



JOB No.: TCS01196/22

WSD CONTRACT NO.: 7/WSD/21 -
CONSTRUCTION OF SIU HO WAN WATER TREATMENT
WORKS EXTENSION AND SIU HO WAN RAW WATER
BOOSTER PUMPING STATION

MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
REPORT – JULY 2023

PREPARED FOR

CHINA ROAD AND BRIDGE CORPORATION

| Date | Reference No. | Prepared By Fai So | Certified By Tam Tak Wing |
|---------------|-------------------------|---|---|
| 8 August 2023 | TCS01196/22/600/R0061v1 |  |  |
| | | Assistant Environmental Consultant | Environmental Team Leader |

| Version | Date | Remarks |
|---------|---------------|------------------|
| 1 | 8 August 2023 | First Submission |
| | | |
| | | |

Our Ref. 1988/23-0020



Water Supplies Department
New Works Branch
Consultants Management Division
Sha Tin Office - 6/F Sha Tin Government
Offices, 1 Sheung Wo Che Road, Sha
Tin, New Territories.

27/F, Overseas Trust Bank Building
160 Gloucester Road
Wan Chai
Hong Kong
T: +852 2815 7028
F: +852 2815 5399

www.asecg.com

Attn: Mr. SY Kin Lik (SE/CM 3)

11 August 2023

By E-mail

Dear Sir,

**RE: CONTRACT No. 7/WSD/21
INDEPENDENT ENVIRONMENTAL CHECKER FOR ENVIRONMENTAL MONITORING AND AUDIT FOR
SIU HO WAN WATER TREATMENT WORKS EXTENSION
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT – JULY 2023**

I refer to the Monthly Environmental Monitoring and Audit Report – July 2023 (Report No.: TCS01196/22/600/R0061v1) received on 11 August 2023 by the Environmental Team (ET), Action-United Environmental Services & Consulting (AUES) via email. In accordance with Condition 4.4 of Environmental Permit No.EP-207/2005/A, I hereby verify the captioned report.

Yours faithfully,

For and on behalf of
Allied Environmental Consultants Ltd.

A handwritten signature in black ink, appearing to be 'Joanne NG', written over a light blue horizontal line.

Joanne NG
Independent Environmental Checker

JN/tw

c.c. Action-United Environmental Services & Consulting (AUES)
Binnies Hong Kong Limited

Attn: Mr. Ben Tam
Attn: Mr. Alex TUNG

(By E-mail)
(By E-mail)

EXECUTIVE SUMMARY

- ES.01. Water Supplies Department (WSD) is the Proponent of the Works Contract 7/WSD/21 “Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station” (hereinafter named as the “Works Contract”). Under this Works Contracts, the works mainly comprise of increasing the water treatment capacity of Siu Ho Wan water treatment works (SHW WTW) from 150,000m³ per day to 300,000m³ per day within the existing water treatment works compound, by constructing new water treatment facilities and a new laboratory building and modifying the existing associated facilities; and constructing a new raw water booster pumping station at Siu Ho Wan to increase the raw water transfer capacity from Tai Lam Chung Reservoir to SHW WTW.
- ES.02. According to the Environmental Impact Assessment Ordinance (EIAO), the proposed Siu Ho Wan Water Treatment Works Extension is a Designated Project under Schedule 2, which shall be implemented under the Environmental Permit EP-207/2005/A (hereinafter called the “EP”). Besides, the works for Siu Ho Wan Raw Water Booster Pumping Station is a non-designated project which mentioned in Section 1.10 of Environmental Monitoring and Audit (EM&A) Manual.
- ES.03. On 20 March 2022, **China Road and Bridge Corporation** (hereinafter called the “Main Contractor”) awarded the **Works Contracts 7/WSD/21**. According to EM&A Manual, only air quality monitoring is required to be conducted which related to the works area under **Contracts 7/WSD/21** during construction phase of the SHW WTW Extension. Moreover, site inspection and audit is required under the EM&A program to ensure the recommended environmental mitigation measures are implemented properly and effective.
- ES.04. The Main-Contractor appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team of the Project (hereinafter referred as the “ET”) to implement air quality monitoring as well as associated duties in accordance with the EM&A Manual stipulation.
- ES.05. As advised by the Contractor, the major construction works under Works Contract was commenced on 24 May 2022. This is the **15th** Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from **1 to 31 July 2023**.

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES.06. Environmental monitoring activities under the EM&A programme for the Contract in the Reporting Month are summarized in the following table.

| Issues | Environmental Monitoring Parameters / Inspection | Sessions |
|--------------------|---|----------|
| Air Quality | 24-Hour TSP | 5 |
| Inspection / Audit | ET Regular Environmental Site Inspection | 4 |
| | Joint site audit with <i>Project Manager’s</i> Delegate and IEC | 1 |

ACTION AND LIMIT LEVELS EXCEEDANCE

- ES.07. In the Reporting Month, no air quality monitoring exceedance was recorded.

SITE INSPECTION

- ES.08. In the Reporting Month, joint site inspections to evaluate the site environmental performance had been carried out by the representatives of the PMD, ET and the Contractor on **4, 11, 18 and 25 July 2023**. Joint site inspection with PMD, ET, IEC and the Contractor was carried out on **18 July 2023**. No non-compliance was recorded during the site inspections.

ENVIRONMENTAL COMPLAINT

- ES.09. In the Reporting Month, no environmental complaint was received.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.010. In the Reporting Month, no prosecution or notification of summons was received.

REPORTING CHANGE

ES.011. There is no reporting change made for this monthly report.

FUTURE KEY ISSUES

ES.012. Special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.

ES.013. Due to wet season has approached, the *Contractor* was reminded that all effluent discharge shall fulfill the requirement of Discharge Licence under the Water Pollution Control Ordinance.

ES.014. All other mitigation measures recommended in the Implementation Schedule for Environmental Mitigation Measures of the EM&A Manual should be properly implemented and maintained as far as practicable.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1 Water Supplies Department (WSD) is the Proponent of the Works Contract 7/WSD/21 – *Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station* (hereinafter named as the “Works Contract”). The Project works predicted by WSD will be undertaken about 34 months. Layout plan of the Project is shown in [Appendix A](#).
- 1.1.2 According to the Environmental Impact Assessment Ordinance (EIAO), the proposed Siu Ho Wan Water Treatment Works Extension is a Designated Project under Schedule 2, which shall be implemented under the Environmental Permit EP-207/2005/A (hereinafter called the “EP”). Besides, the works for Siu Ho Wan Raw Water Booster Pumping Station is a non-designated project which mentioned in Section 1.10 of Environmental Monitoring and Audit (EM&A) Manual.
- 1.1.3 The Works Contract construction activities mainly include:-
- Extension of the existing Siu Ho Wan WTW within the existing Siu Ho Wan WTW compound from a capacity of 150,000 m³/day to 300,000 m³/day
 - Uprating of the treated/fresh water pumping capacity in the existing Siu Ho Wan Raw Water and Fresh Water Pumping Station within the existing Siu Ho Wan WTW compound from a capacity of 150,000 m³/day to 300,000 m³/day
 - Construction of the proposed Siu Ho Wan Raw Water Booster Pumping Station and the laying of the associated water mains
- 1.1.4 On 20 March 2022, *China Road and Bridge Corporation* (hereinafter called the “Main Contractor”) awarded the Works Contracts 7/WSD/21. According to EM&A Manual, only air quality monitoring is required to be conducted which related to the works area under Contracts 7/WSD/21 during construction phase of the SHW WTW Extension. Moreover, site inspection and audit is required under the EM&A program to ensure the recommended environmental mitigation measures are implemented properly and effective.
- 1.1.5 The Main-Contractor appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team of the Project (hereinafter referred as the “ET”) to implement air quality (baseline and impact) monitoring as well as associated duties in accordance with the EM&A Manual stipulation.
- 1.1.6 Some design changes of the Project have been identified after the EIA stage for betterment in the design development. Some of these changes requires supplementary environmental review to address their likely environmental impacts and to identify any additional mitigation measures required for compliance with the EIAO. Supplementary environmental review has been performed for the changes and the review results are presented in the “Review Report on Environmental Impact Assessment (Review Report on EIA)” prepared under “Agreement No. CE 82/2017 (WS)”. Having reviewed the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension.
- 1.1.7 According to the approved EM&A Manual, only air quality is required to be monitored during the construction phase of the Project. As part of the EM&A program, baseline monitoring is required to determine the ambient environmental conditions. Pursuant to the EM&A Manual, baseline environmental monitoring is required to be conducted prior to commencement of the construction works under the Project. Baseline air quality monitoring was conducted from **8 to 21 April 2022**. During the baseline monitoring period, no major construction activities under the Project was observed.
- 1.1.8 As advised by the Contractor, the major construction works under Works Contract was commenced on 24 May 2022. This is the **15th** Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from **1 to 31 July 2023**.

1.2 REPORT STRUCTURE

1.2.1 The Monthly EM&A Report is structured into the following sections:-

Section 1 Introduction

Section 2 Project Organization and Construction Progress

Section 3 Summary of Impact Monitoring Requirements

Section 4 Air Quality Monitoring

Section 5 Waste Management

Section 6 Site Inspections

Section 7 Environmental Complaints and Non-Compliances

Section 8 Implementation Status of Mitigation Measures

Section 9 Conclusions and Recommendations

2 PROJECT ORGANISATION AND CONSTRUCTION PROGRESS

2.1 PROJECT ORGANISATION

2.1.1 The project organization is shown in *Appendix B*. The roles and responsibilities of the various parties involved in the EM&A process and the organizational structure of the organizations responsible for implementing the EM&A programme are outlined below.

Water Supplies Department (WSD)

2.1.2 WSD is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by WSD to audit the results of the EM&A works carried out by the ET.

Environmental Protection Department (EPD)

2.1.3 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

Project Manager's Delegate (PMD)

2.1.4 The *PMD* is responsible for overseeing the construction works and for ensuring that the works are undertaken by the *Contractor* in accordance with the specification and contract requirements. The duties and responsibilities of the *PMD* with respect to EM&A are:

- Supervise the *Contractor's* activities and ensure that the requirements in the EM&A Manual are fully complied with;
- Inform the *Contractor* when action is required to reduce impacts in accordance with the Event and Action Plans;
- Comply with the agreed Event Contingency Plan in the event of any exceedance.

The Contractor

2.1.5 The Main *Contractor* is responsible perform construction works and for ensuring that the works are undertaken compliance with the specification and contract requirements. The duties and responsibilities of the Main *Contractor* with respect to EM&A are:

- Employ an ET to undertake monitoring, laboratory analysis and reporting of environmental monitoring and audit;
- Provide information / advice to the ET regarding works activities which may contribute, or be continuing to the generation of adverse environmental conditions;
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event and Action Plans;
- Implement measures to reduce impact whenever Action and Limit levels are exceeded;
- Implement the corrective actions instructed by *PMD*;
- Accompany joint site audit undertaken by the ET; and
- Adhere to the procedures for carrying out complaint investigation.

Environmental Team (ET)

2.1.6 The ET is responsible perform implementation EM&A programmes of the Contract Works as stipulated in the Updated EM&A Manual ensure the works are fully compliance with environmental regulations. The duties and responsibilities of the ET with respect to EM&A are:

- Set up all the required environmental monitoring stations;
- Monitor various environmental parameters as required in the EM&A Manual;
- Analyze the EM&A data and review the success of EM&A programme to cost effectively confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify any adverse environmental impacts arising;
- Carry out site inspection to investigate and audit the *Contractor's* site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and take proactive actions to pre-empt problems;
- Audit and prepare audit reports on the environmental monitoring data and site environmental conditions;

- Report on the EM&A results to the IEC, *Contractor*, the *PMD* and EPD or its delegated representative;
- Recommend suitable mitigation measures to the *Contractor* in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans;
- Undertake regular and ad-hoc on-site audits / inspections and report to the *Contractor* and the ER of any potential non-compliance; and
- Follow up and close out non-compliance actions.

Independent Environmental Checker (IEC)

2.1.7 The duties and responsibilities of IEC with respect to EM&A are:

- Review the EM&A works performed by the ET (at not less than monthly intervals);
- Audit the monitoring activities and results (at not less than monthly intervals);
- Report the audit results to the *PMD* and EPD in parallel;
- Review the EM&A reports (monthly summary reports) submitted by the ET;
- Review the proposal on mitigation measures submitted by the *Contractor* in accordance with the Event and Action Plans;
- Check the mitigation measures submitted by the *Contractor* in accordance with the Event and Action Plans;
- Check the mitigation measures that have been recommended in the EIA and this Manual, and ensure they are properly implemented in a timely manner, when necessary;
- Report the findings of site inspections and other environmental performance reviews to *PMD* and EPD;
- Coordinate the monitoring and auditing works for all the on-going contracts in the area in order to identify possible sources / causes of exceedances and recommend suitable remedial actions where appropriate; and
- Coordinate the assessment and response to complaints / enquires from locals, green groups, district councils or the public at large.

2.2 CONSTRUCTION PROGRESS

2.2.1 The major construction activities conducted under the Contract in the Reporting Period are listed below. The 3-month rolling construction programme is shown in [Appendix C](#).

- Concreting of slab at +7.20mPD was completed at portion BPS-1.
- DfMA installation works were in progress at portion BPS-1.
- First layer of lateral support works was completed at portion WTW-1. Excavation works was in progress at portion WTW-1.
- Plant trial for submitted concrete mix was in progress.
- Construction of mass concrete wall works were in progress at portion WTW-2.
- Capping off existing DN800 washwater pipe was completed at portion WTW-1.
- Trial pits excavation at portion WTW-7 was in progress.
- Slap coring works was in progress at existing Chemical Building.
- Decking of existing nullah to access portion BPS-2 was in progress.
- Trial for earth rod installation at RWBPS.
- E&M modification works at existing Chemical Building.

2.3 SUMMARY OF ENVIRONMENTAL PERMITS AND LICENCES

2.3.1 Summary of the relevant permits, licences, and/or notifications on environmental protection for the Project are presented in **Table 2-1**.

Table 2-1 Status of Environmental Licences and Permits of the Contract

| Item | Description | Licence/Permit Status | | | |
|------|-------------|---|---------------|-------------|--------|
| | | Reference No./ License No./ Account No. | Approval Date | Expiry Date | Status |
| | | | | | |

| Item | Description | Licence/Permit Status | | | |
|------|--|---|------------------------------|----------------|--------|
| | | Reference No./ License No./ Account No. | Approval Date | Expiry Date | Status |
| 1 | Air Pollution Control (Construction Dust) Regulation | Ref: 477913 | 23 Mar 2022 | N/A | Valid |
| 2 | Waste Disposal Regulation – Billing Account for Disposal of Construction Waste | EPD Ref. No: RS02509 Acc. No.: 7043631 | 08 Apr 2022 | N/A | Valid |
| 3 | Chemical Waste Producer Registration | 5213-961-C4701-01 | 31 May 2022 /31 May 2023* | N/A | Valid |
| 4 | Water Pollution Control Ordinance – Discharge Licence | WT00041885-2022 | 8 Sep 2022 | 30 Sep 2027 | Valid |
| 5 | Construction Noise Permit | GW-RS0188-23 | 18 Mar 2023 | 17 Sep 2023 | Valid |

* *New Chemical Waste Producer Registration was issued by EPD on 31 May 2023 as Contractor's address has updated.*

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

- 3.1.1 Only air quality monitoring is required to carry out related to Works contracts *7/WSD/21* during the construction phase to ensure the dust mitigation measures and performance properly implementation.
- 3.1.2 The other environmental monitoring for Works Area of Pui O was related to other Works Contracts and will be implemented by other appointed ET.
- 3.1.3 According to the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension. Air quality monitoring work will be implemented according to the EM&A Manual.

3.2 MONITORING PARAMETERS

- 3.2.1 The EM&A program of construction phase monitoring shall cover the following environmental issues:
 - Air quality;
- 3.2.2 A summary of impact monitoring parameters is presented in *Table 3-1*:

Table 3-1 Summary of Monitoring Parameters

| Environmental Issue | Parameters |
|---------------------|---|
| Air Quality | <ul style="list-style-type: none"> • 1-hour TSP by Real-Time Portable Dust Meter(as required in case of complaints); and • 24-hour TSP by High Volume Air Sampler. |

3.3 MONITORING LOCATIONS

- 3.3.1 According to the Review Report on EIA, air quality monitoring work should be implemented according to the EM&A Manual. As stated in Section 4 of EM&A Manual, there was only one air quality monitoring station designated under SHW WTW Extension. The air quality monitoring locations is listed in *Table 3-2*.

Table 3-2 Designated Air Quality Monitoring Stations

| Monitoring Station Identification No | Location |
|--------------------------------------|--|
| SHWAB | Siu Ho Wan WTW Administration Building |

3.4 MONITORING FREQUENCY AND PERIOD

- 3.4.1 The requirements of impact monitoring are stipulated in *Sections 2.1.9* of the approved EM&A Manual and presented as follows.

Air Quality Monitoring

- 3.4.2 Frequency of impact air quality monitoring is as follows:
 - 1-hour TSP 3 times every six days (as required in case of complaints)
 - 24-hour TSP Once every 6 days during course of works.

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

- 3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve.
- 3.5.2 The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.

3.5.3 All equipment to be used for air quality monitoring are listed in below table.

Table 3-3 Air Quality Monitoring Equipment

| Equipment | Model |
|--------------------------|--|
| <i>24-Hr TSP</i> | |
| High Volume Air Sampler | TISCH High Volume Air Sampler, HVS Model TE-5170* |
| Calibration Kit | TISCH Model TE-5025A* |
| <i>1-Hour TSP</i> | |
| Portable Dust Meter | Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter / SidePak™ Personal Aerosol Monitor AM510 |

* Instrument was used in the Reporting Period and the calibration certificate could be referred in Appendix E.

3.6 MONITORING PROCEDURES

1-hour TSP

3.6.1 Operation of the 1-hour TSP meter will follow manufacturer’s Operation and Service Manual.

3.6.2 The 1-hour TSP monitor, brand named “Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter” is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 900 light scattering. The 1-hour TSP monitor consists of the following:

- a. A pump to draw sample aerosol through the optic chamber where TSP is measured;
- b. A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
- c. A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

3.6.3 The 1-hour TSP meter to be used will be within the valid period, calibrated by the manufacturer prior to purchasing. Span check and BG of the instrument will be performed before each monitoring event. A valid calibration certificate is attached in [Appendix E](#).

24-hour TSP

3.6.4 The equipment used for 24-hour TSP measurement is the High Volume Sampler (hereinafter the “HVS”) brand named TISCH, Model TE-5170 TSP High Volume Air Sampler, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The HVS consists of the following:

- a. An anodized aluminum shelter;
- b. A 8”x10” stainless steel filter holder;
- c. A blower motor assembly;
- d. A continuous flow/pressure recorder;
- e. A motor speed-voltage control/elapsed time indicator;
- f. A 7-day mechanical timer, and
- g. A power supply of 220v/50 Hz

3.6.5 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between 0.6m³/min and 1.7m³/min will be properly set in accordance with the manufacturer’s instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-

- A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
- Installed with elapsed-time meter with ± 2 minutes accuracy for 24 hours operation;

- Equipped with a timing/control device with ± 5 minutes accuracy for 24 hours operation;
- With flow control accuracy for $\pm 2.5\%$ deviation over 24-hour sampling period;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.

3.6.6 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal.

3.6.7 The HVS used for 24-hour TSP monitoring will be calibrated before the commencement for sampling, and after in two months interval with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m³/min. Motor brushes of HVS will be regularly replaced of about five hundred hours per time. Valid certificates of the calibration kit and HVS are attached in [Appendix E](#).

3.7 DERIVATION OF ACTION/LIMIT (A/L) LEVELS

3.7.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved Environmental Monitoring and Audit Manual, the air quality criteria were set up, namely Action and Limit levels are listed in [Tables 3-4](#).

Table 3-4 Action and Limit Levels of Air Quality

| Monitoring Station | Action Level ($\mu\text{g}/\text{m}^3$) | | Limit Level ($\mu\text{g}/\text{m}^3$) | |
|--------------------|---|-------------|--|-------------|
| | 1-hour TSP | 24-hour TSP | 1-hour TSP | 24-hour TSP |
| SHWAB | 291 | 170 | 500 | 260 |

3.8 METEOROLOGICAL INFORMATION

3.8.1 The meteorological information including wind direction, wind speed, humidity, rainfall, air pressure and temperature is extracted from the Chek Lap Kok Station. Meteorological data are attached in [Appendix J](#).

3.9 DATA MANAGEMENT AND DATA QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

3.9.1 All monitoring data were handled by the ET’s in-house data recording and management system.

3.9.2 The monitoring data recorded in the equipment were downloaded directly from the equipment at each monitoring day or after completion of baseline measurement. The downloaded monitoring data were input into a computerized database properly maintained by the ET. The laboratory results were input directly into the computerized database and checked by personnel other than those who input the data.

3.9.3 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4 AIR QUALITY MONITORING

4.1 GENERAL

- 4.1.1 The air quality monitoring schedule is presented in [Appendix G](#) and the monitoring results are summarised in the following sub-sections.
- 4.1.2 In the reporting Period, no air quality complaint was received, thus no 1-hour TSP monitoring required to conduct according to [Section 2.19](#) of the approved EM&A Manual.

4.2 AIR MONITORING RESULTS

- 4.2.1 In the Reporting Period, a total of 5 events 24-hour TSP monitoring were carried out and the monitoring results are summarized in [Table 4-1](#). The detailed 24-hour monitoring data are presented in [Appendix H](#) and the relevant graphical plots are shown in [Appendix I](#).

Table 4-1 Summary of 24-hour TSP Monitoring Result – SHWAB

| 24-hour TSP ($\mu\text{g}/\text{m}^3$) | |
|--|-------------------------------|
| Date | Meas. Result |
| 3-Jul-23 | 33 |
| 8-Jul-23 | 11 |
| 14-Jul-23 | 60 |
| 20-Jul-23 | 35 |
| 26-Jul-23 | 86 |
| Average (Range) | 45 (11 – 86) |

- 4.2.2 As shown in [Tables 4-1](#), all the 24-hour TSP monitoring results were below the Action/Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.
- 4.2.3 The meteorological data during the impact monitoring days are summarized in [Appendix J](#).

5 WASTE MANAGEMENT

5.1 GENERAL WASTE MANAGEMENT

5.1.1 Waste management was carried out in accordance with the Waste Management Section in the Environmental Management Plan for the Contract.

5.2 RECORDS OF WASTE QUANTITIES

5.2.1 All types of waste arising from the construction works are broadly classified into the following:

- Insert construction and demolition (C&D) material; and
- C&D waste.

5.2.2 The quantities of waste for disposal in this Reporting Month under the Contract are summarised in **Tables 5-1** and **5-2** and the Waste Flow Table as shown in **Appendix K**. Whenever possible, materials were reused on-site as far as practicable.

Table 5-1 Summary of Quantities of Inert C&D Materials for the Contract

| Type | Quantity in Reporting Month | Disposal / Dumping Ground |
|--|-----------------------------|---------------------------|
| Reused in this Contract (Inert) (in T) | 0 | NA |
| Reused in other Contracts/ Projects (Inert) (in T) | 0 | NA |
| Disposal as Public Fill (Inert) (in T) | 7019.350 | TM 38 |

Table 5-2 Summary of Quantities of C&D Wastes for the Contract

| Type | Quantity in Reporting Month | Disposal / Dumping Ground |
|---|-----------------------------|---------------------------|
| Recycled Metal ('000kg) | 0 | NA |
| Recycled Paper / Cardboard Packing ('000kg) | 0.377 | Licensed Collector |
| Recycled Plastic ('000kg) | 0 | NA |
| Chemical Wastes ('000kg) | 0 | NA |
| General Refuses (in T) | 56.110 | NENT |

6 SITE INSPECTIONS

6.1 REQUIREMENTS

6.1.1 According to the EM&A Manual, the programme of environmental site inspection shall be formulated by ET Leader. Weekly environmental site inspections were carried out to confirm the environmental performance.

6.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

6.2.1 In the Reporting Month, joint site inspections to evaluate the site environmental performance were carried out by the representatives of the *PMD*, ET and the *Contractor* on **4, 11, 18 and 25 July 2023**. Joint site inspection with *PMD*, ET, IEC and the *Contractor* was carried out on **18 July 2023**. No non-compliance was recorded.

6.2.2 The findings / deficiencies observed during the weekly site inspections are listed in **Table 6-1**.

Table 6-1 Site Observations for the Contract

| Date | Findings / Deficiencies | Follow-Up Status |
|--------------|---|--|
| 4 July 2023 | <ul style="list-style-type: none">The <i>Contractor</i> was reminded to remove stagnant muddy water regularly after rainstorm to prevent run out of site. | <ul style="list-style-type: none">Reminder only. |
| 11 July 2023 | <ul style="list-style-type: none">The <i>Contractor</i> was reminded to spray water regularly to reduce dust impact. | <ul style="list-style-type: none">Reminder only. |
| 18 July 2023 | <ul style="list-style-type: none">The <i>Contractor</i> was reminded to enhance good house-keeping. | <ul style="list-style-type: none">Reminder only. |
| 25 July 2023 | <ul style="list-style-type: none">No environmental issue was observed during site inspection. | <ul style="list-style-type: none">NA |

7 ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCES

7.1 ENVIRONMENTAL COMPLAINTS, SUMMONS AND PROSECUTIONS

- 7.1.1 There was no environmental complaint, prosecution or notification of summons received in the Reporting Month.
- 7.1.2 The statistical summary table of the environmental complaints, summons and prosecution are presented in *Tables 7-1, 7-2 and 7-3*. Detailed complaint log for the Contract is presented in *Appendix L*.

Table 7-1 Statistical Summary of Environmental Complaints

| Reporting Month | Environmental Complaint Statistics | | |
|-----------------------------|------------------------------------|------------|---------------------------|
| | Frequency | Cumulative | Project related complaint |
| 24 May 2022 to 30 June 2023 | 0 | 0 | 0 |
| 1 to 31 July 2023 | 0 | 0 | 0 |

Table 7-2 Statistical Summary of Environmental Summons

| Reporting Month | Environmental Summons Statistics | | |
|-----------------------------|----------------------------------|------------|-------------------------|
| | Frequency | Cumulative | Project related summons |
| 24 May 2022 to 30 June 2023 | 0 | 0 | 0 |
| 1 to 31 July 2023 | 0 | 0 | 0 |

Table 7-3 Statistical Summary of Environmental Prosecution

| Reporting Month | Environmental Prosecution Statistics | | |
|-----------------------------|--------------------------------------|------------|-----------------------------|
| | Frequency | Cumulative | Project related prosecution |
| 24 May 2022 to 30 June 2023 | 0 | 0 | 0 |
| 1 to 31 July 2023 | 0 | 0 | 0 |

8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

8.1 GENERAL REQUIREMENTS

- 8.1.1 The environmental mitigation measures recommended in the ISEMM in the EM&A Manual covered the issues of dust, noise, water, waste, land contamination and ecology and they are summarised and presented in *Appendix M*.
- 8.1.2 The Contract works under the Project shall be implementing the required environmental mitigation measures according to the EM&A Manual as subject to the site conditions. Environmental mitigation measures generally implemented by the Contract and the implementation status are shown in *Appendix M*.

8.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

- 8.2.1 According to the information provided by the *Contractor*, the major construction activities under the Contract in the coming month are listed below:
- Concreting works for the structure of BPS at portion BPS-1
 - Installation of DfMA units for BPS at portion BPS-1
 - Installation of lateral support and excavation works at WTB
 - Construction of base slab for WTB
 - Installation of lateral support and excavation works at OLB
 - Construction of base slab for OLB
 - Construction of tower crane at OLB
 - Excavation and pipelaying works for DN1200 watermain

8.3 KEY ISSUES FOR THE COMING MONTH

- 8.3.1 Special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.
- 8.3.2 Due to wet season has approached, the *Contractor* was reminded that all effluent discharge shall fulfill the requirement of Discharge Licence under the Water Pollution Control Ordinance.
- 8.3.3 All other mitigation measures recommended in the Implementation Schedule for Environmental Mitigation Measures of the EM&A Manual should be properly implemented and maintained as far as practicable.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 CONCLUSIONS

- 9.1.1 As advised by the *Contractor*, the major construction works under Works Contract was commenced on 24 May 2022. This is the **15th** Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from **1 to 31 July 2023**.
- 9.1.2 In the Reporting Period, no 24-hour TSP monitoring results triggered the Action/Limit level was recorded. No NOE or the associated corrective actions were therefore issued.
- 9.1.3 In the Reporting Month, joint site inspections to evaluate the site environmental performance had been carried out by the representatives of the *PMD*, *ET* and the *Contractor* on **4, 11, 18 and 25 July 2023**. Joint site inspection with *PMD*, *ET*, *IEC* and the *Contractor* was carried out on **18 July 2023**. No non-compliance was recorded during the site inspections.
- 9.1.4 In the Reporting Month, no environmental complaint, prosecution or notification of summons was received. In addition, no emergency event related to violation of environmental legislation for illegal dumping and landfilling was received.

9.2 RECOMMENDATIONS

- 9.2.1 Special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.
- 9.2.2 Due to wet season has approached, the *Contractor* was reminded that all effluent discharge shall fulfill the requirement of Discharge Licence under the Water Pollution Control Ordinance.
- 9.2.3 All other mitigation measures recommended in the Implementation Schedule for Environmental Mitigation Measures of the EM&A Manual should be properly implemented and maintained as far as practicable.

Appendix A

Layout Plan of the Project

LEGEND:

- SITE BOUNDARY
- - - PROPOSED RAW WATER MAINS (BURIED)
- - - PROPOSED RAW WATER MAINS (EXPOSED)
- |-|-| PROPOSED FENCING
- ▭ PROPOSED BUILDING WORKS

NOTE 1:
THE EXISTING WASHWATER EQUALIZATION TANKS
TO BE RENAMED AS THICKENER FEED TANKS



CONSTRUCTION OF
OSCG UNDER
CONTRACT NO.
6/WSD/17

| Revision | Date | Issue For Tender Drawing | Initial |
|----------|-------|--------------------------|---------|
| 0 | 05/21 | ISSUE FOR TENDER DRAWING | JC |
| | | Designed | Checked |
| Initial | | CT/CCK | YFC/AS |
| Date | 05/21 | 05/21 | 05/21 |

Approved
James Chan

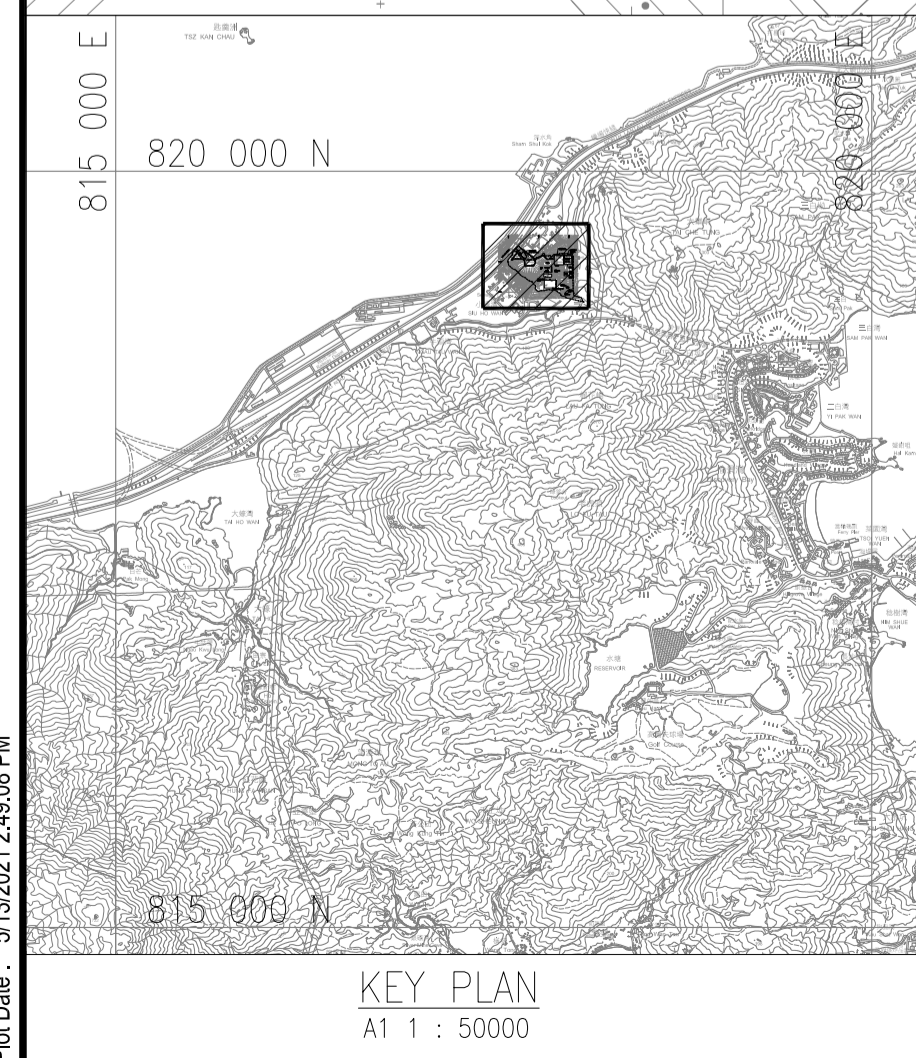
Contract No. 7/WSD/21

Contract Title
CONSTRUCTION OF SIU HO WAN
WATER TREATMENT WORKS
EXTENSION AND
SIU HO WAN RAW WATER
BOOSTER PUMPING STATION

Drawing Title
SITE LOCATION

| Drawing No. | Revision |
|----------------------|----------|
| 199755A/B&V/GN/00001 | 0 |

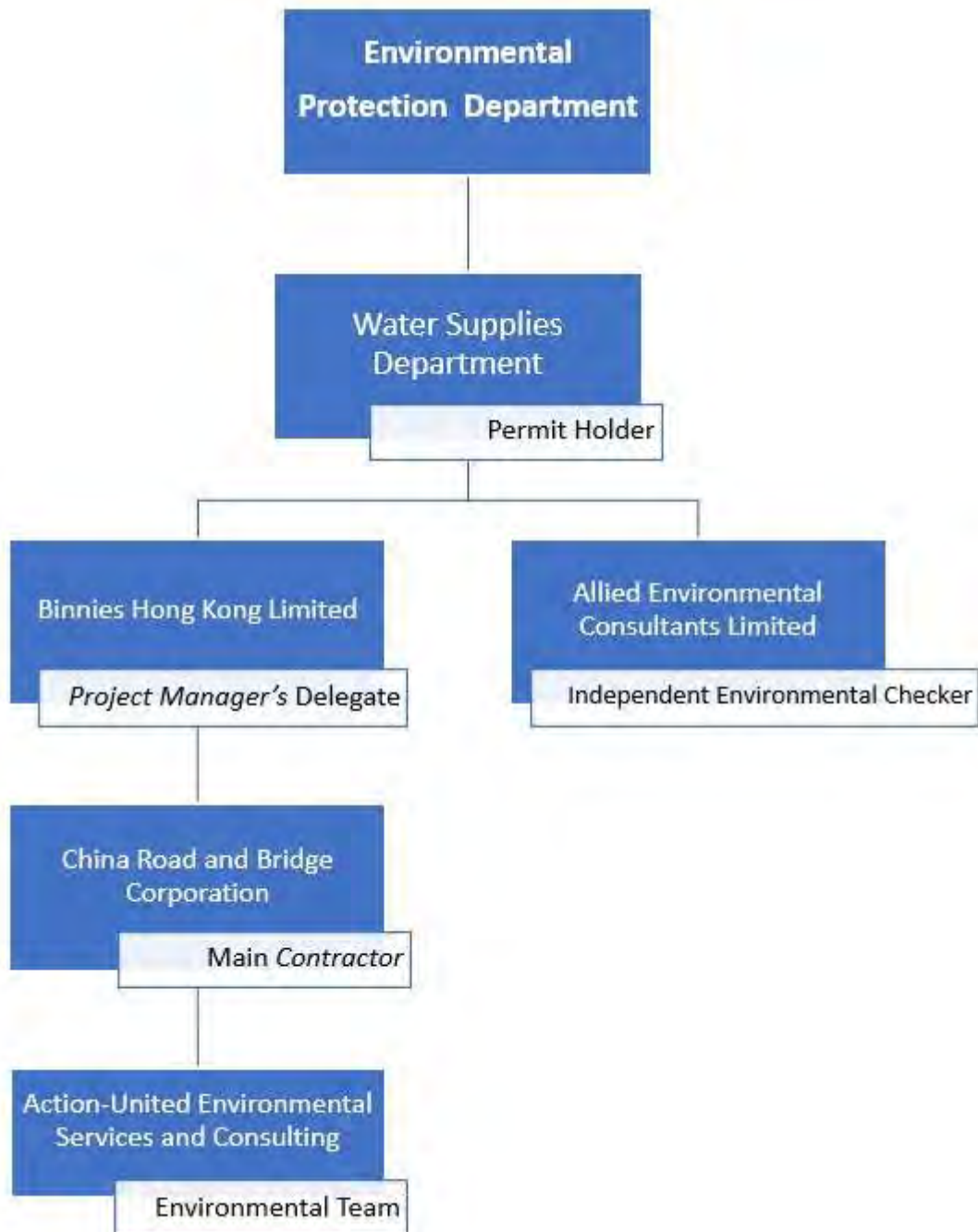
Scale A1 1 : 750
A3 1 : 1500



KEY PLAN
A1 1 : 50000

Appendix B

Project Organisation



Contact Details of Key Personnel

| Organisation | Project Role | Position | Name | Tel No. |
|---|-----------------------------------|-----------------------------|------------------|----------------|
| Binnies Hong Kong Limited | <i>Project Manager's Delegate</i> | Chief Resident Engineer | Mr. Gilbert Ying | 6343 1027 |
| | | Senior Resident Engineer | Mr. Alex Tung | 9080 0079 |
| | | Resident Engineer | Mr. Patrick Wong | 9267 8638 |
| | | Assistant Resident Engineer | Ms. Kelly Chan | 9039 2863 |
| China Road and Bridge Corporation | <i>Contractor</i> | Site Agent | Mr. Eros To | 9224 0114 |
| | | Environmental Manager | Mr. Dennis Ho | 5645 0563 |
| | | Environmental Officer | Ms. Wendy Leung | 9877 4750 |
| | | Environmental Supervisor | Mr. Patrick Wan | 9618 0010 |
| Allied Environmental Consultants Limited | Independent Environmental Checker | Principle Consultant | Ms. Joanne Ng | 2815 7028 |
| Action-United Environmental Services Consulting and | Environmental Team | Environmental Team Leader | Mr. Tam Tak Wing | 2959 6059 |
| | | Environmental Consultant | Ms. Nicola Hon | 2959 6059 |
| | | Environmental Consultant | Mr. Ben Tam | 2959 6059 |

Appendix C

3-month Rolling Construction Programme

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date: 31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | | |
|--|--|----------|--------------------|-------------------|-----------------|-----------------|---------------|-------------|---------------------|--------|--------|--------|--------|--------|--------|--|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 | |
| Construction of Siu Ho Wan Water Treatment Works Extension | | | | | | | | | | | | | | | | |
| Preliminaries, Contractor's Design, Method Statement Submission | | | | | | | | | | | | | | | | |
| Contractor's Design Submission and Approval | | | | | | | | | | | | | | | | |
| Major Permanent Works Design | | | | | | | | | | | | | | | | |
| MDD3006 | Comment and approval of P&ID | 80.0d | 20.0d | 15-Oct-22 08:00 A | 20-Jun-23 18:00 | 15-Oct-22 08:00 | | 24.5d | 75% | | | | | | | |
| MDD3010 | Hazard and Operability studies | 214.0d | 30.0d | 24-May-22 08:00 A | 30-Jun-23 18:00 | 24-May-22 08:00 | | 14.5d | 85.98% | | | | | | | |
| MDD3020 | Design for Ozone Equipment | 180.0d | 20.0d | 28-Mar-22 08:00 A | 20-Jun-23 18:00 | 28-Mar-22 08:00 | | 10.5d | 88.89% | | | | | | | |
| MDD3025 | Comments and approval of Design for Ozone Equipment | 14.0d | 14.0d | 21-Jun-23 08:00 | 04-Jul-23 18:00 | | | 10.5d | 0% | | | | | | | |
| MDD3046.5 | CR drawings submission for WTB | 120.0d | 120.0d | 01-Jun-23 08:00 | 28-Sep-23 18:00 | | | 35.5d | 0% | | | | | | | |
| MDD3065 | Design for Manufacture and Assembly(DfMA) works for E&M works | 210.0d | 90.0d | 31-Aug-22 08:00 A | 29-Aug-23 18:00 | 31-Aug-22 08:00 | | 1.5d | 57.14% | | | | | | | |
| MDD3070 | Comments and approval of MiMEP design | 60.0d | 60.0d | 30-Aug-23 08:00 | 28-Oct-23 18:00 | | | 1.5d | 0% | | | | | | | |
| MDD3110 | Design for stage 2 architectural works | 95.0d | 60.0d | 28-Feb-23 08:00 A | 30-Jul-23 18:00 | 28-Feb-23 08:00 | | -6.5d | 36.84% | | | | | | | |
| MDD3115 | Comments and approval of design for stage 2 architectural works | 30.0d | 30.0d | 31-Jul-23 08:00 | 29-Aug-23 18:00 | | | -6.5d | 0% | | | | | | | |
| MDD3120 | Design for building services (including FSD submission) | 90.0d | 25.0d | 23-May-22 08:00 A | 25-Jun-23 18:00 | 23-May-22 08:00 | | 123.5d | 72.22% | | | | | | | |
| MDD3125 | Comments and approval of design for building services | 14.0d | 14.0d | 26-Jul-23 08:00 | 08-Aug-23 18:00 | | | 93.5d | 0% | | | | | | | |
| MDD3126 | Design for building services at the existing building | 120.0d | 60.0d | 01-Mar-23 08:00 A | 30-Jul-23 18:00 | 01-Mar-23 08:00 | | -2.5d | 50% | | | | | | | |
| MDD3127 | Comments and approval of design for building services | 14.0d | 14.0d | 31-Jul-23 08:00 | 13-Aug-23 18:00 | | | -2.5d | 0% | | | | | | | |
| MDD3135 | Comments and approval of design for SRGF Equipment | 15.0d | 10.0d | 21-Apr-23 08:00 A | 10-Jun-23 18:00 | 21-Apr-23 08:00 | | 35.5d | 33.33% | | | | | | | |
| MDD3150 | Design for WTB POCT & IOCT Equipment | 90.0d | 20.0d | 31-Oct-22 08:00 A | 20-Jun-23 18:00 | 31-Oct-22 08:00 | | 12.5d | 77.78% | | | | | | | |
| MDD3155 | Comments and approval of Design for WTB POCT & IOCT Equipment | 28.0d | 28.0d | 21-Jun-23 08:00 | 18-Jul-23 18:00 | | | 12.5d | 0% | | | | | | | |
| MDD3160 | Design for surge analysis system | 90.0d | 15.0d | 31-Oct-22 08:00 A | 15-Jun-23 18:00 | 31-Oct-22 08:00 | | 20.5d | 83.33% | | | | | | | |
| MDD3165 | Comments and approval of design for surge analysis system | 15.0d | 15.0d | 16-Jun-23 08:00 | 30-Jun-23 18:00 | | | 20.5d | 0% | | | | | | | |
| MDD3320 | Design for WTB Inlet Valve Chamber Equipment | 90.0d | 50.0d | 18-Oct-22 08:00 A | 20-Jul-23 18:00 | 18-Oct-22 08:00 | | 39.5d | 44.44% | | | | | | | |
| MDD3325 | Comments and approval of design for WTB Inlet Valve Chamber Equipment | 30.0d | 30.0d | 21-Jul-23 08:00 | 19-Aug-23 18:00 | | | 39.5d | 0% | | | | | | | |
| MDD3360 | Design for Service Water Equipment | 90.0d | 0.0d | 05-Dec-22 08:00 A | 01-Jun-23 08:00 | 05-Dec-22 08:00 | | 127.5d | 100% | | | | | | | |
| MDD3365 | Comments and approval of design for Service Water Equipment | 30.0d | 30.0d | 01-Jun-23 08:00 | 30-Jun-23 18:00 | | | 127.5d | 0% | | | | | | | |
| MDD3421 | Design for near real-time Operation Simulation System (Stream 2A) | 90.0d | 90.0d | 01-Jun-23 08:00 | 29-Aug-23 18:00 | | | 67.5d | 0% | | | | | | | |
| MDD3425 | Comments and approval of design for near real-time Operation Simulation System (part of existing facilities) | 30.0d | 30.0d | 01-Jun-23 08:00 | 30-Jun-23 18:00 | | | 127.5d | 0% | | | | | | | |
| MDD3426 | Comments and approval of design for near real-time Operation Simulation System (Stream 2A) | 30.0d | 30.0d | 30-Aug-23 08:00 | 28-Sep-23 18:00 | | | 67.5d | 0% | | | | | | | |
| MDD3430 | BEAM Plus PA submission | 90.0d | 60.0d | 19-Dec-22 08:00 A | 30-Jul-23 18:00 | 19-Dec-22 08:00 | | 30.5d | 33.33% | | | | | | | |
| MDD3431 | Comment and approval of BEAM Plus PA submission | 90.0d | 90.0d | 31-Jul-23 08:00 | 28-Oct-23 18:00 | | | 30.5d | 0% | | | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| | | | |
|----------------|----------|---------|----------|
| Date | Revision | Checked | Approved |
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 1 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date: 31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | |
|---------------------------------------|--|---------------|--------------------|------------------------------|----------------------------|----------------------------|---------------|---------------|---------------------|---------------------------------------|--------|--------|--------|--------|--------|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 |
| MDD3440 | Design Furniture and Testing Equipment Arrangement at Office and Laboratory Building. | 90.0d | 60.0d | 01-Feb-23 08:00 A | 30-Jul-23 18:00 | 01-Feb-23 08:00 | | 104.5d | 33.33% | [Gantt bar: 01-Feb-23 to 30-Jul-23] | | | | | |
| MDD3441 | Comment and approval of Design Furniture and Testing Equipment Arrangement at OLB | 60.0d | 25.0d | 17-Feb-23 08:00 A | 30-Jul-23 18:00 | 17-Feb-23 08:00 | | 104.5d | 58.33% | [Gantt bar: 17-Feb-23 to 30-Jul-23] | | | | | |
| MDD3450 | Design Building and Energy, Management system, Extra Low Voltage system and Treatment Monitoring and Alert system | 90.0d | 60.0d | 01-Feb-23 08:00 A | 30-Jul-23 18:00 | 01-Feb-23 08:00 | | 99.5d | 33.33% | [Gantt bar: 01-Feb-23 to 30-Jul-23] | | | | | |
| MDD3451 | Comment and approval of Building and Energy, Management, Extra Low Voltage and Treatment Monitoring and Alert system | 90.0d | 60.0d | 01-Feb-23 08:00 A | 30-Jul-23 18:00 | 01-Feb-23 08:00 | | 99.5d | 33.33% | [Gantt bar: 01-Feb-23 to 30-Jul-23] | | | | | |
| Material Submission | | 505.0d | 68.0d | 05-May-22 08:00 A | 07-Aug-23 18:00 | 05-May-22 08:00 | | 66.5d | 86.53% | [Summary bar: 05-May-22 to 07-Aug-23] | | | | | |
| MAT1030 | Equipment Submission (E&M Equipment other than listed below) | 210.0d | 40.0d | 05-May-22 08:00 A | 10-Jul-23 18:00 | 05-May-22 08:00 | | -22.5d | 80.95% | [Gantt bar: 05-May-22 to 10-Jul-23] | | | | | |
| MAT1031 | Comment and Approval of Equipment Submission other than listed below | 8.0d | 8.0d | 11-Jul-23 08:00 | 18-Jul-23 18:00 | | | 71.5d | 0% | [Gantt bar: 11-Jul-23 to 18-Jul-23] | | | | | |
| MAT1040 | Equipment Submission (Ozone System) | 210.0d | 15.0d | 05-May-22 08:00 A | 15-Jun-23 18:00 | 05-May-22 08:00 | | 21.5d | 92.86% | [Gantt bar: 05-May-22 to 15-Jun-23] | | | | | |
| MAT1041 | Comment and Approval of Equipment Submission (Ozone) | 8.0d | 8.0d | 16-Jun-23 08:00 | 23-Jun-23 18:00 | | | 21.5d | 0% | [Gantt bar: 16-Jun-23 to 23-Jun-23] | | | | | |
| MAT1050 | Equipment Submission (BACF) | 210.0d | 20.0d | 05-May-22 08:00 A | 20-Jun-23 18:00 | 05-May-22 08:00 | | 17.5d | 90.48% | [Gantt bar: 05-May-22 to 20-Jun-23] | | | | | |
| MAT1051 | Comment and Approval of Equipment Submission (BACF) | 8.0d | 8.0d | 21-Jun-23 08:00 | 28-Jun-23 18:00 | | | 17.5d | 0% | [Gantt bar: 21-Jun-23 to 28-Jun-23] | | | | | |
| MAT1055 | Equipment Submission (SRGF) | 210.0d | 20.0d | 05-May-22 08:00 A | 20-Jun-23 18:00 | 05-May-22 08:00 | | 17.5d | 90.48% | [Gantt bar: 05-May-22 to 20-Jun-23] | | | | | |
| MAT1056 | Comment and Approval of Equipment Submission (SRGF) | 8.0d | 8.0d | 21-Jun-23 08:00 | 28-Jun-23 18:00 | | | 17.5d | 0% | [Gantt bar: 21-Jun-23 to 28-Jun-23] | | | | | |
| MAT1060 | Equipment Submission (Chemical) | 210.0d | 60.0d | 05-May-22 08:00 A | 30-Jul-23 18:00 | 05-May-22 08:00 | | 66.5d | 71.43% | [Gantt bar: 05-May-22 to 30-Jul-23] | | | | | |
| MAT1061 | Comment and Approval of Equipment Submission (Chemical) | 8.0d | 8.0d | 31-Jul-23 08:00 | 07-Aug-23 18:00 | | | 66.5d | 0% | [Gantt bar: 31-Jul-23 to 07-Aug-23] | | | | | |
| MAT1070 | Equipment Submission (Sludge Dewatering Plant) | 99.0d | 10.0d | 24-Oct-22 08:00 A | 10-Jun-23 18:00 | 24-Oct-22 08:00 | | -14.5d | 89.9% | [Gantt bar: 24-Oct-22 to 10-Jun-23] | | | | | |
| MAT1071 | Comment and Approval of Equipment Submission (Sludge Dewatering Plant) | 8.0d | 8.0d | 11-Jun-23 08:00 | 18-Jun-23 18:00 | | | -14.5d | 0% | [Gantt bar: 11-Jun-23 to 18-Jun-23] | | | | | |
| BIM Deliverables | | 816.0d | 550.0d | 20-May-22 08:00 A | 01-Dec-24 18:00 | 20-May-22 08:00 | | 79.0d | 32.6% | [Summary bar: 20-May-22 to 01-Dec-24] | | | | | |
| BIMD1010 | Fully Coordinated BIM Models | 500.0d | 280.0d | 22-Jun-22 08:00 A | 06-Mar-24 18:00 | 22-Jun-22 08:00 | | 34.5d | 53.33% | [Gantt bar: 22-Jun-22 to 06-Mar-24] | | | | | |
| BIMD1015 | Shop drawings | 700.0d | 425.0d | 22-Jun-22 08:00 A | 29-Jul-24 18:00 | 22-Jun-22 08:00 | | 174.0d | 39.29% | [Gantt bar: 22-Jun-22 to 29-Jul-24] | | | | | |
| BIMD1020 | Combined Service Drawing (CSD) and Combined Builder's Works Drawings (CBWD) | 365.0d | 70.0d | 24-May-22 08:00 A | 09-Aug-23 18:00 | 24-May-22 08:00 | | 261.5d | 80.82% | [Gantt bar: 24-May-22 to 09-Aug-23] | | | | | |
| BIMD1025 | 4D Modelling | 700.0d | 520.0d | 20-May-22 08:00 A | 01-Nov-24 18:00 | 20-May-22 08:00 | | 79.0d | 25.71% | [Gantt bar: 20-May-22 to 01-Nov-24] | | | | | |
| BIMD1030 | BIM Progress Reporting | 800.0d | 480.0d | 21-Jun-22 08:00 A | 22-Sep-24 18:00 | 21-Jun-22 08:00 | | 149.0d | 40% | [Gantt bar: 21-Jun-22 to 22-Sep-24] | | | | | |
| BIMD1035 | Clash report | 447.0d | 160.0d | 31-Jul-22 08:00 A | 07-Nov-23 18:00 | 31-Jul-22 08:00 | | 244.5d | 64.21% | [Gantt bar: 31-Jul-22 to 07-Nov-23] | | | | | |
| BIMD1040 | 3D VR | 500.0d | 280.0d | 30-Jun-22 08:00 A | 06-Mar-24 18:00 | 30-Jun-22 08:00 | | 94.5d | 44% | [Gantt bar: 30-Jun-22 to 06-Mar-24] | | | | | |
| BIMD1045 | Existing condition modelling | 447.0d | 180.0d | 21-Jun-22 08:00 A | 27-Nov-23 18:00 | 21-Jun-22 08:00 | | 39.0d | 59.73% | [Gantt bar: 21-Jun-22 to 27-Nov-23] | | | | | |
| BIMD1050 | 3D digital survey | 447.0d | 180.0d | 21-Jun-22 08:00 A | 27-Nov-23 18:00 | 21-Jun-22 08:00 | | 119.0d | 59.73% | [Gantt bar: 21-Jun-22 to 27-Nov-23] | | | | | |
| BIMD1060 | BIM Object | 700.0d | 500.0d | 30-Jun-22 08:00 A | 12-Oct-24 18:00 | 30-Jun-22 08:00 | | 129.0d | 28.57% | [Gantt bar: 30-Jun-22 to 12-Oct-24] | | | | | |
| BIMD1160 | Digital fabrication | 700.0d | 550.0d | 24-Oct-22 08:00 A | 01-Dec-24 18:00 | 24-Oct-22 08:00 | | 79.0d | 21.43% | [Gantt bar: 24-Oct-22 to 01-Dec-24] | | | | | |
| Subcontracting and Procurement | | 538.0d | 394.0d | 02-Sep-22 08:00 A | 28-Jun-24 18:00 | 02-Sep-22 08:00 | | 121.5d | 38.24% | [Summary bar: 02-Sep-22 to 28-Jun-24] | | | | | |
| Subcontracting | | 52.0d | 30.0d | 10-May-23 08:00 A | 30-Jun-23 18:00 | 10-May-23 08:00 | | 485.5d | 42.31% | [Summary bar: 10-May-23 to 30-Jun-23] | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| | | | |
|----------------|----------|---------|----------|
| Date | Revision | Checked | Approved |
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 2 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date: 31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | |
|--|---|---------------|--------------------|------------------------------|----------------------------|----------------------------|---------------|--------------|---------------------|--------|--------|--------|--------|--------|--------|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 |
| MTW1585 | Subletting for waterproofing works | 20.0d | 20.0d | 01-Jun-23 08:00 | 20-Jun-23 18:00 | | | 31.5d | 0% | | | | | | |
| MTW1600 | Subletting for ABWF works | 30.0d | 20.0d | 10-May-23 08:00 A | 20-Jun-23 18:00 | 10-May-23 08:00 | | 23.5d | 33.33% | | | | | | |
| MTW1660 | Subletting for Drainage works | 30.0d | 30.0d | 01-Jun-23 08:00 | 30-Jun-23 18:00 | | | 54.5d | 0% | | | | | | |
| MTW1680 | Subletting for Road works | 30.0d | 30.0d | 01-Jun-23 08:00 | 30-Jun-23 18:00 | | | 485.5d | 0% | | | | | | |
| E&M Equipment Procurement, FAT and Delivery | | 538.0d | 394.0d | 02-Sep-22 08:00 A | 28-Jun-24 18:00 | 02-Sep-22 08:00 | | 20.5d | 38.24% | | | | | | |
| MTW1685 | Submission of Equipment test plan | 90.0d | 0.0d | 02-Sep-22 08:00 A | 01-Jun-23 08:00 | 02-Sep-22 08:00 | | 3.5d | 100% | | | | | | |
| MTW1690 | Approval of Equipment test plan | 30.0d | 30.0d | 23-Dec-22 08:00 A | 30-Jun-23 18:00 | 23-Dec-22 08:00 | | -26.5d | 0% | | | | | | |
| MTW1695 | Procurement and delivery of Energy dissipation valves | 270.0d | 270.0d | 20-Aug-23 08:00 | 15-May-24 18:00 | | | 39.5d | 0% | | | | | | |
| MTW1700 | Procurement and delivery of Pipeworks, valves, EM flowmeters, instruments | 210.0d | 210.0d | 20-Aug-23 08:00 | 16-Mar-24 18:00 | | | 99.5d | 0% | | | | | | |
| MTW1710 | Procurement and delivery of POCT mixers, penstocks, stoplogs, EM flowmeters, instruments | 240.0d | 240.0d | 19-Jul-23 08:00 | 14-Mar-24 18:00 | | | 12.5d | 0% | | | | | | |
| MTW1720 | Procurement and delivery of IOCT mixers, penstocks, stoplogs, EM flowmeters, instruments | 240.0d | 240.0d | 19-Jul-23 08:00 | 14-Mar-24 18:00 | | | 12.5d | 0% | | | | | | |
| MTW1730 | Procurement and delivery of Ozone destruction system, pipeworks, instruments, valves | 300.0d | 300.0d | 05-Jul-23 08:00 | 29-Apr-24 18:00 | | | 70.5d | 0% | | | | | | |
| MTW1740 | Procurement and delivery of PSA sets, Ozone Generator sets, air vessels, cooling system, PSU | 360.0d | 360.0d | 05-Jul-23 08:00 | 28-Jun-24 18:00 | | | 10.5d | 0% | | | | | | |
| MTW1750 | Procurement and delivery of POCT ozone gas valve trains, gas ejectors, sidestream pumps | 300.0d | 300.0d | 19-Jul-23 08:00 | 13-May-24 18:00 | | | 49.5d | 0% | | | | | | |
| MTW1760 | Procurement and delivery of IOCT ozone gas valve trains, gas ejectors, sidestream pumps | 150.0d | 150.0d | 19-Jul-23 08:00 | 15-Dec-23 18:00 | | | 102.5d | 0% | | | | | | |
| MTW1770 | Procurement and delivery of DAF including flocculators, scrapers, mixers, recycle pump, air supply system, etc. | 180.0d | 180.0d | 11-Jun-23 08:00 | 07-Dec-23 18:00 | | | 7.5d | 0% | | | | | | |
| MTW1780 | Procurement and delivery of DAF drain pump, instrumentation, air dryer and weir box | 160.0d | 160.0d | 11-Jun-23 08:00 | 17-Nov-23 18:00 | | | -2.5d | 0% | | | | | | |
| MTW1790 | Procurement and delivery of BACF filter media, trough, underdrain system, mixers, penstocks | 270.0d | 270.0d | 01-Jul-23 08:00 | 26-Mar-24 18:00 | | | 15.5d | 0% | | | | | | |
| MTW1800 | Procurement and delivery of SRGF filter media, trough, underdrain system, mixers, penstocks | 250.0d | 250.0d | 01-Jul-23 08:00 | 06-Mar-24 18:00 | | | 15.5d | 0% | | | | | | |
| MTW1810 | Procurement and delivery of Sodium Phosphate Plant | 280.0d | 280.0d | 08-Aug-23 08:00 | 13-May-24 18:00 | | | 66.5d | 0% | | | | | | |
| MTW1820 | Procurement and delivery of Ammonium Sulphate Plant | 280.0d | 280.0d | 08-Aug-23 08:00 | 13-May-24 18:00 | | | 66.5d | 0% | | | | | | |
| MTW1830 | Procurement and delivery of Sodium Sulphite Plant | 300.0d | 300.0d | 01-Jun-23 08:00 | 26-Mar-24 18:00 | | | 114.5d | 0% | | | | | | |
| MTW1840 | Procurement and delivery of Sampling system | 160.0d | 160.0d | 01-Jun-23 08:00 | 07-Nov-23 18:00 | | | 3.5d | 0% | | | | | | |
| MTW1850 | Procurement and delivery of Service Water System | 240.0d | 240.0d | 01-Jul-23 08:00 | 25-Feb-24 18:00 | | | 127.5d | 0% | | | | | | |
| MTW1860 | Procurement and delivery of Lamella & Supernatant Plant | 160.0d | 160.0d | 01-Jun-23 08:00 | 07-Nov-23 18:00 | | | 3.5d | 0% | | | | | | |
| MTW1865 | Procurement and delivery of Lifting Appliance | 210.0d | 210.0d | 30-Jun-23 08:00 | 25-Jan-24 18:00 | | | 102.5d | 0% | | | | | | |
| MTW1870 | Procurement and delivery of Transformers | 270.0d | 270.0d | 01-Jun-23 08:00 | 25-Feb-24 18:00 | | | -20.5d | 0% | | | | | | |
| MTW1880 | Procurement and delivery of LV Switchboards | 180.0d | 180.0d | 01-Jun-23 08:00 | 27-Nov-23 18:00 | | | -20.5d | 0% | | | | | | |
| MTW1890 | Procurement and delivery of MCCs | 180.0d | 180.0d | 01-Jun-23 08:00 | 27-Nov-23 18:00 | | | -20.5d | 0% | | | | | | |
| MTW1900 | Procurement and delivery of Other electrical equipment | 180.0d | 180.0d | 01-Jun-23 08:00 | 27-Nov-23 18:00 | | | -20.5d | 0% | | | | | | |
| MTW1910 | Procurement and delivery of BS equipment (MVAC, FS, P&D, BS Electrical, CCTV, PA, PV Panels, genset) | 180.0d | 180.0d | 01-Jun-23 08:00 | 27-Nov-23 18:00 | | | -14.5d | 0% | | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| Date | Revision | Checked | Approved |
|----------------|----------|---------|----------|
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 3 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date:31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | |
|---|--|----------|--------------------|----------------------|--------------------|--------------------|---------------|-------------|---------------------|--------|--------|--------|--------|--------|--------|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 |
| MTW1920 | Procurement and delivery of Fresh Water pump | 110.0d | 110.0d | 01-Jun-23 08:00 | 18-Sep-23 18:00 | | | -26.5d | 0% | | | | | | |
| MTW1930 | Procurement and delivery of Lime system,Polymer System,Chlorine System | 210.0d | 210.0d | 01-Jun-23 08:00 | 27-Dec-23 18:00 | | | -22.5d | 0% | | | | | | |
| MTW1940 | Procurement and delivery of Sludge dewatering plant | 160.0d | 160.0d | 19-Jun-23 08:00 | 25-Nov-23 18:00 | | | -14.5d | 0% | | | | | | |
| MTW1950 | Procurement and delivery of Control Panels,HV switchboard | 180.0d | 180.0d | 01-Jun-23 08:00 | 27-Nov-23 18:00 | | | -20.5d | 0% | | | | | | |
| MTW1960 | Procurement and delivery of DCS | 100.0d | 100.0d | 01-Jun-23 08:00 | 08-Sep-23 18:00 | | | 45.5d | 0% | | | | | | |
| MTW1970 | Procurement and delivery of NOSS | 180.0d | 180.0d | 30-Aug-23 08:00 | 25-Feb-24 18:00 | | | 67.5d | 0% | | | | | | |
| Method Statement Submission and Approval for Major Constructio | | 336.0d | 123.0d | 24-Oct-22 08:00 A | 01-Oct-23 18:00 | 24-Oct-22 08:00 | | 192.5d | 63.39% | | | | | | Method |
| MSS2030 | Method statement submission for structural works for Water Treatment Building | 38.0d | 38.0d | 01-Jun-23 08:00 | 08-Jul-23 18:00 | | | -63.5d | 0% | | | | | | |
| MSS2035 | Method statement comments and approval for structural works for Water Treatment Building | 21.0d | 21.0d | 21-Jun-23 08:00 | 11-Jul-23 18:00 | | | -63.5d | 0% | | | | | | |
| MSS2040 | Method statement submission for structural works for Siu Ho Wan Raw Water Booster Pumping Station(SHWRWBPS) | 28.0d | 4.0d | 10-Nov-22 08:00 A | 04-Jun-23 18:00 | 10-Nov-22 08:00 | | -73.0d | 85.71% | | | | | | |
| MSS2045 | Method statement comments and approval for structural works for Siu Ho Wan Raw Water Booster Pumping Station(SHWRWBPS) | 21.0d | 15.0d | 17-Feb-23 08:00 A | 15-Jun-23 18:00 | 17-Feb-23 08:00 | | -77.0d | 28.57% | | | | | | |
| MSS2060 | Method statement submission for structural works for Office and Laboratory Building | 28.0d | 28.0d | 01-Jun-23 08:00 | 28-Jun-23 18:00 | | | -87.5d | 0% | | | | | | |
| MSS2065 | Method statement comments and approval for structural works for Office and Laboratory Building | 14.0d | 14.0d | 19-Jun-23 08:00 | 02-Jul-23 18:00 | | | -87.5d | 0% | | | | | | |
| MSS2100 | Method statement submission for designing and implementing energy efficiency and optimization for BS | 35.0d | 35.0d | 01-Jun-23 08:00 | 05-Jul-23 18:00 | | | 125.5d | 0% | | | | | | |
| MSS2105 | Method statement comments and approval for designing and implementing energy efficiency and optimization for BS | 28.0d | 28.0d | 06-Jul-23 08:00 | 02-Aug-23 18:00 | | | 125.5d | 0% | | | | | | |
| MSS2110 | Method statement submission for modification of Chlorination Building | 35.0d | 35.0d | 01-Jun-23 08:00 | 05-Jul-23 18:00 | | | 113.5d | 0% | | | | | | |
| MSS2115 | Method statement comments and approval for modification of Chlorination Building | 28.0d | 28.0d | 06-Jul-23 08:00 | 02-Aug-23 18:00 | | | 113.5d | 0% | | | | | | |
| MSS2120 | Method statement submission for designing and implementing the proposed Near-Real-Time operation simulation | 60.0d | 60.0d | 01-Jun-23 08:00 | 30-Jul-23 18:00 | | | 74.5d | 0% | | | | | | |
| MSS2125 | Method statement comments and approval for designing and implementing the proposed Near-Real-Time operation simulation | 28.0d | 28.0d | 31-Jul-23 08:00 | 27-Aug-23 18:00 | | | 74.5d | 0% | | | | | | |
| MSS2130 | Method statement submission for pipe modification works | 45.0d | 45.0d | 01-Jun-23 08:00 | 15-Jul-23 18:00 | | | 36.5d | 0% | | | | | | |
| MSS2135 | Method statement comments and approval for pipe modification works | 28.0d | 28.0d | 16-Jul-23 08:00 | 12-Aug-23 18:00 | | | 36.5d | 0% | | | | | | |
| MSS2210 | Method statement submission for E&M works for water treatment building | 45.0d | 45.0d | 13-Aug-23 08:00 | 26-Sep-23 18:00 | | | 154.5d | 0% | | | | | | |
| MSS2220 | Method statement submission for E&M works for SHWRWBPS | 45.0d | 45.0d | 01-Jun-23 08:00 | 15-Jul-23 18:00 | | | 10.5d | 0% | | | | | | |
| MSS2225 | Method statement comments and approval for E&M works for SHWRWBPS | 28.0d | 28.0d | 16-Jul-23 08:00 | 12-Aug-23 18:00 | | | 10.5d | 0% | | | | | | |
| MSS2230 | Method statement submission for E&M works for Office and Laboratory Building | 45.0d | 45.0d | 13-Aug-23 08:00 | 26-Sep-23 18:00 | | | 36.5d | 0% | | | | | | |
| MSS2240 | Method statement submission for ABWF for water treatment building | 45.0d | 45.0d | 01-Jun-23 08:00 | 15-Jul-23 18:00 | | | -29.5d | 0% | | | | | | |
| MSS2245 | Method statement comments and approval for ABWF for water treatment building | 28.0d | 28.0d | 16-Jul-23 08:00 | 12-Aug-23 18:00 | | | -29.5d | 0% | | | | | | |
| MSS2250 | Method statement submission for ABWF for SHWRWBPS | 45.0d | 45.0d | 01-Jun-23 08:00 | 15-Jul-23 18:00 | | | -29.5d | 0% | | | | | | |
| MSS2255 | Method statement comments and approval for ABWF for SHWRWBPS | 28.0d | 28.0d | 16-Jul-23 08:00 | 12-Aug-23 18:00 | | | -29.5d | 0% | | | | | | |
| MSS2260 | Method statement submission for ABWF for Office and Laboratory Building | 45.0d | 45.0d | 01-Jul-23 08:00 | 14-Aug-23 18:00 | | | 67.5d | 0% | | | | | | |
| MSS2265 | Method statement comments and approval for ABWF for Office and Laboratory Building | 28.0d | 28.0d | 15-Aug-23 08:00 | 11-Sep-23 18:00 | | | 67.5d | 0% | | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| Date | Revision | Checked | Approved |
|----------------|----------|---------|----------|
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 4 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date: 31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | |
|--|---|----------|--------------------|----------------------|--------------------|--------------------|---------------|-------------|---------------------|--|--------|--------|--------|--------|--------|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 |
| MSS2270 | Method statement submission for modification of Washwater System | 28.0d | 10.0d | 24-Oct-22 08:00 A | 10-Jun-23 18:00 | 24-Oct-22 08:00 | | -63.5d | 64.29% | [Gantt bar: blue from Oct 24 to Jun 10, red from Jun 10 to Jun 16] | | | | | |
| MSS2275 | Method statement comments and approval for modification of Washwater System | 28.0d | 20.0d | 20-May-23 08:00 A | 20-Jun-23 18:00 | 20-May-23 08:00 | | -81.5d | 28.57% | [Gantt bar: blue from May 20 to Jun 10, red from Jun 10 to Jun 16] | | | | | |
| MSS2280 | Method statement submission for construction of flowmeter chambers | 35.0d | 35.0d | 01-Jul-23 08:00 | 04-Aug-23 18:00 | | | 54.5d | 0% | [Gantt bar: green from Jul 1 to Aug 4] | | | | | |
| MSS2285 | Method statement comments and approval for construction of flowmeter chambers | 28.0d | 28.0d | 05-Aug-23 08:00 | 01-Sep-23 18:00 | | | 54.5d | 0% | [Gantt bar: green from Aug 5 to Sep 1] | | | | | |
| MSS2290 | Method statement submission for equipment installation for Dewatering Building | 35.0d | 35.0d | 01-Jul-23 08:00 | 04-Aug-23 18:00 | | | 117.5d | 0% | [Gantt bar: green from Jul 1 to Aug 4] | | | | | |
| MSS2295 | Method statement comments and approval for equipment installation for Dewatering Building | 28.0d | 28.0d | 05-Aug-23 08:00 | 01-Sep-23 18:00 | | | 117.5d | 0% | [Gantt bar: green from Aug 5 to Sep 1] | | | | | |
| MSS2300 | Method statement submission for testing and commissioning | 60.0d | 60.0d | 03-Aug-23 08:00 | 01-Oct-23 18:00 | | | 192.5d | 0% | [Gantt bar: green from Aug 3 to Oct 1] | | | | | |
| MSS2320 | Method statement submission for replacement of existing 11KV switch boards | 35.0d | 35.0d | 01-Jun-23 08:00 | 05-Jul-23 18:00 | | | 167.5d | 0% | [Gantt bar: green from Jun 1 to Jul 5] | | | | | |
| MSS2330 | Method statement comments and approval for replacement existing 11KV switch boards | 28.0d | 28.0d | 06-Jul-23 08:00 | 02-Aug-23 18:00 | | | 167.5d | 0% | [Gantt bar: green from Jul 6 to Aug 2] | | | | | |
| MSS2335 | Method statement submission for changeover of existing DCS installation | 35.0d | 35.0d | 01-Jun-23 08:00 | 05-Jul-23 18:00 | | | 137.5d | 0% | [Gantt bar: green from Jun 1 to Jul 5] | | | | | |
| MSS2345 | Method statement comments and approval for changeover of existing DCS installation | 28.0d | 28.0d | 06-Jul-23 08:00 | 02-Aug-23 18:00 | | | 137.5d | 0% | [Gantt bar: green from Jul 6 to Aug 2] | | | | | |
| MSS2365 | Method statement pipe laying for DN1200 raw water and DN1200 fresh water main | 28.0d | 28.0d | 01-Jun-23 08:00 | 28-Jun-23 18:00 | | | 103.5d | 0% | [Gantt bar: green from Jun 1 to Jun 28] | | | | | |
| MSS2375 | Method statement comments and approval for DN1200 raw water and DN1200 fresh water main | 28.0d | 28.0d | 29-Jun-23 08:00 | 26-Jul-23 18:00 | | | 103.5d | 0% | [Gantt bar: green from Jun 29 to Jul 26] | | | | | |
| MSS2385 | Method statement submission for E&M for existing building | 28.0d | 28.0d | 01-Jun-23 08:00 | 28-Jun-23 18:00 | | | 7.5d | 0% | [Gantt bar: green from Jun 1 to Jun 28] | | | | | |
| MSS2395 | Method statement comments and approval for E&M for existing building | 28.0d | 28.0d | 29-Jun-23 08:00 | 26-Jul-23 18:00 | | | 7.5d | 0% | [Gantt bar: green from Jun 29 to Jul 26] | | | | | |
| Precasting and Fabrication Works | | 210.0d | 60.0d | 28-Nov-22 08:00 A | 30-Jul-23 18:00 | 28-Nov-22 08:00 | | -4.5d | 71.43% | [Summary bar: blue from Nov 28 to Jul 30, red from Jul 30 to Jul 31] | | | | | |
| PRE2120 | Fabrication of DfMA units for structural elements | 210.0d | 60.0d | 28-Nov-22 08:00 A | 30-Jul-23 18:00 | 28-Nov-22 08:00 | | -4.5d | 71.43% | [Gantt bar: blue from Nov 28 to Jul 30, red from Jul 30 to Jul 31] | | | | | |
| PRE2200 | DfMA delivery for OLB | 5.0d | 5.0d | 16-Jun-23 08:00 | 20-Jun-23 18:00 | | | -4.5d | 0% | [Gantt bar: red from Jun 16 to Jun 20] | | | | | |
| Interfacing Issues | | 150.0d | 40.0d | 05-May-22 08:00 A | 10-Jul-23 18:00 | 05-May-22 08:00 | | 220.0d | 73.33% | [Summary bar: blue from May 5 to Jul 10, red from Jul 10 to Jul 11] | | | | | |
| PRE2170 | Establish interface meeting and conformation of interface schedule | 150.0d | 40.0d | 05-May-22 08:00 A | 10-Jul-23 18:00 | 05-May-22 08:00 | | 220.0d | 73.33% | [Gantt bar: blue from May 5 to Jul 10, red from Jul 10 to Jul 11] | | | | | |
| Section 1 of the Works | | 372.0d | 275.0d | 24-Feb-23 08:00 A | 01-Mar-24 18:00 | 24-Feb-23 08:00 | | 12.5d | 26.08% | [Summary bar: blue from Feb 24 to Mar 1, red from Mar 1 to Mar 2] | | | | | |
| Construction of Water Treatment Building | | 161.0d | 84.0d | 24-Feb-23 08:00 A | 08-Sep-23 18:00 | 24-Feb-23 08:00 | | -75.5d | 47.83% | [Summary bar: blue from Feb 24 to Sep 8, red from Sep 8 to Sep 9] | | | | | |
| Preparaton Works | | 40.0d | 5.0d | 24-Apr-23 08:00 A | 06-Jun-23 18:00 | 24-Apr-23 08:00 | | 0.5d | 87.5% | [Summary bar: blue from Apr 24 to Jun 6, red from Jun 6 to Jun 7] | | | | | |
| S110115 | Erection of tower crane including testing | 40.0d | 5.0d | 24-Apr-23 08:00 A | 06-Jun-23 18:00 | 24-Apr-23 08:00 | | 0.5d | 87.5% | [Gantt bar: blue from Apr 24 to Jun 6, red from Jun 6 to Jun 7] | | | | | |
| Excavation and Installation of Lateral Support | | 161.0d | 84.0d | 24-Feb-23 08:00 A | 08-Sep-23 18:00 | 24-Feb-23 08:00 | | -75.5d | 47.83% | [Summary bar: blue from Feb 24 to Sep 8, red from Sep 8 to Sep 9] | | | | | |
| ELS for SRGF 5,6,7,8(Grib3-9,A-G) | | 50.0d | 11.0d | 24-Feb-23 08:00 A | 13-Jun-23 18:00 | 24-Feb-23 08:00 | | -75.5d | 78% | [Summary bar: blue from Feb 24 to Jun 13, red from Jun 13 to Jun 14] | | | | | |
| S110220 | Open cut to formation level +18.2m(Grid 3-9,A-G) | 50.0d | 11.0d | 24-Feb-23 08:00 A | 13-Jun-23 18:00 | 24-Feb-23 08:00 | | -75.5d | 78% | [Gantt bar: blue from Feb 24 to Jun 13, red from Jun 13 to Jun 14] | | | | | |
| ELS for Washwater Holding Tank,Supernatant Holding Tank | | 53.0d | 53.0d | 13-May-23 08:00 A | 03-Aug-23 18:00 | 13-May-23 08:00 | | -71.5d | 0% | [Summary bar: blue from May 13 to Aug 3, red from Aug 3 to Aug 4] | | | | | |
| S110140 | Installation of 1st layer of waling and strut at +31.0m | 20.0d | 9.0d | 13-May-23 08:00 A | 10-Jun-23 18:00 | 13-May-23 08:00 | | -71.5d | 55% | [Gantt bar: blue from May 13 to Jun 10, red from Jun 10 to Jun 11] | | | | | |
| S110160 | Excavation to +25.5mPD | 18.0d | 18.0d | 10-Jun-23 08:00 | 03-Jul-23 18:00 | | | -71.5d | 0% | [Gantt bar: red from Jun 10 to Jul 3] | | | | | |
| S110180 | Installation of 2nd layer of waling and strut at +26.5m | 16.0d | 16.0d | 29-Jun-23 08:00 | 18-Jul-23 18:00 | | | -71.5d | 0% | [Gantt bar: red from Jun 29 to Jul 18] | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| Date | Revision | Checked | Approved |
|----------------|----------|---------|----------|
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 5 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date: 31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | |
|--|--|----------|--------------------|----------------------|----------------------|--------------------|--------------------|-------------|---------------------|--------|--------|--------|--------|--------|--------|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 |
| S110200 | Excavation to final formation level | 14.0d | 14.0d | 19-Jul-23 08:00 | 03-Aug-23 18:00 | | | -71.5d | 0% | | | | | | |
| ELS for whole WTB footprint | | 35.0d | 35.0d | 31-Jul-23 08:00 | 08-Sep-23 18:00 | | | -75.5d | 0% | | | | | | |
| S110202 | Installation of 1st layer of waling and strut at +31.0m | 12.0d | 12.0d | 31-Jul-23 08:00 | 12-Aug-23 18:00 | | | -75.5d | 0% | | | | | | |
| S110204 | Excavation to +25.5mPD | 10.0d | 10.0d | 14-Aug-23 08:00 | 24-Aug-23 18:00 | | | -75.5d | 0% | | | | | | |
| S110206 | Installation of 2nd layer of waling and strut at +26.5m | 15.0d | 15.0d | 23-Aug-23 08:00 | 08-Sep-23 18:00 | | | -75.5d | 0% | | | | | | |
| Construction of Substructure and Superstructure | | 68.0d | 68.0d | 14-Jun-23 08:00 | 02-Sep-23 18:00 | | | -71.5d | 0% | | | | | | |
| S110340 | Construction of Washwater Holding Tank, Supernatant Holding Tank | 22.0d | 22.0d | 04-Aug-23 08:00 | 29-Aug-23 18:00 | | | -71.5d | 0% | | | | | | |
| S110360 | Construction of SRGF Maintenance Hall and lamella settler room, SRGF Backwash Equalization Tanks for SRGF tanks No.5-8 | 35.0d | 35.0d | 14-Jun-23 08:00 | 26-Jul-23 18:00 | | | -75.5d | 0% | | | | | | |
| S110380 | Construction of DAF maintenance floor Slab at level +25.0mPD | 25.0d | 25.0d | 05-Aug-23 08:00 | 02-Sep-23 18:00 | | | -71.5d | 0% | | | | | | |
| Construction of Siu Ho Wan Raw Water Booster Pumping Station a | | 275.0d | 275.0d | 26-Apr-23 08:00 A | 01-Mar-24 18:00 | 26-Apr-23 08:00 | | 12.5d | 0% | | | | | | |
| Construction of Substructure and Superstructure | | 100.0d | 100.0d | 12-May-23 08:00 A | 27-Sep-23 18:00 | 12-May-23 08:00 | | -64.5d | 0% | | | | | | |
| S111030.1 | DfMA Erection of Bearing wall & Slab from +1.25 mPD up to +2.05mPD (Grid D-C) | 25.0d | 9.0d | 12-May-23 08:00 A | 10-Jun-23 18:00 | 12-May-23 08:00 | | -76.5d | 64% | | | | | | |
| S111030.2 | Construction of floor from +1.25 mPD up to +2.05mPD (Grid D-C) | 14.0d | 14.0d | 12-Jun-23 08:00 | 28-Jun-23 18:00 | | | -69.0d | 0% | | | | | | |
| S111035 | Construction of wall and column up to +15.05 mPD (Grid D-C) | 24.0d | 24.0d | 28-Jun-23 08:00 | 26-Jul-23 18:00 | | | -69.0d | 0% | | | | | | |
| S111036 | Construction of roof at +15.05 mPD (Grid D-C) | 21.0d | 21.0d | 25-Jul-23 08:00 | 17-Aug-23 18:00 | | | -69.0d | 0% | | | | | | |
| S111038 | Construction of plinth for pumbling (Grid D-C) | 35.0d | 35.0d | 18-Aug-23 08:00 | 27-Sep-23 18:00 | | | -64.5d | 0% | | | | | | |
| S111041 | Construction of base slab to +6.0mPD including earth mat (Grid C-A) | 7.0d | 0.0d | 17-May-23 08:00 A | 29-May-23 18:00 A | 17-May-23 08:00 | 29-May-23 18:00 | | 100% | | | | | | |
| S111045 | Construction of wall and column up to +7.2mPD (Grid C-A) | 10.0d | 10.0d | 01-Jun-23 08:00 | 12-Jun-23 18:00 | | | -77.5d | 0% | | | | | | |
| S111050 | DfMA erection and construction of floor to +7.2mPD (Grid C-A) | 14.0d | 14.0d | 13-Jun-23 08:00 | 29-Jun-23 18:00 | | | -77.5d | 0% | | | | | | |
| S111055 | Construction of beam and column up to +11.65 mPD (Grid B-A) | 14.0d | 14.0d | 30-Jun-23 08:00 | 17-Jul-23 18:00 | | | -77.5d | 0% | | | | | | |
| S111060 | DfMA erection and construction of floor to +11.65 mPD (Grid B-A) | 14.0d | 14.0d | 18-Jul-23 08:00 | 02-Aug-23 18:00 | | | -77.5d | 0% | | | | | | |
| S111100 | Construction of beam and column +13.05 mPD (Grid C-A) | 10.0d | 10.0d | 03-Aug-23 08:00 | 14-Aug-23 18:00 | | | -77.5d | 0% | | | | | | |
| S111105 | DfMA erection to +13.05 mPD (Grid C-A) | 10.0d | 10.0d | 15-Aug-23 08:00 | 25-Aug-23 18:00 | | | -77.5d | 0% | | | | | | |
| S111110 | Construction of roof up to +13.05 mPD (Grid C-A) | 14.0d | 14.0d | 26-Aug-23 08:00 | 11-Sep-23 18:00 | | | -77.5d | 0% | | | | | | |
| Raw Water Main Connections at Chenung Tung Road ((RWM-1) CHC 0 to 4 | | 275.0d | 275.0d | 26-Apr-23 08:00 A | 01-Mar-24 18:00 | 26-Apr-23 08:00 | | 12.5d | 0% | | | | | | |
| Raw Water Main Connections at Chenung Tung Road | | 275.0d | 275.0d | 26-Apr-23 08:00 A | 01-Mar-24 18:00 | 26-Apr-23 08:00 | | 12.5d | 0% | | | | | | |
| S401110 | TTA Application & Approval by TD | 182.0d | 160.0d | 26-Apr-23 08:00 A | 07-Nov-23 18:00 | 26-Apr-23 08:00 | | 27.5d | 12.09% | | | | | | |
| S401140 | Shut Down Plan Application & Approval by WSD | 275.0d | 275.0d | 01-Jun-23 08:00 | 01-Mar-24 18:00 | | | 12.5d | 0% | | | | | | |
| Construction of Office and Laboratory Building | | 89.0d | 81.0d | 22-May-23 08:00 A | 05-Sep-23 18:00 | 22-May-23 08:00 | | -84.5d | 8.99% | | | | | | |
| Excavation and Installation of Lateral Support | | 50.0d | 42.0d | 22-May-23 08:00 A | 21-Jul-23 18:00 | 22-May-23 08:00 | | -84.5d | 16% | | | | | | |
| S120051 | Mass concrete wall | 15.0d | 15.0d | 22-May-23 08:00 A | 17-Jun-23 18:00 | 22-May-23 08:00 | | -84.5d | 0% | | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| Date | Revision | Checked | Approved |
|----------------|----------|---------|----------|
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 6 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date:31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | |
|---|--|----------|--------------------|----------------------|--------------------|--------------------|---------------|-------------|---------------------|--------|--------|--------|--------|--------|--------------------------------|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 |
| S120060 | Excavation to the strut level | 10.0d | 10.0d | 15-Jun-23 08:00 | 27-Jun-23 18:00 | | | -84.5d | 0% | | | | | | |
| S120065 | Installation of waling and strut | 10.0d | 10.0d | 28-Jun-23 08:00 | 10-Jul-23 18:00 | | | -84.5d | 0% | | | | | | |
| S120070 | Further excavation down to the formation level | 10.0d | 10.0d | 11-Jul-23 08:00 | 21-Jul-23 18:00 | | | -84.5d | 0% | | | | | | |
| Construction of Substructure and Superstructure | | 39.0d | 39.0d | 22-Jul-23 08:00 | 05-Sep-23 18:00 | | | -84.5d | 0% | | | | | | Construction of Substructure a |
| S120100 | Construction of basement floor including earth mat and tower crane footprint | 19.0d | 19.0d | 22-Jul-23 08:00 | 12-Aug-23 18:00 | | | -84.5d | 0% | | | | | | |
| S120105 | Construction of shear wall(56m) | 20.0d | 20.0d | 14-Aug-23 08:00 | 05-Sep-23 18:00 | | | -84.5d | 0% | | | | | | |
| S120120 | Construction of wall and column up to ground floor | 24.0d | 24.0d | 09-Aug-23 08:00 | 05-Sep-23 18:00 | | | -84.5d | 0% | | | | | | |
| Section 2 of the Works | | 724.0d | 400.0d | 27-Jun-22 08:00 A | 04-Jul-24 18:00 | 27-Jun-22 08:00 | | 143.5d | 44.75% | | | | | | |
| Water Treatment Building | | 580.0d | 400.0d | 27-Jun-22 08:00 A | 04-Jul-24 18:00 | 27-Jun-22 08:00 | | 59.5d | 41.18% | | | | | | |
| Statutory Submission schedule | | 580.0d | 400.0d | 27-Jun-22 08:00 A | 04-Jul-24 18:00 | 27-Jun-22 08:00 | | 59.5d | 41.18% | | | | | | |
| S210060 | DG (Ozone) installation approval - dwg & layout by FSD for WTB | 580.0d | 400.0d | 27-Jun-22 08:00 A | 04-Jul-24 18:00 | 27-Jun-22 08:00 | | 59.5d | 41.18% | | | | | | |
| S210220 | Genset submission to EPD | 3.0d | 3.0d | 01-Jun-23 08:00 | 03-Jun-23 18:00 | | | 179.5d | 0% | | | | | | |
| Office and Laboratory Building | | 214.0d | 214.0d | 30-Aug-23 08:00 | 30-Mar-24 18:00 | | | 74.5d | 0% | | | | | | |
| Procurement of Laboratory Furniture and Equipment | | 214.0d | 214.0d | 30-Aug-23 08:00 | 30-Mar-24 18:00 | | | 74.5d | 0% | | | | | | |
| MTW1905 | Procurement of furniture and laboratory equipment | 214.0d | 214.0d | 30-Aug-23 08:00 | 30-Mar-24 18:00 | | | 74.5d | 0% | | | | | | |
| Dewatering Building | | 120.0d | 120.0d | 01-Jun-23 08:00 | 24-Oct-23 18:00 | | | 53.5d | 0% | | | | | | |
| S223600 | Modification of structural works | 120.0d | 120.0d | 01-Jun-23 08:00 | 24-Oct-23 18:00 | | | 53.5d | 0% | | | | | | |
| Washwater System | | 120.0d | 120.0d | 01-Jun-23 08:00 | 24-Oct-23 18:00 | | | -63.5d | 0% | | | | | | |
| S223620 | Modification of washwater equalization tanks No.1 and No.2 | 120.0d | 120.0d | 01-Jun-23 08:00 | 24-Oct-23 18:00 | | | -63.5d | 0% | | | | | | |
| Chemical Building | | 98.0d | 90.0d | 22-Apr-23 08:00 A | 15-Sep-23 18:00 | 22-Apr-23 08:00 | | 37.5d | 8.16% | | | | | | Chemical Building |
| Equipment Procurement, Manufacture, FAT and Delivery | | 90.0d | 90.0d | 01-Jun-23 08:00 | 15-Sep-23 18:00 | | | -37.5d | 0% | | | | | | Equipment Procurement |
| S223710 | Equipment manufacture,FAT and delivery | 90.0d | 90.0d | 01-Jun-23 08:00 | 15-Sep-23 18:00 | | | -37.5d | 0% | | | | | | |
| Modification of Structural Works | | 90.0d | 85.0d | 22-Apr-23 08:00 A | 09-Sep-23 18:00 | 22-Apr-23 08:00 | | 42.5d | 5.56% | | | | | | Modification of Structural |
| S223700 | Modification of structural works | 90.0d | 85.0d | 22-Apr-23 08:00 A | 09-Sep-23 18:00 | 22-Apr-23 08:00 | | 42.5d | 5.56% | | | | | | |
| Chlorination Building | | 224.0d | 224.0d | 03-Aug-23 08:00 | 06-May-24 18:00 | | | 148.5d | 0% | | | | | | |
| S224000 | Installation of chlorinators,hypochlorite dosing system& modification of existing chlorine water distribution pipework | 210.0d | 210.0d | 03-Aug-23 08:00 | 18-Apr-24 18:00 | | | 94.5d | 0% | | | | | | |
| S224010 | Modification of electrical works | 210.0d | 210.0d | 19-Aug-23 08:00 | 06-May-24 18:00 | | | 148.5d | 0% | | | | | | |
| S224015 | Modification of building services works | 210.0d | 210.0d | 14-Aug-23 08:00 | 29-Apr-24 18:00 | | | -1.5d | 0% | | | | | | |
| Control System | | 260.0d | 260.0d | 03-Aug-23 08:00 | 19-Jun-24 18:00 | | | 131.5d | 0% | | | | | | |
| S224030 | Installation of new DCS, BEMS, Local Control Panels, PLCs, ALCPs, MMIs and TMAS | 260.0d | 260.0d | 03-Aug-23 08:00 | 19-Jun-24 18:00 | | | 114.5d | 0% | | | | | | |
| S224040 | Modification of stream I DCS system and integration with stream IIA DCS system | 260.0d | 260.0d | 03-Aug-23 08:00 | 19-Jun-24 18:00 | | | 131.5d | 0% | | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone

Summary

| Date | Revision | Checked | Approved |
|----------------|----------|---------|----------|
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

(sheet 7 of 8)

Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date:31-May-23

| Activity ID | Activity Name | Duration | Remaining Duration | Start | Finish | Actual Start | Actual Finish | Total Float | Duration % Complete | 2023 | | | | | | |
|---|--|----------|--------------------|-------------------|-----------------|-----------------|---------------|-------------|---------------------|--------|--------|--------|--------|--------|--------|--|
| | | | | | | | | | | May 15 | Jun 16 | Jul 17 | Aug 18 | Sep 19 | Oct 20 | |
| Siu Ho Wan Pumping Station | | | | | | | | | | | | | | | | |
| S224050 | Modification of backwash pump to stream IIA SRGF | 180.0d | 180.0d | 01-Jun-23 08:00 | 05-Jan-24 18:00 | | | 113.5d | 0% | | | | | | | |
| S224070 | Replacement of the existing HV switchboard | 97.0d | 97.0d | 05-Aug-23 08:00 | 29-Nov-23 18:00 | | | 292.5d | 0% | | | | | | | |
| Section 3 of the Works | | | | | | | | | | | | | | | | |
| Siu Ho Wan Raw Water Booster Pumping Station | | | | | | | | | | | | | | | | |
| Equipment Procurement, Manufacture, FAT and Delivery | | | | | | | | | | | | | | | | |
| S312000 | Procurement of process and E&M equipment | 60.0d | 30.0d | 03-Apr-23 08:00 A | 30-Jun-23 18:00 | 03-Apr-23 08:00 | | 23.5d | 50% | | | | | | | |
| S312020 | Manufacture,FAT and delivery of process and E&M equipment | 270.0d | 270.0d | 01-Jul-23 08:00 | 26-Mar-24 18:00 | | | 23.5d | 0% | | | | | | | |
| Remaining Works | | | | | | | | | | | | | | | | |
| Laying of Raw Water Main (RWM-2) CHD 100 to 150 | | | | | | | | | | | | | | | | |
| S313080 | Laying of Raw water main(RWM-2) CHD 100 to 150 | 74.0d | 74.0d | 15-Aug-23 08:00 | 11-Nov-23 18:00 | | | -69.0d | 0% | | | | | | | |
| S313081 | Laying washout pipe | 20.0d | 20.0d | 26-Aug-23 08:00 | 18-Sep-23 18:00 | | | -55.0d | 0% | | | | | | | |
| Section 3A of the Works - Entrustment Works | | | | | | | | | | | | | | | | |
| Slope Works | | | | | | | | | | | | | | | | |
| S3A1005 | Replacement of existing fill by no-fine concrete for slope 10NW-C/C43 | 50.0d | 50.0d | 01-Jun-23 08:00 | 31-Jul-23 18:00 | | | -78.0d | 0% | | | | | | | |
| S3A1070 | Installation of dowel bar for slope 10NE-10NW-C/C43 | 32.0d | 32.0d | 29-Jul-23 08:00 | 04-Sep-23 18:00 | | | -78.0d | 0% | | | | | | | |
| Remaining Works | | | | | | | | | | | | | | | | |
| S3A2020 | Laying of DN1200 fresh water main (CHFC0 to 50) including construction of the valve chambers | 68.0d | 50.0d | 25-Apr-23 08:00 A | 31-Jul-23 18:00 | 25-Apr-23 08:00 | | -80.5d | 26.47% | | | | | | | |
| S3A2025 | Laying of DN1200 fresh water main (CHFC50 to 100) including construction of the valve chambers | 68.0d | 68.0d | 14-Jul-23 08:00 | 03-Oct-23 18:00 | | | -80.5d | 0% | | | | | | | |



- █ Actual Work
- █ Non-Critical Activity
- █ Critical Activity
- ◆ Milestone
- ▼ Summary

| Date | Revision | Checked | Approved |
|----------------|----------|---------|----------|
| 31-May-23 1... | 1 | CLX | RM |

3 Month Rolling Programme - June 2023 to August 2023

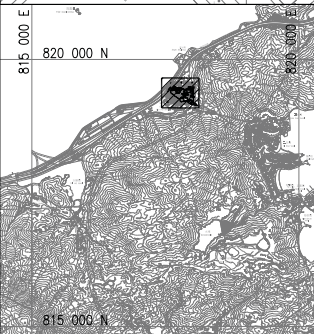
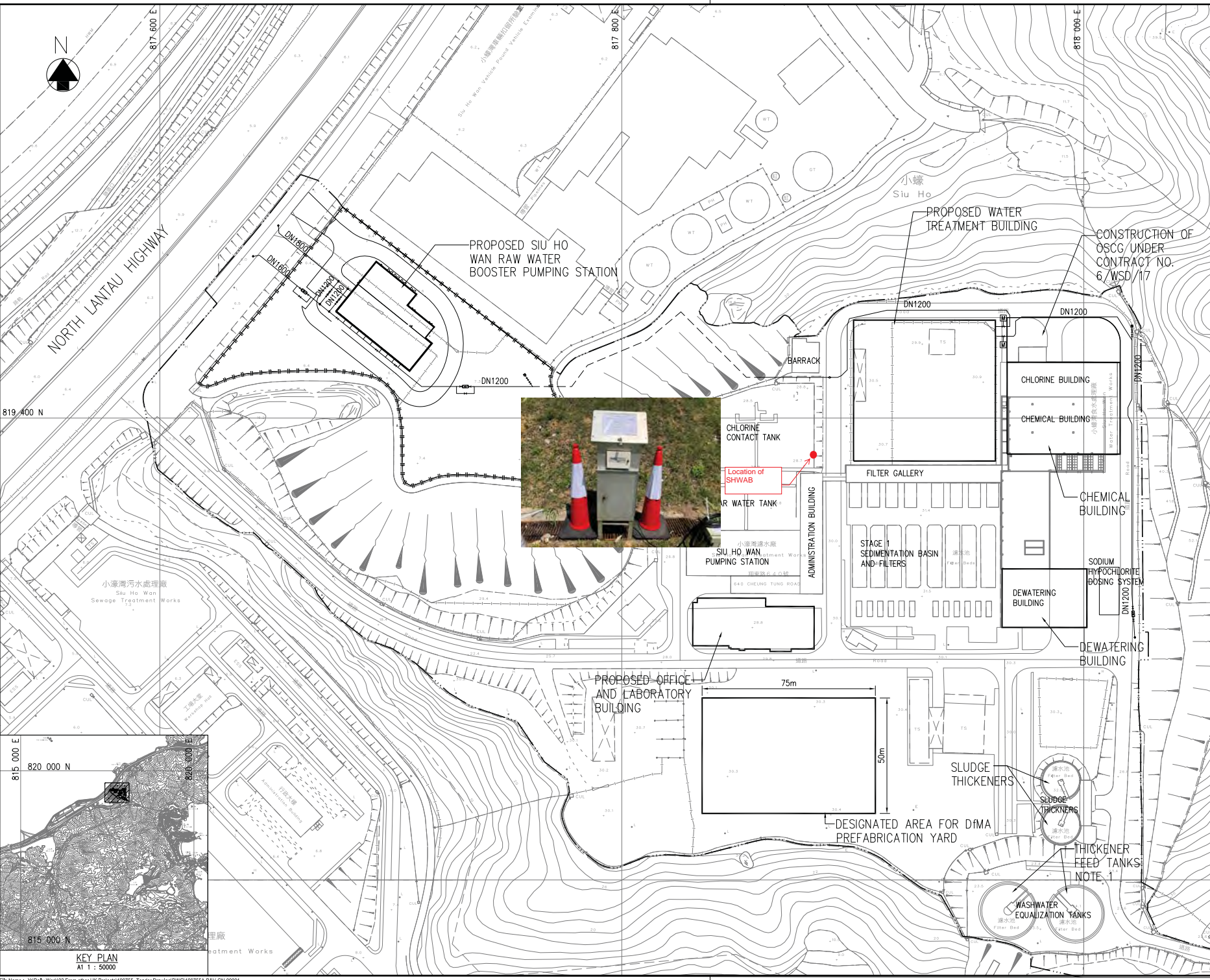
(sheet 8 of 8)

Appendix D

Monitoring Locations

- LEGEND:**
- SITE BOUNDARY
 - - - - PROPOSED RAW WATER MAINS (BURIED)
 - - - - PROPOSED RAW WATER MAINS (EXPOSED)
 - |-|-| PROPOSED FENCING
 - PROPOSED BUILDING WORKS

NOTE:
THE EXISTING WASHWATER EQUALIZATION TANKS TO BE RENAMED AS "THICKENER FEED TANKS"



| Revision | Date | Description | Drawn | Checked | Initial |
|----------|-------|--------------------------|--------|---------|---------|
| 0 | 05/21 | ISSUE FOR TENDER DRAWING | JC | | |
| Initial | | Designed | YFC/AS | Drawn | Checked |
| Initial | 05/21 | 05/21 | SZ | 05/21 | JC |
| Initial | 05/21 | 05/21 | SZ | 05/21 | JC |

Approved
James Chan

Contract No. 7/WSD/21

Contract Title
CONSTRUCTION OF SIU HO WAN WATER TREATMENT WORKS EXTENSION AND SIU HO WAN RAW WATER BOOSTER PUMPING STATION

Drawing Title
SITE LOCATION

Drawing No. 199755A/B&V/GN/00001
Revision 0

Scale A1 1: 750
A3 1: 1500



Appendix E

Calibration Certificates

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

| | |
|--|---------------------------------|
| Location : Siu Ho Wan WTW Administration | Date of Calibration: 2-Jun-23 |
| Location ID : SHWAB | Next Calibration Date: 1-Aug-23 |
| Name and Model: TISCH HVS Model TE-5170 | Technician: Eric |

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|-------|
| Sea Level Pressure (hPa) | 1004.8 | Corrected Pressure (mm Hg) | 753.6 |
| Temperature (°C) | 30.7 | Temperature (K) | 304 |

CALIBRATION ORIFICE

| | |
|------------------|-------------------|
| Make-> TISCH | Qstd Slope -> |
| Model-> 5025A | 2.10977 |
| Serial # -> 4064 | Qstd Intercept -> |
| | -0.03782 |

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|--|
| 18 | 6.00 | 6.00 | 12.0 | 1.638 | 56 | 54.72 | Slope = 28.7174 Intercept = 8.2660 Corr. coeff. = 0.9958 |
| 13 | 4.70 | 4.70 | 9.4 | 1.451 | 51 | 49.83 | |
| 10 | 3.50 | 3.50 | 7.0 | 1.255 | 46 | 44.95 | |
| 7 | 2.20 | 2.20 | 4.4 | 0.999 | 39 | 38.11 | |
| 5 | 1.30 | 1.30 | 2.6 | 0.772 | 30 | 29.31 | |

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))]-b$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

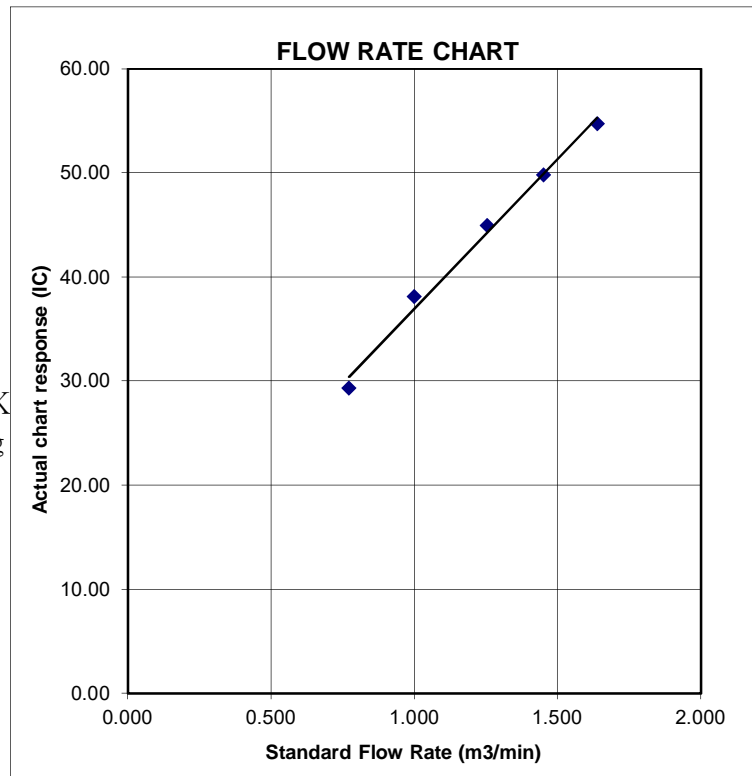
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



Certificate of Calibration

| Calibration Certification Information | | | |
|---------------------------------------|-----------------------------|-----------|-------|
| Cal. Date: December 15, 2022 | Rootsmeter S/N: 438320 | Ta: 295 | °K |
| Operator: Jim Tisch | | Pa: 748.0 | mm Hg |
| Calibration Model #: TE-5025A | Calibrator S/N: 4064 | | |

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.4430 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0210 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9170 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8730 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7210 | 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) | $\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis) | |
| 0.9900 | 0.6861 | 1.4101 | 0.9957 | 0.6900 | 0.8881 | |
| 0.9858 | 0.9655 | 1.9943 | 0.9914 | 0.9711 | 1.2560 | |
| 0.9838 | 1.0728 | 2.2296 | 0.9894 | 1.0790 | 1.4042 | |
| 0.9826 | 1.1255 | 2.3385 | 0.9882 | 1.1320 | 1.4728 | |
| 0.9772 | 1.3554 | 2.8203 | 0.9829 | 1.3632 | 1.7762 | |
| QSTD | m= | 2.10977 | QA | m= | 1.32110 | |
| | b= | -0.03782 | | b= | -0.02382 | |
| | r= | 0.99998 | | r= | 0.99998 | |

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

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

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

Appendix F

Event and Action Plan

Event Action Plan for Air Quality

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

| | | | | |
|--|--|---|--|---|
| | <ol style="list-style-type: none"> 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of <i>Contractor's</i> remedial actions and keep IEC, EPD and <i>PMD</i> informed of the results. | <ol style="list-style-type: none"> 4. Advise the <i>PMD</i> and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. | | <ol style="list-style-type: none"> 3. Submit proposals for remedial actions to <i>PMD</i> with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate. |
| Limit Level exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Notify IEC, <i>PMD</i>, <i>Contractor</i> and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of <i>Contractor's</i> working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, <i>Contractor</i> and <i>PMD</i> to discuss the remedial actions to be taken; 7. Assess effectiveness of <i>Contractor's</i> remedial actions and keep IEC, EPD and <i>PMD</i> informed of the results; 8. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check <i>Contractor's</i> working method; 3. Discuss amongst <i>PMD</i>, ET, and <i>Contractor</i> on the potential remedial actions; 4. Review <i>Contractor's</i> remedial actions whenever necessary to assure their effectiveness and advise the <i>PMD</i> accordingly; and 5. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify <i>Contractor</i>; 3. In consultation with the ET and IEC, agree with the <i>Contractor</i> on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the <i>Contractor</i> to stop that portion of work until the exceedance is abated. | <ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to <i>PMD</i> with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the <i>PMD</i> until the exceedance is abated. |

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

PMD – *Project Manager's* Delegate

Appendix G

Monitoring Schedule

Impact Air Quality Monitoring Schedule for the Reporting Period

| Date | | Air Quality Monitoring (24-Hour TSP) |
|------|-----------|---|
| Sat | 1-Jul-23 | |
| Sun | 2-Jul-23 | |
| Mon | 3-Jul-23 | ✓ |
| Tue | 4-Jul-23 | |
| Wed | 5-Jul-23 | |
| Thu | 6-Jul-23 | |
| Fri | 7-Jul-23 | |
| Sat | 8-Jul-23 | ✓ |
| Sun | 9-Jul-23 | |
| Mon | 10-Jul-23 | |
| Tue | 11-Jul-23 | |
| Wed | 12-Jul-23 | |
| Thu | 13-Jul-23 | |
| Fri | 14-Jul-23 | ✓ |
| Sat | 15-Jul-23 | |
| Sun | 16-Jul-23 | |
| Mon | 17-Jul-23 | |
| Tue | 18-Jul-23 | |
| Wed | 19-Jul-23 | |
| Thu | 20-Jul-23 | ✓ |
| Fri | 21-Jul-23 | |
| Sat | 22-Jul-23 | |
| Sun | 23-Jul-23 | |
| Mon | 24-Jul-23 | |
| Tue | 25-Jul-23 | |
| Wed | 26-Jul-23 | ✓ |
| Thu | 27-Jul-23 | |
| Fri | 28-Jul-23 | |
| Sat | 29-Jul-23 | |
| Sun | 30-Jul-23 | |
| Mon | 31-Jul-23 | |

| | |
|---|--------------------------|
| ✓ | Monitoring Day |
| | Sunday or Public Holiday |

Impact Air Quality Monitoring Schedule for next Reporting Period

| Date | | Air Quality Monitoring (24-Hour TSP) |
|------|-----------|---|
| Tue | 1-Aug-23 | ✓ |
| Wed | 2-Aug-23 | |
| Thu | 3-Aug-23 | |
| Fri | 4-Aug-23 | |
| Sat | 5-Aug-23 | |
| Sun | 6-Aug-23 | |
| Mon | 7-Aug-23 | ✓ |
| Tue | 8-Aug-23 | |
| Wed | 9-Aug-23 | |
| Thu | 10-Aug-23 | |
| Fri | 11-Aug-23 | |
| Sat | 12-Aug-23 | ✓ |
| Sun | 13-Aug-23 | |
| Mon | 14-Aug-23 | |
| Tue | 15-Aug-23 | |
| Wed | 16-Aug-23 | |
| Thu | 17-Aug-23 | |
| Fri | 18-Aug-23 | ✓ |
| Sat | 19-Aug-23 | |
| Sun | 20-Aug-23 | |
| Mon | 21-Aug-23 | |
| Tue | 22-Aug-23 | |
| Wed | 23-Aug-23 | |
| Thu | 24-Aug-23 | ✓ |
| Fri | 25-Aug-23 | |
| Sat | 26-Aug-23 | |
| Sun | 27-Aug-23 | |
| Mon | 28-Aug-23 | |
| Tue | 29-Aug-23 | |
| Wed | 30-Aug-23 | ✓ |
| Thu | 31-Aug-23 | |

| | |
|---|--------------------------|
| ✓ | Monitoring Day |
| | Sunday or Public Holiday |

Appendix H

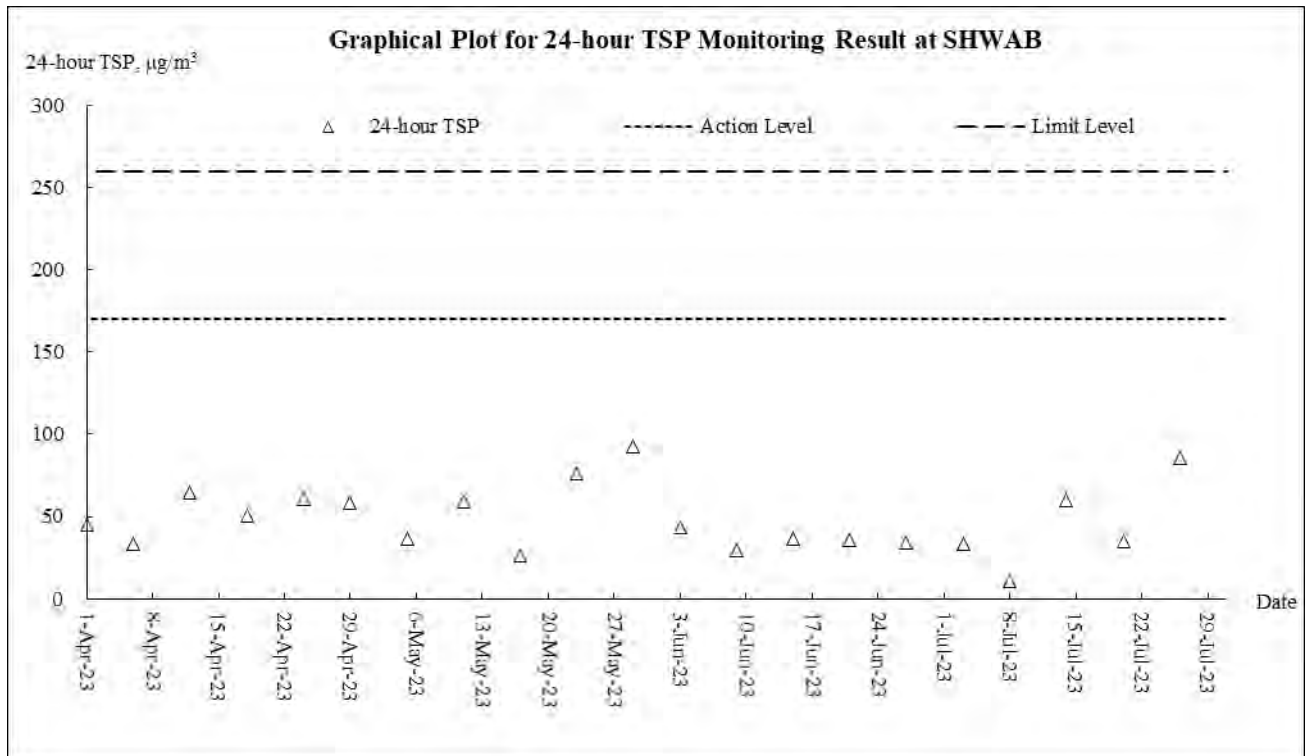
Database of Monitoring Result

| Impact Monitoring Results for 24-hour TSP at SHWAB | | | | | | | | | | | | | | | |
|--|-----------------|--------------|----------|--------------|---------------|-----|------|---------------|-----------------|---------------------------------|----------------------------------|-------------------|--------|---------------------------|--|
| DATE | SAMPL E NUMB ER | ELAPSED TIME | | ACTUAL (min) | CHART READING | | | AVG TEMP (°C) | STANDARD | | | FILTER WEIGHT (g) | | WEIGHT DUST COLLECTED (g) | DUST 24-hour TSP IN AIR (ug/m ³) |
| | | INITIAL | FINAL | | MIN | MAX | AVG | | AVG PRESS (hPa) | FLOW RATE (m ³ /min) | AIR VOLUME (std m ³) | INITIAL | FINAL | | |
| 3-Jul-23 | 29414 | 19788.10 | 19812.10 | 1440.00 | 32 | 32 | 32.0 | 28.9 | 1008.8 | 0.82 | 1176 | 2.7130 | 2.7518 | 0.0388 | 33 |
| 8-Jul-23 | 29500 | 19812.10 | 19836.10 | 1440.00 | 32 | 32 | 32.0 | 30.4 | 1010.4 | 0.81 | 1173 | 2.7233 | 2.7360 | 0.0127 | 11 |
| 14-Jul-23 | 29551 | 19836.10 | 19860.10 | 1440.00 | 38 | 38 | 38.0 | 31.3 | 1004.4 | 1.02 | 1463 | 2.7788 | 2.8662 | 0.0874 | 60 |
| 20-Jul-23 | 29566 | 19860.10 | 19884.10 | 1440.00 | 38 | 38 | 38.0 | 29.6 | 1008.5 | 1.02 | 1472 | 2.7670 | 2.8188 | 0.0518 | 35 |
| 26-Jul-23 | 29594 | 19884.10 | 19908.10 | 1440.00 | 40 | 40 | 40.0 | 32.0 | 1002.3 | 1.08 | 1557 | 2.7738 | 2.9071 | 0.1333 | 86 |

Appendix I

Graphical Plots for Monitoring Result

24-Hour TSP



Appendix J

Meteorological Data

| Date | | Weather | Total Rainfall (mm) | Chek Lap Kok | | | | |
|-----------|-----|---|---------------------|---------------------|-------------------|----------------------------|----------------|-------------------|
| | | | | Mean Air Temp. (°C) | Wind Speed (km/h) | Mean Relative Humidity (%) | Wind Direction | Mean Press. (hPa) |
| 1-Jul-23 | Sat | Hot with sunny intervals and occasional showers. | 4.7 | 28.4 | 11.5 | 83.2 | E/NE | 1006.6 |
| 2-Jul-23 | Sun | Isolated squally thunderstorms later. | 15.6 | 27.8 | 12.2 | 86.2 | W/SW | 1007.9 |
| 3-Jul-23 | Mon | Moderate southerly winds. | 3.6 | 29.9 | 11.7 | 74.5 | S/SW | 1008.8 |
| 4-Jul-23 | Tue | Very hot with isolated showers in the afternoon | 10.6 | 28.9 | 12.4 | 79.5 | W/SW | 1008.7 |
| 5-Jul-23 | Wed | Mainly fine. Moderate southwesterly winds. | Trace | 31.0 | 18.7 | 70.7 | SW | 1008.4 |
| 6-Jul-23 | Thu | Fine and very hot. | Trace | 29.9 | 23 | 71.7 | SW | 1008.9 |
| 7-Jul-23 | Fri | Moderate southwesterly winds. | 0.3 | 31.0 | 19 | 68 | S/SW | 1009.7 |
| 8-Jul-23 | Sat | Mainly fine. Isolated showers tomorrow. | 0 | 31.2 | 15 | 67.5 | SW | 1010.4 |
| 9-Jul-23 | Sun | Moderate southwesterly winds. | Trace | 31.6 | 17.5 | 63.7 | S/SW | 1009.8 |
| 10-Jul-23 | Mon | Fine and very hot apart from isolated showers. | 0 | 31.3 | 16.2 | 66.0 | SW | 1008.5 |
| 11-Jul-23 | Tue | Extremely hot apart from isolated showers in the afternoon. | 0 | 31.5 | 17.2 | 66.2 | SW | 1008.4 |
| 12-Jul-23 | Wed | Light to moderate southerly winds. Mainly fine | 0 | 31.9 | 11.2 | 61.0 | W/SW | 1008.2 |
| 13-Jul-23 | Thu | Fine and very hot apart from isolated showers. | 0 | 31.4 | 10.7 | 61.7 | W | 1006.8 |
| 14-Jul-23 | Fri | Moderate southwesterly winds. | 0 | 32.0 | 9.7 | 63.0 | W | 1004.4 |
| 15-Jul-23 | Sat | Light to moderate southerly winds. Mainly fine | 2.5 | 30.4 | 20.0 | 69.7 | E | 1000.8 |
| 16-Jul-23 | Sun | Fine and very hot apart from isolated showers. | 4.9 | 28.9 | 29 | 72.5 | E/SE | 997.7 |
| 17-Jul-23 | Mon | Showers will be heavier over some areas at first. | 29 | 28.3 | 40.5 | 80.0 | E/SE | 997.5 |
| 18-Jul-23 | Tue | Cloudy with occasional showers and squally thunderstorms. | 10.9 | 29.9 | 27 | 77.0 | E/SE | 1004.5 |
| 19-Jul-23 | Wed | Fine and very hot apart from isolated showers. | 3.9 | 29.3 | 14.2 | 79.2 | E/SE | 1007.5 |
| 20-Jul-23 | Thu | Moderate southwesterly winds. | 4.8 | 30.0 | 11.2 | 73.5 | E/SE | 1008.5 |
| 21-Jul-23 | Fri | Showers will be heavier over some areas at first. | Trace | 30.7 | 12.5 | 67.5 | W/SW | 1009.7 |
| 22-Jul-23 | Sat | Fine and very hot apart from isolated showers. | 0 | 31.1 | 14 | 65.5 | SE | 1010.8 |
| 23-Jul-23 | Sun | Fine and very hot apart from isolated showers. | Trace | 31.1 | 14 | 68.7 | S/SE | 1009.5 |
| 24-Jul-23 | Mon | Mainly fine and very hot. Light winds. | 0 | 30.9 | 12.2 | 70.2 | SW | 1007.7 |
| 25-Jul-23 | Tue | Isolated squally thunderstorms later. | 0 | 31.0 | 11.2 | 67.0 | W/SW | 1006.3 |
| 26-Jul-23 | Wed | Moderate southerly winds. | 6 | 33.3 | 11.5 | 59.5 | W/NW | 1002.3 |
| 27-Jul-23 | Thu | Very hot with isolated showers in the afternoon | 6.9 | 32.3 | 13.5 | 60.0 | NW | 997.7 |
| 28-Jul-23 | Fri | Mainly fine. Moderate southwesterly winds. | 0 | 32.6 | 11.5 | 62.0 | W/NW | 996.8 |
| 29-Jul-23 | Sat | Fine and very hot. | 21 | 28.7 | 13.2 | 69.5 | E | 1002.3 |
| 30-Jul-23 | Sun | Moderate southwesterly winds. | 10 | 29.4 | 15.7 | 77.5 | E | 1005.4 |
| 31-Jul-23 | Mon | Mainly fine. Isolated showers tomorrow. | 46.5 | 29.8 | 17 | 75 | E | 1006.3 |

Remark: The above information was extracted from the Hong Kong Observatory Station of Chek Lap Kok of below link: <https://www.hko.gov.hk/en/index.html>

Appendix K

Waste Flow Table

Monthly Summary Waste Flow Table for 2023 (year)

Project : Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station

Contract No.: 7/WSD/21

| 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 (a) (see Note 3) | Reused in the Contract (b) | Reused in other Projects (c) | Disposed as Public Fill (d) | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (see Note 2) | Chemical Waste | Others, e.g. general refuse |
| | (in Tonne) | (in Tonne) | (in Tonne) | (in Tonne) | (in Tonne) | (in Tonne) | (in '000 kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in Tonne) |
| Jan | 2430.760 | 72.330 | 0.000 | 0.000 | 2358.430 | 457.960 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 6.180 |
| Feb | 2217.290 | 19.380 | 0.000 | 0.000 | 2197.910 | 0.000 | 0.0021 | 0.0000 | 0.0015 | 0.0000 | 7.680 |
| Mar | 837.370 | 290.470 | 0.000 | 0.000 | 546.900 | 434.980 | 11.410 | 0.177 | 0.0000 | 0.000 | 7.160 |
| Apr | 648.090 | 126.350 | 0.000 | 0.000 | 521.740 | 0.000 | 1.744 | 0.002 | 0.0035 | 0.000 | 5.480 |
| May | 613.250 | 49.950 | 0.000 | 0.000 | 563.300 | 3439.940 | 0.000 | 0.420 | 0.000 | 0.000 | 11.020 |
| Jun | 7263.910 | 50.150 | 0.000 | 0.000 | 7213.760 | 73.900 | 0.000 | 0.000 | 0.000 | 0.000 | 27.910 |
| Sub-total | 14010.670 | 608.630 | 0.000 | 0.000 | 13402.040 | 4406.780 | 13.1561 | 0.5990 | 0.0050 | 0.0000 | 65.430 |
| Jul | 7200.730 | 181.380 | 0.000 | 0.000 | 7019.350 | 657.820 | 0.000 | 0.377 | 0.000 | 0.000 | 56.110 |
| Aug | | | | | | | | | | | |
| Sep | | | | | | | | | | | |
| Oct | | | | | | | | | | | |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 21211.400 | 790.010 | 0.000 | 0.000 | 20421.390 | 5064.600 | 13.1561 | 0.9760 | 0.0050 | 0.0000 | 121.540 |

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging materials.
 - (3) Broken concrete for recycling into aggregates.
 - (4) Total Quantity Generated = a+b+c+d.

Appendix L

Environmental Complaints Log

Environmental Complaints Log

| Log ref. | Date of complaint | Complaint route | Reference no. | Complaint nature | Investigation fining | Status |
|-----------------|--------------------------|------------------------|----------------------|-------------------------|-----------------------------|---------------|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |

Appendix M

**Implementation Schedule for
Environmental Mitigation Measures**

Environmental Mitigation Implementation Schedule for Air Quality Control

| EIA Ref | Environmental Protection Measures | Location/Timing | Implementation Agent | Implementation Stages* | | | Relevant Legislation & Guidelines |
|---|--|---|----------------------|------------------------|----|----|--|
| | | | | D | C | O | |
| Construction Phase (Air Quality Control) | | | | | | | |
| S3.8 | Dust mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation shall be incorporated to control dust emission. Notice shall be given to authority prior to commencing of work. Relevant control measures include: <ul style="list-style-type: none"> • watering on the work sites at Siu Ho Wan WTW twice a day; • skip hoist for material transport shall be totally enclosed by impervious sheeting; • vehicle washing facilities shall be provided at every vehicle exit point; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores; • every main haul road shall be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet; • every stock of more than 20 bags of cement shall be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides; • all dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; • every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the construction sites; • the dusty materials stockpiled on site shall be covered; and • the load of dusty materials carried by vehicle leaving a construction site shall be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. | Work site / during construction period. | Contractor | | √ | | Air Pollution Control (Construction Dust) Regulation |
| Operation Phase(Air Quality) | | | | | | | |
| NA | NA | NA | NA | NA | NA | NA | NA |
| Construction Phase (Noise Control) | | | | | | | |
| S4.8.1 | Use of silenced PME | Work site close to all NSRs | Contractor | | √ | | NCO, EIAO-TM |
| S4.8.6 | Good Site Practices: <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. • 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 work 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 utilised, wherever practicable, in screening noise from on-site construction activities. • Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme. | Work site close to all NSRs / throughout the construction period. | Contractor | | √ | | NCO, EIAO-TM |

WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station
 Monthly Environmental Impact Monitoring and Audit Report (July 2023)



| EIA Ref | Environmental Protection Measures | Location/Timing | Implementation Agent | Implementation Stages* | | | Relevant Legislation & Guidelines |
|---|--|---|----------------------|------------------------|----|----|-----------------------------------|
| | | | | D | C | O | |
| Operation Phase(Noise Control) | | | | | | | |
| NA | NA | NA | NA | NA | NA | NA | NA |
| Construction Phase (Water Quality Control) | | | | | | | |
| S5.7.2 | <p><i>Construction Site Runoff and Drainage</i></p> <ul style="list-style-type: none"> Before commencing any site formation work, all sewer and drainage connections shall be sealed to prevent debris, soil, sand etc. from entering public sewers/drains. Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities shall be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures shall be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Water pumped out from foundation excavations shall be discharged into silt removal facilities. Exposed soil surfaces shall be protected by paving or fill material as soon as possible to reduce the potential of soil erosion. Open stockpiles of construction materials or construction wastes on-site of more than 50m³ shall be covered with tarpaulin or similar fabric during rainstorms. | Work site / During the construction period | Contractor | | √ | | ProPECC PN 1/94; WPCO |
| S5.7.3 | <p><i>General Construction Activities</i></p> <ul style="list-style-type: none"> Debris and rubbish generated on-site shall be collected, handled and disposed of properly to avoid entering the nearby watercourses and storm water drains. Stockpiles of cement and other construction materials shall be kept covered when not being used. | Work site / During the construction period | Contractor | | √ | | ProPECC PN 1/94; WPCO |
| S5.7.4 | <ul style="list-style-type: none"> Oils and fuels shall only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund shall be drained of rainwater after a rain event. | Work site / During the construction period | Contractor | | √ | | |
| S5.7.5 | <p><i>Sewage from Construction Workforce</i></p> <ul style="list-style-type: none"> Temporary sanitary facilities, such as portable chemical toilets, shall be employed on-site. A licensed contractor shall be responsible for appropriate disposal and maintenance of these facilities. | Work site / During the construction period | Contractor | | √ | | WPCO |
| Operation Phase(Water Quality Control) | | | | | | | |
| NA | NA | NA | NA | NA | NA | NA | NA |
| Construction Phase (Ecology) | | | | | | | |
| S.6.9.3 | <p><i>Mitigation to minimise impacts on vegetation in woodland</i></p> <ul style="list-style-type: none"> All trees shall be preserved as far as possible, especially species of high conservation or amenity value. Recommendations to be provided in the Tree Survey Report to mitigate impacts on trees shall be followed. Where trees are to be preserved in-situ, but are likely to be disturbed from works activities, protective fencing/hoarding shall be carefully set up around the affected trees (refer to | Work site particularly woodland / During design and construction period | WSD/ Contractor | √ | √ | | EIAO |

WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station
Monthly Environmental Impact Monitoring and Audit Report (July 2023)

| EIA Ref | Environmental Protection Measures | Location/Timing | Implementation Agent | Implementation Stages* | | | Relevant Legislation & Guidelines |
|---|---|--|----------------------|------------------------|----|----|-----------------------------------|
| | | | | D | C | O | |
| S.6.9.4/ S.6.11.2 | <p>Landscape and Visual).</p> <ul style="list-style-type: none"> Disturbance of individuals of the shrub/tree species Pavetta hongkongensis and tree Aquilaria sinensis of conservation interest should be avoided. A buffer to the dripline of each plant of at least 1m radius should be demarcated to prohibit disturbance. Where loss of this species would be unavoidable, it is recommended that these plants may be transplanted to safe locations within the same habitat. Following transplantation, regular monitoring of the trees and seedlings should be conducted by a suitably qualified botanist/horticulturist over a 12-month period. | | | | | | |
| S.6.9.5 | <p><i>Mitigation to minimise impacts on aquatic ecology</i></p> <ul style="list-style-type: none"> Trench excavation works for the raw water mains near the stream courses should be carried out in the dry season as far as practicable. | Work site / During construction period | WSD/ Contractor | √ | √ | | |
| S.6.9.6 | <p><i>Mitigation to minimise general disturbance to wildlife</i></p> <ul style="list-style-type: none"> Noise mitigation measures through the use of quiet construction plant shall be implemented to minimise disturbance to habitats adjacent to the works areas. | Work site / During construction period | Contractor | | √ | | EIAO |
| S.6.9.7 | <p><i>General good site practice</i></p> <ul style="list-style-type: none"> Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. Construction activities shall be restricted to works areas that shall be clearly demarcated. The works areas shall be reinstated after completion of the works. Waste skips shall be provided to collect general refuse and construction wastes. The wastes shall be disposed of timely and properly off-site. General drainage arrangements shall include sediment and oil traps to collect and control construction site run-off. Open burning on works sites is illegal, and shall be strictly prohibited. Stove fires on works sites shall also not be allowed. Temporary fire fighting equipment shall be provided particularly in woodland areas. | Work site / During construction period | Contractor | | √ | | EIAO |
| S.6.9.8. | <p><i>Re-vegetation to reinstate works areas</i></p> <ul style="list-style-type: none"> As far as possible compensatory planting shall use native plants of the same species that occur in the adjacent woodland habitat and have flowers/fruits attractive to wildlife. On-site compensatory planting should be conducted on at least a one to one basis. | Work site in woodland / Immediately following works | Contractor | | √ | | EIAO |
| Operation Phase(Ecology) | | | | | | | |
| NA | NA | NA | NA | NA | NA | NA | NA |
| Construction Phase (Landscape and Visual Impact) | | | | | | | |
| S7.9 | <ul style="list-style-type: none"> All existing top-soil shall be conserved and reused Temporary hoarding barriers shall be of a recessive visual appearance in both colour and form. Chromatic colour scheme with appropriate texture should be considered while designing the external surface of the proposed SHW Raw Water Booster Pumping Station in order to visually merge the proposed structures into the surrounding landscape. | During construction phase | Contractor | | √ | | EIAO-TM |
| Operation Phase(Landscape and Visual Impact) | | | | | | | |

WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station
Monthly Environmental Impact Monitoring and Audit Report (July 2023)

| EIA Ref | Environmental Protection Measures | Location/Timing | Implementation Agent | Implementation Stages* | | | Relevant Legislation & Guidelines |
|-------------------------|---|--|----------------------|------------------------|---|---|--|
| | | | | D | C | O | |
| S7.9 | <ul style="list-style-type: none"> New compensatory planting works shall be carried out as early as possible in the construction period which allow maximum time for establishment and more mature trees when the works completed. Landscape or compensatory planting shall be provided where appropriate for enhancing greening and achieving visual screening. In this aspect, compensatory tree planting shall be considered. Selection of plant species shall match with the surrounding vegetation type and form for consistency of landscape resources and visual comfort, for matching with the local habitat. Tree planting shall be firstly considered when the amenity area or slope is feasible for planting trees so as to provide visual screening. | During operation phase | Contractor | | | √ | EIAO-TM |
| S7.9 | <ul style="list-style-type: none"> Planting area of approximately 2000 to 3000mm wide where fast growing tall trees with dense foliage shall be provided along the site boundary of Siu Ho Wan Raw Water Booster Pumping Station for visual screening. For planting close to or surrounded by natural terrain, compensatory planting should be arranged in a semi natural manner where feasible in order to blend the new planting into natural environment. The newly planted trees, shrubs and grassed areas are maintained throughout the first 12 months of the operation stage. | During operation phase | Contractor | | | √ | EIAO-TM |
| Waste Management | | | | | | | |
| S10.5.1 - S10.5.3 | <p><i>Good Site Practices</i></p> <p>Good site practices during the construction activities include:</p> <ul style="list-style-type: none"> Nomination of approved personnel, such as a site manager, to be responsible for good site practices and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility. Training of site personnel in proper waste management and chemical waste handling procedures. 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. A Waste Management Plan shall be prepared and submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details. A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed. In order to monitor the disposal of C&D material at public filling areas and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements to be implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may make reference to WBTC No. 21/2002 for details. | Work site / During the construction period | Contractor | | | √ | Waste Disposal Ordinance (Cap.54) WBTC No.21/2002, ETWB TCW No. 15/2003 |
| S10.5.4 | <p><i>Waste Reduction Measures</i></p> <p>Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction</p> | Work site / During planning & design stage, and construction | WSD/Contractor | √ | √ | | WBTC No.4/98, ETWB TCW No. 15/2003 |

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| EIA Ref | Environmental Protection Measures | Location/Timing | Implementation Agent | Implementation Stages* | | | Relevant Legislation & Guidelines |
|---------|--|---|----------------------|------------------------|---|---|--|
| | | | | D | C | O | |
| | include: <ul style="list-style-type: none"> • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Separate labelled bins shall be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Maximising the use of reusable steel formwork to reduce the amount of C&D material. • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. | stage | | | | | |
| S10.5.9 | <i>General Refuse</i> General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material. | Work site / During the construction period | Contractor | | √ | | Public Health and Municipal Services Ordinance (Cap. 132) |
| S10.5.7 | <i>Construction & Demolition (C&D) Material</i> When disposing C&D material at a public filling area, it shall be noted that the material shall only consist of soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt. The material shall be free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered to be unsuitable by the Filling Supervisor. | Work site / During the construction period | Contractor | | √ | | WBTC No. 4/98, 21/2002, 25/99, 12/2000 ETWB TCW No. 15/2003 |
| S10.5.8 | <i>Chemical Wastes</i> If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes shall be used. Appropriate labels shall be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes generated at the Chemical Waste Treatment Centre at Tsing Yi, or other licenced facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. All chemical wastes shall be removed from the waterworks installations at the first instance. | Work site / During the construction period | Contractor | | √ | | |

Note: N/A Not applicable

*D – Design; C – Construction; O – Operation