9915	0.9683	1.2522	
0.9899	1.0842	2.2364	0.9895	1.0838	1.4000	
0.9887	1.1377	2.3456	0.9883	1.1373	1.4683	
0.9834	1.3696	2.8289	0.9830	1.3691	1.7708	
QSTD	m=	2.07013	QA	m=	1.29628	
	b=	-0.00727		b=	-0.00455	
	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= $Vstd / \Delta Time$	Qa= $Va / \Delta Time$
For subsequent flow rate calculations:	
Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa= $1/m \left(\left(\sqrt{\Delta H (Ta/Pa)} \right) - b \right)$

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. : HVS001 (0401-1105)

Calibration Date : 1-Nov-22
 Calibration Due Date : 1-Jan-23

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	302	Kelvin	Pressure, P _a
			1008 mmHg

Orifice Transfer Standard Information					
Equipment No.	3880	Slope, m _c	2.07013	Intercept, b _c	-0.00727
Last Calibration Date	28-Jun-22	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-23				

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	1.4	1.4	2.8	0.8044	21	20.8058
2	2.3	2.3	4.6	1.0300	32	31.7041
3	3.5	3.5	7.0	1.2698	44	43.5932
4	4.3	4.3	8.6	1.4070	51	50.5285
5	5.6	5.6	11.2	1.6052	60	59.4452

By Linear Regression of Y on X

Slope, m = 48.9134 Intercept, b = -17.5531

Correlation Coefficient* = 0.9998

Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : Serial No.:0401-1105

Calibrated by : Alan Ng
 Date : 1-Nov-22

Checked by : Alex Chan
 Date : 1-Nov-22



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM2a
 Equipment no. : HVS003 (1096-2305)

Calibration Date : 1-Nov-22
 Calibration Due Date : 1-Jan-23

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	302	Kelvin	Pressure, P _a
			1008 mmHg

Orifice Transfer Standard Information					
Equipment No.	3880	Slope, m _c	2.07013	Intercept, b _c	-0.00727
Last Calibration Date	28-Jun-22	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-23				

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	2.3	2.3	4.6	1.0300	23	22.7873
2	3.5	3.5	7.0	1.2698	33	32.6949
3	4.6	4.6	9.2	1.4552	44	43.5932
4	5.2	5.2	10.4	1.5469	48	47.5562
5	6.1	6.1	12.2	1.6752	55	54.4915

By Linear Regression of Y on X

Slope, m = 47.3405 Intercept, b = -26.2467

Correlation Coefficient* = 0.9980

Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : Serial No.: 1096-2305

Calibrated by : Alan Ng
 Date : 1-Nov-22

Checked by : Alex Chan
 Date : 1-Nov-22



1600 Washington Blvd
 Grants Pass, OR 97526
 (541) 471-7111
 (541) 471-7116 (Fax)
 Service@metone.com

**Met One
 Instruments**

Calibration Certificate

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

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

Instrument Model# Aerocet 831 Instrument Serial# R14332
 Date of Calibration 4/29/2022 Sensor # 12228

JGoddard AT8
 Calibration Technician

AT6
 Quality Check

Temperature 22 °C

Relative Humidity 32 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	240943	05/31/2024
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	229294	8/31/2023
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
FLOW	SWIFT 6.0	B20457	11/24/2022
DMM	289	27720071	8/24/2022
RH/TEMP SENSOR	083E-1-6	R20313	9/13/2022
Particle Counter	GT-526S	X17421	5/29/2022

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



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : AEROCET831
Serial Number : R14332
Performance Check Date : 17-May-22

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS018 (S/N:2656)
Last Calibration Date : 29-Apr-22

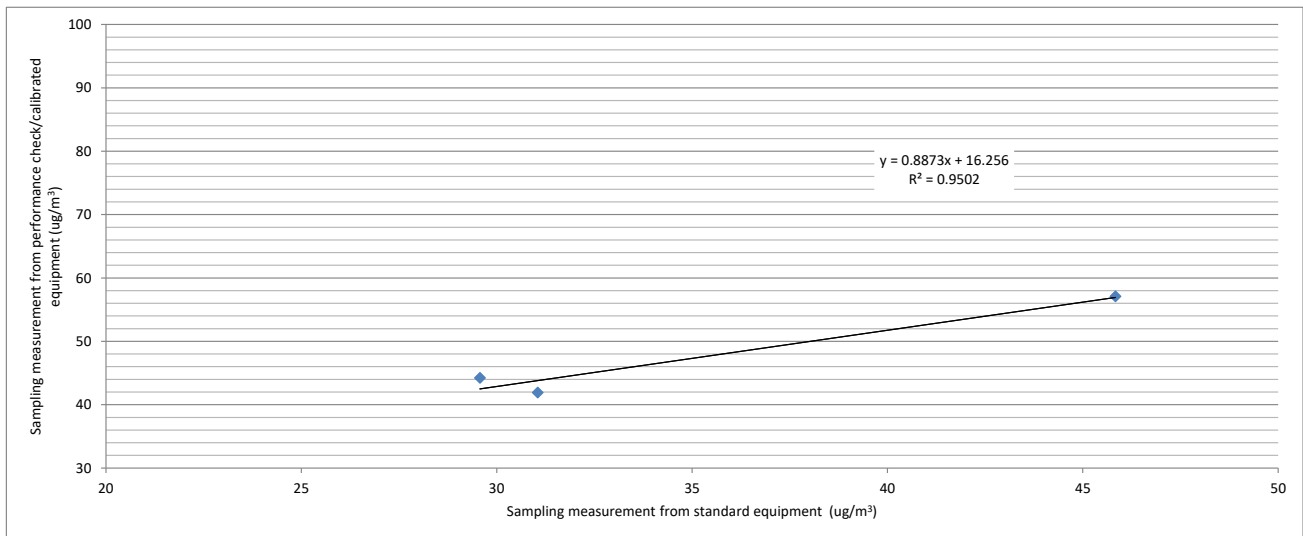
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Temp (°C), Mean Pressure (hPa), Concentration in ug/m³ (Standard equipment) (Y - Axis), Concentration in ug/m³ (Performance Check / Calibrated equipment) (X - Axis). Rows 1-3 show data for trials on 17/5/22.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.1000
Correlation Coefficient : 0.9748
Validity of Performance Check / Calibration Record : 17/5/2023



Operator: Alan Ng

Date: 1/6/2022

Checked by: Derek Lo

Date: 1/6/2022



1600 Washington Blvd
 Grants Pass, OR 97526
 (541) 471-7111
 (541) 471-7116 (Fax)
 Service@metone.com

**Met One
 Instruments**

Calibration Certificate

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

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

Instrument Model# Aerocet 831 Instrument Serial# W15448
 Date of Calibration 4/28/2022 Sensor # 16438

JGoddard AT8 AT6
 Calibration Technician Quality Check

Temperature 22 °C Relative Humidity 32 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	240943	05/31/2024
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	229294	8/31/2023
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Particle Counter	GT-526S	X17421	5/29/2022
FLOW	SWIFT 6.0	B20457	11/24/2022
RH/TEMP SENSOR	083E-1-6	R20313	9/13/2022
DMM	289	27720071	8/24/2022

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



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : AEROCET831
Serial Number : W15448
Performance Check Date : 17-May-22

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS018 (S/N:2656)
Last Calibration Date : 29-Apr-22

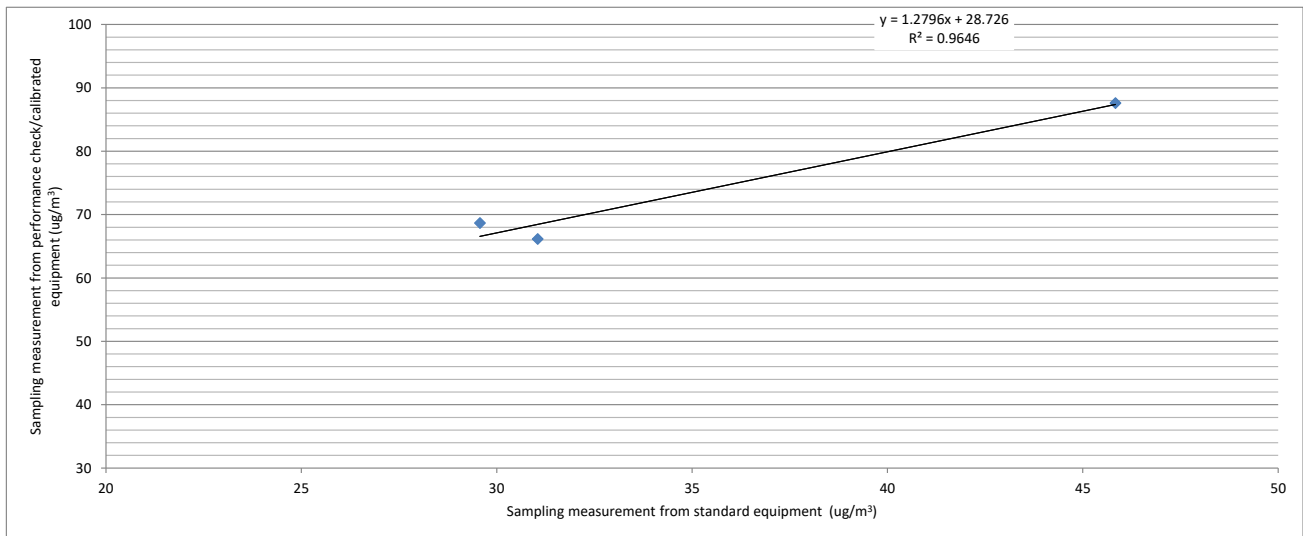
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Temp (°C), Mean Pressure (hPa), Concentration in ug/m³ (Standard equipment) (Y - Axis), Concentration in ug/m³ (Performance Check / Calibrated equipment) (X - Axis). Rows 1-3 show data for trials on 17/5/22.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 0.8000
Correlation Coefficient : 0.9821
Validity of Performance Check / Calibration Record : 17/5/2023



Operator: Alan Ng

Date: 1/6/2022

Checked by: Derek Lo

Date: 1/6/2022



CERTIFICATE OF CALIBRATION

Certificate No.: 22CA0224 04-02 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: 24-Feb-2022

Date of test: 01-Mar-2022

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2022	CIGISMEC
Signal generator	DS 360	33873	27-May-2022	CEPREI

Ambient conditions

Temperature: 22 ± 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 ±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.

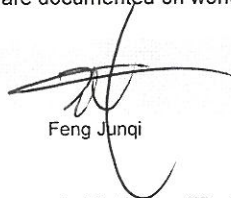
Test results

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: 02-Mar-2022

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.: 22CA0224 04-02

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	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	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	
	Single burst 5 ms at 2000 Hz	Pass	0.3	
Time weighting I	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	SPL	Pass	0.3	
Overload indication	Leq	Pass	0.4	

2, Acoustic tests

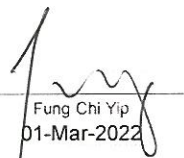
The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

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: 01-Mar-2022

- End -

Checked by: 

Date: 02-Mar-2022

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 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

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	11.0	dB
Noise level in C weighting	14.5	dB
Noise level in Lin	20.9	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	49.1	49.1	0.7	0.1	0.1
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 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

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	95.1	1.0	1.0	-0.1
3981.0	94.0	95.0	94.9	1.0	1.0	-0.1
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 01-Mar-2022
Microphone type: MC230A Serial No. A16673
Report: 22CA0224 04-02

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	93.1	1.0	1.0	-0.1
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	93.9	1.0	1.0	-0.1
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 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

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	119.3	2.0	0.3

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.3	2.0	0.3

RMS ACCURACY TEST

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

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

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

Page 5 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

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
121.6	120.6	117.6	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
127.7	126.7	86.7	86.7	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 01-Mar-2022
Microphone type: MC230A Serial No. A16673
Report: 22CA0224 04-02

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	93.3	1.5	3.0	0.4

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1222 02-01

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 Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 22-Dec-2021

Date of test: 29-Dec-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	04-May-2022	SCL
Preamplifier	B&K 2673	2239857	31-May-2022	CEPREI
Measuring amplifier	B&K 2610	2346941	01-Jun-2022	CEPREI
Signal generator	DS 360	33873	27-May-2022	CEPREI
Digital multi-meter	34401A	US36087050	27-May-2022	CEPREI
Audio analyzer	8903B	GB41300350	28-May-2022	CEPREI
Universal counter	53132A	MY40003662	02-Jun-2022	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 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: 03-Jan-2022

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.



Lam Environmental Services Limite

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 : 30-Sep-2022

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	2.0	2.1	-0.1
3 - 4	3.4	3.2	0.2
5 - 6	5.7	5.6	0.1
7 - 8	7.9	8.2	-0.3

Wind Direction (°)	Reading Value (W1, °)	Compass Value (W2, °)	Difference (W1 - W2, °)
0	-1	0	-1
90	90	90	0
180	178	180	-2
270	272	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: William Cheung

Checked by: Raymond Dai



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: DEREK LO
CLIENT: LAM GEOTECHNICS LIMITED
ADDRESS: 19/F, REMEX CENTRE,
42 WONG CHUK HANG ROAD, HONG KONG

WORK ORDER: HK2241587
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 20-Oct-2022
DATE OF ISSUE: 31-Oct-2022

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter
Service Nature: Performance Check
Scope: Dissolved Oxygen, pH Value, Salinity and Temperature
Brand Name/ Model No.: [YSI]/ [Professional Plus]
Serial No./ Equipment No.: [19H100656/14E101065]/ [N/A]
Date of Calibration: 25-October-2022

GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2241587
SUB-BATCH: 0
DATE OF ISSUE: 31-Oct-2022
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [Professional Plus]
Serial No./ Equipment No.: [19H100656/14E101065]/ [N/A]
Date of Calibration: 25-October-2022 Date of Next Calibration: 25-January-2023

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (23rd edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.57	3.63	+0.06
5.34	5.42	+0.08
7.92	7.98	+0.06
	Tolerance Limit (mg/L)	±0.20

pH Value Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.93	-0.07
7.0	7.03	+0.03
10.0	9.90	-0.10
	Tolerance Limit (pH unit)	±0.20

Salinity Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.09	+0.9
20	19.81	-1.0
30	30.35	+1.2
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2241587
SUB-BATCH: 0
DATE OF ISSUE: 31-Oct-2022
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [Professional Plus]
Serial No./ Equipment No.: [19H100656/14E101065]/ [N/A]
Date of Calibration: 25-October-2022 Date of Next Calibration: 25-January-2023

PARAMETERS:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
7.5	6.7	-0.8
25.0	24.0	-1.0
40.0	38.8	-1.2
	Tolerance Limit (°C)	±2.0

Reference Thermometer: HK1250

* The calibration solutions do not have Certificate of Analysis.

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics



REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22777053-K20C3901
DATE OF ISSUE: 02/11/2022
CLIENT: LAM ENVIRONMENTAL SERVICES LTD,

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807073
Equipment No.:	---
Date of Calibration:	31/10/2022
Date of next Calibration:	31/01/2023
Lab I.D.:	H220050-01

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.00	0.0%
10	10.00	0.0%
40	39.99	0.0%
100	99.99	0.0%
400	400	0.0%
1000	1000	0.0%
	Tolerance Limit (\pm)	10%

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.



Appendix 4.3

Wind Data



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
1-Dec-22	00:00	4.5	249(WSW)
	01:00	3.9	267(W)
	02:00	2.3	225(SW)
	03:00	1.5	149(SSE)
	04:00	3.9	236(SW)
	05:00	2.9	271(W)
	06:00	4.5	215(SW)
	07:00	4.1	257(WSW)
	08:00	2.7	199(SSW)
	09:00	2.1	243(WSW)
	10:00	2.9	265(W)
	11:00	3.1	216(SW)
	12:00	1.5	299(WNW)
	13:00	2.9	299(WNW)
	14:00	3.3	216(SW)
	15:00	3.9	285(WNW)
	16:00	2.9	237(WSW)
	17:00	2.7	249(WSW)
	18:00	2.5	194(SSW)
	19:00	2.3	229(SW)
	20:00	1.7	61(ENE)
	21:00	1.9	272(W)
	22:00	2.5	236(SW)
23:00	2.1	220(SW)	
2-Dec-22	00:00	3.3	222(SW)
	01:00	1.1	251(WSW)
	02:00	3.3	201(SSW)
	03:00	5.1	238(WSW)
	04:00	1.5	143(SE)
	05:00	6.7	198(SSW)
	06:00	2.3	235(SW)
	07:00	4.7	202(SSW)
	08:00	3.7	225(SW)
	09:00	1.9	166(SSE)
	10:00	3.7	208(SSW)
	11:00	2.7	179(S)
	12:00	4.1	248(WSW)
	13:00	1.9	148(SSE)
	14:00	1.9	253(WSW)
	15:00	2.1	161(SSE)
	16:00	1.9	269(W)
	17:00	0.9	321(NW)
	18:00	1.1	114(ESE)
	19:00	1.9	241(WSW)
	20:00	2.9	247(WSW)
	21:00	1.1	167(SSE)
	22:00	1.9	189(S)
23:00	1.9	263(W)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
3-Dec-22	00:00	0.7	301(WNW)
	01:00	0.7	288(WNW)
	02:00	2.3	167(SSE)
	03:00	1.9	182(S)
	04:00	1.3	191(S)
	05:00	2.3	229(SW)
	06:00	2.3	212(SSW)
	07:00	2.1	258(WSW)
	08:00	2.7	165(SSE)
	09:00	2.9	238(WSW)
	10:00	1.3	264(W)
	11:00	1.5	308(NW)
	12:00	2.1	234(SW)
	13:00	2.1	247(WSW)
	14:00	1.7	287(WNW)
	15:00	0.0	323(NW)
	16:00	1.5	253(WSW)
	17:00	1.1	308(NW)
	18:00	1.3	283(WNW)
	19:00	1.3	134(SE)
	20:00	0.9	159(SSE)
	21:00	1.5	279(W)
	22:00	0.5	7(N)
23:00	2.3	262(W)	
4-Dec-22	00:00	0.7	261(W)
	01:00	0.0	331(NNW)
	02:00	0.5	312(NW)
	03:00	0.0	265(W)
	04:00	0.7	282(WNW)
	05:00	2.3	200(SSW)
	06:00	2.3	213(SSW)
	07:00	1.7	218(SW)
	08:00	1.7	256(WSW)
	09:00	1.9	211(SSW)
	10:00	1.9	255(WSW)
	11:00	1.5	244(WSW)
	12:00	2.1	257(WSW)
	13:00	3.3	230(SW)
	14:00	1.7	266(W)
	15:00	4.7	204(SSW)
	16:00	1.3	329(NNW)
	17:00	2.7	291(WNW)
	18:00	1.9	273(W)
	19:00	1.5	183(S)
	20:00	0.9	121(ESE)
	21:00	2.3	178(S)
	22:00	2.3	223(SW)
23:00	1.9	186(S)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
5-Dec-22	00:00	1.5	230(SW)
	01:00	2.5	193(SSW)
	02:00	3.3	258(WSW)
	03:00	1.5	174(S)
	04:00	1.3	264(W)
	05:00	3.1	196(SSW)
	06:00	1.9	162(SSE)
	07:00	3.7	224(SW)
	08:00	3.7	197(SSW)
	09:00	3.3	240(WSW)
	10:00	3.5	248(WSW)
	11:00	1.9	232(SW)
	12:00	2.3	222(SW)
	13:00	4.9	223(SW)
	14:00	2.5	251(WSW)
	15:00	2.9	152(SSE)
	16:00	1.7	152(SSE)
	17:00	1.3	288(WNW)
	18:00	2.3	265(W)
	19:00	1.7	122(ESE)
	20:00	2.5	217(SW)
	21:00	2.7	211(SSW)
	22:00	1.9	255(WSW)
23:00	4.3	210(SSW)	
6-Dec-22	00:00	2.7	253(WSW)
	01:00	3.1	173(S)
	02:00	3.9	205(SSW)
	03:00	1.7	262(W)
	04:00	1.3	165(SSE)
	05:00	3.1	227(SW)
	06:00	1.9	270(W)
	07:00	2.7	265(W)
	08:00	1.1	227(SW)
	09:00	1.1	291(WNW)
	10:00	2.9	210(SSW)
	11:00	1.9	241(WSW)
	12:00	2.1	269(W)
	13:00	1.1	313(NW)
	14:00	1.5	206(SSW)
	15:00	3.1	246(WSW)
	16:00	1.9	216(SW)
	17:00	1.3	264(W)
	18:00	1.5	211(SSW)
	19:00	1.7	258(WSW)
	20:00	0.7	244(WSW)
	21:00	2.3	240(WSW)
	22:00	1.3	209(SSW)
23:00	1.7	309(NW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
7-Dec-22	00:00	1.1	268(W)
	01:00	4.9	250(WSW)
	02:00	2.5	254(WSW)
	03:00	3.1	241(WSW)
	04:00	0.0	321(NW)
	05:00	0.9	246(WSW)
	06:00	2.5	242(WSW)
	07:00	0.7	290(WNW)
	08:00	0.7	284(WNW)
	09:00	1.5	227(SW)
	10:00	3.1	247(WSW)
	11:00	1.5	193(SSW)
	12:00	2.7	234(SW)
	13:00	2.3	213(SSW)
	14:00	1.3	312(NW)
	15:00	3.5	278(W)
	16:00	1.1	177(S)
	17:00	2.1	214(SW)
	18:00	2.7	280(W)
	19:00	0.9	323(NW)
	20:00	1.1	161(SSE)
	21:00	1.3	290(WNW)
	22:00	0.9	274(W)
23:00	1.1	151(SSE)	
8-Dec-22	00:00	1.1	264(W)
	01:00	0.9	109(ESE)
	02:00	0.5	296(WNW)
	03:00	1.1	276(W)
	04:00	1.1	132(SE)
	05:00	0.7	293(WNW)
	06:00	1.3	321(NW)
	07:00	1.1	252(WSW)
	08:00	0.9	297(WNW)
	09:00	2.7	194(SSW)
	10:00	2.3	236(SW)
	11:00	1.5	246(WSW)
	12:00	1.7	224(SW)
	13:00	1.1	88(E)
	14:00	1.1	124(SE)
	15:00	1.3	145(SE)
	16:00	1.1	254(WSW)
	17:00	1.5	241(WSW)
	18:00	1.1	277(W)
	19:00	1.1	292(WNW)
	20:00	1.1	80(E)
	21:00	0.0	12(NNE)
	22:00	0.7	96(E)
23:00	1.1	265(W)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
9-Dec-22	00:00	0.9	128(SE)
	01:00	0.5	66(ENE)
	02:00	0.7	122(ESE)
	03:00	0.5	10(N)
	04:00	0.9	278(W)
	05:00	0.5	280(W)
	06:00	2.5	270(W)
	07:00	1.9	266(W)
	08:00	2.9	216(SW)
	09:00	2.9	243(WSW)
	10:00	1.3	183(S)
	11:00	2.5	192(SSW)
	12:00	1.9	202(SSW)
	13:00	2.7	265(W)
	14:00	0.5	213(SSW)
	15:00	2.5	237(WSW)
	16:00	0.9	150(SSE)
	17:00	1.3	114(ESE)
	18:00	1.7	253(WSW)
	19:00	2.1	271(W)
	20:00	0.7	304(NW)
	21:00	1.7	280(W)
	22:00	1.7	260(W)
23:00	0.7	240(WSW)	
10-Dec-22	00:00	0.9	312(NW)
	01:00	2.9	257(WSW)
	02:00	2.9	205(SSW)
	03:00	2.7	273(W)
	04:00	2.5	267(W)
	05:00	1.7	232(SW)
	06:00	1.7	226(SW)
	07:00	2.7	175(S)
	08:00	2.7	256(WSW)
	09:00	5.3	256(WSW)
	10:00	2.7	138(SE)
	11:00	1.3	209(SSW)
	12:00	1.5	299(WNW)
	13:00	2.9	231(SW)
	14:00	1.9	198(SSW)
	15:00	2.1	279(W)
	16:00	1.7	133(SE)
	17:00	3.9	230(SW)
	18:00	0.7	175(S)
	19:00	1.7	172(S)
	20:00	1.3	258(WSW)
	21:00	2.3	263(W)
	22:00	3.5	237(WSW)
23:00	1.5	292(WNW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
11-Dec-22	00:00	0.9	316(NW)
	01:00	1.3	339(NNW)
	02:00	1.9	196(SSW)
	03:00	2.1	255(WSW)
	04:00	1.1	215(SW)
	05:00	1.7	284(WNW)
	06:00	5.1	248(WSW)
	07:00	3.7	212(SSW)
	08:00	2.5	266(W)
	09:00	3.7	244(WSW)
	10:00	2.5	287(WNW)
	11:00	2.3	244(WSW)
	12:00	2.7	276(W)
	13:00	3.1	201(SSW)
	14:00	1.3	157(SSE)
	15:00	3.7	286(WNW)
	16:00	1.9	226(SW)
	17:00	3.7	264(W)
	18:00	3.3	269(W)
	19:00	6.1	266(W)
	20:00	3.5	253(WSW)
	21:00	3.1	263(W)
	22:00	2.9	251(WSW)
23:00	1.5	253(WSW)	
12-Dec-22	00:00	2.5	261(W)
	01:00	2.3	250(WSW)
	02:00	3.9	189(S)
	03:00	2.1	262(W)
	04:00	0.9	172(S)
	05:00	2.5	242(WSW)
	06:00	2.7	257(WSW)
	07:00	2.7	259(W)
	08:00	1.9	254(WSW)
	09:00	4.1	261(W)
	10:00	4.1	207(SSW)
	11:00	3.7	274(W)
	12:00	5.7	241(WSW)
	13:00	2.1	266(W)
	14:00	4.3	226(SW)
	15:00	2.9	245(WSW)
	16:00	2.7	264(W)
	17:00	5.5	265(W)
	18:00	3.5	240(WSW)
	19:00	2.7	252(WSW)
	20:00	1.7	267(W)
	21:00	3.9	233(SW)
	22:00	3.5	232(SW)
23:00	2.1	269(W)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
13-Dec-22	00:00	3.1	270(W)
	01:00	3.3	252(WSW)
	02:00	3.1	199(SSW)
	03:00	2.1	231(SW)
	04:00	2.1	144(SE)
	05:00	1.9	259(W)
	06:00	3.1	228(SW)
	07:00	2.5	225(SW)
	08:00	2.7	226(SW)
	09:00	0.9	172(S)
	10:00	1.3	183(S)
	11:00	3.7	256(WSW)
	12:00	1.7	221(SW)
	13:00	2.1	238(WSW)
	14:00	2.1	185(S)
	15:00	1.7	193(SSW)
	16:00	1.7	252(WSW)
	17:00	2.7	224(SW)
	18:00	3.5	226(SW)
	19:00	2.1	283(WNW)
	20:00	1.3	281(W)
	21:00	4.3	255(WSW)
	22:00	3.3	232(SW)
23:00	2.1	196(SSW)	
14-Dec-22	00:00	1.3	288(WNW)
	01:00	2.3	272(W)
	02:00	2.1	264(W)
	03:00	4.5	173(S)
	04:00	2.1	275(W)
	05:00	0.0	114(ESE)
	06:00	1.3	261(W)
	07:00	2.7	219(SW)
	08:00	4.7	226(SW)
	09:00	3.5	249(WSW)
	10:00	1.5	189(S)
	11:00	4.1	197(SSW)
	12:00	2.3	218(SW)
	13:00	1.9	286(WNW)
	14:00	2.3	214(SW)
	15:00	1.7	214(SW)
	16:00	0.0	355(N)
	17:00	2.3	265(W)
	18:00	1.7	263(W)
	19:00	1.9	261(W)
	20:00	1.9	241(WSW)
	21:00	2.1	241(WSW)
	22:00	1.5	279(W)
23:00	1.9	229(SW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
15-Dec-22	00:00	1.9	283(WNW)
	01:00	0.9	152(SSE)
	02:00	2.1	188(S)
	03:00	1.7	180(S)
	04:00	2.1	258(WSW)
	05:00	0.9	183(S)
	06:00	1.7	228(SW)
	07:00	0.7	160(SSE)
	08:00	2.3	230(SW)
	09:00	0.0	129(SE)
	10:00	1.3	194(SSW)
	11:00	0.9	170(S)
	12:00	1.1	250(WSW)
	13:00	0.0	269(W)
	14:00	0.0	352(N)
	15:00	2.3	173(S)
	16:00	1.3	303(WNW)
	17:00	1.1	267(W)
	18:00	1.5	276(W)
	19:00	1.1	273(W)
	20:00	1.3	267(W)
	21:00	0.9	314(NW)
	22:00	1.1	270(W)
23:00	0.5	283(WNW)	
16-Dec-22	00:00	1.5	285(WNW)
	01:00	1.3	288(WNW)
	02:00	0.5	294(WNW)
	03:00	0.5	242(WSW)
	04:00	0.0	330(NNW)
	05:00	1.7	251(WSW)
	06:00	1.3	287(WNW)
	07:00	0.7	89(E)
	08:00	0.7	80(E)
	09:00	0.9	313(NW)
	10:00	1.5	109(ESE)
	11:00	0.7	134(SE)
	12:00	0.0	352(N)
	13:00	0.9	262(W)
	14:00	2.3	225(SW)
	15:00	1.5	179(S)
	16:00	0.9	271(W)
	17:00	2.1	217(SW)
	18:00	2.5	272(W)
	19:00	1.3	249(WSW)
	20:00	2.3	289(WNW)
	21:00	1.1	215(SW)
	22:00	2.1	249(WSW)
23:00	2.3	194(SSW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
17-Dec-22	00:00	3.7	205(SSW)
	01:00	4.3	256(WSW)
	02:00	2.7	274(W)
	03:00	2.9	258(WSW)
	04:00	1.5	207(SSW)
	05:00	3.3	263(W)
	06:00	1.9	271(W)
	07:00	3.3	257(WSW)
	08:00	3.3	284(WNW)
	09:00	3.9	270(W)
	10:00	4.7	223(SW)
	11:00	5.5	283(WNW)
	12:00	2.9	120(ESE)
	13:00	2.1	228(SW)
	14:00	3.7	214(SW)
	15:00	1.9	200(SSW)
	16:00	3.1	268(W)
	17:00	2.5	276(W)
	18:00	2.5	283(WNW)
	19:00	4.3	269(W)
	20:00	2.7	264(W)
	21:00	3.7	274(W)
	22:00	5.3	288(WNW)
23:00	2.1	251(WSW)	
18-Dec-22	00:00	2.7	246(WSW)
	01:00	6.9	281(W)
	02:00	8.3	292(WNW)
	03:00	3.5	303(WNW)
	04:00	2.9	311(NW)
	05:00	2.3	249(WSW)
	06:00	3.5	251(WSW)
	07:00	3.5	320(NW)
	08:00	4.9	279(W)
	09:00	3.9	229(SW)
	10:00	5.9	246(WSW)
	11:00	7.7	235(SW)
	12:00	1.3	272(W)
	13:00	2.7	237(WSW)
	14:00	3.1	255(WSW)
	15:00	1.3	168(SSE)
	16:00	1.7	248(WSW)
	17:00	2.1	201(SSW)
	18:00	1.9	282(WNW)
	19:00	1.1	259(W)
	20:00	0.0	279(W)
	21:00	2.1	270(W)
	22:00	2.9	268(W)
23:00	1.5	220(SW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
19-Dec-22	00:00	1.9	239(WSW)
	01:00	1.7	237(WSW)
	02:00	1.3	185(S)
	03:00	1.3	224(SW)
	04:00	0.5	214(SW)
	05:00	0.5	268(W)
	06:00	0.0	335(NNW)
	07:00	0.5	311(NW)
	08:00	0.0	139(SE)
	09:00	3.1	258(WSW)
	10:00	1.7	205(SSW)
	11:00	4.9	275(W)
	12:00	1.1	214(SW)
	13:00	0.0	270(W)
	14:00	0.5	153(SSE)
	15:00	1.7	219(SW)
	16:00	0.7	270(W)
	17:00	1.9	128(SE)
	18:00	1.1	260(W)
	19:00	0.0	305(NW)
20:00	0.0	269(W)	
21:00	0.0	14(NNE)	
22:00	0.0	255(WSW)	
23:00	1.7	263(W)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
20-Dec-22	00:00	0.7	230(SW)
	01:00	0.0	300(WNW)
	02:00	1.5	231(SW)
	03:00	1.3	257(WSW)
	04:00	1.1	253(WSW)
	05:00	1.9	253(WSW)
	06:00	1.9	275(W)
	07:00	0.0	269(W)
	08:00	2.1	284(WNW)
	09:00	2.1	290(WNW)
	10:00	3.1	248(WSW)
	11:00	3.1	258(WSW)
	12:00	3.3	256(WSW)
	13:00	1.7	210(SSW)
	14:00	1.7	266(W)
	15:00	1.7	277(W)
	16:00	0.9	301(WNW)
	17:00	0.9	279(W)
	18:00	1.5	283(WNW)
	19:00	0.0	252(WSW)
	20:00	0.0	252(WSW)
	21:00	0.0	324(NW)
	22:00	0.0	282(WNW)
23:00	0.0	349(N)	
21-Dec-22	00:00	0.0	0(N)
	01:00	0.0	17(NNE)
	02:00	0.0	264(W)
	03:00	1.3	245(WSW)
	04:00	0.0	9(N)
	05:00	0.9	260(W)
	06:00	0.5	56(NE)
	07:00	0.5	346(NNW)
	08:00	1.7	237(WSW)
	09:00	2.1	304(NW)
	10:00	2.3	254(WSW)
	11:00	1.9	148(SSE)
	12:00	2.9	130(SE)
	13:00	2.7	153(SSE)
	14:00	3.3	169(S)
	15:00	2.5	105(ESE)
	16:00	1.1	186(S)
	17:00	1.7	236(SW)
	18:00	0.5	248(WSW)
	19:00	0.0	105(ESE)
	20:00	1.1	122(ESE)
	21:00	0.0	35(NE)
	22:00	0.0	167(SSE)
23:00	0.0	235(SW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
22-Dec-22	00:00	2.3	225(SW)
	01:00	3.1	230(SW)
	02:00	0.9	268(W)
	03:00	1.1	282(WNW)
	04:00	0.7	319(NW)
	05:00	1.7	209(SSW)
	06:00	1.1	24(NNE)
	07:00	0.0	107(ESE)
	08:00	2.3	216(SW)
	09:00	1.1	170(S)
	10:00	2.3	234(SW)
	11:00	3.9	255(WSW)
	12:00	2.7	218(SW)
	13:00	1.5	204(SSW)
	14:00	2.5	263(W)
	15:00	1.1	238(WSW)
	16:00	4.3	258(WSW)
	17:00	2.1	275(W)
	18:00	0.0	244(WSW)
	19:00	0.0	281(W)
	20:00	0.0	102(ESE)
	21:00	0.0	117(ESE)
	22:00	0.0	80(E)
23:00	0.0	103(ESE)	
23-Dec-22	00:00	1.5	259(W)
	01:00	2.3	255(WSW)
	02:00	1.7	263(W)
	03:00	1.9	253(WSW)
	04:00	1.7	258(WSW)
	05:00	1.1	346(NNW)
	06:00	1.1	276(W)
	07:00	1.1	218(SW)
	08:00	0.9	283(WNW)
	09:00	3.5	267(W)
	10:00	2.1	264(W)
	11:00	1.3	55(NE)
	12:00	3.5	194(SSW)
	13:00	1.7	270(W)
	14:00	1.9	210(SSW)
	15:00	0.0	281(W)
	16:00	0.0	219(SW)
	17:00	0.0	232(SW)
	18:00	0.0	301(WNW)
	19:00	0.0	87(E)
	20:00	0.0	278(W)
	21:00	0.0	129(SE)
	22:00	0.0	114(ESE)
23:00	0.0	292(WNW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
24-Dec-22	00:00	0.0	103(ESE)
	01:00	0.0	272(W)
	02:00	0.0	310(NW)
	03:00	0.0	84(E)
	04:00	0.0	108(ESE)
	05:00	1.9	328(NNW)
	06:00	1.7	296(WNW)
	07:00	0.0	327(NNW)
	08:00	0.0	244(WSW)
	09:00	1.1	285(WNW)
	10:00	2.3	191(S)
	11:00	1.3	79(E)
	12:00	2.5	276(W)
	13:00	1.7	234(SW)
	14:00	3.1	184(S)
	15:00	2.1	267(W)
	16:00	1.7	248(WSW)
	17:00	1.1	278(W)
	18:00	1.3	258(WSW)
	19:00	0.0	130(SE)
	20:00	0.0	276(W)
	21:00	1.1	257(WSW)
	22:00	0.7	266(W)
23:00	0.9	250(WSW)	
25-Dec-22	00:00	0.0	325(NW)
	01:00	0.0	346(NNW)
	02:00	0.7	249(WSW)
	03:00	0.0	21(NNE)
	04:00	0.9	250(WSW)
	05:00	1.3	235(SW)
	06:00	0.0	253(WSW)
	07:00	0.7	266(W)
	08:00	0.0	306(NW)
	09:00	1.1	280(W)
	10:00	1.3	173(S)
	11:00	1.3	196(SSW)
	12:00	2.1	343(NNW)
	13:00	0.9	187(S)
	14:00	1.9	281(W)
	15:00	3.5	129(SE)
	16:00	1.5	231(SW)
	17:00	1.7	310(NW)
	18:00	1.3	253(WSW)
	19:00	1.5	284(WNW)
	20:00	0.0	261(W)
	21:00	0.0	258(WSW)
	22:00	1.3	276(W)
23:00	0.0	235(SW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
26-Dec-22	00:00	0.0	244(WSW)
	01:00	1.9	269(W)
	02:00	0.9	291(WNW)
	03:00	0.0	304(NW)
	04:00	0.0	256(WSW)
	05:00	2.5	276(W)
	06:00	1.3	290(WNW)
	07:00	1.7	250(WSW)
	08:00	2.1	258(WSW)
	09:00	2.1	291(WNW)
	10:00	3.1	278(W)
	11:00	1.5	299(WNW)
	12:00	0.9	175(S)
	13:00	0.0	267(W)
	14:00	1.7	324(NW)
	15:00	3.5	57(ENE)
	16:00	0.0	140(SE)
	17:00	2.3	275(W)
	18:00	0.0	259(W)
	19:00	0.0	256(WSW)
	20:00	0.0	280(W)
	21:00	0.0	248(WSW)
	22:00	0.0	266(W)
23:00	0.0	285(WNW)	
27-Dec-22	00:00	0.0	243(WSW)
	01:00	0.0	269(W)
	02:00	1.5	219(SW)
	03:00	0.0	324(NW)
	04:00	1.3	243(WSW)
	05:00	0.5	34(NE)
	06:00	0.7	292(WNW)
	07:00	1.1	246(WSW)
	08:00	0.0	266(W)
	09:00	0.7	192(SSW)
	10:00	0.0	222(SW)
	11:00	3.7	281(W)
	12:00	3.9	267(W)
	13:00	3.7	267(W)
	14:00	1.3	123(ESE)
	15:00	2.9	350(N)
	16:00	5.3	351(N)
	17:00	1.7	63(ENE)
	18:00	0.0	270(W)
	19:00	0.0	216(SW)
	20:00	1.7	220(SW)
	21:00	1.7	249(WSW)
	22:00	0.0	258(WSW)
23:00	0.7	302(WNW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
28-Dec-22	00:00	0.7	236(SW)
	01:00	3.7	271(W)
	02:00	2.9	236(SW)
	03:00	2.1	260(W)
	04:00	0.9	284(WNW)
	05:00	1.3	276(W)
	06:00	0.7	25(NNE)
	07:00	0.0	37(NE)
	08:00	1.1	335(NNW)
	09:00	1.5	205(SSW)
	10:00	2.1	261(W)
	11:00	1.7	223(SW)
	12:00	1.5	238(WSW)
	13:00	1.9	275(W)
	14:00	2.3	233(SW)
	15:00	3.1	183(S)
	16:00	1.7	295(WNW)
	17:00	1.5	218(SW)
	18:00	0.0	254(WSW)
	19:00	0.0	268(W)
	20:00	0.0	316(NW)
	21:00	0.0	296(WNW)
	22:00	0.0	252(WSW)
23:00	0.0	276(W)	
29-Dec-22	00:00	2.5	221(SW)
	01:00	0.0	220(SW)
	02:00	3.1	218(SW)
	03:00	1.1	277(W)
	04:00	2.1	263(W)
	05:00	4.1	247(WSW)
	06:00	2.7	215(SW)
	07:00	1.1	177(S)
	08:00	0.9	148(SSE)
	09:00	2.7	200(SSW)
	10:00	2.7	166(SSE)
	11:00	1.7	207(SSW)
	12:00	2.3	196(SSW)
	13:00	1.9	238(WSW)
	14:00	1.3	207(SSW)
	15:00	1.1	110(ESE)
	16:00	2.5	255(WSW)
	17:00	0.9	286(WNW)
	18:00	1.7	228(SW)
	19:00	1.3	244(WSW)
	20:00	1.1	241(WSW)
	21:00	0.9	180(S)
	22:00	2.1	215(SW)
23:00	3.3	240(WSW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
30-Dec-22	00:00	1.5	237(WSW)
	01:00	1.3	165(SSE)
	02:00	1.7	207(SSW)
	03:00	3.9	237(WSW)
	04:00	2.1	195(SSW)
	05:00	1.5	266(W)
	06:00	1.9	315(NW)
	07:00	1.5	130(SE)
	08:00	1.7	172(S)
	09:00	2.1	318(NW)
	10:00	1.9	277(W)
	11:00	1.9	284(WNW)
	12:00	4.9	252(WSW)
	13:00	1.5	273(W)
	14:00	2.1	240(WSW)
	15:00	3.1	274(W)
	16:00	2.1	254(WSW)
	17:00	3.3	273(W)
	18:00	1.5	268(W)
	19:00	2.9	199(SSW)
	20:00	1.5	216(SW)
	21:00	1.5	184(S)
	22:00	2.3	271(W)
23:00	2.7	208(SSW)	
31-Dec-22	00:00	5.3	194(SSW)
	01:00	3.5	219(SW)
	02:00	2.1	258(WSW)
	03:00	1.1	158(SSE)
	04:00	1.3	237(WSW)
	05:00	2.3	231(SW)
	06:00	2.1	264(W)
	07:00	2.5	170(S)
	08:00	4.5	247(WSW)
	09:00	1.3	269(W)
	10:00	1.9	268(W)
	11:00	2.3	205(SSW)
	12:00	2.5	217(SW)
	13:00	1.7	303(WNW)
	14:00	1.5	163(SSE)
	15:00	0.7	292(WNW)
	16:00	1.3	194(SSW)
	17:00	1.1	277(W)
	18:00	0.0	247(WSW)
	19:00	0.9	261(W)
	20:00	0.0	231(SW)
	21:00	0.9	289(WNW)
	22:00	1.9	211(SSW)
23:00	1.1	324(NW)	



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
 Dec 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Dec	2-Dec	3-Dec
					AQM+24hr TSP	AQM + 1hr TSP
					Water Quality Monitoring	
4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec	10-Dec
	Water Quality Monitoring		Water Quality Monitoring	AQM+24hr TSP	AQM + 1hr TSP	
					NM	
					Ecological Monitoring	
					Water Quality Monitoring	
11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec	17-Dec
	Water Quality Monitoring		AQM+24hr TSP	AQM + 1hr TSP		
			Water Quality Monitoring	NM		
					Ecological Monitoring	
					Water Quality Monitoring	
18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec	24-Dec
	AQM+24hr TSP	AQM + 1hr TSP			AQM+24hr TSP	AQM + 1hr TSP
		NM				
	Water Quality Monitoring		Water Quality Monitoring		Ecological Monitoring	
					Water Quality Monitoring	
25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec
				AQM+24hr TSP	AQM + 1hr TSP	
			Ecological Monitoring		NM	
			Water Quality Monitoring		Water Quality 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.
- * Water Quality Monitoring on 26 Dec was cancelled, since no outfall work will be carried out on that day.



Contract No. SPW 12/2021
 Environmental Team (2021-2024)
 for Shek Wui Effluent Polishing Plant - Main Works
 Tentative Impact Monitoring Schedule
 Jan 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Jan	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan	7-Jan
			AQM+24hr TSP	AQM + 1hr TSP		
				NM	Ecological Monitoring	
			Water Quality Monitoring		Water Quality Monitoring	
8-Jan	9-Jan	10-Jan	11-Jan	12-Jan	13-Jan	14-Jan
		AQM+24hr TSP	AQM + 1hr TSP			
			NM			
	Water Quality Monitoring	Ecological Monitoring	Water Quality Monitoring		Water Quality Monitoring	
15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan	21-Jan
	AQM+24hr TSP	AQM + 1hr TSP			AQM+24hr TSP	AQM + 1hr TSP
		NM		Ecological Monitoring		NM
	Water Quality Monitoring		Water Quality Monitoring		Water Quality Monitoring	
22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan	28-Jan
				AQM+24hr TSP	AQM + 1hr TSP	
					NM	
					Ecological Monitoring	
					Water Quality Monitoring	
29-Jan	30-Jan	31-Jan				
	Water Quality 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.
- * According to information from the contractor, the outfall works are not schudle on 2, 23 and 25 Jan 2022, so the related WQM was cancelled.



Contract No. SPW 12/2021
 Environmental Team (2021-2024)
 for Shek Wui Effluent Polishing Plant - Main Works
 Tentative Impact Monitoring Schedule
 Feb 2023

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

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)									
09/12/2022	11:25	Sunny	0.0	55.2	56.8	51.1	63.4	55	75
15/12/2022	8:25	Cloudy	0.2	56.2	58.6	50.6	63.4	56	75
20/12/2022	8:20	Fine	0.0	59.4	60.7	57.6	63.4	59	75
30/12/2022	9:30	Sunny	0.0	57.6	59.4	54.9	63.4	58	75

Location: NM2 - G/F, Fu Tei Au

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)									
09/12/2022	8:55	Sunny	0.0	69.7	71.2	66.2	58.0	69	75
15/12/2022	9:15	Cloudy	0.2	68.9	70.9	66.0	58.0	69	75
20/12/2022	9:00	Fine	0.0	59.2	61.2	55.8	58.0	53	75
30/12/2022	11:30	Sunny	0.0	60.9	62.1	57.5	58.0	58	75

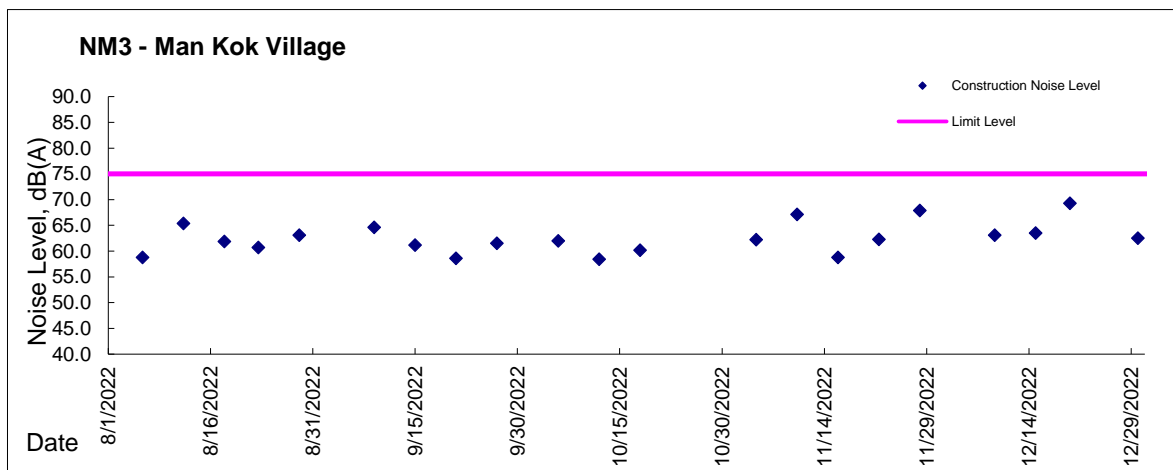
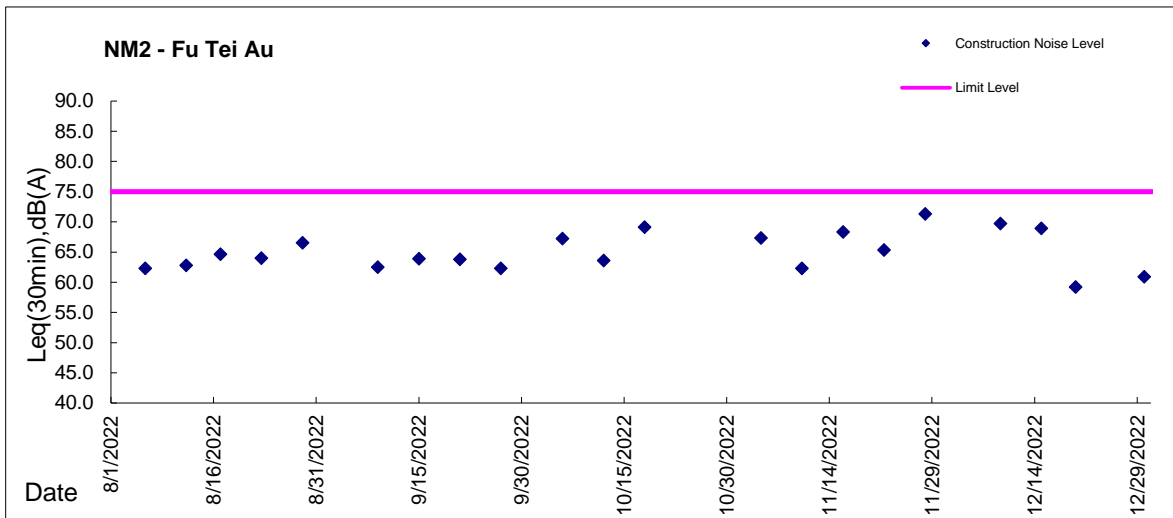
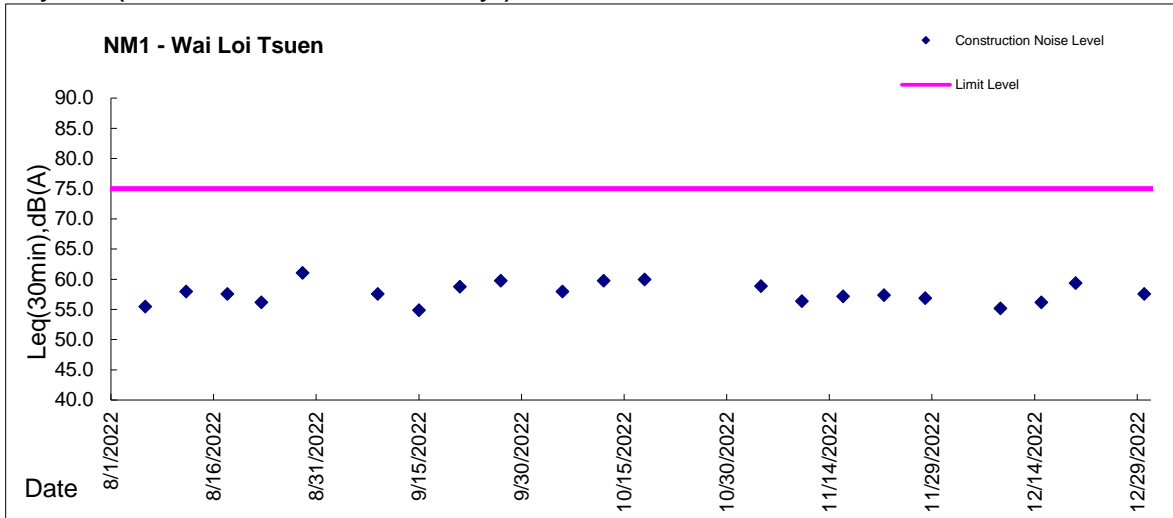
Location: NM3 - G/F, Man kok Village

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)									
09/12/2022	9:33	Sunny	0.0	63.1	63.9	57.4	63.4	63	75
15/12/2022	10:00	Cloudy	0.1	63.5	64.2	58.0	63.4	47	75
20/12/2022	10:15	Fine	0.0	69.3	75.0	55.0	63.4	68	75
30/12/2022	10:15	Sunny	0.0	62.5	64.0	55.9	63.4	63	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.
3-Dec-22	Fine	8:12	30	AEROCET 831	Y23154
3-Dec-22	Fine	9:12	32		
3-Dec-22	Fine	10:12	29		
9-Dec-22	Sunny	8:40	34		
9-Dec-22	Sunny	9:40	37		
9-Dec-22	Sunny	10:40	34		
15-Dec-22	Cloudy	8:11	26		
15-Dec-22	Cloudy	9:11	24		
15-Dec-22	Cloudy	10:11	25		
20-Dec-22	Fine	8:38	27		
20-Dec-22	Fine	9:38	24		
20-Dec-22	Fine	10:38	23		
24-Dec-22	Sunny	8:45	29		
24-Dec-22	Sunny	9:45	32		
24-Dec-22	Sunny	10:45	34		
30-Dec-22	Sunny	13:00	45		
30-Dec-22	Sunny	14:00	45		
30-Dec-22	Sunny	15:00	53		



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.
3-Dec-22	Fine	8:37	24	AEROCET 831	R14332
3-Dec-22	Fine	9:37	24		
3-Dec-22	Fine	10:37	21		
9-Dec-22	Sunny	8:34	44		
9-Dec-22	Sunny	9:34	56		
9-Dec-22	Sunny	10:34	48		
15-Dec-22	Cloudy	8:19	18		
15-Dec-22	Cloudy	9:19	30		
15-Dec-22	Cloudy	10:19	24		
20-Dec-22	Fine	8:34	38		
20-Dec-22	Fine	9:34	35		
20-Dec-22	Fine	10:34	30		
24-Dec-22	Sunny	9:00	43		
24-Dec-22	Sunny	10:00	51		
24-Dec-22	Sunny	11:00	52		
30-Dec-22	Sunny	13:20	36		
30-Dec-22	Sunny	14:20	34		
30-Dec-22	Sunny	15:20	39		



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-Dec-22	8:00	Fine	1019.4	1017.1	16.5	19.2	AM1a_24hr_011119	2.7659	2.8334	16211.89	16235.89	24.00	1.21	1.20	1.20	1733	39	G3101	0401-1105
08-Dec-22	8:00	Sunny	1017.9	1015.8	18.7	19.9	AM1a_24hr_011121	2.7758	2.8637	16259.89	16283.89	24.00	1.25	1.27	1.26	1810	49		
14-Dec-22	8:00	Cloudy	1021.4	1017.9	12.5	14.6	AM1a_24hr_011113	2.7561	2.7981	16283.89	16307.89	24.00	1.21	1.23	1.22	1759	24		
19-Dec-22	8:00	Sunny	1021.7	1018.3	16.6	19.2	AM1a_24hr_007871	2.6694	2.7276	16307.89	16331.89	24.00	1.25	1.25	1.25	1799	32		
23-Dec-22	8:00	Sunny	1019.0	1021.1	20.2	20.1	AM1a_24hr_011125	2.7661	2.8508	16331.89	16355.89	24.00	1.25	1.25	1.25	1794	47		
29-Dec-22	8:00	Sunny	1022.6	1024.2	17.7	16.8	AM1a_24hr_011126	2.7674	2.9280	16355.89	16379.89	24.00	1.50	1.50	1.50	2159	74		

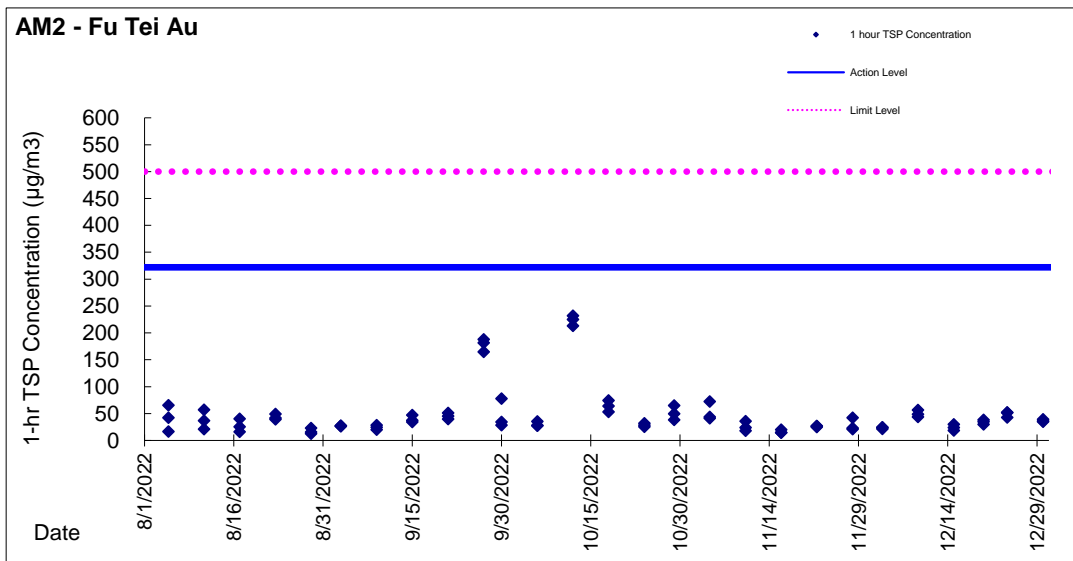
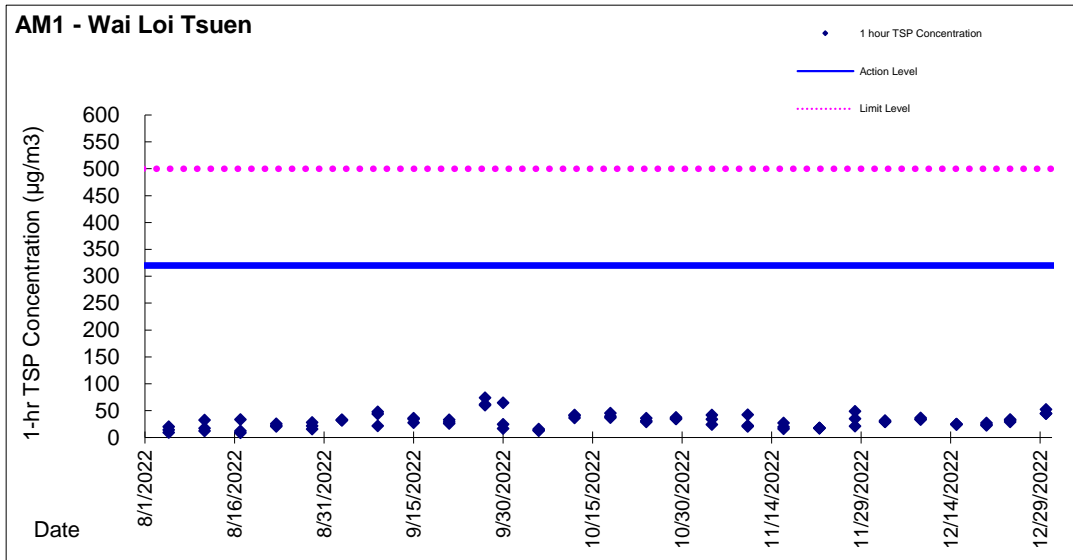


Location: AM2a - Site Boundary of the Shek Wu Hui STW (North)
 Impact Monitoring Result on 24-hour TSP monitoring

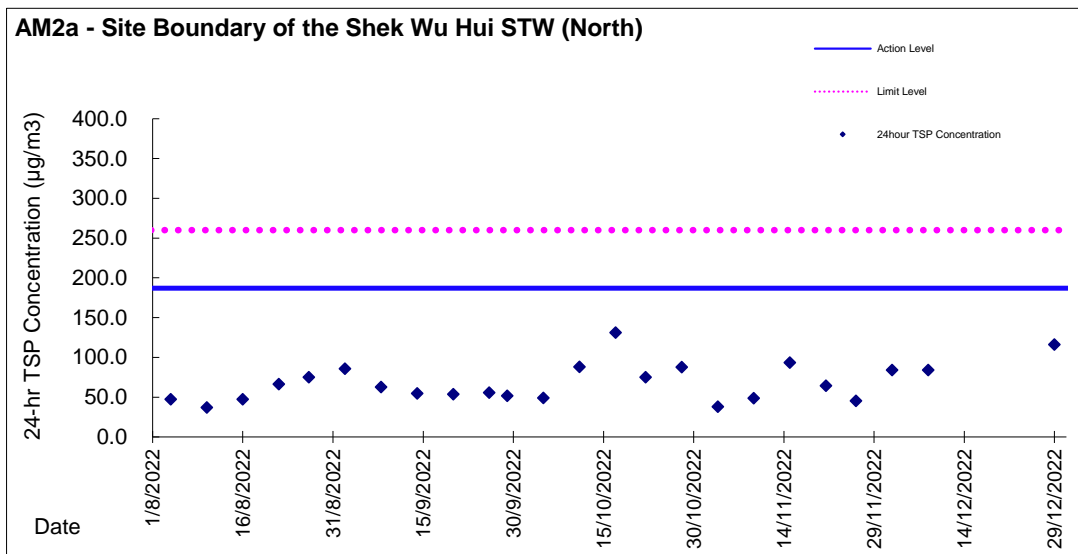
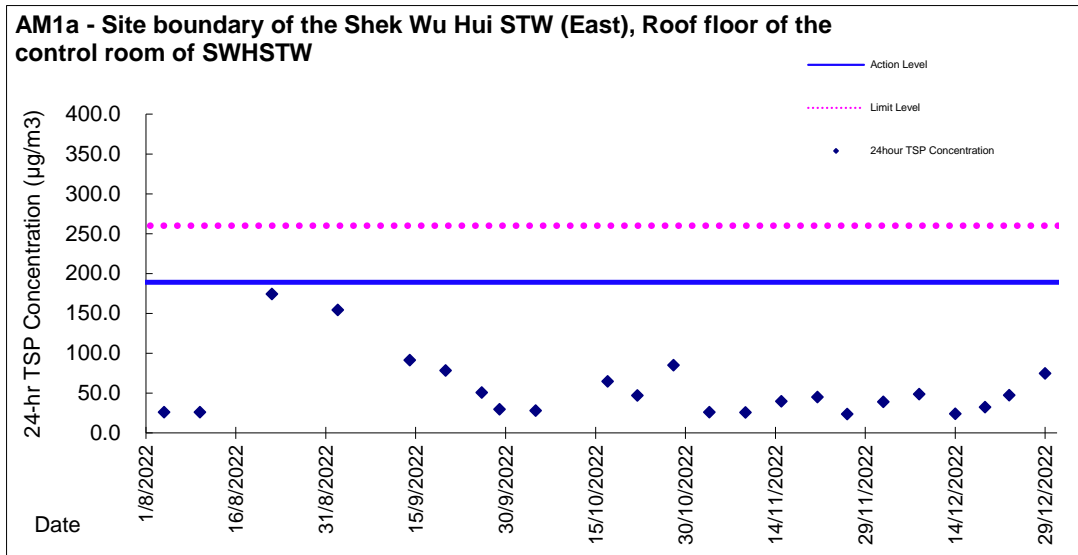
Date	Sampling Time	Weather Condition	Pressure, hPa		Temp. , °C		Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, ug/m ³	Model No.	Serial No.
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average						
02-Dec-22	8:00	Fine	1019.4	1017.1	16.5	19.2	AM2a_24hr_011120	2.7707	2.9221	18923.53	18947.53	24.00	1.27	1.24	1.26	1808	84	G3101	1096-2305
08-Dec-22	8:00	Sunny	1017.9	1015.8	18.7	19.9	AM2a_24hr_011112	2.7778	2.9638	18947.53	18971.53	24.00	1.54	1.54	1.54	2220	84		
14-Dec-22	24hr-TSP monitoring was suspended due to power failure.																		
19-Dec-22																			
23-Dec-22																			
29-Dec-22	8:00	Sunny	1022.6	1024.2	17.7	16.8	AM2a_24hr_011127	2.7766	3.0264	18971.53	18995.53	24.00	1.50	1.50	1.50	2163	116		



Graphic Presentation of TSP Result



Graphic Presentation of TSP Result



1. 24hr-TSP monitoring for AM2a conducted on 14 to 23 Dec 2022 were suspended due to power failure.



Appendix 5.4

Details of Ecological Monitoring Results in the Reporting Month

5.4. ECOLOGICAL MONITORING RESULTS

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

Table 1 Total Bird Species and Abundance in the Reporting Month

	Number of Species	Abundance
All Avifauna	42	1087
Waterbirds	15	316

Table 2 Abundance of Representative Waterbirds in the Reporting Month

Species Name	Common Name	Chinese Name	Abundance
<i>Egretta garzetta</i>	Little Egret	小白鷺	88
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	49
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	33
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	49
<i>Ardea alba</i>	Great Egret	大白鷺	28
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	26
	Total		273

Analysis

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

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

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95%	99%
Abundance	Monthly	0.408	✓	✓
	Seasonal	0.896	✓	✓

Remarks:

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

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

Table 4 T-test Result for Representative Waterbirds in the Reporting Month

Common Name of Representative Waterbird	T-value	Confidence Level (Critical Value)		T-value	Confidence Level (Critical Value)		Overall
	Monthly	95% (-2.353)	99% (-4.541)	Seasonal	95% (-2.353)	99% (-4.541)	
Little Egret	1.468	✓	✓	1.142	✓	✓	✓
Grey Heron	-1.273	✓	✓	-0.201	✓	✓	✓
Chinese Pond Heron	-0.397	✓	✓	-0.397	✓	✓	✓
Great Cormorant	0.074	✓	✓	1.553	✓	✓	✓
Great Egret	0.481	✓	✓	0.962	✓	✓	✓
Eastern Cattle Egret	0.185	✓	✓	0.925	✓	✓	✓

Remarks:

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

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

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

- 5.4.3.** No Action Level and Limit Level was triggered for ecological monitoring in the reporting month.
- 5.4.4.** Site observation in the reporting month shows that construction activities are similar to previous months. The photos are provided in **Appendix 5.6**.
- 5.4.5.** In recent months, it is found that there are different construction sites and human activities such as grazing, fishing and landscape planting around the project site. These construction and human activities may affect activities of the waterbirds. Although, there is no significant impact reduction in number of waterbirds, it is recommended that construction site should continue keeping the good site practice to minimize disturbance caused to waterbirds.
- 5.4.6.** The monitoring work will continue next month to evaluate any construction impact on waterbirds.

Observations

- 5.4.7.** Waterbird behaviour observed during ecological monitoring are listed below:
- Flying
 - Foraging
 - Soaring
 - Resting
- 5.4.8.** The anthropogenic activities observed during ecological monitoring are listed in **Table 5**.

5.4.9.

Table 5 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 Fishing Construction activities such as footbridge construction, 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, 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	N/A
T3 (PC6, PC7)	Construction activities such as Sheet-piling	Human Activities such as Fishing and Landscape Planting Construction activities such as Excavation Sheet-piling, generator & welding works, Scaffolding



Appendix 5.5

Ecological Monitoring Results and Analysis

Summary data of the Ecological Monitoring

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	X	33	+++++
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	X	26	+++
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	X	49	+++++
<i>Ardea alba</i>	Great Egret	大白鷺	X	28	++++
<i>Egretta garzetta</i>	Little Egret	小白鷺	X	88	+++++
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	X	49	+++++
<i>Milvus migrans</i>	Black Kite	黑鳶	X	4	+
<i>Amauornis phoenicurus</i>	White-breasted Waterhen	白胸苦惡鳥	X	3	+
<i>Himantopus himantopus</i>	Black-winged Stilt	黑翅長腳鷺	X	12	+++
<i>Tringa nebularia</i>	Common Greenshank	青腳鷺	X	2	+
<i>Actitis hypoleucos</i>	Common Sandpiper	磯鷺	X	11	++
<i>Spilopelia chinensis</i>	Spotted Dove	珠頸斑鳩		45	+++++
<i>Centropus sinensis</i>	Greater Coucal	褐翅鴉鵂		1	+
<i>Apus pacificus</i>	Pacific Swift	白腰雨燕		0	+
<i>Halcyon smyrnensis</i>	White-throated Kingfisher	白胸翡翠	X	8	+
<i>Alcedo atthis</i>	Common Kingfisher	普通翠鳥	X	1	+
<i>Ceryle rudis</i>	Pied Kingfisher	斑魚狗	X	2	+
<i>Lanius schach</i>	Long-tailed Shrike	棕背伯勞		0	+
<i>Urocissa erythroryncha</i>	Red-billed Blue Magpie	紅嘴藍鵲		2	+

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Pica pica</i>	Eurasian Magpie	喜鵲		8	+
<i>Corvus torquatus</i>	Collared Crow	白頸鴉	X	0	+
<i>Parus cinereus</i>	Cinereous Tit	蒼背山雀		5	+
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	紅耳鸛		118	+++++
<i>Pycnonotus sinensis</i>	Chinese Bulbul	白頭鸛		48	+++++
<i>Hirundo rustica</i>	Barn Swallow	家燕		3	+
<i>Phylloscopus fuscatus</i>	Dusky Warbler	褐柳鶯		5	++
<i>Phylloscopus proregulus</i>	Pallas's Leaf Warbler	黃腰柳鶯		3	+
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler	黃眉柳鶯		10	+
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	黃腹鷦鶯		7	+
<i>Prinia inornata</i>	Plain Prinia	純色鷦鶯		8	+
<i>Orthotomus sutorius</i>	Common Tailorbird	長尾縫葉鶯		36	+++++
<i>Garrulax perspicillatus</i>	Masked Laughingthrush	黑臉噪鶯		40	+++++
<i>Zosterops japonicus</i>	Japanese White-eye	暗綠繡眼鳥		34	+++
<i>Acridotheres crystallocephalus</i>	Crested Myna	八哥		240	+++++
<i>Gracupica nigricollis</i>	Black-collared Starling	黑領椋鳥		38	+++++
<i>Copsychus saularis</i>	Oriental Magpie Robin	鵲鴝		18	++
<i>Phoenicurus aureoreus</i>	Daurian Redstart	北紅尾鴝		7	+
<i>Saxicola stejnegeri</i>	Stejneger's Stonechat	黑喉石(即鳥)		2	+

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Passer montanus</i>	Eurasian Tree Sparrow	樹麻雀		35	++++
<i>Lonchura punctulata</i>	Scaly-breasted Munia	斑文鳥		11	++
<i>Motacilla alba</i>	White Wagtail	白鶺鴒		44	+++++
<i>Anthus godlewskii</i>	Olive-backed Pipit	樹鵲		3	+

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	6/12/2022	10:15	H	103	266	23
		15:00	L	163		26
2	13/12/2022	13:30	H	89	287	22
		11:30	L	198		29
3	23/12/2022	12:15	H	98	254	23
		15:00	L	156		30
4	28/12/2022	14:00	H	147	280	21
		12:00	L	133		27

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	6/12/2022	10:15	H	25	70
		15:00	L	45	
2	13/12/2022	13:30	H	28	100
		11:30	L	72	
3	23/12/2022	12:15	H	29	79
		15:00	L	50	
4	28/12/2022	14:00	H	23	67
		12:00	L	44	

Remarks: H: High Tide; L: Low Tide

T-Test Analysis for All Waterbirds

Baseline Data

Monthly Average Abundance (December)	71.33
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	0.408	✓	✓
	Seasonal	0.896	✓	✓

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.

Abundance of Representative Waterbirds from Point Count										
Representative Species			Recorded Abundance						Baseline Data	
			Week 1	Week2	Week 3	Week 4	Total	Avg.	Avg (Dec)	Avg (Winter)
Species Name	Common Name	Chinese Name	6/12/2022	13/12/2022	23/12/2022	28/12/2022				
<i>Egretta garzetta</i>	Little Egret	小白鷺	17	33	14	24	88	22	13	15
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	15	19	9	6	49	12	17	13
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	7	8	9	9	33	8	9	9
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	13	18	11	7	49	12	12	7
<i>Ardea alba</i>	Great Egret	大白鷺	6	3	9	10	28	7	6	5
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	4	6	14	2	26	7	6	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	1.468	✓	✓	1.142	✓	✓	✓
Grey Heron	-1.273	✓	✓	-0.201	✓	✓	✓
Chinese Pond Heron	-0.397	✓	✓	-0.397	✓	✓	✓
Great Cormorant	0.074	✓	✓	1.553	✓	✓	✓
Great Egret	0.481	✓	✓	0.962	✓	✓	✓
Eastern Cattle Egret	0.185	✓	✓	0.925	✓	✓	✓

Remarks:

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

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

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



Appendix 5.6

Photo Record of Ecological Monitoring

Conditions of Rivers



Sheung Yue River – Survey Point 7 (Taken on 6 Dec 2022)



Shek Sheung River – Survey Point 6 (Taken on 13 Dec 2022)



Shek Sheung River - Survey Point 5 (Taken on 23 Dec 2022)



Ng Tung River - Survey Point 4 (Taken on 6 Dec 2022)

Human Activities & Site Conditions



Construction Activities (Ng Tung River)
(Project-related, taken on 6 Dec 2022)



Construction Activities (Shek Sheung River)
(Project-related, taken on 13 Dec 2022)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 23 Dec 2022)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 13 Dec 2022)



Human Activities (Sheung Yue River)
(Non-project-related, taken on 23 Dec 2022)



Human Activities (Ng Tung River)
(Non- project-related, taken on 28 Dec 2022)



Human Activities (Ng Tung River)
(Non-project-related, taken on 13 Dec 2022)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 13 Dec 2022)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 13 Dec 2022)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 23 Dec 2022)

Waterbird Species



Grey Heron



Great Cormorant



White-throated Kingfisher



Eastern Cattle Egret



Chinese Pond Heron



Waterbird in Ng Tung River



Appendix 5.7

Water Quality Monitoring Result



Data Sheet for Impact Water Quality Monitoring - SPW 12/2021

Date of Sampling: 2-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 16

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS		SS Average	Remarks / Observations
					°C		-		ppt		%		mg/L			mg/L	mg/L		mg/L	NTU		
M1 Impact Station, Downstream of the proposed outfall	M1	13:30	Middle	Pale Yellow	17.5	17.5	7.72	7.72	0.11	0.11	84.9	84.7	8.11	8.09	8.08	12.48	12.35	12.54	14.4	14.0	Turbidity and SS levels exceeded limit levels	
	M1 DUP	13:02			17.5	17.5	7.72	7.72	0.11	0.11	84.5	84.1	8.08	8.03		12.56	12.76		13.6			
C1 Control Station, Upstream of the proposed outfall	C1	12:45	Middle	Pale Yellow	18.0	18.0	7.86	7.86	0.12	0.12	86.6	86.4	8.21	8.18	8.15	7.79	7.39	7.66	8.4	7.8		
	C1 DUP	12:47			18.0	18.0	7.86	7.86	0.12	0.12	85.9	85.3	8.14	8.08		7.75	7.72		7.2			

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 5-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 16

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS		SS Average	Remarks / Observations
					°C		-		ppt		%		mg/L			mg/L	mg/L		mg/L	NTU		
M1 Impact Station, Downstream of the proposed outfall	M1	11:50	Middle	Pale Green	20.8	20.8	7.79	7.79	0.29	0.29	77.6	72.7	6.94	6.95	6.89	11.14	11.16	11.16	7.4	7.7	DO and Turbidity exceeded limit levels	
	M1 DUP	11:52			20.8	20.8	7.79	7.79	0.29	0.29	76.5	76.3	6.84	6.82		11.16	11.17		7.9			
C1 Control Station, Upstream of the proposed outfall	C1	11:40	Middle	Pale Green	19.6	19.6	8.00	8.00	0.20	0.20	91.5	92.0	8.38	8.43	8.36	8.26	8.26	8.26	13.3	13.0		
	C1 DUP	11:42			19.6	19.6	8.00	8.00	0.20	0.20	90.9	90.5	8.34	8.29		8.26	8.26		12.7			

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 7-Dec-22 Weather Condition: Sunny Ambient Temperature, °C: 20

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS		SS Average	Remarks / Observations
					°C		-		ppt		%		mg/L			mg/L	mg/L		mg/L	NTU		
M1 Impact Station, Downstream of the proposed outfall	M1	9:55	Middle	Pale Green	20.7	20.7	7.61	7.61	0.28	0.28	72.6	77.5	6.51	6.44	6.47	10.94	10.92	10.94	8.6	8.4	DO exceeded limit level and SS exceeded action level	
	M1 DUP	9:57			20.7	20.7	7.61	7.61	0.28	0.28	72.4	72.1	6.48	6.46		10.93	10.95		8.1			
C1 Control Station, Upstream of the proposed outfall	C1	9:45	Middle	Pale Green	17.5	17.5	7.74	7.74	0.60	0.60	70.8	70.3	6.76	6.71	6.71	11.30	11.40	11.38	6.7	6.5		
	C1 DUP	9:47			17.5	17.5	7.74	7.74	0.60	0.60	70.2	69.9	6.70	6.68		11.41	11.41		6.2			

Action Level Exceedance
Limit Level Exceedance



Data Sheet for Impact Water Quality Monitoring - SPW 12/2021

Date of Sampling: 9-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 21

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Average	Remarks / Observations
					°C	-	ppt	%	mg/L		NTU		mg/L	mg/L								
M1 Impact Station, Downstream of the proposed outfall	M1	12:30	Middle	Pale Yellow	23.8	23.8	7.08	7.08	0.32	0.32	87.6	87.4	7.39	7.37	7.34	13.65	13.65	13.89	10.1	10.4	DO exceeded limit level	
	M1 DUP	12:32			23.8	23.8	7.08	7.08	0.32	0.32	87.0	85.9	7.34	7.24		14.11	14.16		10.6			
C1 Control Station, Upstream of the proposed outfall	C1	12:15	Middle	Pale Yellow	22.4	22.4	7.12	7.12	0.25	0.25	84.4	84.9	7.31	7.36	7.37	23.71	23.72	23.61	18.7	18.7		
	C1 DUP	12:17			22.4	22.4	7.12	7.12	0.25	0.25	85.4	85.2	7.40	7.39		23.51	23.49		18.7			

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 12-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 15

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Average	Remarks / Observations
					°C	-	ppt	%	mg/L		NTU		mg/L	mg/L								
M1 Impact Station, Downstream of the proposed outfall	M1	11:20	Middle	Pale Green	16.9	16.9	7.44	7.44	0.12	0.12	80.4	80.5	7.78	7.79	7.79	11.32	11.32	11.32	7.6	7.9	DO exceeded action level	
	M1 DUP	11:22			16.9	16.9	7.44	7.44	0.12	0.12	80.6	80.5	7.80	7.79		11.32	11.32		8.2			
C1 Control Station, Upstream of the proposed outfall	C1	11:10	Middle	Pale Green	17.0	17.0	7.53	7.53	0.14	0.14	84.2	83.7	8.13	8.08	8.06	22.33	22.29	22.23	7.2	7.6		
	C1 DUP	11:12			17.0	17.0	7.53	7.53	0.14	0.14	83.2	82.8	8.04	7.99		22.14	22.15		7.9			

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 14-Dec-22 Weather Condition: Cloudy Ambient Temperature, °C: 11

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Average	Remarks / Observations
					°C	-	ppt	%	mg/L		NTU		mg/L	mg/L								
M1 Impact Station, Downstream of the proposed outfall	M1	11:30	Middle	Pale Green	15.1	15.1	7.41	7.41	0.11	0.11	76.1	76.2	7.65	7.66	7.65	38.84	38.96	38.95	27.7	27.3	DO, Turbidity and SS levels exceeded limit levels	
	M1 DUP	11:32			15.1	15.1	7.41	7.41	0.11	0.11	76.1	76.1	7.65	7.65		39.00	39.01		26.9			
C1 Control Station, Upstream of the proposed outfall	C1	11:15	Middle	Pale Green	15.5	15.5	7.45	7.45	0.12	0.12	66.8	69.1	6.66	6.88	6.82	33.24	33.28	33.34	72.7	72.3		
	C1 DUP	11:17			15.5	15.5	7.45	7.45	0.12	0.12	68.8	69.0	6.86	6.88		33.36	33.46		71.9			

Action Level Exceedance
Limit Level Exceedance



Data Sheet for Impact Water Quality Monitoring - SPW 12/2021

Date of Sampling: 16-Dec-22 Weather Condition: Cloudy Ambient Temperature, °C: 15

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Average	Remarks / Observations
					°C	-	ppt	%	mg/L		NTU		mg/L	mg/L								
M1 Impact Station, Downstream of the proposed outfall	M1	10:06	Middle	Pale Green	16.9	16.9	7.32	7.32	0.11	0.11	67.0	67.4	6.49	6.53	6.26	21.00	21.11	21.17	16.0	15.4	DO, Turbidity and SS levels exceeded limit levels	
	M1 DUP	10:08			16.9	16.9	7.32	7.32	0.11	0.11	67.4	66.9	5.53	6.48		21.03	21.55		14.7			
C1 Control Station, Upstream of the proposed outfall	C1	9:55	Middle	Pale Green	17.0	17.0	7.33	7.33	0.12	0.12	72.8	72.4	7.03	6.99	6.98	27.38	27.33	27.34	9.3	9.2		
	C1 DUP	9:57			17.0	17.0	7.33	7.32	0.12	0.12	72.2	71.9	6.97	6.94		27.32	27.31		9.0			

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 19-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 9

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Average	Remarks / Observations
					°C	-	ppt	%	mg/L		NTU		mg/L	mg/L								
M1 Impact Station, Downstream of the proposed outfall	M1	9:10	Middle	Pale Yellow	10.7	10.7	7.50	7.50	0.15	0.15	73.5	76.5	8.07	8.16	8.22	21.26	21.25	21.36	6.6	7.4	Turbidity exceeded limit level	
	M1 DUP	9:12			10.7	10.7	7.50	7.50	0.15	0.15	78.7	77.7	8.45	8.21		21.35	21.58		8.1			
C1 Control Station, Upstream of the proposed outfall	C1	8:45	Middle	Pale Yellow	10.5	10.5	7.84	7.84	0.11	0.11	84.1	72.8	8.05	7.76	7.49	20.56	20.74	20.61	8.6	8.3		
	C1 DUP	8:47			10.5	10.5	7.84	7.84	0.11	0.11	67.3	65.7	7.11	7.03		20.58	20.55		7.9			

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 21-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 15

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Average	Remarks / Observations
					°C	-	ppt	%	mg/L		NTU		mg/L	mg/L								
M1 Impact Station, Downstream of the proposed outfall	M1	8:35	Middle	Pale Green	18.5	18.5	7.26	7.26	0.22	0.22	70.0	65.3	6.56	6.02	6.14	14.88	14.89	14.75	9.3	9.3	DO exceeded limit level and Turbidity exceeded action level	
	M1 DUP	8:37			18.5	18.5	7.26	7.26	0.22	0.22	62.6	66.6	5.82	6.14		14.47	14.77		9.2			
C1 Control Station, Upstream of the proposed outfall	C1	8:35	Middle	Pale Green	17.3	17.3	8.13	8.13	0.11	0.11	58.0	54.3	5.86	5.22	5.61	21.64	21.43	21.52	13.8	14.5		
	C1 DUP	8:37			17.3	17.3	8.13	8.13	0.11	0.11	60.6	57.9	5.82	5.54		21.49	21.53		15.2			

Action Level Exceedance
Limit Level Exceedance



Data Sheet for Impact Water Quality Monitoring - SPW 12/2021

Date of Sampling: 23-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 13

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average		SS		SS Average		Remarks / Observations
					°C	°C	-	-	ppt	ppt	%	%	mg/L	mg/L	mg/L	mg/L	NTU	NTU	mg/L	mg/L	mg/L	mg/L			
M1 Impact Station, Downstream of the proposed outfall	M1	8:45	Middle	Pale Yellow	14.4	14.4	7.53	7.53	0.24	0.24	90.6	88.2	9.23	9.30	9.14	9.36	9.07	9.15	8.3	8.9					Turbidity exceeded action level and SS exceeded limit level
	M1 DUP	8:45			14.4	14.4	7.53	7.53	0.24	0.24	89.9	87.4	9.15	8.89		9.01	9.15		9.4						
C1 Control Station, Upstream of the proposed outfall	C1	8:15	Middle	Pale Yellow	13.7	13.7	7.70	7.70	0.23	0.23	84.2	86.1	8.73	8.93	8.53	7.49	7.36	7.34	4.5	4.2					
	C1 DUP	8:17			13.7	13.7	7.70	7.70	0.23	0.23	80.7	77.7	8.38	8.06		7.22	7.30		3.8						

Action Level Exceedance
Limit Level Exceedance

Date of Sampling: 28-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 15

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average		SS		SS Average		Remarks / Observations
					°C	°C	-	-	ppt	ppt	%	%	mg/L	mg/L	mg/L	mg/L	NTU	NTU	mg/L	mg/L	mg/L	mg/L			
M1 Impact Station, Downstream of the proposed outfall	M1	8:45	Middle	Pale Green	16.5	16.5	7.79	7.79	0.14	0.14	71.8	70.8	7.08	6.93	6.89	11.27	11.30	11.36	10.9	7.9					DO exceeded limit level and SS exceeded action level
	M1 DUP	8:50			16.5	16.5	7.99	7.79	0.14	0.14	69.2	67.1	6.98	6.56		11.40	11.45		4.9						
C1 Control Station, Upstream of the proposed outfall	C1	8:15	Middle	Pale Green	16.4	16.4	7.76	7.76	0.12	0.12	67.4	68.0	6.93	6.67	6.62	12.32	12.19	12.25	7.9	6.2					
	C1 DUP	8:17			16.4	16.4	7.76	7.76	0.12	0.12	66.4	64.7	6.52	6.35		12.29	12.20		4.4						

Action Level Exceedance
Limit Level Exceedance

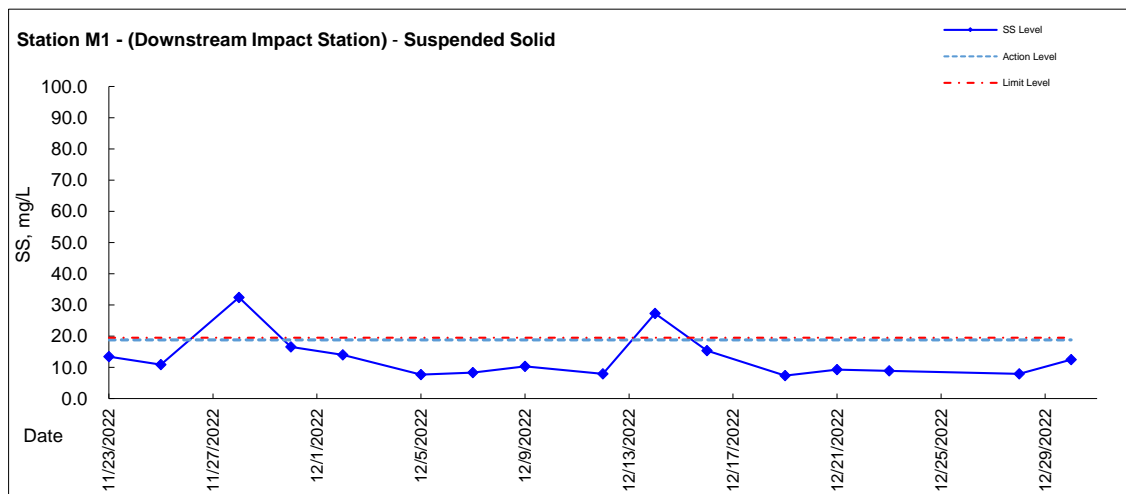
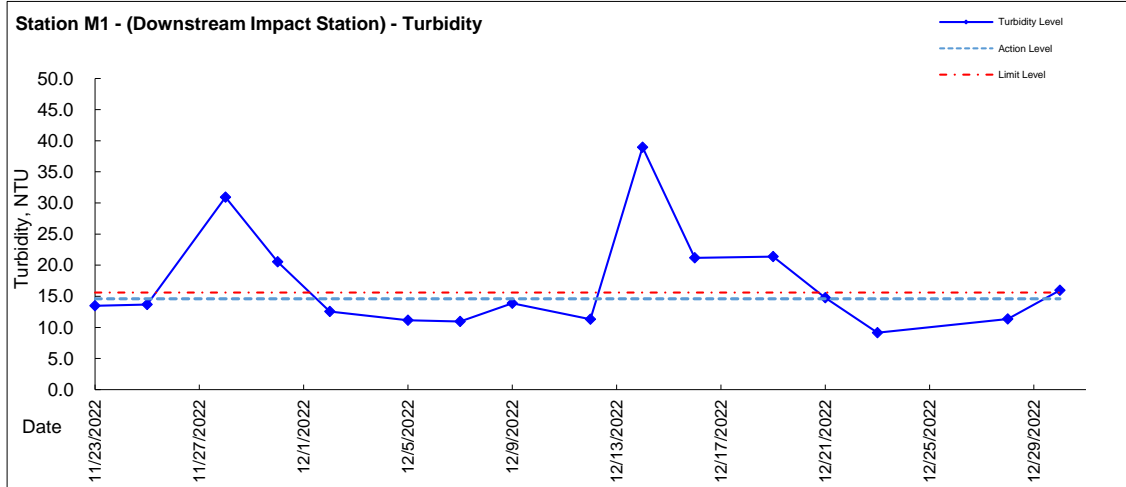
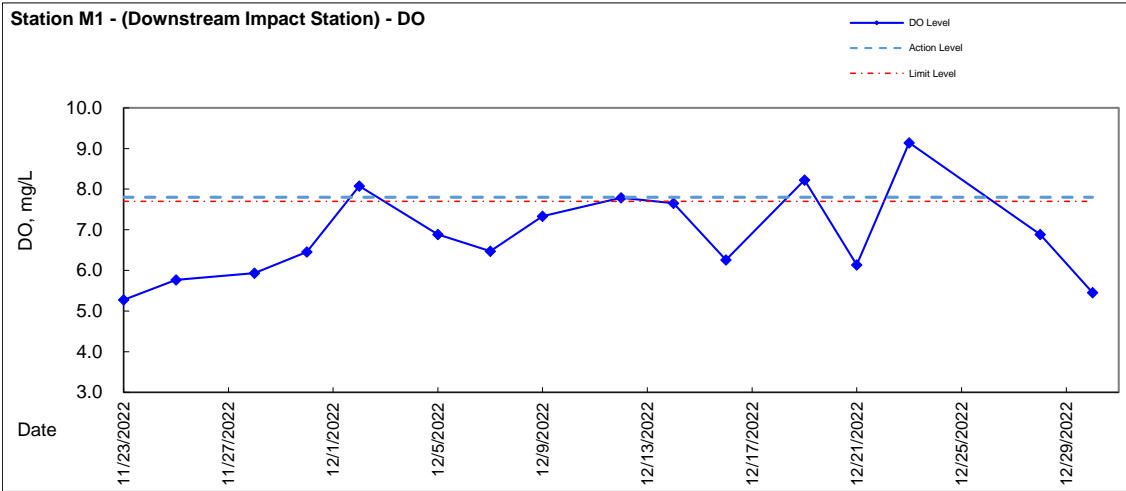
Date of Sampling: 30-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 12

Station Reference	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average		SS		SS Average		Remarks / Observations
					°C	°C	-	-	ppt	ppt	%	%	mg/L	mg/L	mg/L	mg/L	NTU	NTU	mg/L	mg/L	mg/L	mg/L			
M1 Impact Station, Downstream of the proposed outfall	M1	8:30	Middle	Pale Green	14.8	14.8	7.42	7.42	0.14	0.14	54.9	53.8	5.55	5.42	5.45	15.88	15.98	15.94	12.2	12.5					DO and Turbidity exceeded limit level
	M1 DUP	8:32			14.8	14.8	7.42	7.42	0.14	0.14	52.8	55.1	5.33	5.51		15.94	15.97		12.7						
C1 Control Station, Upstream of the proposed outfall	C1	8:00	Middle	Pale Green	15.0	15.0	7.67	7.67	0.12	0.12	55.0	57.1	5.61	5.74	5.59	16.39	16.41	16.45	12.0	11.7					
	C1 DUP	8:02			15.0	15.0	7.67	7.67	0.12	0.12	55.7	53.3	5.61	5.38		16.51	16.48		11.3						

Action Level Exceedance
Limit Level Exceedance

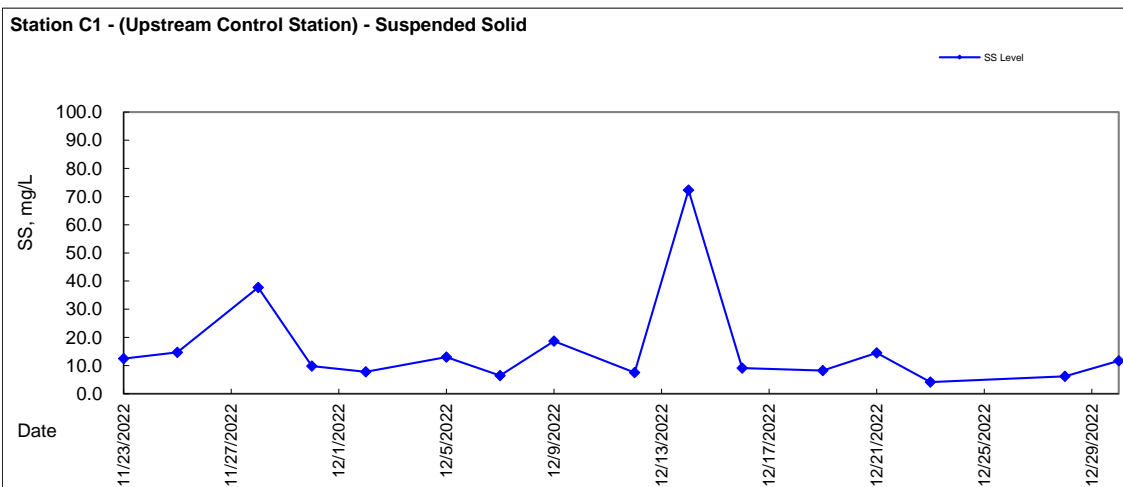
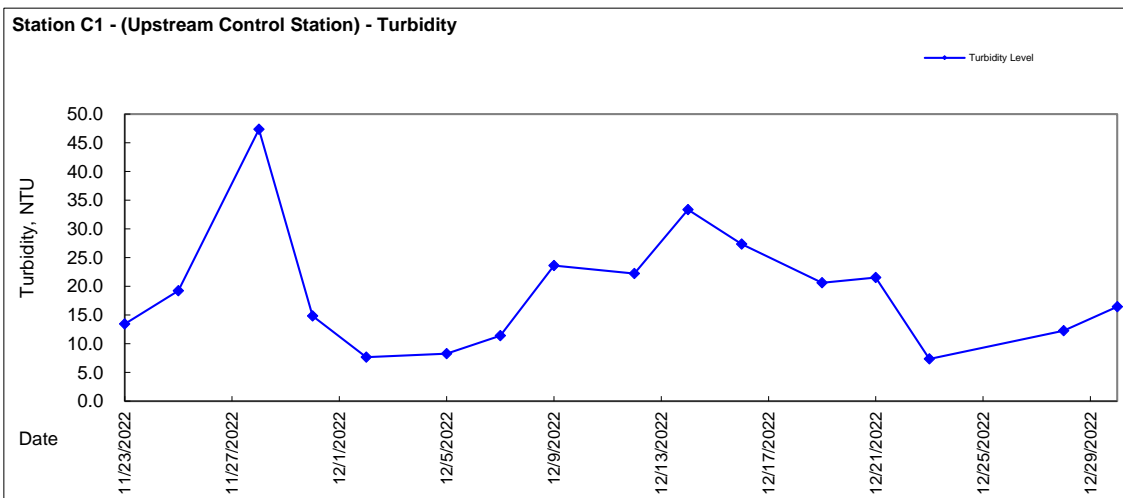
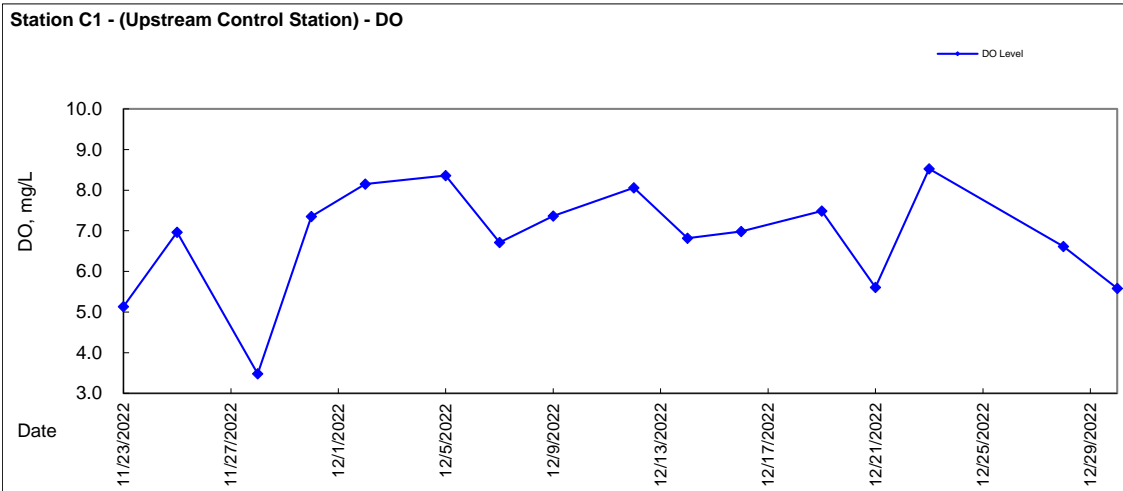


Graphic Presentation of WQM Result





Graphic Presentation of WQM Result





Appendix 5.8

Laboratory Analysis Result



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2246619
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 02-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V2	Issue Date	: 12-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group

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Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsglobal.com

Page Number : 2 of 4
Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2246619



General Comments

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Testing period is from 02-Dec-2022 to 09-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2246619

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2246619-001	HK2246619-002	HK2246619-003	HK2246619-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	8.4	7.2	14.4	13.6	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4753943)								
HK2246619-001	C1	EA025: Suspended Solids (SS)	---	0.5	mg/L	8.4	8.9	5.2
HK2247473-003	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	8.6	8.8	2.3

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
						Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	LCS		DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 4753943)												
EA025: Suspended Solids (SS)	---	0.5	mg/L	<0.5	20 mg/L	97.5	---	85.1	116	---	---	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2247471
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 05-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 12-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

ALS Technichem (HK) Pty Ltd Part of the ALS Laboratory Group

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Page Number : 2 of 4
Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2247471



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Testing period is from 05-Dec-2022 to 09-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2247471

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER

				Sample ID				
				C1	C1-DUP	M1	M1-DUP	---
				Sampling date / time				
				05-Dec-2022	05-Dec-2022	05-Dec-2022	05-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2247471-001	HK2247471-002	HK2247471-003	HK2247471-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	7.4	7.9	13.3	12.7	---



Laboratory Duplicate (DUP) Report

Matrix: WATER

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4753943)								
HK2246619-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	8.4	8.9	5.2
HK2247473-003	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	8.6	8.8	2.3

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

				Method Blank (MB) Report							
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
				Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
				Spike Concentration				Recovery Limits (%)			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
				LCS	DCS	Low	High	Value	Control Limit		
EA/ED: Physical and Aggregate Properties (QC Lot: 4753943)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	97.5	----	85.1	116	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2247473
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 07-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 12-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2247473



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Testing period is from 07-Dec-2022 to 09-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2247473

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				07-Dec-2022	07-Dec-2022	07-Dec-2022	07-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2247473-001	HK2247473-002	HK2247473-003	HK2247473-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	6.7	6.2	8.6	8.1	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4753843)								
HK2246619-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	8.4	8.9	5.2
HK2247473-003	M1	EA025: Suspended Solids (SS)	---	0.5	mg/L	8.6	8.8	2.3

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
				LOR	Unit	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	Result	LCS				DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 4753843)												
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	97.5	----	85.1	116	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2247475
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 09-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 15-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

ALS Technichem (HK) Pty Ltd
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Page Number : 2 of 4
Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2247475



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Testing period is from 09-Dec-2022 to 15-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2247475

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2247477
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 12-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 15-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group

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Page Number : 2 of 4
Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2247477



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Testing period is from 12-Dec-2022 to 15-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2247477

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				12-Dec-2022	12-Dec-2022	12-Dec-2022	12-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2247477-001	HK2247477-002	HK2247477-003	HK2247477-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	7.2	7.9	7.6	8.2	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4786823)								
HK2247475-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	18.7	19.1	2.1

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EA/ED: Physical and Aggregate Properties (QC Lot: 4786823)															
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	96.5	----	85.1	116	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2247478
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 14-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 22-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
		
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

ALS Technichem (HK) Pty Ltd
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Page Number : 2 of 4
Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2247478



General Comments

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Testing period is from 14-Dec-2022 to 22-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2247478

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER

				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				14-Dec-2022	14-Dec-2022	14-Dec-2022	14-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2247478-001	HK2247478-002	HK2247478-003	HK2247478-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	72.7	71.9	27.7	26.9	---



Laboratory Duplicate (DUP) Report

Matrix: WATER

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4784028)								
HK2247478-001	C1	EA025: Suspended Solids (SS)	---	0.5	mg/L	72.7	73.3	0.8
HK2249938-003	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	6.6	6.9	4.1

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report											
				Method Blank (MB) Report				Spike Recovery (%)				Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Low	High	Value	Control Limit				
EA/ED: Physical and Aggregate Properties (QC Lot: 4784028)															
EA025: Suspended Solids (SS)	---	0.5	mg/L	<0.5	20 mg/L	96.0	---	85.1	116	---	---				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2247479
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 16-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 22-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Part of the ALS Laboratory Group

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Page Number : 2 of 4
Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2247479



General Comments

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Testing period is from 16-Dec-2022 to 22-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2247479

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				16-Dec-2022	16-Dec-2022	16-Dec-2022	16-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2247479-001	HK2247479-002	HK2247479-003	HK2247479-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	9.3	9.0	16.0	14.7	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4784028)								
HK2247478-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	72.7	73.3	0.8
HK2249938-003	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	6.6	6.9	4.1

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
				LOR	Unit	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	Result	LCS				DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 4784028)												
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	96.0	----	85.1	116	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2249938
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
E-mail	: alexchan@lamenviro.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 20-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 22-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2249938



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2249938

Sample(s) was/were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER

				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				19-Dec-2022	19-Dec-2022	19-Dec-2022	19-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2249938-001	HK2249938-002	HK2249938-003	HK2249938-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	8.6	7.9	6.6	8.1	---



Laboratory Duplicate (DUP) Report

Matrix: WATER

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4784028)								
HK2247478-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	72.7	73.3	0.8
HK2249938-003	M1	EA025: Suspended Solids (SS)	---	0.5	mg/L	6.6	6.9	4.1

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report											
				Method Blank (MB) Report				Spike Recovery (%)				Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration		Spike Recovery (%)		Recovery Limits (%)		RPD (%)				
					LCS	DCS	Low	High	Value	Control Limit					
EA/ED: Physical and Aggregate Properties (QC Lot: 4784028)															
EA025: Sus pended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	96.0	----	85.1	116	----	----	----			

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2249939
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
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Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 21-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 31-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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<u>Signatories</u>	<u>Position</u>	<u>Authorised results for</u>
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2249939



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2249939

Sample(s) was/were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				21-Dec-2022	21-Dec-2022	21-Dec-2022	21-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2249939-001	HK2249939-002	HK2249939-003	HK2249939-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	13.8	15.2	9.3	9.2	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4795024)								
HK2249939-001	C1	EA025: Suspended Solids (SS)	---	0.5	mg/L	13.8	14.6	6.1
HK2249940-004	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	9.4	10.1	7.2

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 4795024)												
EA025: Sus pended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	95.5	----	85.1	116	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2249940
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
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Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 23-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 31-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2249940



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Testing period is from 23-Dec-2022 to 30-Dec-2022.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2249940

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				23-Dec-2022	23-Dec-2022	23-Dec-2022	23-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2249940-001	HK2249940-002	HK2249940-003	HK2249940-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	3.8	4.5	8.3	9.4	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4795024)								
HK2249939-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	13.8	14.6	6.1
HK2249940-004	M1 - DUP	EA025: Suspended Solids (SS)	---	0.5	mg/L	9.4	10.1	7.2

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
						Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	LCS		DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 4795024)												
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	95.5	----	85.1	116	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2249942
Address	: 19/F, REMEX CENTRE, 42 WONG CHUK HANG ROAD, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Kwai Tsing Hong Kong		
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Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 28-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 31-Dec-2022
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2249942



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2249942

Sample(s) was/were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				28-Dec-2022	28-Dec-2022	28-Dec-2022	28-Dec-2022	---
Compound	CAS Number	LOR	Unit	HK2249942-001	HK2249942-002	HK2249942-003	HK2249942-004	---
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	7.9	4.4	10.9	4.9	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4795024)								
HK2249939-001	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	13.8	14.6	6.1
HK2249940-004	Anonymous	EA025: Suspended Solids (SS)	---	0.5	mg/L	9.4	10.1	7.2

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
						Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	LCS		DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 4795024)												
EA025: Suspended Solids (SS)	---	0.5	mg/L	<0.5	20 mg/L	95.5	---	85.1	116	---	---	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: LAM ENVIRONMENTAL SERVICES LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: ALEX CHAN	Contact	: Richard Fung	Work Order	: HK2249943
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Telephone	: 2839 5629	Telephone	: +852 2610 1044		
Facsimile	: 2882 3331	Facsimile	: +852 2610 2021		
Project	: CONTRACT NO. SPW 12/2021 - SHEK WU HUI EFFLUENT POLISHING PLANT			Date Samples Received	: 30-Dec-2022
Order number	: ---	Quote number	: HKE/2224/2021_V3	Issue Date	: 09-Jan-2023
C-O-C number	: ---			No. of samples received	: 4
Site	:			No. of samples analysed	: 4

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Signatories	Position	Authorised results for
Fung Lim Chee, Richard	Managing Director	Inorganics, Kwai Tsing

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Client : LAM ENVIRONMENTAL SERVICES LTD
Work Order : HK2249943



General Comments

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Testing period is from 30-Dec-2022 to 07-Jan-2023.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2249943

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.



Analytical Results

Sub-Matrix: FRESH WATER				Sample ID				
				C1	C1 - DUP	M1	M1 - DUP	---
				Sampling date / time				
				30-Dec-2022	30-Dec-2022	30-Dec-2022	30-Dec-2022	----
Compound	CAS Number	LOR	Unit	HK2249943-001	HK2249943-002	HK2249943-003	HK2249943-004	-----
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	---	2.0	mg/L	12.0	11.3	12.2	12.7	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4803526)								
HK2249943-001	C1	EA025: Suspended Solids (SS)	---	0.5	mg/L	12.0	12.3	2.5

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EA/ED: Physical and Aggregate Properties (QC Lot: 4803526)															
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20 mg/L	98.5	----	85.1	116	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



Appendix 5.9

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for 2022

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	1.104	0.000	0.000	0.000	1.104	0.094	0.000	0.000	0.000	0.000	0.202
Feb	0.549	0.000	0.000	0.000	0.549	0.134	2.370	0.000	0.000	0.000	0.068
Mar	0.398	0.000	0.000	0.000	0.398	0.756	0.000	0.000	0.000	0.000	0.094
Apr	1.624	0.000	0.000	0.000	1.624	0.133	0.000	0.000	0.000	0.000	0.088
May	0.362	0.000	0.000	0.000	0.362	0.046	0.000	0.000	0.000	0.000	0.090
Jun	0.397	0.000	0.000	0.000	0.397	0.069	0.000	0.010	0.000	0.000	0.077
Sub-total	4.433	0.000	0.000	0.000	4.433	1.233	2.370	0.010	0.000	0.000	0.620
Jul	1.635	0.000	0.000	0.000	1.635	0.104	0.003	0.000	0.001	0.000	0.122
Aug	1.409	0.000	0.000	0.000	1.409	0.487	0.000	0.000	0.005	0.000	0.160
Sep	1.032	0.000	0.000	0.000	1.032	0.429	0.004	0.000	0.010	0.000	0.229
Oct	0.789	0.000	0.000	0.000	0.789	0.320	0.003	0.000	0.008	0.000	0.133
Nov	2.558	0.000	0.000	0.000	2.558	1.413	0.000	0.000	0.000	0.000	0.152
Dec	4.051	0.000	0.000	0.000	4.051	1.482	0.000	0.000	0.000	0.000	0.104
Total	15.906	0.000	0.000	0.000	15.906	5.470	2.379	0.010	0.023	0.000	1.521

- 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 slurry and bentonite are disposed at Tseung Kwun O 137.
 7. The non-inert C&D wastes are disposed at NENT.

Monthly Summary Waste Flow Table for 2022

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	4.980	0.000	0.000	0.813	4.167	0.000	7.15	0.000	0.004	0.000	0.012
Feb	3.400	0.000	0.000	0.639	2.761	0.000	5.71	0.000	0.000	0.000	0.010
Mar	3.050	0.000	0.000	0.073	2.977	0.000	0.00	0.000	0.000	0.000	0.019
Apr	2.037	0.000	0.000	0.112	1.925	0.000	0.00	0.000	0.000	0.000	0.016
May	1.076	0.000	0.000	0.000	1.076	0.000	2.14	0.000	0.000	0.000	0.016
Jun	2.515	0.000	0.000	0.034	2.481	0.000	0.00	0.010	0.001	0.000	0.020
Sub-total	17.057	0.000	0.000	1.671	15.386	0.000	15.00	0.010	0.005	0.000	0.093
Jul	3.222	0.000	0.000	0.000	3.222	0.000	0.00	0.000	0.005	0.000	0.031
Aug	4.151	0.000	0.000	0.000	4.151	0.000	0.00	0.000	0.003	0.000	0.026
Sep	2.735	0.000	0.000	0.000	2.735	0.000	0.00	0.000	0.007	0.000	0.042
Oct	9.779	0.000	0.000	1.937	7.842	0.000	0.00	0.000	0.006	0.000	0.029
Nov	12.967	0.000	0.000	0.000	12.967	0.232	0.00	0.000	0.000	0.000	0.027
Dec	13.033	0.000	0.000	0.000	13.033	0.000	0.00	0.000	0.000	0.000	0.655
Total	62.943	0.000	0.000	3.608	59.335	0.232	15.01	0.010	0.026	0.000	0.902

- 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 2022 (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	176.71 T	0	0	0	176.71 T	0	0	0.177	0.008	0	2.7T
Feb	83.58T	0	0	0	83.58T	0	0	0.132	0.003	0	0
Mar	0	0	0	0	0	0	0	0	0	0	3.06T
Apr	0	0	0	0	0	0	0	0.13	0.012	0	0
May	4029.56T	0	0	0	4029.56T	0	0	0	0	0	1.64T
June	5565.13T	0	0	0	5565.13T	0	0	0	0	0	1.19T
Sub-total	9854.98 T	0	0	0	9854.98 T	0	0	0.439	0.023	0	8.59
July	5374.59T	0	0	0	5374.59T	0	0	0	0	0	1.71T
Aug	149.1T	0	0	0	149.1T	0	0.006	0.646	0.005	0	0
Sept	43.17T	0	0	0	43.17T	0	0	0.108	0.007	0	3.61
Oct	57.6T	0	0	0	57.6T	0	0	0	0	0	2.13T
Nov	0	0	0	0	0	0	0	0.131	0.005	0	2.24
Dec	0	0	0	0	0	0	0	0.111	0.011	0	16.27T
Total	15479.44T	0	0	0	15479.44T	0	0.006	1.435	0.051	0	34.55T



Appendix 5.10

Investigation Report for Exceedances reported in the reporting month



Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_005_W	2-Dec-22	M1	Turbidity (NTU)	12.54 NTU (Limit Level Exceedance)	>9.20 NTU (120 % of C1)	> 9.96 NTU (130 % of C1)	Finding: -According to the Contractor's information, preparation for outfall works was mainly conducted on 2 December 2022. The construction works for the outfall were conducted mainly land-based works. And there was no water discharged from the Project site to Ng Tung River. -During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively. -Considering, land-based works was mainly conducted on 2 December 2022, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.
			SS (mg/L)	14.00 mg/L (Limit Level Exceedance)	9.36 mg/L (120 % of C1)	10.14 mg/L (130 % of C1)	
		C1 (Control Station for comparing to the impact station - M1)	Turbidity (NTU)	7.66 NTU			Action taken/ to be taken: -The Contractor and ET will monitor and check the outfall-related construction work continuously. -The Contractor should ensure the water quality mitigation measures are implemented properly for coming outfall-related construction work.
			SS (mg/L)	7.80 mg/L			

Attachment 1 - Photo record for water quality monitoring on 2 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 2 December 2022

Date of Sampling: 2-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 16

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						°C	°C	-	-	ppt	%	%	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
M1 Impact Station, Downstream of the proposed outfall	830288	M1	13:30	Middle	Pale Yellow	17.5	was observe	7.72	7.72	0.11	0.11	84.9	84.7	8.11	8.09	8.08	12.48	12.35	12.54	14.4	14.00	Turbidity and SS levels exceeded limit levels
	841575	M1 DUP	13:02			17.5	17.5	7.72	7.72	0.11	0.11	84.5	84.1	8.08	8.03		12.56	12.76		13.6		
C1 Control Station, Upstream of the proposed outfall	830355	C1	12:45	Middle	Pale Yellow	18.0	18.0	7.86	7.86	0.12	0.12	86.6	86.4	8.21	8.18	8.15	7.79	7.39	7.66	8.4	7.80	
	841532	C1 DUP	12:47			18.0	18.0	7.86	7.86	0.12	0.12	85.9	85.3	8.14	8.08		7.75	7.72		7.2		

Action Level Exceedance

Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_006_W	5-Dec-22	M1	DO (mg/l)	6.89 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	Finding: -According to the Contractor's information, preparation for outfall works was mainly conducted on 5 December 2022. The construction works for the outfall were conducted mainly land-based works. And there was no water discharged from the Project site to Ng Tung River. -During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively. -Considering, land-based works was mainly conducted on 5 December 2022, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.
			Turbidity (NTU)	11.16 NTU (Limit Level Exceedance)	>9.91 NTU (120 % of C1)	> 10.74 NTU (130 % of C1)	
		C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	8.36 mg/L			Action taken/ to be taken: -The Contractor and ET will monitor and check the outfall-related construction work continuously. -The Contractor should ensure the water quality mitigation measures are implemented properly for coming outfall-related construction work.
			Turbidity (NTU)	8.26 NTU			

Attachment 1 - Photo record for water quality monitoring on 5 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 5 December 2022

Date of Sampling: **5-Dec-22** Weather Condition: **Fine** Ambient Temperature, oC: **16**

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						oC				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	11:50	Middle	Pale Green	20.8	20.8	7.79	7.79	0.29	0.29	77.6	72.7	6.94	6.95	6.89	11.14	11.16	11.16	7.4	7.65	DO and Turbidity exceeded limit levels
	841575	M1 DUP	11:52			20.8	20.8	7.79	7.79	0.29	0.29	76.5	76.3	6.84	6.82		11.16	11.17		7.9		
C1 Control Station, Upstream of the proposed outfall	830355	C1	11:40	Middle	Pale Green	19.6	19.6	8.00	8.00	0.20	0.20	91.5	92.0	8.38	8.43	8.36	8.26	8.26	8.26	13.3	13.00	
	841532	C1 DUP	11:42			19.6	19.6	8.00	8.00	0.20	0.20	90.9	90.5	8.34	8.29		8.26	8.26		12.7		

Action Level Exceedance

Limit Level Exceedance



Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_007_W	7-Dec-22	M1	DO (mg/l)	6.47 mg/l (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	Finding: -According to the Contractor's information, sheet piling mainly was conducted at outfall on 7 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River, and exposed earth surface was paved to minimize the generation of muddy water. Moreover, there was no water discharged from the Project site to Ng Tung River. -During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor. Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively. -Considering, land-based works was mainly conducted on 7 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related. Action taken/ to be taken: -The Contractor and ET will monitor and check the outfall-related construction work continuously. -The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.
			SS (mg/l)	8.35 mg/l (Action Level Exceedance)	>7.74 mg/l (120 % of C1)	> 8.39 mg/l (130 % of C1)	
		C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	6.71 mg/l			
		SS (mg/l)	6.45 mg/l				

Attachment 1 - Photo record for water quality monitoring on 7 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 7 December 2022

Date of Sampling: 7-Dec-22 Weather Condition: Sunny Ambient Temperature, oC: 20

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						oC	oC	-	pH	g/L	g/L	%	%	mg/L	mg/L	mg/L	NTU	NTU	mg/L	mg/L		
M1 Impact Station, Downstream of the proposed outfall	830288	M1	9:55	Middle	Pale Green	20.7	20.7	7.61	7.61	0.28	0.28	72.6	77.5	6.51	6.44	6.47	10.94	10.92	10.94	8.6	8.35	DO exceeded limit level and SS exceeded action level
	841575	M1 DUP	9:57			20.7	20.7	7.61	7.61	0.28	0.28	72.4	72.1	6.48	6.46		10.93	10.95		8.1		
C1 Control Station, Upstream of the proposed outfall	830355	C1	9:45	Middle	Pale Green	17.5	17.5	7.74	7.74	0.60	0.60	70.8	70.3	6.76	6.71	6.71	11.30	11.40	11.38	6.7	6.45	
	841532	C1 DUP	9:47			17.5	17.5	7.74	7.74	0.60	0.60	70.2	69.9	6.70	6.68		11.41	11.41		6.2		

Action Level Exceedance
Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_008_W	9-Dec-22	M1	DO (mg/l)	7.34 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	<p>Finding:</p> <p>-According to the Contractor's information, sheet piling mainly was conducted at outfall on 9 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River.</p> <p>-During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor.</p> <p>-Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively.</p> <p>-Considering, land-based works was mainly conducted on 9 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.</p>
			C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	6.71 mg/L		

Attachment 1 - Photo record for water quality monitoring on 9 December 2022

Outfall works

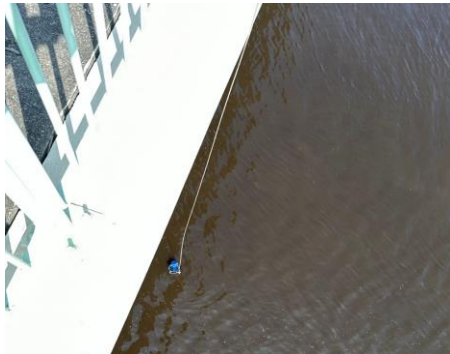


C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 9 December 2022

Date of Sampling: 9-Dec-22 Weather Condition: Fine Ambient Temperature, oC: 21

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						oC				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	12:30	Middle	Pale Yellow	23.8	23.8	7.08	7.08	0.32	0.32	87.6	87.4	7.39	7.37	7.34	13.65	13.65	13.89	10.1	10.35	DO exceeded limit level
	841575	M1 DUP	12:32			23.8	23.8	7.08	7.08	0.32	0.32	87.0	85.9	7.34	7.24		14.11	14.16		10.6		
C1 Control Station, Upstream of the proposed outfall	830355	C1	12:15	Middle	Pale Yellow	22.4	22.4	7.12	7.12	0.25	0.25	84.4	84.9	7.31	7.36	7.37	23.71	23.72	23.61	18.7	18.70	
	841532	C1 DUP	12:17			22.4	22.4	7.12	7.12	0.25	0.25	85.4	85.2	7.40	7.39		23.51	23.49		18.7		

Action Level Exceedance

Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_009_W	12-Dec-22	M1	DO (mg/l)	7.79 mg/L (Action Level Exceedance)	<7.80mg/L	<7.70mg/L	<p>Finding:</p> <p>-According to the Contractor's information, excavation mainly was conducted at outfall on 12 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River.</p> <p>-During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor.</p> <p>-Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively.</p> <p>-Considering, land-based works was mainly conducted on 12 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.</p> <p>Action taken/ to be taken:</p> <p>-The Contractor and ET will monitor and check the outfall-related construction work continuously.</p> <p>-The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.</p>
			C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	8.06 mg/L		

Attachment 1 - Photo record for water quality monitoring on 12 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 12 December 2022

Date of Sampling: 12-Dec-22 Weather Condition: Fine Ambient Temperature, oC: 15

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						oC				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	11:20	Middle	Pale Green	16.9	16.9	7.44	7.44	0.12	0.12	80.4	80.5	7.78	7.79	7.79	11.32	11.32	11.32	7.6	7.90	DO exceeded action level
	841575	M1 DUP	11:22			16.9	16.9	7.44	7.44	0.12	0.12	80.6	80.5	7.80	7.79		11.32	11.32		8.2		
C1 Control Station, Upstream of the proposed outfall	830355	C1	11:10	Middle	Pale Green	17.0	17.0	7.53	7.53	0.14	0.14	84.2	83.7	8.13	8.08	8.06	22.33	22.29	22.23	7.2	7.55	
	841532	C1 DUP	11:12			17.0	17.0	7.53	7.53	0.14	0.14	83.2	82.8	8.04	7.99		22.14	22.15		7.9		

Action Level Exceedance

Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result	
SWH_010_W	14-Dec-22	M1	DO (mg/l)	7.65 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	Finding: -According to the Contractor's information, excavation mainly was conducted at outfall on 14 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River. -During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor. Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively. -Considering, land-based works was mainly conducted on 14 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.	
			Turbidity (NTU)	38.95 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU		
			SS (mg/L)	27.30 mg/L (Limit Level Exceedance)	>18.8 mg/L	>19.5 mg/L		
		C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	6.82 mg/L				Action taken/ to be taken: -The Contractor and ET will monitor and check the outfall-related construction work continuously. -The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.
		Turbidity (NTU)	33.34 NTU					
SS (mg/L)	72.30 mg/L							

Attachment 1 - Photo record for water quality monitoring on 14 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 14 December 2022

Date of Sampling: 14-Dec-22 Weather Condition: Cloudy Ambient Temperature, oC: 11

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						oC				ppt	%	mg/L		NTU		mg/L						
M1 Impact Station, Downstream of the proposed outfall	830288	M1	11:30	Middle	Pale Green	15.1	15.1	7.41	7.41	0.11	0.11	76.1	76.2	7.65	7.66	7.65	38.84	38.96	38.95	27.7	27.30	DO, Turbidity and SS levels exceeded limit levels
	841575	M1 DUP	11:32			15.1	15.1	7.41	7.41	0.11	0.11	76.1	76.1	7.65	7.65		39.00	39.01		26.9		
C1 Control Station, Upstream of the proposed outfall	830355	C1	11:15	Middle	Pale Green	15.5	15.5	7.45	7.45	0.12	0.12	66.8	69.1	6.66	6.88	6.82	33.24	33.28	33.34	72.7	72.30	
	841532	C1 DUP	11:17			15.5	15.5	7.45	7.45	0.12	0.12	68.8	69.0	6.86	6.88		33.36	33.46		71.9		

Action Level Exceedance

Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result	
SWH_011_W	16-Dec-22	M1	DO (mg/l)	6.26 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	Finding: -According to the Contractor's information, excavation mainly was conducted at outfall on 16 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River. -During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor. Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively. -Considering, land-based works was mainly conducted on 16 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.	
			Turbidity (NTU)	21.17 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU		
			SS (mg/L)	15.35 mg/L (Limit Level Exceedance)	>10.98 mg/L (120 % of C1)	>11.90 mg/L (130 % of C1)		
		C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	6.98 mg/L				Action taken/ to be taken: -The Contractor and ET will monitor and check the outfall-related construction work continuously. -The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.
		Turbidity (NTU)	27.34 NTU					
SS (mg/L)	9.15 mg/L							

Attachment 1 - Photo record for water quality monitoring on 16 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 16 December 2022

Date of Sampling: 16-Dec-22 Weather Condition: Cloudy Ambient Temperature, oC: 15

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						oC				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	10:06	Middle	Pale Green	16.9	16.9	7.32	7.32	0.11	0.11	67.0	67.4	6.49	6.53	6.26	21.00	21.11	21.17	16.0	15.35	DO, Turbidity and SS levels exceeded limit levels
	841575	M1 DUP	10:08			16.9	16.9	7.32	7.32	0.11	0.11	67.4	66.9	5.53	6.48		21.03	21.55		14.7		
C1 Control Station, Upstream of the proposed outfall	830355	C1	9:55	Middle	Pale Green	17.0	17.0	7.33	7.33	0.12	0.12	72.8	72.4	7.03	6.99	6.98	27.38	27.33	27.34	9.3	9.15	
	841532	C1 DUP	9:57			17.0	17.0	7.33	7.32	0.12	0.12	72.2	71.9	6.97	6.94		27.32	27.31		9.0		

Action Level Exceedance

Limit Level Exceedance



Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_012_W	19-Dec-22	M1	Turbidity (NTU)	21.36 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU	<p>Finding:</p> <p>-According to the Contractor's information, excavation mainly was conducted at outfall on 19 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River.</p> <p>-During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor.</p> <p>Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively.</p> <p>-Considering, land-based works was mainly conducted on 19 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.</p>
		C1 (Control Station for comparing to the impact station - M1)	Turbidity (NTU)	20.61 NTU			<p>Action taken/ to be taken:</p> <p>-The Contractor and ET will monitor and check the outfall-related construction work continuously.</p> <p>-The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.</p>

Attachment 1 - Photo record for water quality monitoring on 19 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 19 December 2022

Date of Sampling: 19-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 9

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average		SS	SS Aaverage	Remarks / Observations
						°C	°C	-	-	ppt	%	%	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
M1 Impact Station, Downstream of the proposed outfall	830288	M1	9:10	Middle	Pale green	10.7	10.7	7.50	7.50	0.15	0.15	73.5	76.5	8.07	8.16	8.22	21.26	21.25	21.36	6.6	7.35	Turbidity exceeded limit level		
	841575	M1 DUP	9:12			10.7	10.7	7.50	7.50	0.15	0.15	78.7	77.7	8.45	8.21		21.35	21.58		8.1				
C1 Control Station, Upstream of the proposed outfall	830355	C1	8:45	Middle	Pale green	10.5	10.5	7.84	7.84	0.11	0.11	84.1	72.8	8.05	7.76	7.49	20.56	20.74	20.61	8.6	8.25			
	841532	C1 DUP	8:47			10.5	10.5	7.84	7.84	0.11	0.11	67.3	65.7	7.11	7.03		20.58	20.55		7.9				

Action Level Exceedance

Limit Level Exceedance



Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_013_W	21-Dec-22	M1	DO mg/L	6.14 mg/L (Limit Level Exceedance)	<7.8 mg/L	<7.7 mg/L	<p>Finding:</p> <p>-According to the Contractor's information, reinforcement and concreting mainly were conducted at outfall on 21 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River.</p> <p>-During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor.</p> <p>Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively.</p> <p>-Considering, land-based works was mainly conducted on 21 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.</p> <p>Action taken/ to be taken:</p> <p>-The Contractor and ET will monitor and check the outfall-related construction work continuously.</p> <p>-The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.</p>
			Turbidity (NTU)	14.75 NTU (Action Level Exceedance)	>14.6 NTU	>15.6 NTU	
		C1 (Control Station for comparing to the impact station - M1)	DO mg/L	5.61 mg/L			
		Turbidity (NTU)	21.52 NTU				

Attachment 1 - Photo record for water quality monitoring on 21 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 21 December 2022

Date of Sampling: 21-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 15

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						°C				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	8:35	Middle	Pale Green	18.5	18.5	7.26	7.26	0.22	0.22	70.0	65.3	6.56	6.02	6.14	14.88	14.89	14.75	9.3	9.25	DO exceeded limit level and Turbidity exceeded action level
	841575	M1 DUP	8:37			18.5	18.5	7.26	7.26	0.22	0.22	62.6	66.6	5.82	6.14		14.47	14.77		9.2		
C1 Control Station, Upstream of the proposed outfall	830355	C1	8:35	Middle	Pale Green	17.3	17.3	8.13	8.13	0.11	0.11	58.0	54.3	5.86	5.22	5.61	21.64	21.43	21.52	13.8	14.50	
	841532	C1 DUP	8:37			17.3	17.3	8.13	8.13	0.11	0.11	60.6	57.9	5.82	5.54		21.49	21.53		15.2		

Action Level Exceedance

Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_014_W	23-Dec-22	M1	Turbidity (NTU)	9.4 NTU (Action Level Exceedance)	>8.76 NTU (120% of C1)	>8.49 NTU (130% of C1)	<p>Finding:</p> <p>-According to the Contractor's information, reinforcement and concreting mainly were conducted at outfall on 23 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River.</p> <p>-During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor.</p> <p>Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively.</p> <p>-Considering, land-based works was mainly conducted on 23 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.</p>
		C1 (Control Station for comparing to the impact station - M1)	Turbidity (NTU)	7.34 NTU	>4.98 mg/L (120% of C1)	>5.40 mg/L (130% of C1)	
			SS (mg/L)	8.45 mg/L (Limit Level Exceedance)			<p>Action taken/ to be taken:</p> <p>-The Contractor and ET will monitor and check the outfall-related construction work continuously.</p> <p>-The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.</p>

Attachment 1 - Photo record for water quality monitoring on 23 December 2022

Outfall works

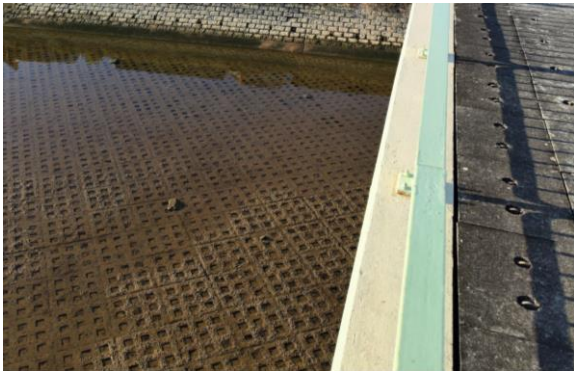


C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 23 December 2022

Date of Sampling: 23-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 13

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average		Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						°C				ppt		%	mg/L		NTU		mg/L						
M1 Impact Station, Downstream of the proposed outfall	830288	M1	8:45	Middle	Pale green	14.4	14.4	7.53	7.53	0.24	0.24	90.6	88.2	9.23	9.30	9.14	9.36	9.07	9.15	8.3	8.85	Turbidity exceeded action level and SS exceeded limit level	
	841575	M1 DUP	8:45			14.4	14.4	7.53	7.53	0.24	0.24	89.9	87.4	9.15	8.89		9.01	9.15		9.4			
C1 Control Station, Upstream of the proposed outfall	830355	C1	8:15	Middle	Pale green	13.7	13.7	7.70	7.70	0.23	0.23	84.2	86.1	8.73	8.93	8.53	7.49	7.36	7.34	4.5	4.15		
	841532	C1 DUP	8:17			13.7	13.7	7.70	7.70	0.23	0.23	80.7	77.7	8.38	8.06		7.22	7.30		3.8			

Action Level Exceedance

Limit Level Exceedance

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_015_W	28-Dec-22	M1	DO (mg/L)	6.89 mg/L (Limit Level Exceedance)	7.8 mg/L	7.7 mg/L	<p>Finding:</p> <p>-According to the Contractor's information, reinforcement and concreting mainly were conducted at outfall on 28 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River.</p> <p>-During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor.</p> <p>Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively.</p> <p>-Considering, land-based works was mainly conducted on 28 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.</p>
			SS (mg/L)	7.90 mg/L (Action Level Exceedance)	>7.38 mg/L (120% of C1)	>8.00 mg/L (130% of C1)	
		C1 (Control Station for comparing to the impact station - M1)	DO (mg/L)	6.62 mg/L			
			SS (mg/L)	6.15 mg/L			
							<p>Action taken/ to be taken:</p> <p>-The Contractor and ET will monitor and check the outfall-related construction work continuously.</p> <p>-The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.</p>

Attachment 1 - Photo record for water quality monitoring on 28 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 28 December 2022

Date of Sampling: 28-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 15

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						°C				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	8:45	Middle	Pale Green	16.5	16.5	7.79	7.79	0.14	0.14	71.8	70.8	7.08	6.93	6.89	11.27	11.30	11.36	10.9	7.90	DO exceeded limit level and SS exceeded action level
	841575	M1 DUP	8:50			16.5	16.5	7.99	7.79	0.14	0.14	69.2	67.1	6.98	6.56		11.40	11.45		4.9		
C1 Control Station, Upstream of the proposed outfall	830355	C1	8:15	Middle	Pale Green	16.4	16.4	7.76	7.76	0.12	0.12	67.4	68.0	6.93	6.67	6.62	12.32	12.19	12.25	7.9	6.15	
	841532	C1 DUP	8:17			16.4	16.4	7.76	7.76	0.12	0.12	66.4	64.7	6.52	6.35		12.29	12.20		4.4		

Action Level Exceedance

Limit Level Exceedance



Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Investigation Result
SWH_016_w	30-Dec-22	M1	DO (mg/l)	5.45 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	Finding: -According to the Contractor's information, reinforcement and concreting mainly were conducted at outfall on 30 December 2022. The construction works for the outfall were conducted mainly land-based works. During the construction works at the outfall, concrete blocks wrapped with geotextile and impervious sheeting were placed to prevent wastewater or soil from entering Ng Tung River. Moreover, there was no water discharged from the Project site to Ng Tung River. -During the water quality monitoring process, mainly land-based work was observed by the monitoring team as mentioned by the Contractor. And no soil or silt dropped from outfall work to Ng Tung River was observed by the monitoring team during the monitoring process. Water quality mitigation measures were observed as mentioned by the Contractor. Construction work from another project was also identified at Ng Tung River near to C1. The photo record taken during the monitoring process and water quality monitoring data are annexed in Attachment 1 and Attachment 2 respectively. -Considering, land-based works was mainly conducted on 30 December 2022, water quality mitigation measure was identified during the monitoring process, no discharge or dropping soil was identified during monitoring process. There was no evidence showing the water quality affected by the Project. This exceedance was considered non-project related.
			Turbidity (NTU)	15.94 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU	
		C1 (Control Station for comparing to the impact station - M1)	DO (mg/l)	5.59 mg/L			Action taken/ to be taken: -The Contractor and ET will monitor and check the outfall-related construction work continuously. -The Contractor should ensure the water quality mitigation measures are implemented properly for outfall-related construction work.
			Turbidity (NTU)	16.45 NTU			

Attachment 1 - Photo record for water quality monitoring on 30 December 2022

Outfall works



C1



Construction work from another project

M1



Attachment 2 - Water quality measured on 30 December 2022

Date of Sampling: 30-Dec-22 Weather Condition: Fine Ambient Temperature, °C: 12

Station Reference	Coordinate (Easting, Northing)	Sample ID	Time	Sampling Depth	Appearance	Temperature		pH		Salinity		DO Saturation		DO		DO Average	Turbidity		Turb Average	SS	SS Aaverage	Remarks / Observations
						°C				ppt		%	mg/L		NTU		mg/L					
M1 Impact Station, Downstream of the proposed outfall	830288	M1	8:30	Middle	Pale Green	14.8	14.8	7.42	7.42	0.14	0.14	54.9	53.8	5.55	5.42	5.45	15.88	15.98	15.94	12.2	12.45	DO and Turbidity exceeded limit level
	841575	M1 DUP	8:32			14.8	14.8	7.42	7.42	0.14	0.14	52.8	55.1	5.33	5.51		15.94	15.97		12.7		
C1 Control Station, Upstream of the proposed outfall	830355	C1	8:00	Middle	Pale Green	15.0	15.0	7.67	7.67	0.12	0.12	55.0	57.1	5.61	5.74	5.59	16.39	16.41	16.45	12.0	11.65	
	841532	C1 DUP	8:02			15.0	15.0	7.67	7.67	0.12	0.12	55.7	53.3	5.61	5.38		16.51	16.48		11.3		

Action Level Exceedance

Limit Level Exceedance



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.



Event and Action Plan for Water Quality Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action Level				
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in situ measurement on the next day of exceedance to confirm findings; Check monitoring data, plant, equipment and Contractor(s)'s working methods; Identify source(s) of impact and record in notification of exceedance; Inform IEC, Contractor(s) and ER 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor(s)'s working methods; Inform EPD. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Check plant and equipment and rectify unacceptable practice
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> Repeat in situ measurement on the next day of exceedance to confirm findings; Check monitoring data, plant, equipment and Contractor(s)'s working methods; Identify source(s) of impact and record in notification of exceedance; Inform IEC, Contractor(s) and ER; Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor(s)'s working methods; Inform EPD; Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. Ensure additional mitigation measures are properly implemented. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Check plant and equipment and rectify unacceptable practice; Consider changes of working methods; Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; Implement the agreed.



Event	Action			
	ET	IEC	ER	Contractor
Limit Level				
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in situ measurement on the next day of exceedance to confirm findings; Check monitoring data, plant, equipment and Contractor(s)'s working methods; Identify source(s) of impact and record in notification of exceedance; Inform IEC, Contractor(s) and ER; Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor(s)'s working methods; Inform EPD; Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. Ensure additional mitigation measures are properly implemented. Request Contractor(s) to critically review the working methods. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Check plant and equipment and rectify unacceptable practice; Critically review the need to change working methods; Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; Implement the agreed mitigation measures.
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> Repeat in situ measurement on the next day of exceedance to confirm findings; Check monitoring data, plant, equipment and Contractor(s)'s working methods; Identify source(s) of impact and record in notification of exceedance; Inform IEC, Contractor(s) and ER; Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor(s)'s working methods; Inform EPD; Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. Ensure additional mitigation measures are properly implemented. Request Contractor(s) to critically review the working methods. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Check plant and equipment and rectify unacceptable practice; Critically review the need to change working methods; Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; Implement the agreed mitigation measures.



Appendix 6.2

Summary of Notification of Exceedance



Summary for Notification of Exceedance

Reporting Period: December 2022

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

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

Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up
SWH_005_W	2-Dec-22	M1	Turbidity (NTU)	12.5 NTU (Limit Level Exceedance)	>9.20 NTU (120 % of C1)	> 9.96 NTU (130 % of C1)	After investigation, the exceedance was considered non-project related.
			SS (mg/L)	14.00 mg/L (Limit Level Exceedance)	9.36 mg/L (120 % of C1)	10.14 mg/L (130 % of C1)	
SWH_006_W	5-Dec-22	M1	DO (mg/l)	6.89 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
			Turbidity (NTU)	11.2 NTU (Limit Level Exceedance)	>9.91 NTU (120 % of C1)	> 10.74 NTU (130 % of C1)	
SWH_007_W	7-Dec-22	M1	DO (mg/l)	6.47 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
			SS (mg/l)	8.35 mg/l (Action Level Exceedance)	>7.74 mg/l (120 % of C1)	> 8.39 mg/l (130 % of C1)	



SWH_008_W	9-Dec-22	M1	DO (mg/l)	7.34 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
SWH_009_W	12-Dec-22	M1	DO (mg/l)	7.79 mg/L (Action Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
SWH_010_W	14-Dec-22	M1	DO (mg/l)	7.65 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
			Turbidity (NTU)	39.0 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU	
			SS (mg/L)	27.30 mg/L (Limit Level Exceedance)	>18.8 mg/L	>19.5 mg/L	
SWH_011_W	16-Dec-22	M1	DO (mg/l)	6.26 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
			Turbidity (NTU)	21.2 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU	
			SS (mg/L)	15.35 mg/L (Limit Level Exceedance)	>10.98 mg/L (120 % of C1)	>11.90 mg/L (130 % of C1)	
SWH_012_W	19-Dec-22	M1	Turbidity (NTU)	21.4 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU	After investigation, the exceedance was considered non-project related.
SWH_013_W	21-Dec-22	M1	DO mg/L	6.14 mg/L (Limit Level Exceedance)	<7.8 mg/L	<7.7 mg/L	After investigation, the exceedance was considered non-project related.
			Turbidity (NTU)	14.8 NTU (Action Level Exceedance)	>14.6 NTU	>15.6 NTU	



SWH_014_W	23-Dec-22	M1	Turbidity (NTU)	9.4 NTU (Action Level Exceedance)	>8.76 NTU (120% of C1)	>9.49 NTU (130% of C1)	After investigation, the exceedance was considered non-project related.
			SS (mg/L)	8.45 mg/L (Limit Level Exceedance)	>4.98 mg/L (120% of C1)	>5.40 mg/L (130% of C1)	
SWH_015_W	28-Dec-22	M1	DO (mg/L)	6.89 mg/L (Limit Level Exceedance)	7.8 mg/L	7.7 mg/L	After investigation, the exceedance was considered non-project related.
			SS (mg/L)	7.90 mg/L (Action Level Exceedance)	>7.38 mg/L (120% of C1)	>8.00 mg/L (130% of C1)	
SWH_016_w	28-Dec-22	M1	DO (mg/l)	5.45 mg/L (Limit Level Exceedance)	<7.80mg/L	<7.70mg/L	After investigation, the exceedance was considered non-project related.
			Turbidity (NTU)	15.9 NTU (Limit Level Exceedance)	>14.6 NTU	>15.6 NTU	



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 on 22 April 2022 as confirmed with EPD.



Appendix 9.1

Construction Programme of Individual Contracts

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	
1	CD-1000		Contract Dates			1585 days	Mon 18/11/19	Thu 27/3/25	1651.5 days	Mon 18/11/19	Fri 13/6/25	Mon 18/11/19	NA			88.5 days		0%	
2	CD-1010		Starting Date			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		8,9,13FS+290 days,14FS+311 days	0 days		100%	
3	CAD-1000		Access Dates (cal. day)			310 days	Mon 18/11/19	Wed 23/9/20	289 days	Mon 18/11/19	Wed 2/9/20	Mon 18/11/19	Wed 2/9/20			0 days		100%	
4	CAD-1010		Portion B-1 (Access Road AR3)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20		201	0 days		100%	
5	CAD-1020		Portion B-1A (Area for the works for Sidestream Treatment Facilities by Others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20			0 days		100%	
6	CAD-1030		Portion B-2 (Inlet Works No.1)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20		295,306	0 days		100%	
7	CAD-1040		Portion B-2A (Area for the pipe-jacking works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20			0 days		100%	
8	CAD-1050		Portion B-3 (Primary Sedimentation Tanks No. 1-4)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		335	0 days		100%	
9	CAD-1060		Portion B-4 (Bioreactor No. 2A & 2B)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		353	0 days		100%	
10	CAD-1070		Portion B-5 (Membrane Facilities Building No.2)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Tue 17/3/20	Tue 17/3/20	Tue 17/3/20	Tue 17/3/20		402,419,425	0 days		100%	
11	CAD-1080		Portion B-6 (SAS Pumping Station)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		434	0 days		100%	
12	CAD-1090		Portion B-7 (Ancillary structures)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		461	0 days		100%	
13	CAD-1100		Portion B-7A (Alternation works for existing Power House)			0 days	Wed 2/9/20	Wed 2/9/20	0 days	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20		539FS-1 day,29FS+179 days	0 days		100%	
14	CAD-1110		Portion B-8 (Alternation for existing Membrane Facilities Building No.1)			0 days	Tue 22/9/20	Tue 22/9/20	0 days	Wed 26/9/20	Wed 26/9/20	Wed 26/9/20	Wed 26/9/20		541FS-1 day	0 days		100%	
15	CAD-1020		Portion B-8A (Alternation of air supply main for existing Air Blower House No.2)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		532	0 days		100%	
16	CAD-1130		Portion B-9 (remainder works in Zone B)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		542,556	0 days		100%	
17	CAD-1140		Portion B-9A (Area for the pipe-jacking works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19			0 days		100%	
18	CAD-1150		Portion B-9B (Area for underground pipework modification and connection works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19			0 days		100%	
19	CAD-1160		Portion B-9C (Area for the works for pipeworks)			0 days	Wed 22/7/20	Wed 22/7/20	0 days	Fri 24/7/20	Fri 24/7/20	Fri 24/7/20	Fri 24/7/20		2FS+151 days	0 days		100%	
20	CKD-1000		Key Dates (cal. day)			1440 days	Tue 19/11/19	Sat 28/10/23	1144 days	Fri 27/11/20	Mon 15/1/24	Fri 27/11/20	NA			618 days		99%	
21	CKD-1010		KD1A completion of AR3 in Portion B-1 (375 days after starting date)			300 days	Tue 19/11/19	Sun 13/9/20	0 days	Fri 27/11/20	Fri 27/11/20	Fri 27/11/20	Fri 27/11/20		2FS+376 days	0 days		100%	
22	CKD-1020		KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (438.5 days after starting date)			360 days	Tue 19/11/19	Thu 12/11/20	1 day	Sat 30/1/21	Sat 30/1/21	Sat 30/1/21	Sat 30/1/21		2FS+439.5 days	0 days		100%	
23	CKD-1030		KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (1068.5 days after starting date)			990 days	Tue 19/11/19	Thu 4/8/22	0 days	Sat 22/10/22	Sat 22/10/22	NA	NA	2FS+1069.5 days	67	1056.5 days		0%	
24	CKD-1040		KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3 (1190days after starting date)			1190 days	Tue 19/11/19	Mon 20/2/23	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	2FS+1191 days	70	947 days		0%	
25	CKD-1050		KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1140days after starting date)			1140 days	Tue 19/11/19	Sun 1/1/23	0 days	Sun 1/1/23	Sun 1/1/23	NA	NA	2FS+1141 days		997 days		0%	
26	CKD-1060		KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (855.5 days after starting date)			800 days	Tue 19/11/19	Wed 26/1/22	0 days	Wed 23/3/22	Wed 23/3/22	NA	NA	2FS+856.5 days	74	1273.5 days		0%	
27	CKD-1070		KD1G completion of civil and structural works of MFB in Portion B-5 (1002.5 days after starting date)			950 days	Tue 19/11/19	Sat 25/6/22	0 days	Wed 17/8/22	Wed 17/8/22	NA	NA	2FS+1003.5 days	78	1126.5 days		0%	
28	CKD-1080		KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (703.5 days after starting date)			630 days	Tue 19/11/19	Mon 9/8/21	0 days	Fri 22/10/21	Fri 22/10/21	NA	NA	2FS+704.5 days	82	1425.5 days		0%	
29	CKD-1090		KD1I completion alternation works for existing Power House in Portion B-7A (179days after access date of B-7A)			150 days	Fri 4/9/20	Sun 31/1/21	1 day	Mon 1/3/21	Mon 1/3/21	Mon 1/3/21	Mon 1/3/21		13FS+179 days	0 days		100%	
30	CKD-1100		KD1J completion of auxiliary facilities in Portion B-7 (811.5 days after starting date)			800 days	Tue 19/11/19	Wed 26/1/22	0 days	Mon 7/2/22	Mon 7/2/22	NA	NA	2FS+812.5 days	86	1317.5 days		0%	
31	CKD-1110		KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (577.5 days after starting date)			495 days	Tue 19/11/19	Sat 27/3/21	0 days	Fri 18/6/21	Fri 18/6/21	Fri 18/6/21	Fri 18/6/21		2FS+578.5 days	93	0 days		100%
32	CKD-1120		KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (494 days after starting date)			420 days	Tue 19/11/19	Mon 11/1/21	0 days	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21		2FS+495 days	0 days		100%	
33	CKD-1130		KD3A completion of all utilities and road works (1519 days after starting date)			1440 days	Tue 19/11/19	Sat 28/10/23	0 days	Mon 15/1/24	Mon 15/1/24	NA	NA	2FS+1520 days	99	606 days		0%	
34	CCD-1000		Completion Date (cal. Day)			1956 days	Tue 19/11/19	Thu 27/3/25	1056 days	Sat 23/7/22	Fri 13/6/25	Sat 23/7/22	NA			50.5 days		0%	
35	CCD-1010		Section 1 of the Works (1,543.5 after starting date)			1460 days	Fri 17/11/23	Fri 9/2/24	0 days	Fri 9/2/24	Fri 9/2/24	NA	NA	2FS+1544.5 days	105	0 days		0%	
36	CCD-1020		Section 2 of the Works (977.5 after starting date)			900 days	Tue 19/11/19	Fri 6/5/22	0 days	Sat 23/7/22	Sat 23/7/22	NA	NA	2FS+978.5 days	111	0 days		0%	
37	CCD-1030		Section 3 of the Works (1,687.5 after starting date)			1590 days	Tue 19/11/19	Tue 26/3/24	0 days	Wed 12/6/24	Wed 12/6/24	Wed 12/6/24	Wed 12/6/24		NA	2FS+1668.5 days	39FS+1 day,117,38FS+1 day	-77.5 days	99%
38	CCD-1040		Defects Liability Period			365 days	Wed 27/3/24	Thu 27/3/25	365 days	Thu 13/6/24	Fri 13/6/25	NA	NA	37FS+1 day	0 days			0%	
39	CCD-1050		Landscape Establishment Works			365 days	Wed 27/3/24	Thu 27/3/25	365 days	Thu 13/6/24	Fri 13/6/25	NA	NA	37FS+1 day	0 days			0%	
40	PD-1000		Planned Completion			1686 days	Fri 14/8/20	Thu 27/3/25	1820 days	Wed 30/9/20	Wed 24/9/25	Wed 30/9/20	NA			0 days		3%	
41	PCD-1000		Planned Completion - Key Dates (cal. day)			1170 days	Fri 14/8/20	Sat 28/10/23	1321 days	Wed 30/9/20	Mon 13/5/24	Wed 30/9/20	NA			-119 days		99%	
42	PKD-1010	KD1A	KD1A completion of AR3 in Portion B-1 (300days after starting date)			0 days	Sat 12/9/20	Sat 12/9/20	0 days	Wed 30/9/20	Wed 30/9/20	Wed 30/9/20	Wed 30/9/20		210FF	0 days		100%	
43	PCD-1020	KD1B	KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (360days after starting date)			0 days	Fri 14/8/20	Fri 14/8/20	0 days	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21		286FF,291FF,273FF	0 days		100%	
44	PCD-1030	KD1C	KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (990days after starting date)			0 days	Thu 4/8/22	Thu 4/8/22	0 days	Thu 1/12/22	Thu 1/12/22	NA	NA	330FF,322FF,248FF,294FF,212FF,250FF		-40 days		0%	
45	PCD-1040	KD1D	KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3 (1190days after starting date)			0 days	Mon 20/2/23	Mon 20/2/23	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	349FF,348FF,351FF,333FF		0 days		0%	
46	PCD-1050	KD1E	KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1,140days after starting date)			0 days	Sat 31/12/22	Sat 31/12/22	0 days	Sat 22/4/23	Sat 22/4/23	NA	NA	391FF,397FF,393FF,396FF,392FF		-111 days		0%	
47	PCD-1060	KD1F	KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (800days after starting date)			0 days	Tue 25/1/22	Tue 25/1/22	0 days	Thu 4/8/22	Thu 4/8/22	NA	NA	430FF		-135 days		0%	
48	PCD-1070	KD1G	KD1G completion of civil and structural works of MFB in Portion B-5 (950days after starting date)			0 days	Sat 25/6/22	Sat 25/6/22	0 days	Wed 28/12/22	Wed 28/12/22	NA	NA	431FF		-133 days		0%	
49	PCD-1080	KD1H	KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (630days after starting date)			0 days	Mon 9/8/21	Mon 9/8/21	0 days	Sat 19/3/22	Sat 19/3/22	NA	NA	459FF,458FF		-148 days		0%	
50	PCD-1090	KD1I	KD1I completion alternation works for existing Power House in Portion B-7A (150days after access date of B-7A)			0 days	Sat 30/1/21	Sat 30/1/21	1 day	Fri 29/1/21	Fri 29/1/21	Fri 29/1/21	Fri 29/1/21		539FF	0 days		100%	
51	PCD-1100	KD1J	KD1J completion of auxiliary facilities in Portion B-7 (800days after starting date)			0 days	Wed 26/1/22	Wed 26/1/22	0 days	Mon 13/6/22	Mon 13/6/22	NA	NA	496FF,495FF,521FF,520FF,513FF,512FF		-126 days		0%	
52	PCD-1110	KD2A	KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (495days after starting date)			0 days	Sat 27/3/21	Sat 27/3/21	0 days	Wed 4/8/21	Wed 4/8/21	NA	NA	545FF,543FF		-47 days		0%	
53	PCD-1120	KD2B	KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (420days after starting date)			0 days	Thu 3/9/20	Thu 3/9/20	1 day	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21		532FF,536FF,537FF,538FF	0 days		100%	
54	PCD-1130	KD3A	KD3A completion of all utilities and road works (1440days after starting date)			0 days	Sat 28/10/23	Sat 28/10/23	0 days	Mon 13/5/24	Mon 13/5/24	NA	NA	555FF,557FF		-119 days		0%	
55	PCD-1000		Planned Completion Date (cal. Day)			1056 days	Fri 6/5/22	Thu 27/3/25	1054 days	Sat 5/11/22	Wed 24/9/25	NA	NA			-106 days		0%	
56	PCD-1010	SW1	Section 1 of the Works (

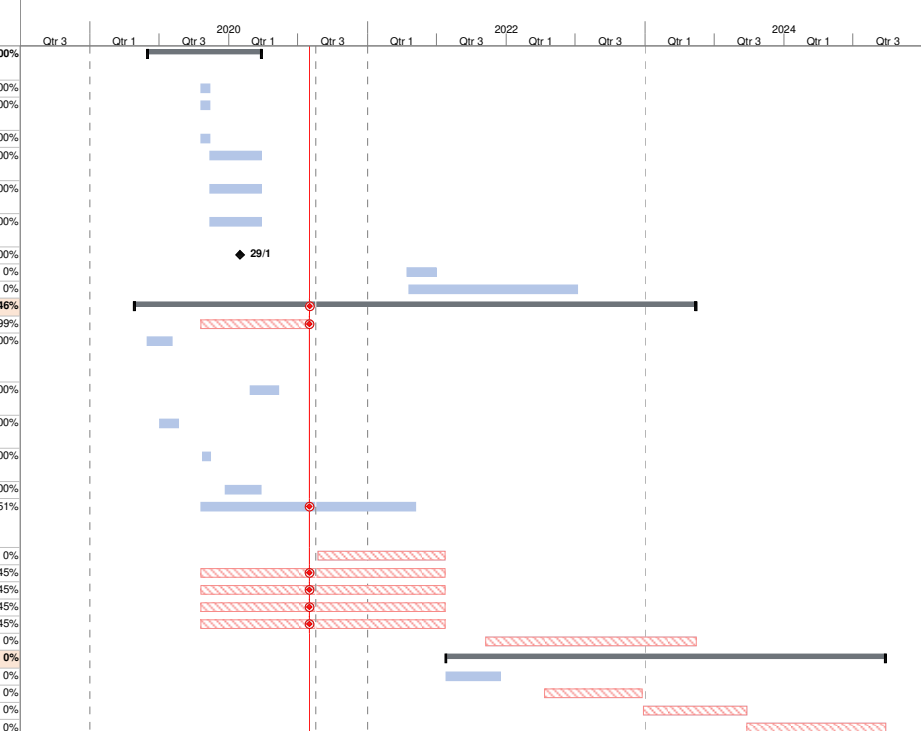
ID	Activity ID	Key Date	Task Name	Inclment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
85	ET1H-1100		Inclment Weather to KD1J (cal. Day)			0 days	NA	NA	49 days	Mon 7/2/22	Mon 28/3/22	NA	NA			1276.5 days		0%
86	ET1H-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Mon 7/2/22	Wed 2/3/22	NA	NA 30		87	1276.5 days		0%
87	ET1H-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Wed 2/3/22	Mon 28/3/22	NA	NA 86			1276.5 days		0%
88	ET2A-1000		Effects to KD2A			0 days	NA	NA	53 days	Fri 18/6/21	Tue 10/8/21	Fri 18/6/21	NA			1506.5 days		24%
89	ET2A-1100		Inclment Weather to KD2A (cal. Day)			49 days	NA	NA	49 days	Tue 22/6/21	Tue 10/8/21	Tue 22/6/21	NA			1506.5 days		17%
90	ET2A-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Tue 22/6/21	Thu 15/7/21	Tue 22/6/21	NA 93		91	1506.5 days		37%
91	ET2A-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Thu 15/7/21	Tue 10/8/21	NA	NA 90			1506.5 days		0%
92	ET2A-1200		Other Events to KD2A (not all)			0 days	NA	NA	4 days	Fri 18/6/21	Tue 22/6/21	Fri 18/6/21	Tue 22/6/21			0 days		100%
93	ET2A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Fri 18/6/21	Tue 22/6/21	Fri 18/6/21	Tue 22/6/21 31		90	0 days		100%
94	ET3A-1000		Effects to KD3A			0 days	NA	NA	53 days	Tue 16/1/24	Fri 8/3/24	NA	NA			565 days		0%
95	ET3A-1100		Inclment Weather to KD3A (cal. Day)			49 days	NA	NA	49 days	Sat 20/1/24	Fri 8/3/24	NA	NA			565 days		0%
96	ET3A-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Sat 20/1/24	Sun 11/2/24	NA	NA 99		97	565 days		0%
97	ET3A-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Mon 12/2/24	Fri 8/3/24	NA	NA 96			565 days		0%
98	ET3A-1200		Other Events to KD3A (not all)			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA			565 days		0%
99	ET3A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA 33		96	565 days		0%
100	ETS1-1000		Effects to Section 1 of the Works			0 days	NA	NA	53 days	Fri 9/2/24	Tue 2/4/24	NA	NA			540.5 days		0%
101	ETS1-1100		Inclment Weather to Section 1 of the Works (cal. Day)			49 days	NA	NA	49 days	Tue 13/2/24	Tue 2/4/24	NA	NA			540.5 days		0%
102	ETS1-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Tue 13/2/24	Thu 7/3/24	NA	NA 105		103	540.5 days		0%
103	ETS1-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Thu 7/3/24	Tue 2/4/24	NA	NA 102			540.5 days		0%
104	ETS1-1200		Other Events to Section 1 of the Works (not all)			0 days	NA	NA	4 days	Fri 9/2/24	Tue 13/2/24	NA	NA			540.5 days		0%
105	ETS1-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Fri 9/2/24	Tue 13/2/24	NA	NA 35		102	540.5 days		0%
106	ETS2-1000		Effects to Section 2 of the Works			0 days	NA	NA	53 days	Sat 23/7/22	Wed 14/9/22	NA	NA			1106.5 days		0%
107	ETS2-1100		Inclment Weather to Section 2 of the Works (cal. Day)			49 days	NA	NA	49 days	Wed 27/7/22	Wed 14/9/22	NA	NA			1106.5 days		0%
108	ETS2-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Wed 27/7/22	Fri 19/8/22	NA	NA 111		109	1106.5 days		0%
109	ETS2-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Fri 19/8/22	Wed 14/9/22	NA	NA 108			1106.5 days		0%
110	ETS2-1200		Other Events to Section 2 of the Works (not all)			0 days	NA	NA	4 days	Sat 23/7/22	Wed 27/7/22	NA	NA			1106.5 days		0%
111	ETS2-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Sat 23/7/22	Wed 27/7/22	NA	NA 36		108	1106.5 days		0%
112	ETS3-1000		Effects to Section 3 of the Works			0 days	NA	NA	53 days	Wed 12/6/24	Sun 4/8/24	NA	NA			416.5 days		0%
113	ETS3-1100		Inclment Weather to Section 3 of the Works (cal. Day)			49 days	NA	NA	49 days	Sun 16/6/24	Sun 4/8/24	NA	NA			416.5 days		0%
114	ETS3-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Sun 16/6/24	Tue 9/7/24	NA	NA 117		115	416.5 days		0%
115	ETS3-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Tue 9/7/24	Sun 4/8/24	NA	NA 114			416.5 days		0%
116	ETS3-1200		Other Events to Section 3 of the Works (not all)			0 days	NA	NA	4 days	Wed 12/6/24	Sun 16/6/24	NA	NA			416.5 days		0%
117	ETS3-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Wed 12/6/24	Sun 16/6/24	NA	NA 37		114	416.5 days		0%
118	SUB-1000		Submissions (cal. day)			1564 days	Mon 18/11/19	Wed 28/2/24	1956 days	Mon 18/11/19	Wed 26/3/25	Mon 18/11/19	NA			182 days		60%
119	SUBS-1000		Subletting Package			96 days	Mon 18/11/19	Fri 21/2/20	562 days	Mon 18/11/19	Tue 1/6/21	Mon 18/11/19	Tue 1/6/21			0 days		100%
120	SUBS-1010		Prepare & submit subletting procedure			12 days	Mon 18/11/19	Fri 29/11/19	12 days	Mon 18/11/19	Mon 18/11/19	Fri 29/11/19	Fri 29/11/19 2		121	0 days		100%
121	SUBS-1020		PM review and accept subletting procedure			15 days	Sat 30/11/19	Wed 11/12/19	12 days	Sat 30/11/19	Wed 11/12/19	Sat 30/11/19	Wed 11/12/19 120		142,122,125,124,123	0 days		100%
122	SUBS-1030		Subletting for demolition works			24 days	Thu 12/12/19	Sat 4/1/20	93 days	Thu 12/12/19	Wed 18/3/20	Tue 17/12/19	Wed 18/3/20 121,154		339,462,295,402,539,359	0 days		100%
123	SUBS-1040		Subletting for UU diversion for Inlet Works No.1			24 days	Thu 12/12/19	Sat 4/1/20	78 days	Thu 12/12/19	Fri 10/1/20	Fri 27/3/20	Fri 10/1/20	Fri 27/3/20 121	212	0 days		100%
124	SUBS-1050		Subletting for inspection pit excavation			0 days	NA	NA	56 days	Thu 19/12/19	Wed 12/2/20	Thu 19/12/19	Wed 12/2/20 121,154		214,126	0 days		100%
125	SUBS-1060		Subletting for Preliminary Works (topographic surveying)			14 days	Thu 12/12/19	Wed 25/12/19	54 days	Fri 20/12/19	Tue 11/2/20	Fri 20/12/19	Tue 11/2/20 121,154		159,198,129,130,131,127	0 days		100%
126	SUBS-1070		Subletting for AR3 access road			24 days	Thu 12/12/19	Sat 4/1/20	0 days	Fri 13/12/19	Fri 13/12/19	Fri 13/12/19	Tue 11/2/20 124		127,210	0 days		100%
127	SUBS-1080		Subletting for pre-drilling works			24 days	Thu 12/12/19	Sat 4/1/20	38 days	Thu 6/2/20	Fri 20/3/20	Thu 6/2/20	Fri 20/3/20 125,126		452,342,414,128	0 days		100%
128	SUBS-1090		Subletting for Contractor designer for temporary works and ICE			24 days	Thu 12/12/19	Sat 4/1/20	71 days	Mon 16/12/19	Mon 16/12/19	Mon 16/12/19	Mon 24/2/20 127		0 days		100%	
129	SUBS-1100		Subletting for independent BIM consultant			24 days	Thu 12/12/19	4/1/20	0 days	Wed 11/12/19	Thu 23/1/20	Wed 11/12/19	Thu 23/1/20 125		193	0 days		100%
130	SUBS-1110		Subletting for independent BIM services			0 days	NA	NA	15 days	Tue 14/1/20	Wed 28/2/20	Tue 14/1/20	Wed 28/2/20 125		193	0 days		100%
131	SUBS-1120		Subletting for Design, Supply & Install of Temporary Activated Carbon Deodorization Units (E&M Works)			0 days	NA	NA	0 days	Fri 13/12/19	Tue 11/2/20	Fri 13/12/19	Tue 11/2/20 125		132,133	0 days		100%
132	SUBS-1130		Subletting for pre-bored H pile works			36 days	Thu 12/12/19	Thu 16/1/20	45 days	Sun 5/7/20	Tue 18/8/20	Sun 5/7/20	Tue 18/8/20 131		343,415,453,309	0 days		100%
133	SUBS-1140		Subletting for Sheelple installation works			0 days	NA	NA	45 days	Tue 1/9/20	Thu 15/10/20	Tue 1/9/20	Thu 15/10/20 131		344,455,134,135	0 days		100%
134	SUBS-1150		Subletting for ELS works for Inlet Works No.1			48 days	Sun 5/1/20	Fri 21/2/20	85 days	Fri 16/10/20	Fri 8/1/21	Fri 16/10/20	Fri 8/1/21 133		0 days		100%	
135	SUBS-1160		Subletting for ELS works for Membrane Facilities Building and other buildings			48 days	Sun 5/1/20	Fri 21/2/20	85 days	Fri 16/10/20	Fri 8/1/21	Fri 16/10/20	Fri 8/1/21 133		346,389,456,136,137,138,139,140	0 days		100%
136	SUBS-1170		Subletting for structural works for Inlet Works Building			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21 135		0 days		100%	
137	SUBS-1180		Subletting for structural works for Primary Sedimentation Tanks			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21 135		348	0 days		100%
138	SUBS-1190		Subletting for structural works for Bioreactors			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21 135		391	0 days		100%
139	SUBS-1200		Subletting for structural works for Membrane Facilities Building			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21 135		426	0 days		100%
140	SUBS-1210		Subletting for structural works for SAS pumping house and ancillary structures			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21 135		141	0 days		100%
141	SUBS-1220		Subletting for ABWF works			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Fri 26/2/21	Wed 14/4/21	Fri 26/2/21	Wed 14/4/21 140		332,350,398,460,488,504,514,522	0 days		100%
142	SUBS-1230		Subletting for Process Pipeworks, Utilities and Roadworks			48 days	Thu 12/12/19	Tue 28/1/20	150 days	Fri 22/5/20	Sun 18/10/20	Fri 22/5/20	Sun 18/10/20 121		532,549,551,552,553,554,543	0 days		100%
143	SUBS-1240		Subletting for Landscape Hardworks and Softworks			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Thu 15/4/21	Tue 1/6/21	Thu 15/4/21	Tue 1/6/21 141		559,560	0 days		100%
144	SUBS-1250		Subletting for Trial dewatering works and installation of additional stop logs at BR2 connon channel due to malfunctioned of existing penstock at FST no. 5 and 7 (EWN 055)			0 days	NA	NA	15 days	Tue 15/9/20	Tue 29/9/20	Tue 15/9/20	Tue 29/9/20		355	0 days		100%
145	SUBS-1260		Subletting for Diversion of Power supply for existing Slaughter House pump station (CE 034)			0 days	NA	NA	14 days	Mon 21/9/20	Sun 4/10/20	Mon 21/9/20	Sun 4/10/20			0 days		100%
146	SUBS-1270		Subletting for Decommission of existing power and signal systems in leachate Pump station switch room (PMI 039)			0 days	NA	NA	14 days	Mon 21/9/20	Sun 4/10/20	Mon 21/9/20	Sun 4/10/20		439	0 days		100%
147	SUBS-1280		Subletting for Diversion of Existing DN250 Leachate Raising Main (PPMI 025)			0 days	NA	NA	31 days	Mon 21/9								

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Gantt Chart (Qtr 3 2019 - Qtr 3 2024)											
170	SUBA-1130b		Prepare and submit Dewatering proposal for basement construction for Primary Sedimentation tanks No.1-4			0 days	NA	NA	24 days	Fri 1/7/22	Mon 25/7/22	NA	NA	NA346SF		1158 days		0%	[Gantt bar for 170: 0% complete, start Fri 1/7/22, end Mon 25/7/22]											
171	SUBA-1130c		Prepare and submit Dewatering proposal for basement construction for Bioreactor No. 2A&2B			0 days	NA	NA	24 days	Sun 15/5/22	Wed 8/6/22	NA	NA	NA389SF		1205 days		0%	[Gantt bar for 171: 0% complete, start Sun 15/5/22, end Wed 8/6/22]											
172	SUBA-1140		Prepare and submit Pre-construction condition survey of existing structures/ services			24 days	Wed 5/2/20	Fri 28/2/20	0 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	198		0 days		100%	[Gantt bar for 172: 100% complete, start Mon 18/11/19, end Fri 6/3/20]											
173	SUBA-1150		Prepare and submit Settlement and movement monitoring proposal of existing structures/ services			24 days	Wed 5/2/20	Fri 28/2/20	110 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	198FS+120 days		0 days		100%	[Gantt bar for 173: 100% complete, start Mon 18/11/19, end Fri 6/3/20]											
174	SUBA-1160		Prepare and submit design of structure elements of the temporary activated carbon deodorization unit			60 days	Fri 1/7/20	Mon 16/3/20	60 days	Mon 18/11/19	Mon 16/3/20	Mon 18/11/19	Mon 16/3/20	2FS+60 days		0 days		100%	[Gantt bar for 174: 100% complete, start Mon 18/11/19, end Mon 16/3/20]											
175	SUBA-1170		Prepare of RSE and structural design for alternation and additional (A&A) works at Membrane Facilities Building No.1			180 days	Mon 18/10/21	Fri 15/4/22	180 days	Mon 18/10/21	Fri 15/4/22	NA	NA		541	332 days		0%	[Gantt bar for 175: 0% complete, start Mon 18/10/21, end Fri 15/4/22]											
176	SUBA-1180		Prepare of RSE and structural design for alternation and additional (A&A) works at Main Power House			44 days	Wed 15/7/20	Thu 3/9/20	60 days	Mon 6/7/20	Thu 3/9/20	Mon 6/7/20	Thu 3/9/20		539	0 days		100%	[Gantt bar for 176: 100% complete, start Mon 6/7/20, end Thu 3/9/20]											
177	SUBE-1000		Environmental Aspect Submissions			45 days	Mon 18/11/19	Wed 1/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20			0 days		100%	[Gantt bar for 177: 100% complete, start Mon 18/11/19, end Thu 6/2/20]											
178	SUBE-1010		Prepare, submit & approve Site Management Plan for Trip Tricket System			45 days	Mon 18/11/19	Wed 1/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20			0 days		100%	[Gantt bar for 178: 100% complete, start Mon 18/11/19, end Wed 22/1/20]											
179	SUBE-1020		Prepare, submit & approve Waste Management Plan			45 days	Mon 18/11/19	Wed 1/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20			0 days		100%	[Gantt bar for 179: 100% complete, start Mon 18/11/19, end Thu 6/2/20]											
180	SUBE-1030		Prepare, submit & approve Environmental Management Plan			45 days	Mon 18/11/19	Wed 1/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20			0 days		100%	[Gantt bar for 180: 100% complete, start Mon 18/11/19, end Wed 22/1/20]											
181	SUBP-1000		Procurement			731 days	Mon 18/11/19	Wed 17/11/21	648 days	Mon 18/11/19	Thu 26/8/21	Mon 18/11/19	NA			278 days		94%	[Gantt bar for 181: 94% complete, start Mon 18/11/19, end Thu 26/8/21]											
182	SUBP-1010		Prepare and submit the Procurement Procedure			12 days	Mon 18/11/19	Fri 29/11/19	2 days	Mon 18/11/19	Tue 19/11/19	Mon 18/11/19	Tue 19/11/19	183		0 days		100%	[Gantt bar for 182: 100% complete, start Mon 18/11/19, end Tue 19/11/19]											
183	SUBP-1020		PM Review & Accept Procurement Procedure			12 days	Sat 30/11/19	Wed 11/12/19	21 days	Tue 19/11/19	Tue 10/12/19	Tue 19/11/19	Tue 10/12/19	182	184,185,186,187,188,189,190,191	0 days		100%	[Gantt bar for 183: 100% complete, start Tue 19/11/19, end Tue 10/12/19]											
184	SUBP-1030		Prepare, submit and approve the pipe works material			25 days	Thu 12/12/19	Sun 5/1/20	34 days	Thu 6/2/20	Tue 10/3/20	Thu 6/2/20	Tue 10/3/20	183	212,532,551,552,554,553,549,557,0	0 days		100%	[Gantt bar for 184: 100% complete, start Thu 6/2/20, end Tue 10/3/20]											
185	SUBP-1040		Prepare, submit and approve the water proofing material			25 days	Thu 12/12/19	Sun 5/1/20	25 days	Thu 26/8/21	Mon 26/8/21	NA	NA	183	329,325	278 days		0%	[Gantt bar for 185: 0% complete, start Thu 26/8/21, end Mon 26/8/21]											
186	SUBP-1050		Prepare, submit and approve the concrete mix material			48 days	Thu 12/12/19	Tue 28/1/20	90 days	Mon 3/2/20	Sat 2/5/20	Mon 3/2/20	Sat 2/5/20	183	391,426	0 days		100%	[Gantt bar for 186: 100% complete, start Mon 3/2/20, end Sat 2/5/20]											
187	SUBP-1060		Prepare, submit and approve the rebar material			48 days	Thu 12/12/19	Tue 28/1/20	49 days	Fri 10/7/20	Sat 23/5/20	Fri 10/7/20	Sat 23/5/20	183	391,426	0 days		100%	[Gantt bar for 187: 100% complete, start Fri 10/7/20, end Sat 23/5/20]											
188	SUBP-1070		Prepare, submit and approve the metal works material			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Tue 1/9/20	Sun 18/10/20	Tue 1/9/20	Sun 18/10/20	183	391,426	0 days		100%	[Gantt bar for 188: 100% complete, start Tue 1/9/20, end Sun 18/10/20]											
189	SUBP-1080		Prepare, submit and approve the ABWF works material			48 days	Sat 12/12/20	Tue 28/1/20	48 days	Mon 1/3/21	Sat 17/4/21	Mon 1/3/21	Sat 17/4/21	183	332,350,398,460,488,504,514,522,0	0 days		100%	[Gantt bar for 189: 100% complete, start Mon 1/3/21, end Sat 17/4/21]											
190	SUBP-1090		Prepare, submit and approve the protective lining to concrete			0 days	NA	NA	48 days	Tue 1/9/20	Sun 18/10/20	Tue 1/9/20	Sun 18/10/20	183	391,426	0 days		100%	[Gantt bar for 190: 100% complete, start Tue 1/9/20, end Sun 18/10/20]											
191	SUBP-1100		Prepare, submit and approve the multi-part covers			0 days	NA	NA	21 days	Tue 5/5/20	Mon 25/5/20	Tue 5/5/20	Mon 25/5/20	183		0 days		100%	[Gantt bar for 191: 100% complete, start Tue 5/5/20, end Mon 25/5/20]											
192	SUBB-1000		BIM			1205 days	Thu 6/2/20	Wed 28/2/24	1562 days	Mon 18/11/19	Fri 28/2/25	Mon 18/11/19	NA			178 days		27%	[Gantt bar for 192: 27% complete, start Mon 18/11/19, end Fri 28/2/25]											
193	SUBB-1010		Prepare, submit and approve the proposal of details of Common data environment (CDE)			48 days	Thu 6/2/20	Wed 1/4/20	37 days	Mon 18/11/19	Wed 1/4/20	Mon 18/11/19	Wed 1/4/20	129,130	194	0 days		100%	[Gantt bar for 193: 100% complete, start Mon 18/11/19, end Wed 1/4/20]											
194			Prepare and submit BIM submission			1484 days	Thu 6/2/20	Wed 28/2/24	1451 days	Thu 2/4/20	Fri 28/2/25	Thu 2/4/20	NA	193		178 days		25%	[Gantt bar for 194: 25% complete, start Thu 2/4/20, end Fri 28/2/25]											
195	C-1000		Construction Works (Working day)			1957 days	Mon 18/11/19	Thu 27/3/25	2138 days	Mon 18/11/19	Wed 24/3/25	Mon 18/11/19	NA			0 days		51%	[Gantt bar for 195: 51% complete, start Mon 18/11/19, end Wed 24/3/25]											
196	CPW-1000		Preliminary Works			109 days	Mon 18/11/19	Thu 5/3/20	121 days	Mon 18/11/19	Tue 17/3/20	Mon 18/11/19	Tue 17/3/20			0 days		100%	[Gantt bar for 196: 100% complete, start Mon 18/11/19, end Tue 17/3/20]											
197	CPW-1000		Initial Survey			24 days	Mon 18/11/19	Sat 14/12/19	10 days	Mon 18/11/19	Thu 28/11/19	Mon 18/11/19	Thu 28/11/19	198		0 days		100%	[Gantt bar for 197: 100% complete, start Mon 18/11/19, end Thu 28/11/19]											
198	CPW-2000		Condition Survey			30 days	Fri 27/12/19	Tue 4/2/20	89 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	125,197	199,172,173FS+120 days,200	0 days		100%	[Gantt bar for 198: 100% complete, start Mon 18/11/19, end Fri 6/3/20]											
199	CPW-3000		Installation of Monitoring Markers			26 days	Wed 5/2/20	Thu 5/3/20	78 days	Fri 29/11/19	Thu 5/3/20	Fri 29/11/19	Thu 5/3/20	198		0 days		100%	[Gantt bar for 199: 100% complete, start Fri 29/11/19, end Thu 5/3/20]											
200	CPW-4000		Tree Felling Works	22, 235		0 days	NA	NA	9 days	Sat 7/3/20	Sat 7/3/20	Tue 17/3/20	Tue 17/3/20	198		0 days		100%	[Gantt bar for 200: 100% complete, start Sat 7/3/20, end Tue 17/3/20]											
201	CAR-0000		Access Road (AR3), B-1			193 days	Mon 20/1/20	Sat 12/9/20	238 days	Thu 12/12/19	Wed 30/9/20	Thu 12/12/19	Wed 30/9/20	4,156		0 days		100%	[Gantt bar for 201: 100% complete, start Thu 12/12/19, end Wed 30/9/20]											
202	CAR-1000		Site setup and clearance works	05		28 days	Mon 20/1/20	Mon 24/2/20	38 days	Mon 20/1/20	Fri 6/3/20	Mon 20/1/20	Fri 6/3/20	203		0 days		100%	[Gantt bar for 202: 100% complete, start Mon 20/1/20, end Fri 6/3/20]											
203	CAR-1001		Awaiting for AECOM instruction for alignment confirmation for road works	055		0 days	NA	NA	5 days	Mon 17/2/20	Thu 12/3/20	Mon 17/2/20	Thu 12/3/20	202		0 days		100%	[Gantt bar for 203: 100% complete, start Mon 17/2/20, end Thu 12/3/20]											
204	CAR-1002		Additional Works in Access Road AR3 to Settle Left-in Material by Contract DC/2016/07	215-1		0 days	NA	NA	4 days	Thu 21/5/20	Mon 25/5/20	Thu 21/5/20	Mon 25/5/20	203		0 days		100%	[Gantt bar for 204: 100% complete, start Thu 21/5/20, end Mon 25/5/20]											
205	CAR-2000		Drainage and Utilities Works			76 days	Fri 6/3/20	Tue 9/6/20	75 days	Sat 7/3/20	Tue 9/6/20	Sat 7/3/20	Tue 9/6/20	204		0 days		100%	[Gantt bar for 205: 100% complete, start Sat 7/3/20, end Tue 9/6/20]											
206	CAR-2000a		Trimming of Existing Sheet Piles in Access Road AR3	215-2		0 days	NA	NA	20 days	Tue 14/7/20	Wed 5/8/20	Tue 14/7/20	Wed 5/8/20	205		0 days		100%	[Gantt bar for 206: 100% complete, start Tue 14/7/20, end Wed 5/8/20]											
207	CAR-2000b		Installation of Multi-part Cover and Manhole Cover of Chamber RP6 and Associated Concreting Works in Portion B-1	215		0 days	NA	NA	7 days	Fri 28/8/20	Fri 4/9/20	Fri 28/8/20	Fri 4/9/20	206		0 days		100%	[Gantt bar for 207: 100% complete, start Fri 28/8/20, end Fri 4/9/20]											
208	CAR-2001		Diversion of Existing Underground Cables in Portion B-1A	036		0 days	NA	NA	172 days	Thu 5/3/20	Wed 30/9/20	Thu 5/3/20	Wed 30/9/20	207		0 days		100%	[Gantt bar for 208: 100% complete, start Thu 5/3/20, end Wed 30/9/20]											
209	CAR-2002		Additional U-channel, beam barrier and footway concrete pavement	055		0 days	NA	NA	60 days	Thu 12/12/19	Wed 26/2/20	Thu 12/12/19	Wed 26/2/20	207		0 days		100%	[Gantt bar for 209: 100% complete, start Thu 12/12/19, end Wed 26/2/20]											
210	CAR-3000	KD1A	Roadworks	055		80 days	Wed 10/6/20	Sat 12/9/20	133 days	Fri 24/4/20	Wed 30/9/20	Fri 24/4/20	Wed 30/9/20	126,209,208	42FF	0 days		100%	[Gantt bar for 210: 100% complete, start Fri 24/4/20, end Wed 30/9/20]											
211	CIW-0000		Inlet Works No.1, B-2			854 days	Mon 6/1/20	Mon 21/11/22	594 days	Tue 26/11/19	Thu 25/11/21	Tue 26/11/19	NA			0 days		88%	[Gantt bar for 211: 88% complete, start Tue 26/11/19, end Thu 25/11/21]											
212	CIW-1000		Diversion Works (1. Inlet Trunk Sewer, Leachate Rising Mains, Sludge Pipes, Tank Drains and Pipelines near Primary Sludge Thickeners)			180 days	Mon 6/1/20	Fri 14/8/20	459 days	Tue 26/11/19	Wed 16/6/21	Tue 26/11/19	NA	184,123	44FF	111 days		88%	[Gantt bar for 212: 88% complete, start Tue 26/11/19, end Wed 16/6/21]											
213	CIW-1100		Utilities scanning to identify existing UU arrangement			12 days	Mon 6/1/20	Sat 18/1/20	0 days	Fri 13/12/19	Sat 18/1/20	Fri 13/12/19	Sat 18/1/20	158	214SS,216	0 days		100%	[Gantt bar for 213: 100% complete, start Fri 13/12/19, end Sat 18/1/20]											
214	CIW-1200		Trial pits to locate the collection points			24 days	Mon 6/1/20	Wed 5/2/20	0 days	Mon 6/1/20	Tue 10/3/20	Mon 6/1/20	Tue 10/3/20	158,213SS,124	232,251	0 days		100%	[Gantt bar for 214: 100% complete, start Mon 6/1/20, end Tue 10/3/20]											
215	CIW-1300		Installation and Commissioning of Temporary Activated Carbon Deodorization Unit for the Existing Inlet Works			0 days	NA	NA	98 days	Wed 11/3/20	Wed 11/3/20	Wed 11/3/20	Sat 11/7/20			0 days		100%	[Gantt bar for 215: 100% complete, start Wed 11/3/20, end Sat 11/7/20]											
216	CIW-1310		Construction of concrete plinth			0 days	NA	NA																						

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
252	CIW-1500b		Joint Initial Survey arrangement with MTRCL			0 days	NA	NA	158 days	Tue 26/11/19	Wed 10/6/20	Tue 26/11/19	Wed 10/6/20			0 days		100%
253	CIW-1500c		Site Clearance & inspection pit excavation under conforming alignments			0 days	NA	NA	36 days	Fri 12/6/20	Sat 25/7/20	Fri 12/6/20	Sat 25/7/20			0 days		100%
254	CIW-1511		Tank Drain Diversion near MTRCL track			0 days	NA	NA	246 days	Thu 11/6/20	Mon 12/4/21	Thu 11/6/20	Sat 10/4/21			0 days		100%
255	CIW-1511a		Excavation of trial pit near MHD9.5 (TP45 & 47)	040		0 days	NA	NA	12 days	Mon 27/7/20	Sat 8/8/20	Mon 27/7/20	Sat 8/8/20		256,260	0 days		100%
256	CIW-1511b		Uncharted cables found near MTRCL track and identification			0 days	NA	NA	1 day	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20			0 days		100%
257	CIW-1511c		Excavation of trial pit near MHD9.5			0 days	NA	NA	5 days	Fri 19/6/20	Wed 24/6/20	Fri 19/6/20	Wed 24/6/20		258	0 days		100%
258	CIW-1511d		Lower the ground surface, opening and additional trial pit (TP38)		(046)	0 days	NA	NA	60 days	Thu 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20		259	0 days		100%
259	CIW-1511e		Excavation of Trial Pits near Manhole MHA04 and MHD9	040		0 days	NA	NA	60 days	Fri 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20			0 days		100%
260	CIW-1511f		Additional Trial Pit between MHD9.5 and MHA04	040		0 days	NA	NA	25 days	Fri 21/8/20	Fri 18/9/20	Fri 21/8/20	Fri 18/9/20			0 days		100%
261	CIW-1511g		Sheetpile installation for MHD9.5			0 days	NA	NA	38 days	Fri 1/9/20	Tue 16/10/20	Fri 16/10/20	Fri 16/10/20			0 days		100%
262	CIW-1511h		Sheetpile installation between MHD9.5 & MHA04			0 days	NA	NA	25 days	Tue 8/9/20	Thu 8/10/20	Tue 8/9/20	Thu 8/10/20			0 days		100%
263	CIW-1511i		LUU supporting & ELS works& excavatub between MHD9.5 & MHA04			0 days	NA	NA	73 days	Wed 7/10/20	Mon 4/1/21	Wed 7/10/20	Mon 4/1/21			0 days		100%
264	CIW-1511j		Unsuit excavated material from MHD9.5 to MHA04		261	0 days	NA	NA	4 days	Fri 20/11/20	Tue 24/11/20	Fri 20/11/20	Tue 24/11/20			0 days		100%
265	CIW-1511k		Revise design of manhole MHD9.5		(167)	0 days	NA	NA	20 days	Thu 7/1/21	Fri 29/1/21	Thu 7/1/21	Fri 29/1/21			0 days		100%
266	CIW-1511l		Break up opening and plugging existing concrete pipe at MHD9.5			0 days	NA	NA	6 days	Mon 18/1/21	Sat 23/1/21	Mon 18/1/21	Sat 23/1/21			0 days		100%
267	CIW-1511m		Trimming existing concrete pipe at MHD9.5			0 days	NA	NA	13 days	Fri 22/1/21	Fri 5/2/21	Fri 22/1/21	Fri 5/2/21			0 days		100%
268	CIW-1511n		Construction of manhole MHD9.5			0 days	NA	NA	49 days	Sat 6/2/21	Sat 10/4/21	Sat 6/2/21	Sat 10/4/21			0 days		100%
269	CIW-1511o		Additional work to prevent backflow from MHI1 to MHD9.5	(176)		0 days	NA	NA	9 days	Mon 18/1/21	Wed 27/1/21	Mon 18/1/21	Wed 27/1/21			0 days		100%
270	CIW-1511p		Sewage overflow incident of MHD11	(180)		0 days	NA	NA	9 days	Sat 13/2/21	Thu 25/2/21	Sat 13/2/21	Thu 25/2/21			0 days		100%
271	CIW-1512		Additional Special manhole for tank drain (NCE)			0 days	NA	NA	35 days	Mon 24/8/20	Mon 5/10/20	Mon 24/8/20	Mon 5/10/20		272,273	0 days		100%
272	CIW-1513		Breaking of concrete surround of cables (0.8m x 0.8m x 70m) (NCE)			0 days	NA	NA	24 days	Tue 8/9/20	Wed 7/10/20	Tue 8/9/20	Wed 7/10/20			0 days		100%
273	CIW-1514	KD1B	Construction of tank drain along revised alignment w/ concrete surround		051	0 days	NA	NA	10 days	Tue 5/1/21	Fri 15/1/21	Tue 5/1/21	Fri 15/1/21		43FF,307	0 days		100%
274	CIW-1516		Backfilling trench between MHD9.5 & MHA04			0 days	NA	NA	20 days	Sat 16/1/21	Mon 8/2/21	Sat 16/1/21	Mon 8/2/21			0 days		100%
275	CIW-1520		Diversion of Sludge Pipes			75 days	Tue 21/4/20	Tue 21/7/20	364 days	Mon 11/5/20	Thu 29/7/21	Mon 11/5/20	NA			0 days		96%
276	CIW-1520a		Excavation of trial pit and identification of connection point		351	0 days	NA	NA	103 days	Mon 11/5/20	Wed 9/9/20	Mon 11/5/20	Wed 9/9/20		277	0 days		100%
277	CIW-1520b		Trench excavation for twin DN250 sludge pipe, on hold due to encounter of uncharted sludge pipe		351	75 days	Tue 21/4/20	Tue 21/7/20	4 days	Wed 15/7/20	Sat 18/7/20	Wed 15/7/20	Sat 18/7/20		278	0 days		100%
278	CIW-1520c		Additional hole drilling works and identification of connection point			0 days	NA	NA	53 days	Mon 20/7/20	Mon 20/7/20	Fri 18/9/20	Fri 18/9/20		250	0 days		100%
279	CIW-1520d		Temporary diversion of substandard DI 250 Leachate raising main		202	0 days	NA	NA	127 days	Tue 20/10/20	Wed 24/3/21	Tue 20/10/20	Wed 24/3/21		228	0 days		100%
280	CIW-1520e		Protection work for substandard DI 500 tank drain Pipe (near MHD 9.5)		302	0 days	NA	NA	93 days	Wed 18/11/20	Fri 12/3/21	Wed 18/11/20	Fri 12/3/21		228	0 days		100%
281	CIW-1520f		Encounter of uncharted concrete pipe within sheetpile cofferdam at MHA04			0 days	NA	NA	2 days	Tue 10/11/20	Wed 11/11/20	Tue 10/11/20	Wed 11/11/20		282	0 days		100%
282	CIW-1520g		Resumption and construction of sludge pipe construction			0 days	NA	NA	253 days	Sat 19/9/20	Thu 29/7/21	Sat 19/9/20	NA	281	307,44FF	-36 days		91%
283	CIW-1530		Diversion of Leachate Raising Main			60 days	Tue 21/4/20	Fri 3/7/20	60 days	Tue 14/9/21	Thu 25/11/21	NA	NA	241		-135 days		0%
284	CIW-1600		Diversion of pipelines near Primary Sludge Thickeners (approx. 180m long 150mm to 375mm concrete pipes)			156 days	Thu 6/2/20	Fri 14/8/20	570 days	Tue 26/11/19	Thu 28/10/21	Tue 26/11/19	NA			0 days		55%
285	CIW-1610		Trench Excavation from MHI MHD1E to MHD6 (approx. 90m long with MHS MHD1A, 1B, 1C, 1D & 1E) - resigned		87	60 days	Thu 6/2/20	Mon 20/4/20	0 days	Tue 26/11/19	Tue 26/11/19	Tue 26/11/19	Tue 26/11/19			0 days		100%
286	CIW-1620		Manholes construction and Pipe laying - omitted		87	60 days	Mon 30/3/20	Sat 13/6/20	0 days	Tue 2/6/20	Tue 2/6/20	Tue 2/6/20	Tue 2/6/20		43FF,291	0 days		100%
287	CIW-1621		Temporary Diversion of Existing DN200 Filtrate Raising Main		034	0 days	NA	NA	20 days	Sat 1/8/20	Mon 24/8/20	Sat 1/8/20	Mon 24/8/20		288	0 days		100%
288	CIW-1623		Pipeline Diversion Works near Primary Sludge Thickening Tank		(114)	0 days	NA	NA	30 days	Fri 16/4/21	Sat 22/5/21	Fri 16/4/21	Sat 22/5/21		287	0 days		100%
289	CIW-1625		Uncharted underground utilities near Proposed MHD5B		0260	0 days	NA	NA	26 days	Mon 24/5/21	Wed 23/6/21	Mon 24/5/21	Wed 23/6/21		290,293	0 days		100%
290	CIW-1630		Trench Excavation from MHI (approx. 90m long with MHS M1A to M3B)			60 days	Tue 21/4/20	Fri 3/7/20	32 days	Thu 19/3/20	Thu 19/3/20	Wed 29/4/20	Wed 29/4/20		291,292	0 days		100%
291	CIW-1640		Manholes construction (M1A, M1B, M2B, M3B) and Pipe laying			25 days	Mon 15/6/20	Wed 15/7/20	12 days	Mon 4/5/20	Sat 16/5/20	Mon 4/5/20	Sat 16/5/20		290,286	0 days		100%
292	CIW-1650		Trench Excavation from MHD5 to MHD9.5 (approx. 90m long with MHS MHD5A & 5B)		(114)	50 days	Thu 16/7/20	Fri 11/9/20	60 days	Wed 2/9/20	Wed 30/12/20	Wed 2/9/20	Wed 30/12/20		290,296,301,303,305	0 days		100%
293	CIW-1660		Provision of Pumping System from Screen to Flume Channel		87	0 days	NA	NA	287 days	Tue 10/11/20	Thu 28/10/21	Tue 10/11/20	NA	289	294	-111 days		75%
294	CIW-1670		Manholes construction (MHD5A, MHD5B, MHD5C) and Pipe laying			45 days	Sat 23/5/20	Thu 16/7/20	293 days	Thu 3/11/20	Thu 28/10/21	Thu 3/11/20	NA	293	44FF	-111 days		8%
295	CIW-2000		Decommission and Demolition of Existing Facilities and Structures			240 days	Mon 2/3/20	Fri 18/12/20	222 days	Thu 19/3/20	Tue 15/12/20	Thu 19/3/20	Tue 15/12/20		6,122,160	0 days		100%
296	CIW-2100		Primary Sludge Thickening Tank No.1 and No.2			80 days	Mon 2/3/20	Thu 9/6/20	222 days	Thu 19/3/20	Tue 15/12/20	Thu 19/3/20	Tue 15/12/20		292	0 days		100%
297	CIW-2101		Additional Works for Temporary Diversion of Bypass Pipe near Primary Sludge Thickeners			0 days	NA	NA	45 days	Thu 19/3/20	Thu 19/3/20	Sun 17/5/20	Sun 17/5/20			0 days		100%
298	CIW-2110		Removal of E&M equipment of primary sludge thickening tank			0 days	NA	NA	1 day	Thu 4/6/20	Thu 4/6/20	Thu 4/6/20	Thu 4/6/20		299	0 days		100%
299	CIW-2120		Decommission and Demolition the tank			80 days	Mon 2/3/20	Tue 9/6/20	150 days	Thu 18/6/20	Tue 15/12/20	Thu 18/6/20	Tue 15/12/20		298	0 days		100%
300	CIW-2130		Demolition of structure no.2			0 days	NA	NA	24 days	Mon 18/5/20	Mon 22/6/20	Mon 18/5/20	Mon 22/6/20			0 days		100%
301	CIW-2200		Primary Sludge Pump Pit			60 days	Wed 10/6/20	Thu 20/8/20	18 days	Wed 22/7/20	Tue 11/8/20	Wed 22/7/20	Tue 11/8/20		302,303,292,304	0 days		100%
302	CIW-2300		Septic Tank			50 days	Fri 21/8/20	Tue 20/10/20	18 days	Wed 12/8/20	Tue 1/9/20	Wed 12/8/20	Tue 1/9/20		301	0 days		100%
303	CIW-2400		Diesel Tank			50 days	Wed 21/10/20	Fri 18/12/20	53 days	Thu 2/7/20	Tue 1/9/20	Thu 2/7/20	Tue 1/9/20		292	0 days		100%
304	CIW-2410		Transfers of Remaining Diesel Fuel of Existing Diesel Tank			0 days	NA	NA	15 days	Thu 2/7/20	Thu 2/7/20	Tue 21/7/20	Tue 21/7/20		305	0 days		100%
305	CIW-2420		Demolition of diesel tank			50 days	Wed 21/10/20	Fri 18/12/20	18 days	Wed 12/8/20	Tue 1/9/20	Wed 12/8/20	Tue 1/9/20		304	0 days		100%
306	CIW-3000		Inlet Works No.1 Building (1)			569 days	Sat 19/12/20	Mon 21/11/22	747 days	Tue 15/9/20	Thu 23/3/23	Tue 15/9/20	NA			748 days		18%
307	CIW-3100		Predrilling (10hrs, 1trigs, 2.5days/drillhole/riq) - stage 1			40 days	Mon 4/1/21	Mon 22/2/21	28 days	Tue 15/9/20	Mon 19/10/20	Tue 15/9/20	Mon 19/10/20		248,250,273,228,282	0 days	1	100%
308	CIW-3100a		Predrilling (22hrs, 1trigs, 2.5days/drillhole/riq) - stage 2			0 days	NA	NA	60 days	Tue 8/12/20	Mon 22/2/21	Tue 8/12/20	Mon 22/2/21			0 days		100%
309	CIW-3200		Pre-bored H piles (188nos, 1.8trigs, 2days/riq/pile)			133 days	Tue 23/2/21	Wed 4/8/21	210 days	Fri 19/2/21	Tue 2/11/21	Fri 19/2/21	NA	228,132	310SS+150 days,311	-34 days	5	63%
310	CIW-3400a		Pile Load Test at stage 1			26 days	Thu 5/8/21	Fri 3/9/21	21 days	Sat 21/8/21	Tue 14/9/21	NA	NA	309SS+150 days	312	83 days		0%

ID	Activity ID	Key Date	Task Name	Incl. Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
435	CSA-1000		Additional Preliminary Works			0 days	NA	NA	330 days	Tue 9/6/20	Mon 19/7/21	Tue 9/6/20	NA			1247 days		98%
436	CSA-1020		Expose and abandon existing electric cable & trial pits		78	0 days	NA	NA	39 days	Mon 17/8/20	Wed 30/9/20	Mon 17/8/20	Wed 30/9/20			0 days		100%
437	CSA-1030		Installation of standpipes		71	0 days	NA	NA	13 days	Mon 14/9/20	Mon 28/9/20	Mon 14/9/20	Mon 28/9/20			0 days		100%
438	CSA-1100		Diversion of Existing SAS Raising Main near SAS Pumping Station		68, 75, 76	0 days	NA	NA	170 days	Tue 9/6/20	Thu 31/12/20	Tue 9/6/20	Thu 31/12/20			0 days		100%
439	CSA-1200		Decommission of existing power and signal systems in leachate pump station switch room		312, 309, 310	0 days	NA	NA	58 days	Mon 21/9/20	Mon 30/11/20	Mon 21/9/20	Mon 30/11/20	146	453	0 days		100%
440	CSA-1300		Construction of Cable trough for CLP 11kv Cable Diversion		75, 76, 77, 161	0 days	NA	NA	54 days	Mon 19/10/20	Mon 21/12/20	Mon 19/10/20	Mon 21/12/20		453	0 days		100%
441	CSA-1400		Demolition of Existing Pillar box and its concrete plinth		144, 212, 3/30	0 days	NA	NA	63 days	Wed 12/8/20	Sat 14/11/20	Wed 12/8/20	Sat 14/11/20	149	453	0 days		100%
442	CSA-1500		Excavation to locate existing underground cable near SAS Pump Station		78	0 days	NA	NA	59 days	Wed 17/6/20	Sat 21/11/20	Wed 17/6/20	Sat 21/11/20		453	0 days		100%
443	CSA-1600		Diversion of Existing DN80 Permeate Raising Main near SAS Pumping station		89	0 days	NA	NA	72 days	Tue 6/10/20	Thu 31/12/20	Tue 6/10/20	Thu 31/12/20		453	0 days		100%
444	CSA-1800		Trench Excavation near SAS for CLP diversion of 11kv cable		309, 310	0 days	NA	NA	53 days	Mon 12/10/20	Sat 12/12/20	Mon 12/10/20	Sat 12/12/20		453	0 days		100%
445	CSA-1700		Relocation of Oil Interceptor Near Existing Compressor House		144, 212, 3/70	0 days	NA	NA	50 days	Mon 9/11/20	Fri 8/1/21	Mon 9/11/20	Fri 8/1/21		453	0 days		100%
446	CSA-1900		Diversion of pumping system sewerage		212, 309, 3183	0 days	NA	NA	36 days	Wed 13/1/21	Fri 26/2/21	Wed 13/1/21	Fri 26/2/21	151	455,453,447	0 days		100%
447	CSA-1910		Diversion of existing copper pipe near proposed SAS pumping station		309, 310	0 days	NA	NA	61 days	Mon 19/10/20	Thu 31/12/20	Mon 19/10/20	Thu 31/12/20	446	453	0 days		100%
448	CSA-1920		Pipeline of proposed SAS Pumping Station - 13 nos. of puddles		221	0 days	NA	NA	180 days	Mon 7/12/20	Mon 19/7/21	Mon 7/12/20	Mon 19/7/21			1247 days		92%
449	CSA-1930		Additional DN150 Raising main for SAS		220/69	0 days	NA	NA	15 days	Wed 21/2/20	Fri 18/12/20	Wed 21/2/20	Fri 18/12/20			0 days		100%
450	CSA-1940		Additional DN90 PE pipe diversion		89	0 days	NA	NA	7 days	Fri 11/12/20	Fri 18/12/20	Fri 11/12/20	Fri 18/12/20			0 days		100%
451	CSA-1970		Additional diversion of existing sludge rising main and sewerage system		81	0 days	NA	NA	15 days	Thu 21/1/21	Sat 6/2/21	Thu 21/1/21	Sat 6/2/21			0 days		100%
452	CSA-2000		Predrilling (4hrs, 1rig, 4days/drillhole/rig)		68	16 days	Wed 20/5/20	Sat 6/6/20	7 days	Sat 18/4/20	Sat 25/4/20	Sat 18/4/20	Sat 25/4/20	127	342,453	0 days		100%
453	CSA-3000		Pre-bored H piles (12nos, 1rigs, 4days/pile/rig)			60 days	Mon 8/6/20	Tue 18/8/20	19 days	Mon 4/1/21	Mon 25/1/21	Mon 4/1/21	Mon 25/1/21	132,452,148,438,439,441,442,443,445,444,343,454		2	0 days	100%
454	CSA-4000		Pile Load Test			21 days	Wed 19/8/20	Tue 17/9/20	22 days	Fri 19/3/21	Tue 23/2/21	Fri 19/3/21	Tue 23/2/21	453	456,455	0 days		100%
455	CSA-5000		Sheetpile Installation (FSP-II, 690sq.m, 40sqm/day)			28 days	Wed 19/8/20	Sat 19/9/20	28 days	Thu 30/3/21	Wed 5/5/21	Tue 30/3/21	Wed 5/5/21	133,454,446	456	0 days		100%
456	CSA-6000		ELS works (1300cu.m soil with 2 layers walling / strutting)			75 days	Mon 21/9/20	Wed 19/2/20	75 days	Thu 6/5/21	Wed 4/8/21	Thu 6/5/21	Wed 4/8/21	NA,455,135,454	458,457FF-3 emons	-121 days	2	96%
457	CSA-6900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Thu 6/5/21	Thu 6/5/21	Thu 6/5/21	Thu 6/5/21	456FF-3 emons	458SS-3 emons	0 days		100%
458	CSA-7000	KD1H	R.C. Structure works (including ELS demolition works)			186 days	Mon 21/12/20	Mon 9/8/21	186 days	Thu 5/8/21	Sat 19/3/22	Thu 5/8/21	Sat 19/3/22	NA,456,457SS-3 emons	459,460,49FF	-121 days	5	0%
459	CSA-8000	KD1H	Allow access to Contractor DE/2018/03 for E&M installation and T&C works			0 days	Mon 9/8/21	Mon 9/8/21	0 days	Sat 19/3/22	Sat 19/3/22	NA	NA	458	49FF	-121 days		0%
460	CSA-9000	SW1	ABWF works + BS works			90 days	Tue 10/8/21	Thu 25/11/21	90 days	Thu 14/6/22	Wed 28/9/22	Thu 14/6/22	Wed 28/9/22	NA	458,189,141,522SS	56FF	405 days	0%
461	CAS-0000		Ancillary Structures, B-7			503 days	Mon 7/9/20	Sat 21/5/22	420 days	Mon 3/5/21	Wed 28/9/22	Mon 3/5/21	NA	12		891 days		7%
462	CAS-1000		Demolition of Existing Faciliates and Structures (leachate pump pit & pumping station)			120 days	Mon 7/9/20	Sat 30/1/21	120 days	Mon 3/5/21	Thu 23/9/21	Mon 3/5/21	NA	122,160,162	497	48 days		41%
463	CFS-1000		Fire Services Sprinkler Pumping Room & Emergency Generator House (9)(10)**		301	220 days	Sat 10/4/21	Sun 3/1/21	419 days	Tue 4/5/21	Wed 28/9/22	Tue 4/5/21	NA	NA		405 days		14%
464	CFS-1000		Water Sampling and Testing for existing effluent pump pit		384	0 days	NA	NA	12 days	Tue 4/5/21	Mon 17/5/21	Tue 4/5/21	Mon 17/5/21		465	0 days		100%
465	CFS-1150		Identification, decommission and demolition of the existing kloak		86	0 days	NA	NA	26 days	Tue 18/5/21	Fri 18/6/21	Tue 18/5/21	Fri 18/6/21	464	466,479	0 days		100%
466	CFS-1100		Provision of Flowmeter chamber, gate valve chamber and associated sewerage		85	0 days	NA	NA	90 days	Sat 19/6/21	Tue 5/10/21	Sat 19/6/21	NA	465	467,469FF	-101 days		40%
467	CFS-1200		Decommission and demolition of the existing pump pit and associated sewerage manholes and pipes		86	0 days	NA	NA	40 days	Wed 6/10/21	Mon 22/11/21	NA	NA	466	470	-101 days		0%
468	CFS-1250		Diversion of Leachate Raising Main near SSSH		241	0 days	NA	NA	18 days	Wed 28/7/21	Wed 18/8/21	NA	NA	469SF	480	18 days		0%
469	CFS-1300		E&M provision of flowmeter chamber and associated sewerage for effluent and sewage from SSSH		256	0 days	NA	NA	40 days	Wed 18/8/21	Tue 5/10/21	NA	NA	466FF	470,468SF	-61 days		0%
470	CFS-2000		Excavation for Raft Footing (800cu.m)			65 days	NA	NA	44 days	Tue 23/11/21	Sat 15/12/21	NA	NA	469,467	471	-101 days		0%
471	CFS-2800		Plate load test at bottom level of compacted general fill(2no.)			12 days	NA	NA	7 days	Mon 17/1/22	Mon 24/1/22	NA	NA	470	472	-101 days		0%
472	CFS-2900		Soil Replacement (14 layers SRT)			0 days	NA	NA	42 edays	Mon 24/1/22	Mon 7/3/22	NA	NA	471	473	-124.42 edays		0%
473	CFS-3000		Plate load test at bottom level of base slab (3no.)			28 days	Fri 4/6/21	Mon 21/6/21	7 days	Tue 8/3/22	Tue 15/3/22	NA	NA	472	474FF-3 emons,475	-101 days		0%
474	CFS-3900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Tue 23/11/21	Tue 23/11/21	NA	NA	473FF-3 emons	475SS-3 emons	59 days		0%
475	CFS-4000	KD1J	R.C. structure works			120 days	NA	NA	70 days	Wed 16/3/22	Mon 13/6/22	NA	NA	473,474SS-3 emons	477,476,51FF,521FF,520FF	-101 days	2	0%
476	CFS-5000	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Mon 13/9/21	Mon 13/9/21	0 days	Mon 13/6/22	Mon 13/6/22	NA	NA	475	51FF	-101 days		0%
477	CFS-6000	SW1	ABWF works + BS works			90 days	Tue 14/9/21	Mon 3/1/22	90 days	Tue 14/6/22	Wed 28/9/22	NA	NA	475	56FF	405 days		0%
478	CCS-1000		Chemical System No.1 (8)*			168 days	Mon 1/2/21	Tue 26/8/21	386 days	Sat 12/6/21	Wed 28/9/22	Sat 12/6/21	NA	NA		891 days		4%
479	CCS-1310		Demolition of SSSH Pump Pit and Associated Sewerage System		086	0 days	NA	NA	26 days	Sat 19/6/21	Tue 20/7/21	Sat 19/6/21	NA	465	481	54 days		38%
480	CCS-1110		Removal of existing Leachate Raising Main near SSSH		241	0 days	NA	NA	12 days	Wed 18/8/21	Tue 31/8/21	NA	NA	468	481	18 days		0%
481	CCS-1100		Excavation for Raft Footing (200cu.m)			10 days	Mon 1/2/21	Thu 11/2/21	10 days	Mon 1/9/21	Sat 11/9/21	NA	NA	480,479	485FF-3 emons,486,482	18 days		0%
482	CCS-1080		Plate load test at bottom level of compacted general fill(2no.)			9 days	NA	NA	9 days	Mon 13/9/21	Thu 23/9/21	NA	NA	481	483	18 days		0%
483	CCS-1090		Soil Replacement (10 layers SRT)			0 days	NA	NA	30 edays	Thu 23/9/21	Sat 23/10/21	NA	NA	482	484	23.58 edays		0%
484	CCS-1200		Plate load test at bottom level of base slab (1no.)			5 days	Tue 16/2/21	Wed 3/3/21	5 days	Mon 25/10/21	Fri 29/10/21	NA	NA	483	486,493	19 days		0%
485	CCS-1190		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Sat 12/6/21	Sat 12/6/21	Sat 12/6/21	Sat 12/6/21	481FF-3 emons	486SS-3 emons	0 days		100%
486	CCS-1300	KD1J	R.C. structure works			45 days	Mon 15/3/21	Mon 10/5/21	60 days	Sat 30/10/21	Tue 11/1/22	NA	NA	481,485SS-3 emons,484	51FF,488,487	20 days	2	0%
487	CCS-1400	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Mon 10/5/21	Mon 10/5/21	0 days	Tue 11/1/22	Tue 11/1/22	NA	NA	486	51FF	20 days		0%
488	CCS-1500	SW1	ABWF works + BS works			90 days	Tue 11/5/21	Thu 26/8/21	90 days	Tue 14/6/22	Wed 28/9/22	NA	NA	189,141,486,522SS	56FF	405 days		0%
489	CDS-0000		Deodorization System No.3A (7)*			149 days	Tue 16/11/21	Sat 21/5/22	105 days	Thu 5/8/21	Wed 8/12/21	NA	NA	NA	NA	90 days		0%
490	CDS-2000		Excavation for Raft Footing (400cu.m)			20 days	Tue 16/11/21	Wed 8/12/21	20 days	Sat 14/8/21	Tue 7/9/21	NA	NA	491SF		1205 days		0%
491	CDS-2008		Plate load test at bottom level of compacted general fill(2no.)			10 days	NA	NA	10 days	Tue 7/9/21	Sat 18/9/21	NA	NA	492SF	490SF	1195 days		0%
492	CDS-2100		Soil Replacement (14 layers SRT)			0 days	NA	NA	42 edays	Sat 18/9/21	Sat 30/10/21	NA	NA	493SF	491SF	1425.42 edays		0%
493	CDS-3000		Plate load test at bottom level of base slab (1no.)			4 days	Thu 9/12/21	Fri 24/12/21	4 days	Sat 30/10/21	Wed 3/11/21	NA	NA	484	494FF-3 emons,495,492SF,500FS	19 days		0%
494	CDS-3900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Thu 5/8/21								

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
532	CAA-1000	KD2B	B-8A Alternation works for existing Air Blower House No.2 (Pipeline CHTA, approx. 133m DN800 D.I.)			180 days	Wed 29/1/20	Thu 3/9/20	246 days	Mon 1/6/20	Fri 26/3/21	Mon 1/6/20	Fri 26/3/21	15,142,184	53FF	0 days		100%
533	CAA-1100		Change of pipe bridge design		(057)	0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
534	CAA-1200		Additional inspection pit to verify the connection point to existing (CE xxx)			0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
535	CAA-1300		Additional MBV installation (CE xxx)			0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
536	CAA-1400		Alternation works for existing Air Blower House No.2 (Pipeline CHTA, approx. 133m DN800 D.I.)			180 days	Wed 29/1/20	Thu 3/9/20	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF	0 days		100%
537	CAA-1500	KD2B	Re-alignmnet of DN800 Temporary Air Main (CHTA) and Provision of FRP Staircases		064	0 days	NA	NA	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF	0 days		100%
538	CAA-1600	KD2B	Elevated Section of DN800 Temporary Air Main (CHTA) across existing Bioreactor's Distribution Chamber No. 2		062	0 days	NA	NA	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF,539	0 days		100%
539	CAA-2000	KD11	B7-A Alternation works for existing Power House			122 days	Fri 4/9/20	Sat 30/1/21	0 days	Wed 11/11/20	Fri 29/1/21	Wed 11/11/20	Fri 29/1/21	13FS-1 day,122,160,162,176,538	50FF,540FS+356 days	0 days		100%
540	CAA-2100	SW3	Additional works for Power House		224	0 days	NA	NA	60 days	Thu 14/4/22	Wed 29/6/22	NA	NA	539FS-356 days	58FF	570 days		0%
541	CAA-3000	SW3	Alternation works for existing Membrane Facilities Building No.1			360 days	Mon 1/2/21	Fri 22/4/22	360 days	Tue 19/4/22	Thu 6/7/23	NA	NA	14FS-1 day,175	58FF	269 days		0%
542	CUU-0000	*	External Underground Service, Utilities, Road/Drain			1091 days	Mon 24/2/20	Sat 28/10/23	1192 days	Mon 27/4/20	Mon 13/5/24	Mon 27/4/20	NA	16		-88 days		46%
543	CUU-1000	KD2A	Process Pipes CHR and CHS (approx. 93m twin DN900 D.I.)		33, 222, 255	325 days	Mon 24/2/20	Sat 27/3/21	379 days	Mon 27/4/20	Wed 4/8/21	Mon 27/4/20	NA	184,142	54SS+48 days,552SS+48 days,55	39 days		99%
544	CUU-1000a		Special Treatment for Removing the Existing Abandoned DN1800 By-pass Pipe and the Concrete Mass in Conflict with the Proposed Sheetpile wall for trenching work of Process Pipeline CHR and CHS		33	0 days	NA	NA	54 days	Sat 30/5/20	Mon 3/8/20	Sat 30/5/20	Mon 3/8/20			0 days		100%
545	CUU-1000b		Trenchless work for Process Pipes CHR and CHS (approx. 7m twin DN900 D.I.)		255	0 days	NA	NA	60 days	Thu 25/2/21	Mon 10/5/21	Thu 25/2/21	Mon 10/5/21		52FF	0 days		100%
546	CUU-1001		Removal of Abandoned DN1800 Concrete Pipe and Concrete Mass near Existing UV Disinfection Channel at CHR & CHS Process Pipe Works Area		033	0 days	NA	NA	43 days	Thu 2/7/20	Thu 20/8/20	Thu 2/7/20	Thu 20/8/20			0 days		100%
547	CUU-1002		Grouting for Sheung Shui Slaughter House Boundary Walls along CHR & CHS Pipes Works Area		222	0 days	NA	NA	20 days	Fri 23/10/20	Mon 16/11/20	Fri 23/10/20	Mon 16/11/20			0 days		100%
548	CUU-1004		Delay Delivery of DI pipes due to COVID-19		(076)	0 days	NA	NA	75 days	Tue 22/12/20	Thu 25/3/21	Tue 22/12/20	Thu 25/3/21		549FF	0 days		100%
549	CUU-2000	SW2	Process Pipes, including CHT, CHX, CHY, CHPS1&2, CHS S1&2, CHDO 1&2, CHPSW 1-8, CHTPS, CHPT1&2, CHTFT 1&2, CHTE, CHTD, Foam Collection & Surplus activated sludge rising main pipe			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20	NA	184,142,548FF,543SS+48 days	57FF,555,550SS+250 days	63 days		51%
550	CUU-2100	SW2	Remaining Process Pipes			0 days	NA	NA	270 days	Mon 23/8/21	Fri 22/7/22	NA	NA	549SS+250 days	57FF	0 days		0%
551	CUU-3000	SW2	Remaining Drainage			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142	555,57FF	0 days	5	45%
552	CUU-4000	SW2	Remaining Sewerage			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	555,57FF	0 days	5	45%
553	CUU-5000	SW2	Remaining Waterworks			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	557FS+2 days,57FF	0 days	5	45%
554	CUU-6000	SW2	Remaining Cable Ducts			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	555,57FF	0 days	5	45%
555	CUU-7000	KD3A	Roadworks			540 days	Fri 31/12/21	Sat 28/10/23	440 days	Mon 7/11/22	Mon 13/5/24	NA	NA	554,551,552,549,352,399,334,433	54FF,558SS+123 days	-88 days	5	0%
556	CLW-0000	*	Landscaping Works			854 days	Wed 11/5/22	Thu 27/3/25	946 days	Tue 26/7/22	Wed 24/9/25	NA	NA	16		0 days		0%
557	CLW-1000	KD3A	Irrigation System			120 days	Wed 11/5/22	Fri 30/9/22	120 days	Tue 26/7/22	Thu 15/12/22	NA	NA	553FS+2 days,184	558,54FF	1 day		0%
558	CLW-2000	SW3	Hard Landscaping Works			220 days	Mon 3/10/22	Mon 3/7/23	214 days	Tue 11/4/23	Sat 23/12/23	NA	NA	557,555SS+123 days	559,58FF	-88 days	5	0%
559	CLW-3000	SW3	Soft Landscaping Works			220 days	Tue 26/3/24	Tue 4/7/23	214 days	Wed 27/12/23	Tue 24/9/24	NA	NA	558,143	560,58FF	-88 days	5	0%
560	CLW-4000	DLP	Establishment Works (365 days)			294 days	Wed 27/3/24	Thu 27/3/25	365 days	Wed 25/9/24	Wed 24/9/25	NA	NA	559,143	59FF,60FF	0 days	5	0%



Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020	2021	2022	2023	2024	2025
SWH - Main Works Stage 1 Sidestream Treatment Facilities & E&M Works for Slur										Remarks: The Defect Date is 05 Jun 2025 (365 days after Completion of the whole of the works) The period of Establishment Works is 365 days start from 06 Jun 2024 to 05 Jun 2025					
Contract Data		2015	11-Oct-19 A	16-Apr-25	20-Mar-22	16-Apr-25	0								
Starting Date & Completion Date		2015	11-Oct-19 A	16-Apr-25	20-Mar-22	16-Apr-25	0								
CD1000	Contract Date (LOA)	0	11-Oct-19 A		20-Mar-22				CD1010, S1P1000, S1D1040, AD1050,						
CD1010	Starting Date	0	23-Oct-19 A		20-Mar-22			CD1000	CD1040, CD1030						
CD1020	Whole Contract Period (1626 days from starting date)	1626	23-Oct-19 A	04-Apr-24	21-Nov-22	04-Apr-24	0	CD1010	CD1040						
CD1030	Extension of Time Granted (Total 61.5days)	62	05-Apr-24	05-Jun-24*	05-Apr-24	05-Jun-24	0	CD1020	CD1040						
CD1040	Completion Date for the whole of the Works	0		16-Apr-25		16-Apr-25	0	CD1020, CD1010, CD1030							
Access Date		1434	23-Oct-19 A	21-Nov-22	20-Mar-22	16-Apr-25	877								
AD1000	Portion C-1A (within 480 to 550 days from starting date)	550	23-Oct-19 A	24-Apr-21 A	12-Oct-22	12-Oct-22		CD1010	AD1010						
AD1010	Planned Access Date for Portion C-1A (Partial Access)	1	24-Apr-21 A	24-Apr-21 A	12-Oct-22	12-Oct-22		CD1010, AD1000	PL1470, S4C1010						
AD1020	Planned Access Date for Portion C-1A (Access for Remaining Area)	1	12-May-21 A	12-May-21 A	12-Oct-22	12-Oct-22			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)	831	23-Oct-19 A	30-Jan-22 A	16-Apr-25	16-Apr-25		CD1010	AD1040						
AD1040	Planned Access Date for Portion C-2A	1	09-Sep-22 A	09-Sep-22 A	16-Apr-25	16-Apr-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)	880	23-Oct-19 A	20-Mar-22 A	20-Mar-22	20-Mar-22		CD1010	AD1060						
AD1060	Planned Access Date for Portion C-2B	1	21-Nov-22	21-Nov-22*	20-Mar-22	20-Mar-22	-246	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)	934	23-Oct-19 A	13-May-22 A	13-May-22	13-May-22		CD1010	AD1080						
AD1080	Planned Access Date for Portion C2-C	1	21-Nov-22	21-Nov-22*	13-May-22	13-May-22	-192	CD1010, AD1070	S5DIGC1040, S5DIGC1210, S5DIGC1030						
AD1090	Portion C-2D (within 825 to 945 days from starting date)	945	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-Nov-22	21-Nov-22*	24-May-22	24-May-22	-181	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)	815	23-Oct-19 A	31-Dec-21 A	03-Aug-22	03-Aug-22		CD1010	AD1120						
AD1120	Planned Access Date for Portion C-3 (SS by NCE-NCE-273)	1	31-Dec-21 A	31-Dec-21 A	03-Aug-22	03-Aug-22		AD1110, S2D1110	KD1060, S5WS2C1000, S5WS2C1010, KD1060-1						
AD1130	Portion B-1 (within 285 to 345 days from starting date)	345	23-Oct-19 A	30-Sep-20 A	01-Sep-22	01-Sep-22		CD1010	AD1140						
AD1140	Planned Access Date for Portion B-1	1	30-Sep-20 A	30-Sep-20 A	01-Sep-22	01-Sep-22		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)	891	23-Oct-19 A	23-Mar-22 A	03-Dec-22	03-Dec-22		CD1010	AD1160						
AD1160	Planned Access Date for Portion B-2a (SS by NCE-NCE-219)	1	23-Mar-22 A	23-Mar-22 A	03-Dec-22	03-Dec-22		AD1150	S5SASC1010, S5SASC1000						
AD1170	Portion B-2b (within 615 to 705 days from starting date) (SS by NCE-NCE-219)	705	23-Oct-19 A	24-Sep-21 A	16-Apr-25	16-Apr-25									
AD1180	Planned Access Date for Portion B-2b (SS by NCE-NCE-219)	1	24-Sep-21 A	24-Sep-21 A	16-Apr-25	16-Apr-25									
AD1190	Works Area WA1-B (starting date)	1	23-Oct-19 A	23-Oct-19 A	05-Jul-22	05-Jul-22		CD1010	AD1200						
AD1200	Planned Access Date for Works Area WA1-B	1	23-Oct-19 A	23-Oct-19 A	05-Jul-22	05-Jul-22		CD1010, AD1190	PL1000, PL1020						
AD1210	Works Area WA3 (starting date)	1	23-Oct-19 A	23-Oct-19 A	03-Oct-23	03-Oct-23		CD1010	AD1220						
AD1220	Planned Access Date for Works Area WA3	1	23-Oct-19 A	23-Oct-19 A	03-Oct-23	03-Oct-23		CD1010, AD1210	PL1000, PL1030						
Key Dates		1620	23-Oct-19 A	29-Mar-24	17-Nov-22	16-Apr-25	384								

	File Name: DE/2018/03 RP R28 Layout: DE1803 RP (Nov 2022) - WBS Page 1 of 58	 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 Nov 2022				Date	Revision	Checked	Approved
						31-Jul-22	Rev24	LT	KM	
						31-Aug-22	Rev25	LT	KM	
						30-Sep-22	Rev26	LT	KM	
						31-Oct-22	Rev27	LT	KM	
					30-Nov-22	Rev28	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)	8/28/2020	9/18/2020	11/5/2020	11/5/2020	Task Completed	no.	26	26	100%		
	KD1A: Submission of Electrical Schematic Drawing (Final)	7/15/2020	7/15/2020	11/5/2020	11/5/2020	Task Completed	no.	11	11	100%		
	KD1A: 6 November 2020											
KD1B: Submission of remaining civil and dimensional requirement drawings, electrical schematic drawing, etc. in accordance with the contract requirement of Contract No. DC/2018/07 to carry out civil works construction	KD1B: Submission of Civil Requirement Drawing (First Draft)	9/30/2020	9/28/2020	12/30/2020	3/31/2021	Task Completed	no.	47	47	100%		
	KD1B: Submission of Civil Requirement Drawing (Final)	11/6/2020	11/5/2020	6/4/2021	6/4/2021	Task Completed	no.	47	47	100%		All the CWR Drawings were submitted.
	KD1B: 4 June 2021											
KD3A: 04SC010 - Dismantle & Removal of Emergency Generators in existing Power House	Submission of subletting package for acceptance (C9)	3/1/2020	2/24/2020	3/14/2020	4/22/2020	Task Completed				100%	-	Bestwise resubmitted on 22 April 2020
	Acceptance of subletting package (C9)	3/14/2020	5/6/2020	4/1/2020	5/5/2020	Task Completed				100%	-	AECOM accepted subletting package on 5 May 2020
	Tender invitation (C9)	4/1/2020	5/15/2020	4/15/2020	5/22/2020	Task Completed				100%	-	Invitation to tender was commenced on 12 May 2020 and tender returned on 22 May 2020
	Tender award (C9)	4/15/2020	5/22/2020	4/29/2020	5/26/2020	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	-	6/15/2020	-	7/25/2020	Task Completed				100%		
	Removal of emergency generators	6/1/2020	6/15/2020	6/30/2020	7/25/2020	Task Completed				100%		
KD3A: 04SC010 - Dismantle & Removal of Emergency Generators in existing Power House	KD3A: Testing and Commissioning	7/1/2020	7/3/2020	7/29/2020	7/29/2020	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	3/1/2020	3/25/2020	3/30/2020	4/27/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 27 April 2020
	Acceptance of submission of onsite survey plan	3/1/2020	3/25/2020	3/30/2020	5/22/2020	Task Completed				100%	-	AECOM accepted the onsite survey plan on 22 May 2020. Onsite coordination with ST1 - 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: Submission of onsite survey report	7/11/2020	7/20/2020	7/16/2020	7/30/2021	Task Completed				100%	Bestwise	
	KD3B: Acceptance of onsite survey report	7/17/2020	8/6/2020	7/23/2020	8/6/2021	Task Completed				-		Acceptance for the center point, vertical and horizontal alignment of ductfoot installation of PST No.4 shall subject to joint site meeting conducted on 2 June 2021. Refer to E-RISC no. 000014A & 000016 result for details.
	KD3B: Preparation of procurement package (C11)	12/2/2019	8/1/2020	4/13/2020	8/7/2020	Task Completed				100%		
	KD3B: Tender invitation - Clarifier (C11)	12/2/2019	8/14/2020	4/13/2020	8/26/2020	Task Completed				100%		
	KD3B: Tender Award - Clarifier (C11)	12/2/2019	8/26/2020	4/13/2020	9/25/2020	Task Completed				100%		
	KD3B: Acceptance of tender award (C11)	12/2/2019	9/11/2020	4/13/2020	9/18/2020	Task Completed				-		
	KD3B: Tender invitation - DI Pipe (C11)	12/2/2019	1/13/2021	4/13/2020	1/19/2021	Task Completed				100%		
	KD3B: Tender Award - DI Pipe (C11)	12/2/2019	1/21/2021	4/13/2020	1/23/2021	Task Completed				100%		
	KD3B: Tender invitation - LCP (C11)	12/2/2019	2/3/2021	4/13/2020	2/5/2021	Task Completed						
	KD3B: Tender Award - LCP (C11)	12/2/2019	2/6/2021	4/13/2020	2/8/2021	Task Completed				100%		
	KD3B: Preparation of subletting package for dismantling work (C9)	12/2/2019	9/21/2020	4/13/2020	10/21/2020	Task Completed				100%		
	KD3B: Tender invitation for dismantling work (C9)	12/2/2019	11/12/2020	4/13/2020	11/19/2020	Task Completed				100%		
	KD3B: Tender Award for dismantling work (C9)	12/2/2019	11/20/2020	4/13/2020	11/22/2020	Task Completed				100%		
	KD3B: Acceptance of tender award for dismantling work (C9)	12/2/2019	11/23/2020	4/13/2020	12/1/2020	Task Completed				100%		

KD3B: Preparation and Acceptance of subletting package for installation work (C9)	12/2/2019	12/15/2020	4/13/2020	3/1/2021	Task Completed					100%	
KD3B: Tender invitation for installation work (C9)	12/2/2019	3/3/2021	4/13/2020	3/10/2021	Task Completed					100%	
KD3B: Tender Award for installation work (C9)	12/2/2019	3/12/2021	4/13/2020	3/15/2021	Task Completed					100%	
KD3B: Acceptance of tender award for installation work (C9)	12/2/2019	3/15/2021	4/13/2020	3/19/2021	Task Completed					100%	
Submission and Acceptance of Drawing Submission	4/14/2020	8/5/2020	9/10/2020	1/11/2021	Task Completed					100%	
Submission and Acceptance of P&M Submission	4/14/2020	8/5/2020	9/10/2020	6/30/2021	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	12/1/2020	1/27/2021	12/15/2020	2/16/2021	Task Completed					100%	
Submission and Acceptance of SAT Plan	3/1/2021	3/1/2021	4/1/2021	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	2/22/2021	N/A	5/13/2021	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	2/24/2021	N/A	4/19/2021	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	2/9/2021	12/21/2020	2/19/2021	1/15/2021	Task Completed					100%	
Flow Diversion and drain out PST No.4	N/A	1/25/2021	N/A	3/26/2021	Task Completed					100%	
KD3B: Dismantle and Removal of E&M Equipment at PST No. 4	2/9/2021	3/5/2021	2/19/2021	4/1/2021	Task Completed					100%	
KD3B: Material Manufacturing (Clarifier)	9/12/2020	12/16/2020	12/12/2020	2/20/2021	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	2/24/2021	N/A	3/1/2021	Task Completed					100%	FAT Report submitted on 24 Feb 2021 and AECOM accepted subject to comment on 1 Mar 2021
KD3B: Material Delivery (Clarifier)	12/13/2020	2/27/2021	1/18/2021	4/6/2021	Task Completed					100%	
KD3B: Material Deliver to Site (Clarifier)	N/A	4/6/2021	N/A	4/8/2021	Task Completed					100%	
KD3B: Material Manufacturing (DI pipes and fittings)	9/11/2020	1/26/2021	1/18/2021	3/15/2021	Task Completed					100%	Extracted from C9 package to C11 package to suit the installation programme
KD3B: Material Delivery (DI pipes and fittings)	9/11/2020	3/16/2021	1/18/2021	3/24/2021	Task Completed					100%	
KD3B: Material Delivery (FRP Cover)	N/A	3/26/2021	N/A	6/21/2021	Task Completed					100%	All the FRP covers were delivered to site.
KD3B: Material Manufacturing (LCP)	9/11/2020	3/4/2021	1/18/2021	4/16/2021	Task Completed					100%	
KD3B: Material Delivery (LCP)	9/11/2020	4/17/2021	1/18/2021	4/30/2021	Task Completed					100%	
KD3B: Retrofitting Concrete Structure of PST No. 4	N/A	4/2/2021	N/A	4/22/2021	Task Completed					100%	
KD3B: Installation of E&M Equipment at PST No. 4	2/27/2021	4/5/2021	5/10/2021	5/17/2021	Task Completed						
KD3B: Testing and Commissioning for PST No. 4	5/11/2021	4/19/2021	6/9/2021	7/26/2021	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	5/19/2021	N/A	5/20/2021	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	5/19/2021	N/A	5/30/2021	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	5/28/2021	N/A	6/24/2021	Task Completed					100%	
KD3B: Mechanical Installation of E&M Equipment at PST No. 6	2/27/2021	5/31/2021	5/10/2021	7/21/2021	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	2/27/2021	6/9/2021	5/10/2021	7/21/2021	Task Completed					100%	This includes installation of LCP, cable laying & terminations.
KD3B: Testing and Commissioning for PST No. 6	5/11/2021	6/22/2021	6/9/2021	8/20/2021	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	6/22/2021	N/A	9/3/2021	Task Completed				100%	Wet test (2nd) for PST#6 completed on 3 Sep 2021 and pre-handover inspection arranged on 30 Aug 2021. Defect list (final) received on 17 Sep 2021 and 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	3/1/2020	3/25/2020	3/30/2020	4/21/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 21 April 2020
	Acceptance of submission of onsite survey plan	3/1/2020	3/25/2020	3/30/2020	5/12/2020	Task Completed				100%	-	Survey plan acceptance received on 12 May 2020. Onsite discussion with ST1 was
	Submission of onsite survey report	5/21/2020	5/21/2020	5/29/2020	5/29/2020	Task Completed				100%		
	Acceptance of onsite survey report	5/30/2020	5/30/2020	6/15/2020	6/15/2020	Task Completed				-		
	Preparation of procurement package (C11)	6/22/2020	6/22/2020	7/6/2020	7/14/2020	Task Completed				100%		
	Tender invitation (C11)	7/15/2020	7/15/2020	7/22/2020	7/24/2020	Task Completed				100%		
	Tender Award (C11)	7/23/2020	7/25/2020	7/29/2020	7/31/2020	Task Completed				100%		Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical
	Material Submission	8/21/2020	8/21/2020	8/28/2020	12/7/2020	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	12/1/2020	12/1/2020	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	3/1/2020	3/25/2020	3/30/2020	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	3/1/2020	4/1/2020	3/30/2020	5/7/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 7 May 2020
	Acceptance of submission of onsite survey plan	3/1/2020	4/1/2020	3/30/2020	5/23/2020	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*	9/2/2020	30/07/2020 -> 30/11/2020*	2/9/2021	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*	9/2/2020	30/07/2020 -> 30/11/2020*	1/15/2021	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**	9/2/2020	30/07/2020 -> 22/10/2020*	1/15/2021	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**	9/2/2020	30/07/2020 -> 22/10/2020*	2/19/2021	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*	9/2/2020	30/07/2020 -> 30/11/2020*	1/15/2021	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.
	Submission and Acceptance of Contractor's Design for Temporary Filtrate Equalisation System (E&M Works) (CDS010-2)	01/06/2020 -> 7/9/2020**	7/5/2020	30/07/2020 -> 30/11/2020*	7/30/2021	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*	9/29/2020	30/07/2020 -> 30/11/2020*	3/5/2021	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*	11/29/2020	30/07/2020 -> 30/11/2020*	2/25/2021	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)	4/17/2020	4/17/2020	5/7/2020	5/7/2020	Task Completed				100%		
	Tender award (C11) (EQT-002 & EQT-004)	4/14/2020	4/24/2020	5/13/2020	5/13/2020	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-	4/25/2020	4/25/2020	5/21/2020	5/21/2020	Task Completed				100%	Bestwise	
	Material Submission	20/07/2020 ->	10/16/2020	20/08/2020 -	2/5/2021	Task Completed				-	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 18

	Submission of subletting package for acceptance (C9)	3/1/2020	7/13/2020	3/14/2020	7/13/2020	Task Completed				100%		
	Acceptance of subletting package (C9)	3/15/2020	7/14/2020	3/28/2020	7/14/2020	Task Completed				100%		
	Tender invitation (C9)	3/29/2020	7/15/2020	4/11/2020	7/22/2020	Task Completed				100%		
	Tender award (C9)	4/12/2020	7/23/2020	4/25/2020	8/13/2020	Task Completed				100%		
	Acceptance of tender award for civil construction work (C9)	26/04/2020	8/14/2020	5/5/2020	9/2/2020	Task Completed				100%		
	Preparation of subletting package for mech work (C9)	01/08/2020 -> 01/12/2020*	1/25/2021	08/08/20 -> 08/12/2020*	3/1/2021	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 ->	3/2/2021	15/08/2020 -	3/9/2021	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 ->	3/10/2021	22/08/2020 -	3/15/2021	Task Completed				100%		Tender report was submitted on 15 Mar 2021
	Acceptance of tender award for mech work (C9)	22/08/2020 ->	3/15/2021	29/08/2020 -	3/19/2021	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*	3/1/2021	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 ->	3/2/2021	15/08/2020 -	3/9/2021	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 ->	3/10/2021	22/08/2020 -	3/15/2021	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*	3/15/2021	29/08/2020 -> 29/12/2020*	3/19/2021	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*	10/5/2020	10/15/2020	3/31/2021	Task Completed				100%	Bestwise	Utilities survey report of lifting well and EQ tank were submitted on 23 Sept 2020 and 29 Sept 2020. AECOM commented lifting well on 29 Sept 2020.
	RC Structure Works of lifting well	11/7/2020	1/12/2021	12/30/2020	2/25/2021	Task Completed				100%		
	Construction of concrete plinth for filtrate EQ tank	1/23/2021	2/8/2021	2/1/2021	2/26/2021	Task Completed				100%		
	Offsite fabrication and delivery of filtrate EQ tank	10/31/2020	1/16/2021	2/2/2021	3/4/2021	Task Completed				100%		First batch of filtrate EQ tank panel was delivered on 4 Mar 2021.
	Onsite assembly of filtrate EQ tank	2/2/2021	3/1/2021	3/12/2021	4/16/2021	Task Completed				100%		
6B.2.16 Temporary Filtrate Equalisation System	Mechanical Installation	3/17/2021	3/30/2021	4/12/2021	5/14/2021	Task Completed				-		
	Electrical Installation	3/13/2021	3/29/2021	4/15/2021	12/10/2021	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	4/15/2021	4/22/2021	5/1/2021	11/30/2022	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	6/1/2020	6/1/2020	6/30/2020	7/2/2020	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	6/14/2020	7/3/2020	6/30/2020	7/17/2020	Task Completed				-		
6B Overall plant process equipment sizing review	Submission of Contractor's Design Calculation for	6/1/2020	6/1/2020	6/30/2020	7/2/2020	Task Completed				-	Bestwise	Preliminary Draft submitted, meeting completed on 15 May 2020 with SRE and TPS. Initial
	Acceptance of submission for further detail design	6/14/2020	7/3/2020	6/30/2020	7/17/2020	Task Completed				-		
6B.2.1 Inlet Works	Submission of Contractor's Design for Inlet Works No. 1	9/6/2020	11/16/2020	5/14/2021	12/30/2022	99%				-	Bestwise	All finalized design calculations for Inlet Works no.1 shall be submitted by 30 Dec 2022.
	Submission of P&M Submission	9/6/2020	9/7/2020	5/14/2021	12/30/2022	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 30 Dec 2022.
	Submission of P&ID Drawing	9/6/2020	9/6/2020	5/14/2021	12/29/2020	Task Completed						PID (rev.B) submitted on 13 Nov 2020. AECOM accepted subject to comments on 29 Dec 2020.
	Submission of GA Drawing	9/6/2020	1/5/2021	5/14/2021	12/30/2022	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	9/6/2020	1/15/2021	5/14/2021	12/30/2022	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 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%					-	
	Submission of detailed design for electrical installation for Inlet Works No. 1 (CDS021)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of detailed design for LV Switchboards for Inlet Works No. 1 (CDS025-1)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						

	Submission of detailed design for electrical installation BS for Inlet Works No. 1 (CDS034-1)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of civil work requirements for Inlet Works No. 1 up to +8.0 mPD (CDS080-1)	9/1/2020	9/1/2020	10/30/2020	10/30/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Inlet Works No. 1 up to +8.0 mPD (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/17/2020	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)	8/28/2020	9/18/2020	11/5/2020	11/5/2020	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)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	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)	9/7/2020	10/1/2020	11/5/2020	10/20/2020	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	9/6/2020	12/28/2020	5/14/2021	12/30/2022	99%				-	Bestwise		PFD (rev.B) under DWG0004 submitted on 22 June 2021. Finalized design calculations for PST shall be submitted by 30 Dec 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	12/30/2022	99%							P&M0058 - Lamella Plate Settler (status: B) P&M0097 - Scum Skimmer and Scum Collection Pipe (status: C) P&M0086 - Sludge Bottom Scraper (status: C) P&M0051 - Drain Pump (status: C) P&M0044 - Primary Sludge Pump (status: B) Finalized material submissions for PST shall be submitted by 30 Dec 2022.
	Submission of P&ID Drawing	9/6/2020	10/2/2020	5/14/2021	6/24/2021	Task Completed							PID under DWG0037 (rev.1) submitted on 24 June 2021 and is accepted by AECOM.
	Submission of GA Drawing	9/6/2020	2/3/2021	5/14/2021	12/30/2022	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	9/6/2020	1/15/2021	5/14/2021	12/30/2022	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 30 Dec 2022.
	Acceptance of submission	5/15/2021	4/2/2021	5/29/2021	12/30/2022	98%				-			Refer to outstanding list under "Certificate of completion no.1 - section 1 of the works".
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for LV Switchboards for Primary Sedimentation Tanks (CDS025-2)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of civil work requirements for Primary Sedimentation Tanks up to +8.0 mPD (CDS080-2)	9/1/2020	9/1/2020	10/30/2020	10/30/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Primary Sedimentation Tanks No. 1-4 up to +8.0 mPD	7/15/2020	7/15/2020	8/15/2020	9/30/2020	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	8/28/2020	10/1/2020	11/5/2020	11/5/2020	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)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	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)	9/7/2020	10/1/2020	11/5/2020	10/20/2020	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)	9/6/2020	1/7/2021	5/14/2021	10/29/2021	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	9/6/2020	9/6/2020	5/14/2021	10/30/2021	Task Completed							Finalized material submissions for chemical system was submitted on 30 Oct 2021.
	Submission of P&ID Drawing	9/6/2020	12/11/2020	5/14/2021	6/29/2021	Task Completed							PID resubmitted under DWG0053 (rev.1) on 28 Jun 2021, DWG0057 (rev.1) on 29 Jun 2021 and DWG0058 (rev.1) on 29 Jun 2021.

	Submission of GA Drawing	9/6/2020	2/8/2021	5/14/2021	12/30/2022	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	9/6/2020	1/15/2021	5/14/2021	12/30/2022	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 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%				-			
	Submission of detailed design for electrical installations	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installations	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installations	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	KD1A: Submission of civil requirement drawing for	7/15/2020	7/15/2020	8/15/2020	9/16/2020	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	9/7/2020	9/17/2020	11/5/2020	11/5/2020	Task Completed	no.	2	2	100%			Bestwise resubmitted (Rev.A) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/15/2020	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)	9/7/2020	9/16/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Temporary Chemical System up to +8.0 mPD (First	7/15/2020	7/15/2020	8/15/2020	9/15/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 15 September 2020
	KD1A: Submission of civil requirement drawing for Temporary Chemical System up to +8.0 mPD (Final)	9/7/2020	9/16/2020	11/5/2020	11/5/2020	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)	7/15/2020	7/15/2020	8/15/2020	9/15/2020	Task Completed				-			1st draft of drawing to be submitted by 16 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	9/16/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: 6 November 2020												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)	9/6/2020	1/12/2021	5/14/2021	12/30/2022	99%				-		Bestwise	PFID (rev.1) submitted on 3 Nov 2020. AECOM accepted on 7 Dec 2020 subject to comment. MBR system process and design calculation (rev.2) submitted on 6 Nov 2020. AECOM accepted on 17 Nov 2020 subject to comments. Electrical CDS submitted on 23 Jun 2021. Finalized design calculations shall be submitted by 30 Dec 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	12/30/2022	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 30 Dec 2022.
	Submission of P&ID Drawing	9/6/2020	11/2/2020	5/14/2021	7/2/2021	Task Completed							PID (Rev.1) under DWG0042 resubmitted on 6 July 2021.
	Submission of GA Drawing	9/6/2020	2/17/2021	5/14/2021	12/30/2022	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	9/6/2020	1/15/2021	5/14/2021	12/30/2022	99%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%				-			Refer to outstanding list under "Certificate of completion no.1 - section 1 of the works".
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for LV Switchboards for BR 2A and 2B (CDS025-3)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of civil work requirements for BR 2A and 2B up to +8.0 mPD (CDS080-3)	9/1/2020	9/1/2020	10/30/2020	10/30/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for BR 2A and 2B up to +8.0 mPD (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	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)	8/28/2020	10/1/2020	11/5/2020	11/5/2020	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)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed				-			1st draft of drawing was sent to AECOM via email on 15 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: 6 November 2020												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)	9/6/2020	1/11/2021	5/14/2021	12/30/2022	99%				-		Bestwise	PFID (rev.1) submitted on 3 Nov 2020. AECOM accepted on 10 Dec 2020 subject to comment. MBR system process and design calculation (rev.2) submitted on 6 Nov 2020. AECOM accepted on 17 Nov 2020 subject to comments. Finalized design calculations shall be submitted by 30 Aug 2022.

Submission of P&M Submission	9/6/2020	11/19/2020	5/14/2021	12/30/2022	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: C) P&M0091 - Chemical Pump (status: B) P&M0xxx - Chemical Tank (to be submitted) Finalized material submission shall be submitted by 30 Dec 2022.	
Submission of P&ID Drawing	9/6/2020	10/30/2020	5/14/2021	7/2/2021	Task Completed							DWG0049 (Rev.1) was resubmitted on 2 Jul 2021.	
Submission of GA Drawing	3/31/2021	2/18/2021	5/14/2021	12/30/2022	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)	
Submission of Electrical Drawing	4/15/2021	1/15/2021	5/14/2021	12/30/2022	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 30 Dec 2022.	
Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%					-			
Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed								
Submission of detailed design for LV Switchboards for	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed								
Submission of detailed design for electrical installation BS for MFB (CDS034-4)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed								
Submission of civil work requirements for MFB up to	9/1/2020	9/1/2020	9/30/2020	9/30/2020	Task Completed								
KD1A: Submission of civil requirement drawing for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	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)	8/28/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed	no.	7	7	100%	Bestwise		Bestwise resubmitted (Rev.1) on 5 Nov 2020.	
KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	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)	9/7/2020	10/1/2020	11/5/2020	10/20/2020	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)	4/17/2020	4/17/2020	4/24/2020	4/24/2020	Task Completed					100%		
6B.2.6 Deodorisation System (EQT-001 - Deodorization Unit)	Tender award (C11)	4/25/2020	4/25/2020	5/12/2020	5/12/2020	Task Completed					100%	Bestwise	Bestwise submitted tender report on 13 May 2020. AECOM commented on 23 July 2020. Bestwise to resubmit.
	Acceptance of tender award (C11)	5/13/2020	5/13/2020	5/21/2020	5/21/2020	Task Completed					100%		
	Submission of Contractor's Design for Deodorisation System , DOU No. 1 (CDS0019 & CDS0045)	9/6/2020	9/6/2020	5/14/2021	12/31/2021	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	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 1	9/6/2020	9/6/2020	5/14/2021	12/30/2022	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	3/21/2021	1/30/2021	5/14/2021	12/30/2022	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 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%					-		
	KD1A: Submission of civil requirement drawing for Deodorisation System , DOU No. 1 up to +8.0 mPD (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/28/2020	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)	8/28/2020	9/29/2020	11/2/2020	11/5/2020	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)	9/6/2020	9/6/2020	5/14/2021	12/10/2021	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	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 2A	9/6/2020	8/3/2020	5/14/2021	12/30/2022	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	3/21/2021	1/26/2021	5/14/2021	12/30/2022	99%							Bestwise submitted (rev.0) on 26 Jan 2021, AECOM commented on 4 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%					-		

	Submission of Contractor's Design for Deodorisation System , DOU No. 3A (CDS0019 & CDS0055)	9/6/2020	9/6/2020	5/14/2021	12/10/2021	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	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed				-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 3A	9/6/2020	7/8/2020	5/14/2021	12/30/2022	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	3/21/2021	2/26/2021	5/14/2021	12/30/2022	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 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%						
	KD1A: Submission of civil requirement drawing for Deodorisation System , DOU No. 3A up to +8.0 mPD	7/15/2020	7/15/2020	8/15/2020	9/28/2020	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)	8/28/2020	9/29/2020	11/2/2020	11/5/2020	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. 3B (CDS0019 & CDS0049)	9/6/2020	9/6/2020	5/14/2021	12/10/2021	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	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed				-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 3B	9/6/2020	9/6/2020	5/14/2021	12/30/2022	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	3/21/2021	2/22/2021	5/14/2021	12/30/2022	99%						GA submitted on 24 Jun 2021. Finalized drawing shall be submitted by 30 Dec 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	12/30/2022	98%				-		
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of detailed design for LV Switchboards for	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of civil work requirements for MFB up to	9/1/2020	9/1/2020	9/30/2020	9/30/2020	Task Completed						
	Submission of civil requirement drawing for MFB up to	8/28/2020	8/28/2020	11/2/2020	11/2/2020	Task Completed						
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed				-		1st draft of drawing to be submitted by 30 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	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)	-	-	-	7/6/2020	Task Completed				100%	-	AECOM accepted tender report on 6 July 2020.
	Submission of detailed design for lifting appliances for Inlet Works No. 1 (CDS050-1)	9/6/2020	12/5/2020	9/6/2020	12/30/2022	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 30 Dec 2022.
	Submission of detailed design for lifting appliances for Primary Sedimentation Tanks (CDS050-2)	9/6/2020	12/5/2020	9/6/2020	12/30/2022	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 30 Dec 2022.
	Submission of detailed design for lifting appliances for BR 2A and 2B (CDS050-3)	9/6/2020	12/5/2020	9/6/2020	12/30/2022	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 30 Dec 2022.
	Submission of detailed design for lifting appliances for MFB (CDS050-4)	9/6/2020	12/5/2020	9/6/2020	12/30/2022	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 30 Dec 2022.
	Submission of detailed design for lifting appliances for Temporary Filtration Tank (CDS050-5)	9/6/2020	12/5/2020	9/6/2020	5/21/2021	Task Completed						DWG 0051 (Rev.2) was resubmitted on 7 May 2021 and acceptance by AECOM subject to condition on 21 May 2021. Bestwise submitted P&M0021 on 21 June 2021.
Building Services System	Submission for MVAC system	N/A	12/10/2020	N/A	12/30/2022	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 30 Dec 2022.
	Submission for Fire Services System	N/A	3/15/2021	N/A	12/30/2022	98%						Subletting Package to be resubmitted by 31 Mar 2021. AECOM accepted on 9 Apr 2021. Drawings: Inlet Works: submitted on 8 June 2021. PST 1-4: submitted on 23 Jun 2021 BR2A & 2B: submitted on 8 Jun 2021 MFB 2: submitted on 8 Jun 2021 Finalized design shall be submitted by 30 Dec 2022.

	Submission for Plumbing and Drainage System	N/A	3/15/2021	N/A	12/30/2022	98%						Subletting Package resubmitted by 10 Mar 2021. AECOM accepted on 12 Mar 2021. Tender invitation was conducted on 15 Mar 2021 and closed on 26 Mar 2021. Finalized design shall be submitted by 30 Dec 2022.
	Submission for Electrical Services System	N/A	12/10/2020	N/A	12/30/2022	99%						GA for lighting was submitted on 18 Dec 2020. AECOM commented on 6 Jan 2021. Bestwise to resubmit. GA for small power system was submitted in 8 Feb 2021. AECOM commented on 3 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 30 Dec 2022.
	Submission of ELV system	N/A	1/8/2021	N/A	12/30/2022	99%						GA for CCTV was resubmitted on 16 Mar 2021. AECOM commented on 30 Mar 2021. Bestwise resubmitted on 25 Jun 2021. Finalized design shall be submitted by 30 Dec 2022.
	Submission for PV system	N/A	3/15/2021	N/A	12/30/2022	98%						Tender package was submitted to AECOM. Finalized design shall be submitted by 30 Dec 2022.
SCADA System & PMS	Submission for SCADA system	N/A	2/11/2021	N/A	12/30/2022	99%						Revised SCADA structure was provided via email on 9 Apr 2021 and tender package is under preparation. Finalized design shall be submitted by 30 Dec 2022.
	Submission for PMS system	N/A	3/8/2021	N/A	12/30/2022	98%						Tender package to be resubmitted on 29 June 2021. Finalized design shall be submitted by 30 Dec 2022.
	Submission for CMMS & IDMS system	N/A	6/1/2021	N/A	12/30/2022	98%						Finalized design shall be submitted by 30 Dec 2022.
Section 2 of Works												
Street Fire Hydrant Pump Room	KD1A: Submission of civil requirement drawing for	7/15/2020	7/15/2020	8/15/2020	9/17/2020	Task Completed	no.	1	1	100%		1st draft of drawing submitted on 17 September 2020
	KD1A: Submission of civil requirement drawing for	8/28/2020	9/18/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%		Bestwise resubmitted (rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed						1st draft of drawing to be submitted by 30 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed						
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
FS & Sprinkler Pump Room	KD1A: Submission of civil requirement drawing for FS	7/15/2020	7/15/2020	8/15/2020	9/17/2020	Task Completed	no.	1	1	100%		1st draft of drawing submitted on 17 September 2020
	KD1A: Submission of civil requirement drawing for FS	8/28/2020	9/18/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%		Bestwise resubmitted (rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed						
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed						
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
Emergency Generator House	KD1A: Submission of civil requirement drawing for Emergency Generator House up to +8.0 mPD (First	7/15/2020	7/15/2020	8/15/2020	9/18/2020	Task Completed	no.	1	1	100%		1st draft of drawing submitted on 18 September 2020
	KD1A: Submission of civil requirement drawing for Emergency Generator House up to +8.0 mPD (Final)	8/28/2020	9/19/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%		Bestwise resubmitted (rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020							
	KD1A: Submission of electrical schematic drawings for Street Fire Hydrant Pump Room (Final)	9/7/2020	10/1/2020	11/5/2020	11/5/2020							
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
Lightning Protection System for DOU3A (underground)	Submission and Acceptance for Lightning Protection System Design	12/6/2021	12/6/2021	1/31/2022	1/31/2022	Task Completed						
	Material Delivery	2/7/2022	2/7/2022	2/28/2022	2/28/2022	Task Completed						Material Delivery was by End Feb 2022.
	Installation Work	3/31/2022	4/26/2022	5/5/2022	5/5/2022	Task Completed						The installation work was completed on 5 May 2022.
	Testing & Commissioning	1/7/2023	1/7/2023	1/31/2023	1/31/2023							
Lightning Protection System for Inlet Works (underground)	Submission and Acceptance for Lightning Protection System Design	12/20/2021	12/20/2021	1/31/2022	1/31/2022							
	Material Delivery	12/15/2022	10/1/2022	3/31/2022	10/31/2022							
	Installation Work	3/15/2022	11/1/2022	10/30/2022	12/14/2022							Underground works subject to site coordination with JV.
	Testing & Commissioning	11/1/2022	12/15/2022	11/15/2022	12/31/2022							
Section 3 of Works												
6B.2.12 Provision of New Replacement Filter Plates	Submission of onsite survey plan for acceptance	3/1/2020	3/25/2020	3/30/2020	4/21/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 21 April 2020
	Acceptance of submission of onsite survey plan	3/1/2020	3/25/2020	3/30/2020	5/12/2020	Task Completed				100%	-	Survey plan acceptance received on 12 May 2020. Onsite discussion with ST1 was
	Submission of onsite survey report	5/21/2020	5/21/2020	5/29/2020	5/29/2020	Task Completed				100%		
	Acceptance of onsite survey report	5/30/2020	5/30/2020	6/15/2020	6/15/2020	Task Completed				-		
	Preparation of procurement package (C11)	6/22/2020	6/22/2020	7/6/2020	7/14/2020	Task Completed				100%		
	Tender invitation (C11)	7/15/2020	7/15/2020	7/22/2020	7/24/2020	Task Completed				100%		
	Tender Award (C11)	7/23/2020	7/25/2020	7/29/2020	7/31/2020	Task Completed				100%		
6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Submission	8/21/2020	8/21/2020	8/28/2020	12/7/2020	Task Completed				100%		Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical 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	12/1/2020	12/1/2020	8/8/2021	7/13/2021	Task Completed					-		Handed over to DSD.
	Completion Date of Section 3: 22 September 2021												
Subcontracting													
	Submission of subletting package for acceptance	1/1/2020	3/6/2020	3/30/2020	3/6/2020	Task Completed					100%	-	
	Acceptance of subletting package	3/1/2020	3/21/2020	3/30/2020	3/21/2020	Task Completed					100%	-	
	Tender invitation	3/1/2020	3/24/2020	4/1/2020	3/30/2020	Task Completed					100%	-	
	Tender award	3/22/2020		4/14/2020	4/6/2020	Task Completed					100%	-	Bestwise submitted tender report on 6 April 2020
	Acceptance of tender award	-	-	-	4/15/2020	Task Completed					100%	-	AECOM accepted tender report on 15 April 2020
Construction of Contractor's site accommodation in WA1-C	Design of MiC	4/15/2020	4/16/2020	6/1/2020	8/15/2020	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	7/1/2020	7/1/2020	7/14/2020	9/4/2020	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	7/15/2020	7/20/2020	7/31/2020	8/15/2020	Task Completed					100%	-	Tender invitation commenced on 29 May 2020 and tenders received on 4 June 2020. Tender
	Off-site fabrication of Septic tank	7/15/2020	7/20/2020	7/31/2020	7/31/2020	Task Completed					100%	-	Site clearance work started on 20 July 2020
	Submission of method statement with ICE certificate	8/1/2020	8/1/2020	8/7/2020	10/8/2020	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	8/1/2020	8/1/2020	8/7/2020	10/8/2020	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	10/9/2020	8/14/2020	10/16/2020	Task Completed					100%	-	Method Statement and Design Calculation was submitted on 8 Oct 2020.
	Submission of method statement with ICE certificate	8/1/2020	8/1/2020	8/7/2020	11/23/2020	Task Completed					100%	-	
	Submission of design calculation with ICE certificate	8/1/2020	8/1/2020	8/7/2020	11/23/2020	Task Completed					100%	-	
	Acceptance of method statement and design calculation	8/8/2020	11/24/2020	8/14/2020	11/27/2020	Task Completed					100%	-	
	Excavation work	8/17/2020	10/21/2020	8/18/2020	10/21/2020	Task Completed					100%	-	
	Installation of septic tank	8/19/2020	10/21/2020	8/20/2020	10/22/2020	Task Completed					100%	-	
	Construction of RC foundation	8/21/2020	10/23/2020	8/31/2020	11/12/2020	Task Completed					100%	-	
	Off-site fabrication and delivery of MiC Office	6/1/2020	9/30/2020	7/31/2020	12/4/2020	Task Completed					100%	-	
On-site installation of MiC Office	8/1/2020	12/4/2020	8/30/2020	1/5/2021	Task Completed					100%	-		
Installation of car park shelter	1/4/2021	1/7/2021	1/11/2021	1/9/2021	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)	3/1/2020	3/25/2020	3/14/2020	3/25/2020	Task Completed					100%	-	
	Acceptance of subletting package (C9)	3/14/2020	4/2/2020	3/30/2020	4/2/2020	Task Completed					100%	-	
	Tender invitation (C9)	4/1/2020	4/1/2020	4/8/2020	4/9/2020	Task Completed					100%	-	
	Tender award (C9)	-	-	-	4/15/2020	Task Completed					100%	-	Bestwise submitted tender report on 15 April 2020
	Submission of subletting package for acceptance	3/14/2020	3/16/2020	3/30/2020	4/20/2020	Task Completed					100%	-	Bestwise resubmitted on 20 April 2020
	Acceptance of subletting package	3/28/2020	5/4/2020	4/13/2020	5/13/2020	Task Completed					100%	-	AECOM accepted subletting package on 13 May 2020
	Tender invitation	4/11/2020	6/19/2020	4/27/2020	6/26/2020	Task Completed					-	-	Invitation to tender was commenced on 19 June 2020 and tender returned on 26 June 2020
	Tender award	4/25/2020	6/27/2020	5/11/2020	7/4/2020	Task Completed					-	-	Bestwise submitted tender report on 30 June 2020
	Acceptance of tender award	-	-	-	7/18/2020	Task Completed					-	-	
04SC007 - Independent Beam Plus Consultant													
	Submission of subletting package for acceptance	3/1/2020	3/30/2020	3/14/2020	3/30/2020	Task Completed					100%	-	
	Acceptance of subletting package	3/14/2020	4/3/2020	3/30/2020	4/3/2020	Task Completed					100%	-	
	Tender invitation	3/30/2020	3/30/2020	4/9/2020	4/9/2020	Task Completed					100%	-	
	Tender award	-	-	-	4/15/2020	Task Completed					100%	-	Bestwise submitted tender report on 15 April 2020
	Acceptance of tender award	-	-	-	4/17/2020	Task Completed					100%	-	AECOM accepted tender report on 17 April 2020
	Introduction meeting with IBPC, Cinotech	-	-	-	4/28/2020	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)	4/1/2020	3/17/2020	4/14/2020	3/17/2020	Task Completed					100%	-	Bestwise submitted subletting package on 3 April 2020
	Acceptance of subletting package (C9)	4/14/2020	4/17/2020	4/30/2020	4/28/2020	Task Completed					100%	-	AECOM accepted subletting package on 28 April 2020
	Tender invitation (C9)	4/30/2020	5/6/2020	5/14/2020	5/28/2020	Task Completed					100%	-	Invitation to tender was commenced on 6 May 2020 and tender returned on 28 May 2020
	Tender award (C9)	5/14/2020	5/29/2020	5/30/2020	6/9/2020	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 -> 30/7/2020*	8/14/2020	15/05/2020 -> 15/06/2020 -> 15/8/2020*	8/27/2020	Task Completed					100%	Bestwise	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020.
	Acceptance of subletting package (C9) (Mech)		8/15/2020		9/16/2020	Task Completed					100%	-	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.
	Tender invitation (C9) (Mech)	15/06/2020-> 15/8/2020*	9/9/2020	22/06/2020-> 22/8/2020*	10/14/2020	Task Completed					100%	-	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender invitation for FRP Tank was conducted on 9 Sep 2020, tender returned on 16 Sep 2020. - Tender invitation for mechanical installation was conducted on 29 Sept 2020, tender returned on 14 Oct 2020.

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

	Material Manufacturing	31/07/2020 -> 30/09/2020*	8/4/2020	21/10/2020 - > 21/12/2020*	4/20/2021	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Manufacturing instruction of PS thickener was issued on 3 August 2020. - Manufacturing instruction of process pumps was issued on 24 September 2020 - Electrical sub-contractor is awarded and manufacturing LCP
	Material Delivery	05/09/2020 ->	11/4/2020	16/11/2020 -	6/21/2021	Task Completed						
	Mechanical Installation	01/10/2020 -> 01/12/2020*	2/2/2021	15/11/2020 - > 15/01/2021*	5/17/2021	Task Completed				-		
	Offsite Fabrication and Delivery of FRP Tank		1/16/2021		4/7/2021	Task Completed				100%		First batch to be delivered on 23 Mar 2021
	Onsite Installation of FRP Tank		4/7/2021		7/30/2021	Task Completed						Water filling to tank completed; Tank hydraulic test completed.
	Electrical Installation	01/10/2020 -> 01/12/2020*	3/19/2021	15/11/2020 - > 15/01/2021*	7/19/2021	Task Completed				-		Energize of all LCPs on 24 May 2021 and isolated prior to system commissioning.
Temporary Primary Sludge Thickener and its accessories (Sub-programme was provided by Bestwise)	Testing and Commissioning	15/11/2020 -> 15/01/2021*	5/8/2021	22/11/2020 - > 22/01/2021*	9/30/2022	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	10/15/2020	10/15/2020	10/31/2020	12/11/2020	Task Completed				100%		
	Acceptance of subletting package (C9)	11/1/2020	11/5/2020	11/15/2020	1/2/2021	Task Completed				100%		
	Tender invitation (C9)	11/16/2020	1/26/2021	11/30/2020	2/5/2021	Task Completed				100%		Tender invitation commenced on 26 Jan 2021, and returned on 5 Feb 2021
	Tender award (C9)	11/30/2020	2/18/2021	12/7/2020	2/18/2021	Task Completed				100%		Tender report was submitted on 18 Feb 2021 and accepted on 26 Feb 2021
	Acceptance of tender award (C9)	12/8/2020	2/18/2021	12/15/2020	2/26/2021	Task Completed				100%		
	Design Submission	12/15/2020	3/15/2021	1/15/2021	4/23/2021	Task Completed				100%		DWG-0100 was submitted on 23 Apr 2021. AECOM accepted with comments on 30 Apr
	Transportation of existing dismantled genset no. 2 (Genset No.2) to subcontractor (Click Ltd.)'s workshop	3/9/2021	3/9/2021	3/9/2021	3/9/2021	Task Completed				100%		
	Drawing submission (Drawing of General Layout for Existing 600kVA Genset Container)	4/23/2021	4/23/2021	4/30/2021	4/30/2021	Task Completed				100%		
	Drawing submission (Cable route ,general arrangement, etc)	5/14/2021	5/28/2021	5/21/2021	5 July 2021	Task Completed				100%		
	Material submission P431 P&M-0087	21 May 2021	19 June 2021	28 May 2021	12 July 2021	Task Completed				100%		
	Fabrication of container at PRC	21 June 2021	21 June 2021	TBC	8/12/2021	Task Completed				100%		
	Container deliver to HK	TBC	8/12/2021	8/10/2021	8/12/2021	Task Completed				100%		
	Off site modification work at HK factory	TBC	8/16/2021	8/24/2021	8/24/2021	Task Completed				100%		
	FAT plan of modified Genset No.2 P431 MS-036	7/12/2021	7/12/2021	8/20/2021	8/20/2021	Task Completed				100%		
	FAT of Genset No.2 after modification works	8/25/2021	8/25/2021	8/25/2021	8/25/2021	Task Completed				100%		
	Installation Work of I-beam Support	8/26/2021	8/26/2021	8/26/2021	8/26/2021	Task Completed				100%		
	Transportation of Genset No. 2 to existing power house in SWHSTW and completion of the Genset No.2 installation on I-beam supporting frame	8/27/2021	8/27/2021	8/27/2021	8/27/2021	Task Completed				100%		
	Provision of one (1) can of 160L diesel and a diesel hand pump placed at diesel daily tank of Genset No.1 for standby top up (PPMI-012 item L) Location to be coordinated and advised by SWHSTW operator DSD/ST1	7/27/2021	7/27/2021	8/31/2021								Location to be further coordinated with DSD.
	Modification works of existing switchboard	9/1/2021	9/1/2021	9/8/2021	9/8/2021	Task Completed				100%		
	Cables (including control cable and power cables) laying and installation of cable containment, busbar chamber	7/21/2021	7/30/2021	9/8/2021	9/8/2021	Task Completed				100%		
	Supply of busbar chamber/ connection box	8/10/2021	8/10/2021	9/3/2021	9/3/2021	Task Completed				100%		
	Completion of all Genset cables and cable termination work to existing power house in SWHSTW after the completion of Genset No. 2 installation work	9/1/2021	9/1/2021	9/8/2021	9/8/2021	Task Completed				100%		
	Delivery of dummy load and self-test	9/9/2021	9/9/2021	9/14/2021	9/15/2021	Task Completed				100%		
	SAT and T&C (witness by AECOM and DSD/ST1) Please allow 1 week advance notice for coordination with DSD/ST1, e.g. genset signal start, etc.)	9/15/2021	9/15/2021	9/15/2021	9/16/2021	Task Completed				100%		
04SC009 - Design, Supply and Installation of HVSB	Submission of subletting package for acceptance	4/21/2020		5/1/2020		-						
	Acceptance of subletting package	5/21/2020		5/30/2020		-						
	Tender invitation	6/1/2020		6/14/2020		-						
	Tender award	7/1/2020		7/14/2020		-						
04SC010 - Design, Supply and Installation of LVSB	Submission of subletting package for acceptance	5/1/2020		5/14/2020		-						

