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 – FEBRUARY 2024

PREPARED FOR

CHINA ROAD AND BRIDGE CORPORATION

Date	Reference No.	Prepared By Tam Kok Fung, Benjamin	Certified By Tam Tak Wing
12 March 2024	TCS01196/22/600/R0081v1	 Environmental Consultant	 Environmental Team Leader

Version	Date	Remarks
1	12 March 2024	First Submission

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

15 March 2024

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 – FEBRUARY 2024

I refer to the Monthly Environmental Monitoring and Audit Report – February 2024 (Report No.: TCS01196/22/600/R0081v1) received on 12 March 2024 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.

Joanne NG
Independent Environmental Checker

JN/tw

c.c. Action-United Environmental Services & Consulting (AUES) Attn: Mr. Ben Tam (By E-mail)
Binnies Hong Kong Limited Attn: Mr. Alex TUNG (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 150,000m^3 per day to 300,000m^3 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 **22nd** Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from ***1 to 29 February 2024***.

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 *Project Manager*'s 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 *PM*D, ET and the *Contractor* on ***6, 14, 20 and 26 February 2024***. Joint site inspection with *PM*D, ET, IEC and the *Contractor* was carried out on ***26 February 2024***. 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. For dry season, 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. 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:-

a. Extension of the existing Siu Ho Wan WTW within the existing Siu Ho Wan WTW compound from a capacity of 150,000 m^3/day to 300,000 m^3/day
b. 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 m^3/day to 300,000 m^3/day
c. 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 ***22nd*** Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from ***1 to 29 February 2024***.

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 *(PM*D)

2.1.4 The *PM*D 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 *PD*M 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 *PM*D;
- 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 *PM*D 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 *PM*D 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 *PM*D 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***.

- Excavation works for sump pit was in progress at portion WTW-1
- Plant trial for submitted concrete mix was in progress
- Rebar fixing works for sump pit were in progress at portion WTW-1
- Construction of mass concrete toe wall at portion WTW-2 were in progress
- Installation of E&M earthing mesh at portion WTW-2
- Trench excavation, pipe laying and backfilling works at portion WTW-7 were in progress
- Installation of lime saturators at existing Chemical Building
- Installation of drainage pipes and concealed conduits at RWBPS
- Concreting of thrust block for the construction of R.C. pipe trough at portion BPS-3
- Rebar fixing and formwork erection at portion BPS-3
- Excavation at portion BPS-3
- Formwork erection for planter wall at portion BPS-1
- Internal ABWF works at portion BPS-1
- DN1200 RWH Shek Pik connection works at portion WTW-7
- Construction of base slab at portion WTW-1
- Construction of wall at portion WTW-1
- Construction of base slab at portion WTW-2

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
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 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-RS0714-23	18 Aug 2023	17 Feb 2024	Valid
		GW-RD0049-24	1 Feb 2024	31 Jul 2024	Valid

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	• 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
24-Hr TSP	
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170*
Calibration Kit	TISCH Model TE-5025A*
1-Hour TSP	
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 0.6m^3/min and 1.7m^3/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 ± 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 m^3/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 (µg /m^3)		Limit Level (µg/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 (μg/m^3)	
Date	Meas. Result
2-Feb-24	60
8-Feb-24	34
14-Feb-24	49
20-Feb-24	40
26-Feb-24	83
Average (Range)	**53** **(34 – 83)**

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)	1062.910	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)	16.7324	NA
Recycled Paper / Cardboard Packing (‘000kg)	0	NA
Recycled Plastic (‘000kg)	0.0026	NA
Chemical Wastes (‘000kg)	0	NA
General Refuses (in T)	21.120	NENT

6 SITE INSPECTIONS

6.1 REQUIREMENTS

6.1.1 According to the EM&A Manual, the programme of environmental site inspection shall be formulation 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 *PM*D, ET and the *Contractor* on ***6, 14, 20 and 26 February 2024***. Joint site inspection with *PM*D, ET, IEC and the *Contractor* was carried out on ***26 February 2024***. 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
6 February 2024	• The Contractor should provide sandbags for gully to prevent blockage. (WTB)	• The gully was surround properly with sandbags.
14 February 2024	• No environmental issue was observed during site inspection.	• NA
20 February 2024	• The Contractor was reminded to remove or cover sandy stockpile properly to reduce dust and muddy water generation.	• Reminder only.
26 February 2024	• No environmental issue was observed during site inspection.	• 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 31 January 2024	0	0	0
1 to 29 February 2024	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 31 January 2024	0	0	0
1 to 29 February 2024	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 31 January 2024	0	0	0
1 to 29 February 2024	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
- Excavation works at WTB
- Construction of base slab for WTB
- Construction of base slab for at OLB
- Construction of tower crane at OLB
- Excavation, pipelaying and backfilling works for DN1200 watermain, DN100 and DN200 sludge pipe
- Construction of R.C. pipe trough at portion BPS-3
- Pipelaying works at portion BPS-3
- Pipelaying works at access road of portion WTW-7
- E&M modification works at existing Chemical Building

8.3 KEY ISSUES FOR THE COMING MONTH

8.3.1 For dry season, 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 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 ***22nd*** Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from ***1 to 29 February 2024***.

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 *PM*D, ET and the *Contractor* on ***6, 14, 20 and 26 February 2024***. Joint site inspection with *PM*D, ET, IEC and the *Contractor* was carried out on ***26 February 2024***. 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

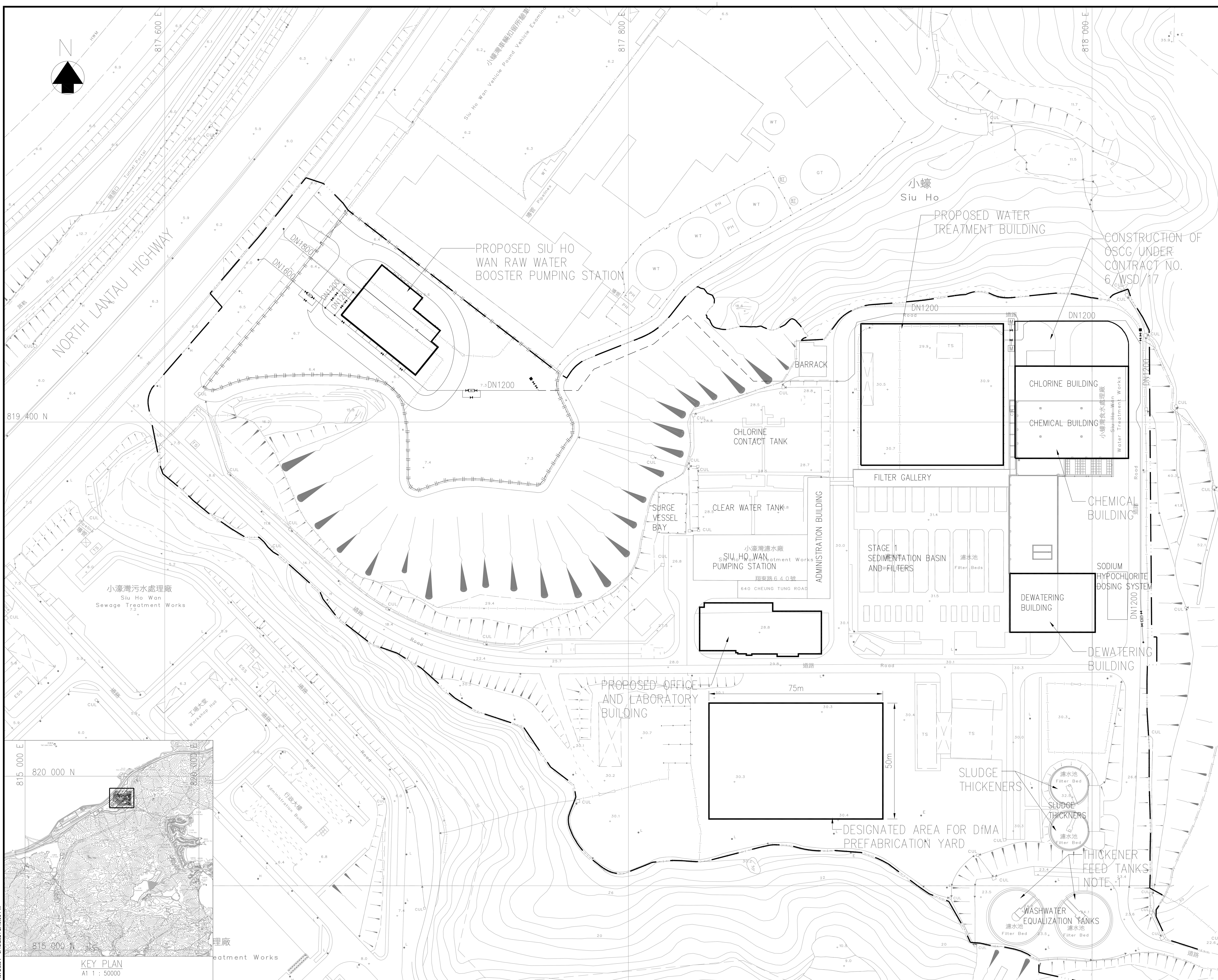
9.2.1 For dry season, special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.

9.2.2 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


N
NORTH LANTAU HIGHWAY
PROPOSED SIU HO WAN RAW WATER BOOSTER PUMPING STATION
DN1800
DN1600
DN1200
小蠔
Siu Ho
PROPOSED WATER TREATMENT BUILDING
CONSTRUCTION OF OSCG UNDER CONTRACT NO. 6/WSD/17
BARRACK
CHLORINE BUILDING
CHEMICAL BUILDING
CHLORINE CONTACT TANK
FILTER GALLERY
SURGE VESSEL BAY
CLEAR WATER TANK
ADMINISTRATION BUILDING
小濠灣濾水廠
SIU HO WAN PUMPING STATION
翔東路640號
640 CHEUNG TUNG ROAD
STAGE 1 SEDIMENTATION BASIN AND FILTERS
SODIUM HYPOCHLORITE DOSING SYSTEM
DEWATERING BUILDING
小濠灣污水處理廠
Siu Ho Wan Sewage Treatment Works
PROPOSED OFFICE AND LABORATORY BUILDING
75m
50m
DESIGNATED AREA FOR DfMA PREFABRICATION YARD
SLUDGE THICKENERS
THICKENER FEED TANKS NOTE 1
WASHWATER EQUALIZATION TANKS
819 400 N
817 600 E
817 800 E
818 000 E
820 000 N
815 000 E
815 000 N
KEY PLAN
A1 1 : 50000

Plot Date : 5/13/2021 2:49:08 PM

File Name : Y:\Daily Work\02 From other HK Projects\199755 -Tender Drawing\DWG\199755A-B&V-GN-00001

LEGEND:

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

NOTE1:
THE EXISTING WASHWATER EQUALIZATION TANKS TO BE RENAMED AS "THICKENER FEED TANKS"

Revision	Date	Description	Initial
0	05/21	ISSUE FOR TENDER DRAWING	JC

	Designed	Checked	Drawn	Checked
Initial	CT/CCK	YFC/AS	SZ	JC
Date	05/21	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.: 199755A/B&V/GN/00001

Revision: 0

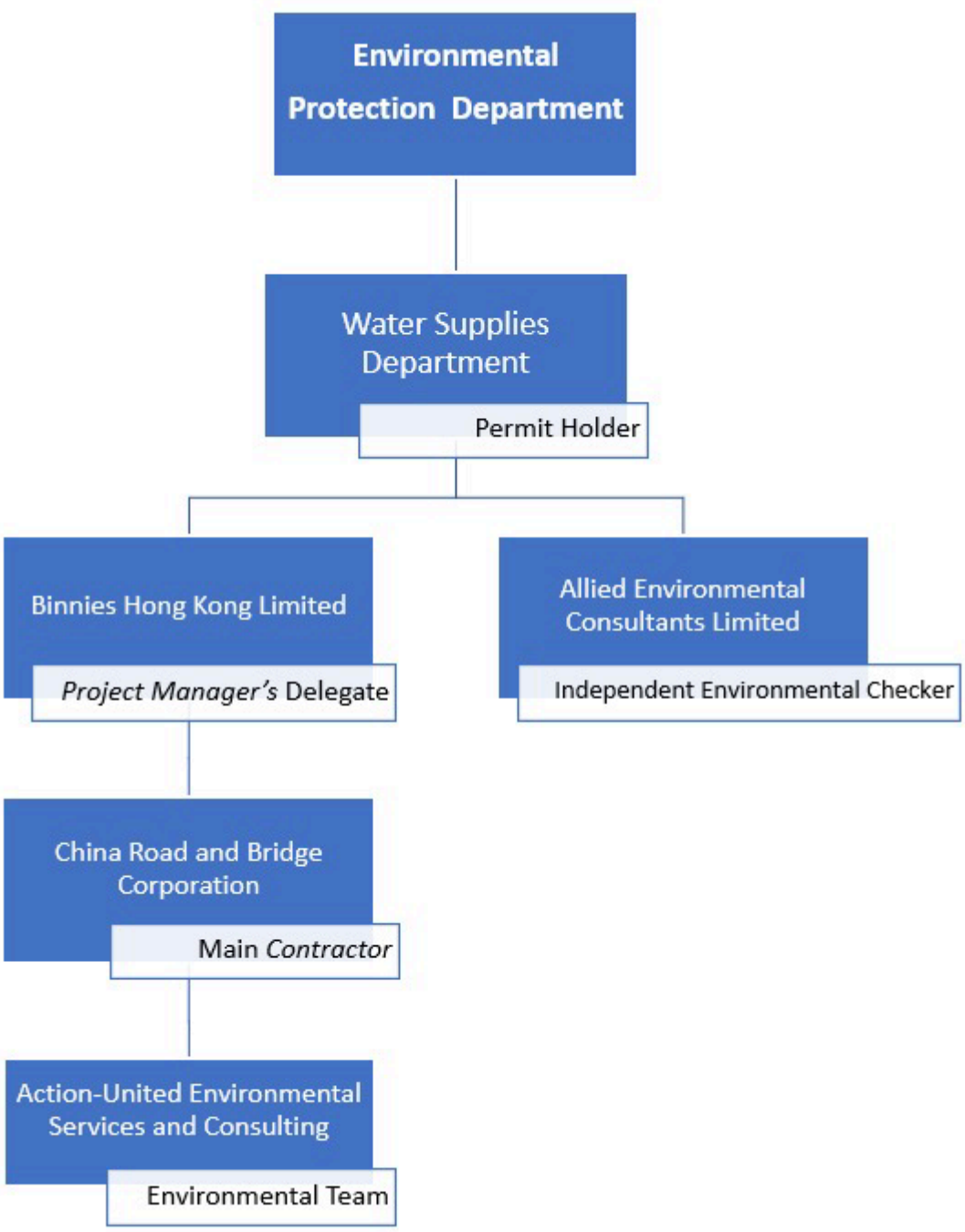
Scale: A1 1 : 750, A3 1 : 1500

水務署
Water Supplies Department

binnies
BINNIES HONG KONG LIMITED
賓尼斯工程顧問有限公司

Appendix B

Project Organisation


Environmental Protection Department
Water Supplies Department
Permit Holder
Binnies Hong Kong Limited
Project Manager's Delegate
Allied Environmental Consultants Limited
Independent Environmental Checker
China Road and Bridge Corporation
Main *Contractor*
Action-United Environmental Services and Consulting
Environmental Team

Contact Details of Key Personnel

Organisation	Project Role	Position	Name	Tel No.
Binnies Hong Kong Limited	*Project Manager*'s Delegate	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	*Contractor*	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 and Consulting	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

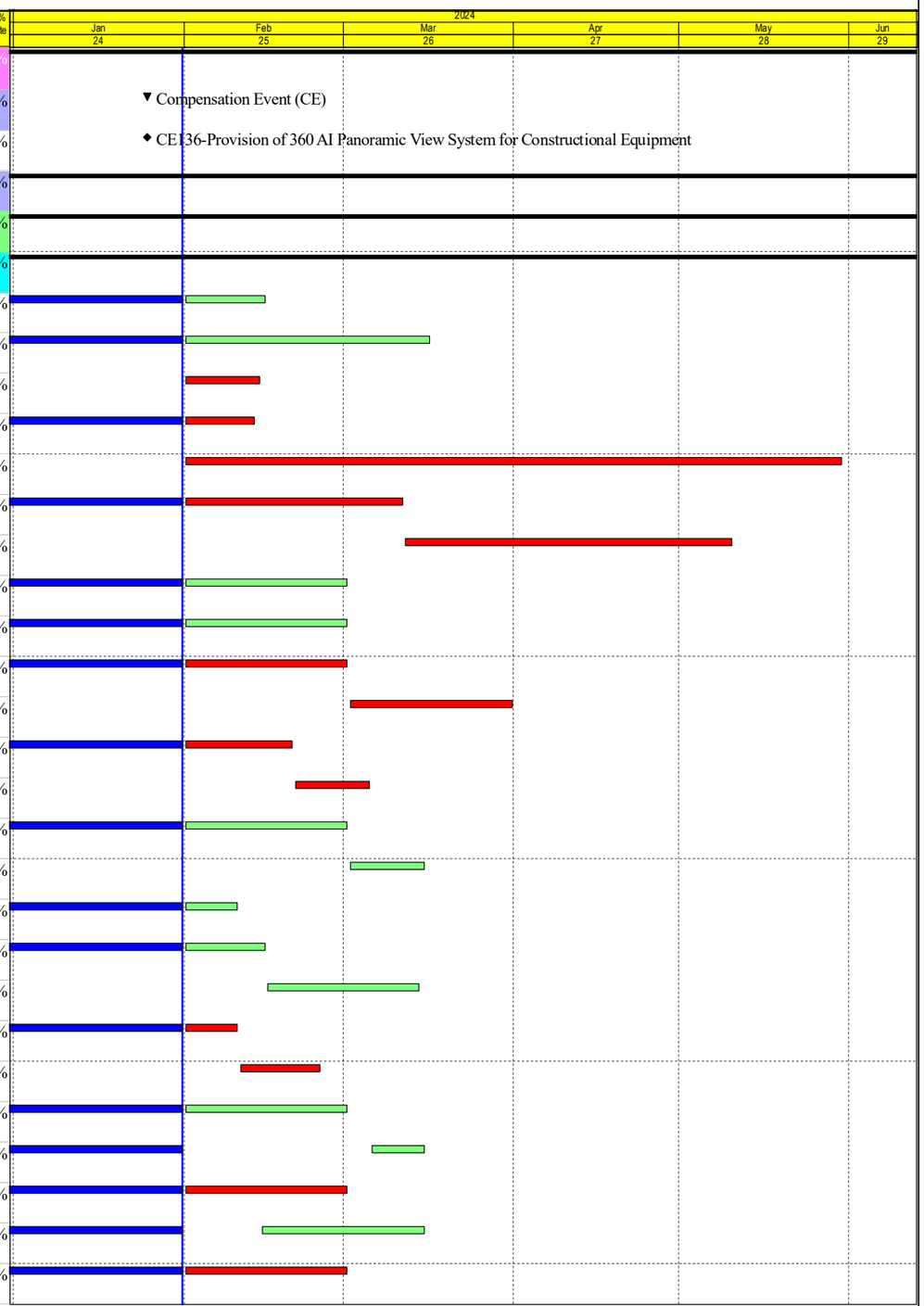
Appendix C

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
Construction of Siu Ho Wan Water Treatment Works Exte		971.0d	450.0d	21-Feb-22 18:00 A	25-Apr-25 18:00	21-Feb-22 18:00		518.0d	53.66%
Compensation Event (CE)		0.0d	0.0d	25-Jan-24 08:00 A	25-Jan-24 08:00 A	25-Jan-24 08:00	25-Jan-24 08:00		0%
CE2300	CE136-Provision of 360 AI Panoramic View System for Constructional Equipment	0.0d	0.0d	25-Jan-24 08:00 A		25-Jan-24 08:00			100%
Preliminaries, Contractor's Design,Method Statement Submissi		952.0d	450.0d	21-Feb-22 18:00 A	25-Apr-25 18:00	21-Feb-22 18:00		518.0d	52.73%
Contractor's Design Submission and Approval		781.0d	170.0d	23-May-22 08:00 A	19-Jul-24 18:00	23-May-22 08:00		111.0d	78.23%
Major Permanent Works Design		781.0d	170.0d	23-May-22 08:00 A	19-Jul-24 18:00	23-May-22 08:00		111.0d	78.23%
MDD3010	Hazard and Operability studies	214.0d	15.0d	24-May-22 08:00 A	15-Feb-24 18:00	24-May-22 08:00		266.0d	92.99%
MDD3015	Design of earth mat	70.0d	45.0d	07-Jul-22 08:00 A	16-Mar-24 18:00	07-Jul-22 08:00		66.0d	35.71%
MDD3025	Comments and approval of Design for Ozone Equipment	14.0d	14.0d	01-Feb-24 08:00	14-Feb-24 18:00			-63.0d	0%
MDD3046.4	Comments and approval of CR drawings submission for OLB	15.0d	13.0d	21-Sep-22 08:00 A	13-Feb-24 18:00	21-Sep-22 08:00		-99.0d	13.33%
MDD3046.5	CR drawings submission for WTB	120.0d	120.0d	01-Feb-24 08:00	30-May-24 18:00			-93.0d	0%
MDD3065	Design for Manufacture and Assembly(DfMA) works for E&M works	210.0d	40.0d	31-Aug-22 08:00 A	11-Mar-24 18:00	31-Aug-22 08:00		-99.0d	80.95%
MDD3070	Comments and approval of MiMEP design	60.0d	60.0d	12-Mar-24 08:00	10-May-24 18:00			-99.0d	0%
MDD3080	Design for DAF Equipment	90.0d	30.0d	09-Jun-22 08:00 A	01-Mar-24 18:00	09-Jun-22 08:00		49.0d	66.67%
MDD3085	Comments and approval of design for DAF Equipment	60.0d	30.0d	31-Oct-22 08:00 A	01-Mar-24 18:00	31-Oct-22 08:00		43.0d	50%
MDD3110	Design for stage 2 architectural works	95.0d	30.0d	28-Feb-23 08:00 A	01-Mar-24 18:00	28-Feb-23 08:00		-149.0d	68.42%
MDD3115	Comments and approval of design for stage 2 architectural works	30.0d	30.0d	02-Mar-24 08:00	31-Mar-24 18:00			-149.0d	0%
MDD3120	Design for building services (including FSD submission)	90.0d	20.0d	23-May-22 08:00 A	20-Feb-24 18:00	23-May-22 08:00		-29.0d	77.78%
MDD3125	Comments and approval of design for building services	14.0d	14.0d	21-Feb-24 08:00	05-Mar-24 18:00			-29.0d	0%
MDD3126	Design for building services at the existing building	120.0d	30.0d	01-Mar-23 08:00 A	01-Mar-24 18:00	01-Mar-23 08:00		126.0d	75%
MDD3127	Comments and approval of design for building services	14.0d	14.0d	02-Mar-24 08:00	15-Mar-24 18:00			126.0d	0%
MDD3135	Comments and approval of design for SRGF Equipment	15.0d	10.0d	21-Apr-23 08:00 A	10-Feb-24 18:00	21-Apr-23 08:00		62.0d	33.33%
MDD3150	Design for WTB POCT & IOCT Equipment	90.0d	15.0d	31-Oct-22 08:00 A	15-Feb-24 18:00	31-Oct-22 08:00		74.0d	83.33%
MDD3155	Comments and approval of Design for WTB POCT & IOCT Equipment	28.0d	28.0d	16-Feb-24 08:00	14-Mar-24 18:00			74.0d	0%
MDD3160	Design for surge analysis system	90.0d	10.0d	31-Oct-22 08:00 A	10-Feb-24 18:00	31-Oct-22 08:00		-61.0d	88.89%
MDD3165	Comments and approval of design for surge analysis system	15.0d	15.0d	11-Feb-24 08:00	25-Feb-24 18:00			-61.0d	0%
MDD3180	Design for BACF Equipment	90.0d	30.0d	15-Jun-22 08:00 A	01-Mar-24 18:00	15-Jun-22 08:00		145.0d	66.67%
MDD3185	Comments and approval of design for BACF Equipment	15.0d	10.0d	24-Oct-22 08:00 A	15-Mar-24 18:00	24-Oct-22 08:00		145.0d	33.33%
MDD3200	Design for Chemical Plants Equipment	180.0d	30.0d	19-Jul-22 08:00 A	01-Mar-24 18:00	19-Jul-22 08:00		-104.0d	83.33%
MDD3205	Comments and approval of design for Chemical Plants Equipment	30.0d	30.0d	22-Mar-23 08:00 A	15-Mar-24 18:00	22-Mar-23 08:00		213.0d	0%
MDD3320	Design for WTB Inlet Valve Chamber Equipment	90.0d	30.0d	18-Oct-22 08:00 A	01-Mar-24 18:00	18-Oct-22 08:00		-10.0d	66.67%



水務署
Water Supplies Department

中國路橋
CRBC

Actual Work
Non-Critical Activity
Critical Activity
Milestone
Summary

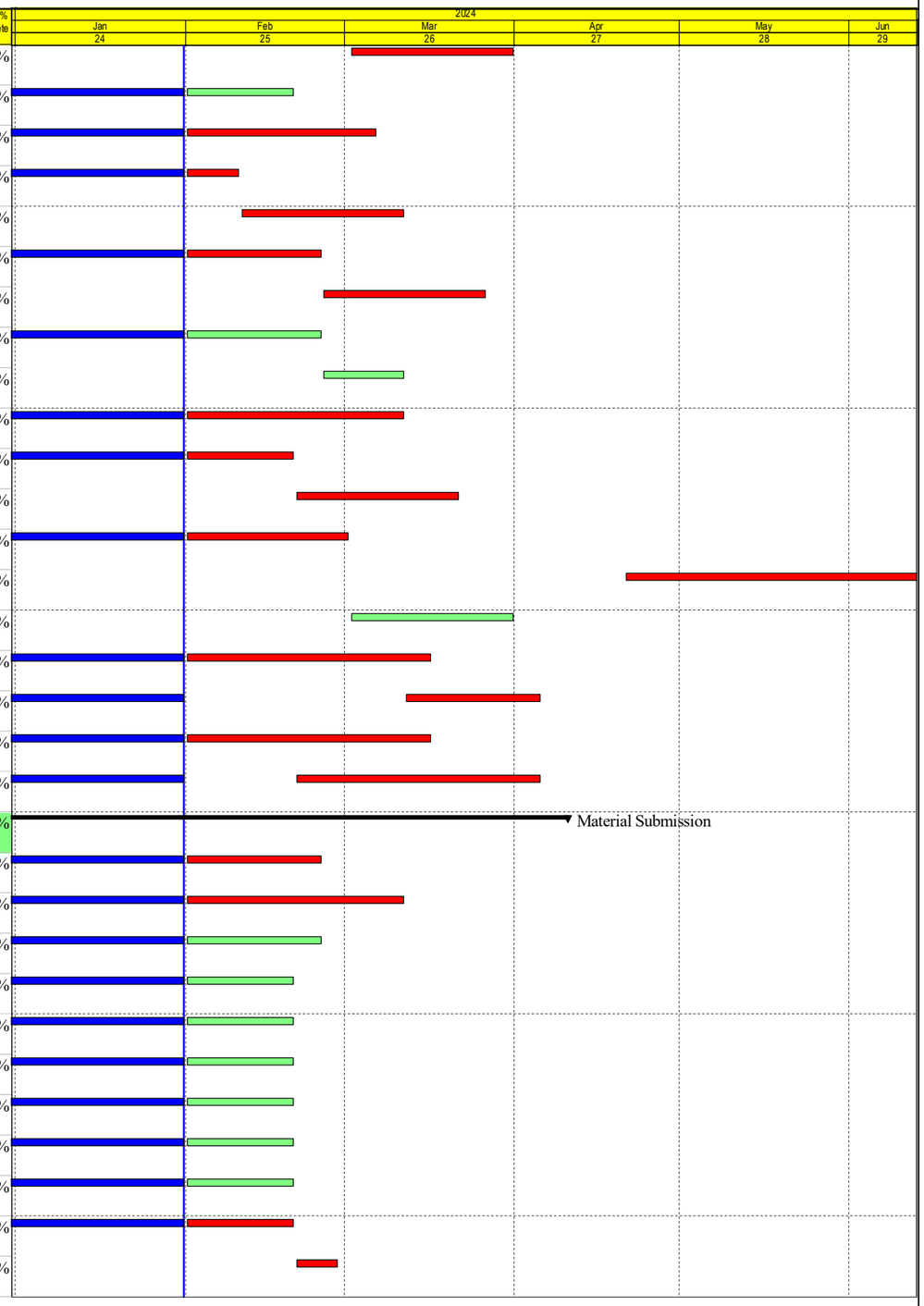
Date	Revision	Checked	Approved
31-Dec-23 18...	1	CLX	RM

3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
MDD3325	Comments and approval of design for WTB Inlet Valve Chamber Equipment	30.0d	30.0d	02-Mar-24 08:00	31-Mar-24 18:00			-10.0d	0%
MDD3340	Design for Sampling System	90.0d	20.0d	04-Jul-22 08:00 A	20-Feb-24 18:00	04-Jul-22 08:00		107.0d	77.78%
MDD3345	Comments and approval of design for Sampling System	40.0d	35.0d	18-Jul-22 08:00 A	06-Mar-24 18:00	18-Jul-22 08:00		-63.0d	12.5%
MDD3360	Design for Service Water Equipment	90.0d	10.0d	05-Dec-22 08:00 A	10-Feb-24 18:00	05-Dec-22 08:00		-33.0d	88.89%
MDD3365	Comments and approval of design for Service Water Equipment	30.0d	30.0d	11-Feb-24 08:00	11-Mar-24 18:00			-33.0d	0%
MDD3380	Design for Lamella & Supernatant Plant	90.0d	25.0d	11-Oct-22 08:00 A	25-Feb-24 18:00	11-Oct-22 08:00		-18.0d	72.22%
MDD3385	Comments and approval of design for Lamella & Supernatant Plant	30.0d	30.0d	26-Feb-24 08:00	26-Mar-24 18:00			-18.0d	0%
MDD3390	Design for Lifting Appliance	120.0d	25.0d	10-Jun-22 08:00 A	25-Feb-24 18:00	10-Jun-22 08:00		143.0d	79.17%
MDD3391	Comment and approval of Lifting Appliance	15.0d	15.0d	26-Feb-24 08:00	11-Mar-24 18:00			143.0d	0%
MDD3400	Design for Electrical system	120.0d	40.0d	05-Sep-22 08:00 A	11-Mar-24 18:00	05-Sep-22 08:00		-39.0d	66.67%
MDD3410	Design for DCS	90.0d	20.0d	08-Sep-22 08:00 A	20-Feb-24 18:00	08-Sep-22 08:00		-67.0d	77.78%
MDD3415	Comments and approval of design for for DCS	30.0d	30.0d	21-Feb-24 08:00	21-Mar-24 18:00			-67.0d	0%
MDD3420	Design for near real-time Operation Simulation System (part of existing facilities)	80.0d	30.0d	11-Jun-22 08:00 A	01-Mar-24 18:00	11-Jun-22 08:00		-51.0d	62.5%
MDD3421	Design for near real-time Operation Simulation System (Stream 2A)	90.0d	90.0d	21-Apr-24 08:00	19-Jul-24 18:00			-51.0d	0%
MDD3425	Comments and approval of design for near real-time Operation Simulation System (part of existing facilities)	30.0d	30.0d	02-Mar-24 08:00	31-Mar-24 18:00			59.0d	0%
MDD3440	Design Furniture and Testing Equipment Arrangement at Office and Laboratory Building.	90.0d	45.0d	01-Feb-23 08:00 A	16-Mar-24 18:00	01-Feb-23 08:00		-44.0d	50%
MDD3441	Comment and approval of Design Furniture and Testing Equipment Arrangement at OLB	60.0d	25.0d	17-Feb-23 08:00 A	05-Apr-24 18:00	17-Feb-23 08:00		-44.0d	58.33%
MDD3450	Design Building and Energy,Management system, Extra Low Voltage system and Treatment Monitoring and Alert system	90.0d	45.0d	01-Feb-23 08:00 A	16-Mar-24 18:00	01-Feb-23 08:00		-64.0d	50%
MDD3451	Comment and approval of Building and Energy,Management , Extra Low Voltage and Treatment Monitoring and Alert system	90.0d	45.0d	01-Feb-23 08:00 A	05-Apr-24 18:00	01-Feb-23 08:00		-64.0d	50%
Material Submission		712.0d	70.0d	05-May-22 08:00 A	10-Apr-24 18:00	05-May-22 08:00		68.0d	90.17%
MAT1030	Equipment Submission (E&M Equipment other than listed below)	210.0d	25.0d	05-May-22 08:00 A	25-Feb-24 18:00	05-May-22 08:00		-9.0d	88.1%
MAT1030.01	Equipment Submission for UPS and Battery System Manufacturer and General Technical Submission	30.0d	40.0d	05-May-22 08:00 A	11-Mar-24 18:00	05-May-22 08:00		-90.0d	0%
MAT1030.02	Equipment Submission for L.V. Switchboard & MCC	30.0d	25.0d	13-May-22 08:00 A	25-Feb-24 18:00	13-May-22 08:00		113.0d	16.67%
MAT1030.03	Equipment Submission for UPVC Diaphragm Valves	30.0d	20.0d	25-Oct-23 08:00 A	20-Feb-24 18:00	25-Oct-23 08:00		30.0d	33.33%
MAT1030.04	Equipment Submission for Fire Service Installations (Dry System)	30.0d	20.0d	30-Oct-23 08:00 A	20-Feb-24 18:00	30-Oct-23 08:00		30.0d	33.33%
MAT1030.05	Equipment Submission for Filter Press System	30.0d	20.0d	03-Oct-23 08:00 A	20-Feb-24 18:00	03-Oct-23 08:00		30.0d	33.33%
MAT1030.06	Equipment Submission of Propeller Fan	30.0d	20.0d	30-Oct-23 08:00 A	20-Feb-24 18:00	30-Oct-23 08:00		30.0d	33.33%
MAT1030.07	Equipment Submission of Roof Extractor	30.0d	20.0d	20-Oct-23 08:00 A	20-Feb-24 18:00	20-Oct-23 08:00		30.0d	33.33%
MAT1030.08	Equipment Submission for Fire Service Installations (non-flammable type fire sealant)	30.0d	20.0d	27-Oct-23 08:00 A	20-Feb-24 18:00	27-Oct-23 08:00		30.0d	33.33%
MAT1040	Equipment Submission (Ozone System)	210.0d	20.0d	05-May-22 08:00 A	20-Feb-24 18:00	05-May-22 08:00		-11.0d	90.48%
MAT1041	Comment and Approval of Equipment Submission (Ozone)	8.0d	8.0d	21-Feb-24 08:00	28-Feb-24 18:00			-11.0d	0%



水務署
Water Supplies Department

中國路橋
CRBC

Actual Work
Non-Critical Activity
Critical Activity
Milestone
Summary

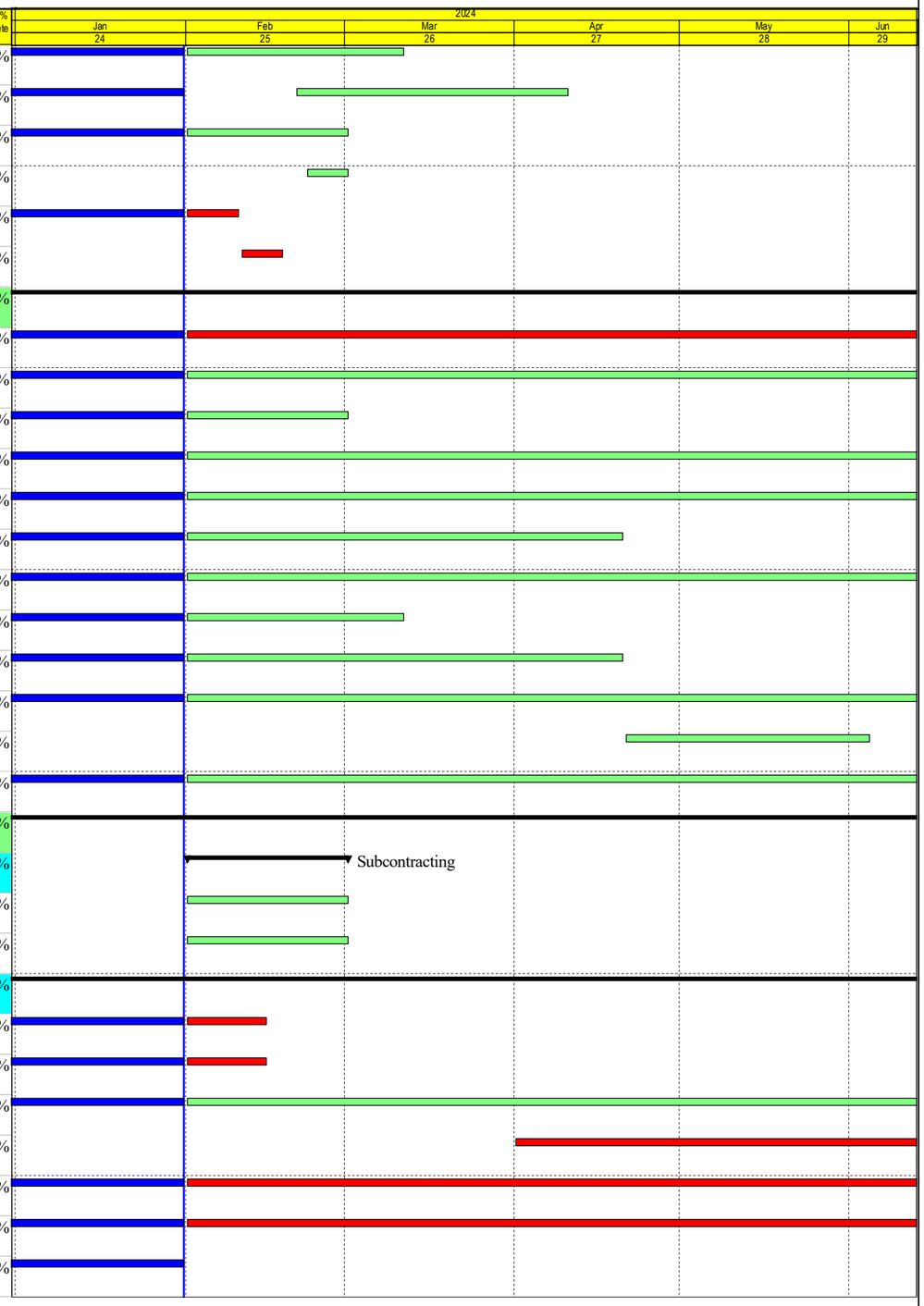
Date	Revision	Checked	Approved
31-Dec-23 18...	1	CLX	RM

3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
MAT1045	Equipment Submission(DAF)	210.0d	40.0d	05-May-22 08:00 A	11-Mar-24 18:00	05-May-22 08:00		13.0d	80.95%
MAT1046	Comment and Approval of Equipment Submission (DAF)	117.0d	50.0d	29-Jul-22 08:00 A	10-Apr-24 18:00	29-Jul-22 08:00		13.0d	57.26%
MAT1065	Equipment Submission (Laminar & Supernatant Plant)	210.0d	30.0d	05-May-22 08:00 A	01-Mar-24 18:00	05-May-22 08:00		7.0d	85.71%
MAT1066	Comment and Approval of Equipment Submission (Laminar & Supernatant Plant)	8.0d	8.0d	23-Feb-24 08:00	01-Mar-24 18:00			7.0d	0%
MAT1070	Equipment Submission (Sludge Dewatering Plant)	99.0d	10.0d	24-Oct-22 08:00 A	10-Feb-24 18:00	24-Oct-22 08:00		-31.0d	89.9%
MAT1071	Comment and Approval of Equipment Submission (Sludge Dewatering Plant)	8.0d	8.0d	11-Feb-24 08:00	18-Feb-24 18:00			-31.0d	0%
BIM Deliverables		816.0d	450.0d	20-May-22 08:00 A	25-Apr-25 18:00	20-May-22 08:00		518.0d	44.85%
BIMD1010	Fully Coordinated BIM Models	500.0d	150.0d	22-Jun-22 08:00 A	29-Jun-24 18:00	22-Jun-22 08:00		0.0d	75%
BIMD1015	Shop drawings	700.0d	300.0d	22-Jun-22 08:00 A	26-Nov-24 18:00	22-Jun-22 08:00		668.0d	57.14%
BIMD1020	Combined Service Drawing (CSD) and Combined Builder's Works Drawings (CBWD)	365.0d	30.0d	24-May-22 08:00 A	01-Mar-24 18:00	24-May-22 08:00		272.0d	91.78%
BIMD1025	4D Modelling	700.0d	400.0d	20-May-22 08:00 A	06-Mar-25 18:00	20-May-22 08:00		568.0d	42.86%
BIMD1030	BIM Progress Reporting	800.0d	350.0d	21-Jun-22 08:00 A	15-Jan-25 18:00	21-Jun-22 08:00		618.0d	56.25%
BIMD1035	Clash report	447.0d	80.0d	31-Jul-22 08:00 A	20-Apr-24 18:00	31-Jul-22 08:00		160.0d	82.1%
BIMD1040	3D VR	500.0d	180.0d	30-Jun-22 08:00 A	29-Jul-24 18:00	30-Jun-22 08:00		30.0d	64%
BIMD1045	Existing condition modelling	447.0d	40.0d	21-Jun-22 08:00 A	11-Mar-24 18:00	21-Jun-22 08:00		928.0d	91.05%
BIMD1050	3D digital survey	447.0d	80.0d	21-Jun-22 08:00 A	20-Apr-24 18:00	21-Jun-22 08:00		888.0d	82.1%
BIMD1060	BIM Object	700.0d	400.0d	30-Jun-22 08:00 A	06-Mar-25 18:00	30-Jun-22 08:00		568.0d	42.86%
BIMD1100	Asset information requirements	45.0d	45.0d	21-Apr-24 08:00	04-Jun-24 18:00			628.0d	0%
BIMD1160	Digital fabrication	700.0d	450.0d	24-Oct-22 08:00 A	25-Apr-25 18:00	24-Oct-22 08:00		518.0d	35.71%
Subcontracting and Procurement		856.0d	314.0d	21-Feb-22 18:00 A	10-Dec-24 18:00	21-Feb-22 18:00		41.0d	63.32%
Subcontracting		30.0d	30.0d	01-Feb-24 08:00	01-Mar-24 18:00			325.0d	0%
MTW1660	Subletting for Drainage works	30.0d	30.0d	01-Feb-24 08:00	01-Mar-24 18:00			143.0d	0%
MTW1680	Subletting for Road works	30.0d	30.0d	01-Feb-24 08:00	01-Mar-24 18:00			325.0d	0%
E&M Equipment Procurement,FAT and Delivery		856.0d	314.0d	21-Feb-22 18:00 A	10-Dec-24 18:00	21-Feb-22 18:00		-3.0d	63.32%
MTW1685	Submission of Equipment test plan	90.0d	15.0d	03-Feb-23 08:00 A	15-Feb-24 18:00	03-Feb-23 08:00		-109.0d	83.33%
MTW1690	Approval of Equipment test plan	30.0d	15.0d	21-Feb-22 18:00 A	15-Feb-24 18:00	21-Feb-22 18:00		-109.0d	50%
MTW1695	Procurement and delivery of Energy dissipation valves	270.0d	190.0d	04-May-23 08:00 A	08-Aug-24 18:00	04-May-23 08:00		60.0d	29.63%
MTW1700	Procurement and delivery of Pipeworks, valves, EM flowmeters, instruments	200.0d	200.0d	01-Apr-24 08:00	17-Oct-24 18:00			-10.0d	0%
MTW1710	Procurement and delivery of POCT mixers, penstocks, stoplogs, EM flowmeters, instruments	240.0d	150.0d	25-Jun-22 08:00 A	29-Jun-24 18:00	25-Jun-22 08:00		-3.0d	37.5%
MTW1720	Procurement and delivery of IOCT mixers, penstocks, stoplogs, EM flowmeters, instruments	240.0d	150.0d	25-Jun-22 08:00 A	29-Jun-24 18:00	25-Jun-22 08:00		-3.0d	37.5%
MTW1730	Procurement and delivery of Ozone destruction system, pipeworks, instruments, valves	300.0d	120.0d	28-Mar-22 18:00 A	10-Dec-24 18:00	28-Mar-22 18:00		-3.0d	60%



水務署
Water Supplies Department

中國路橋 CRBC

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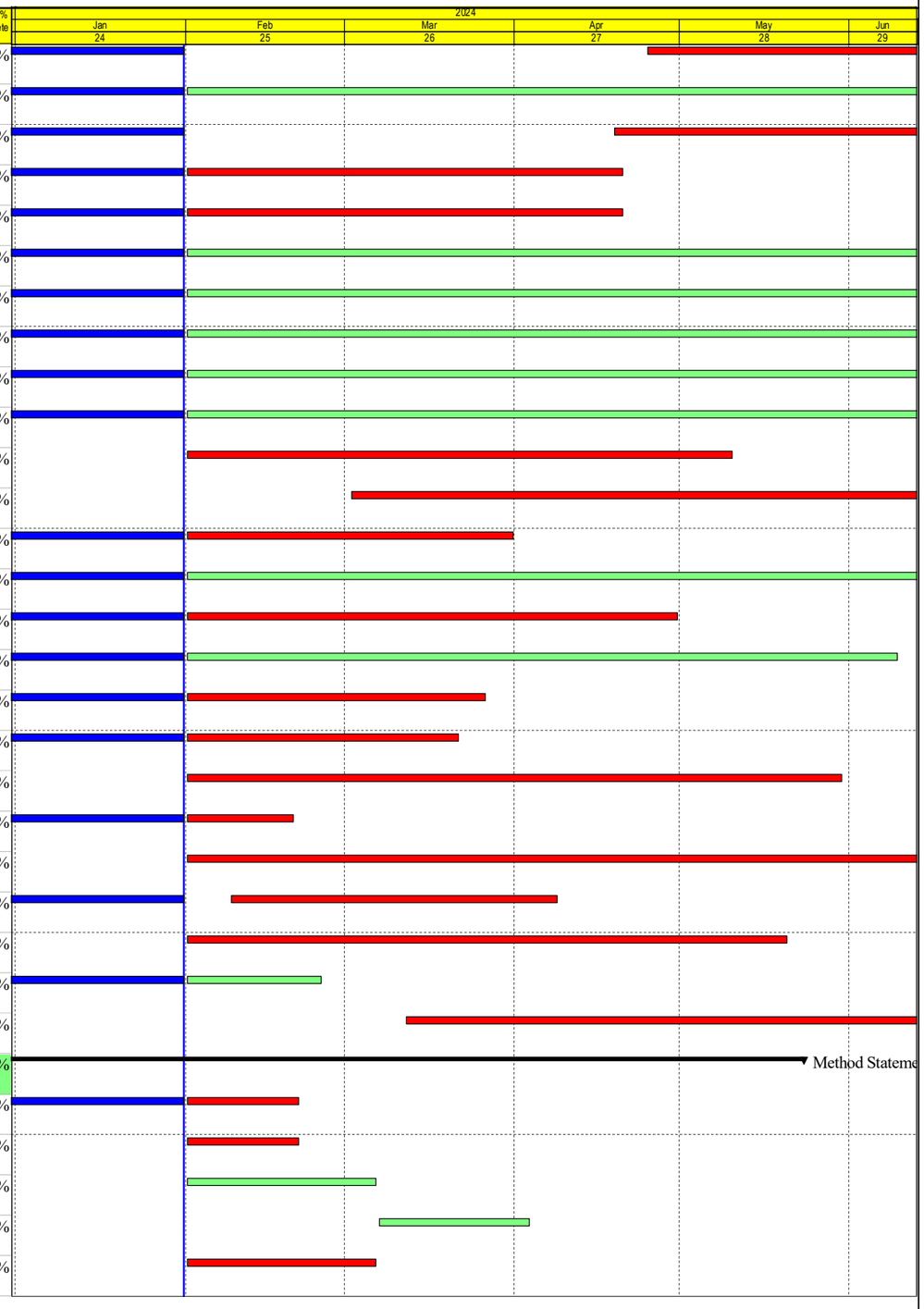
3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
MTW1740	Procurement and delivery of PSA sets, Ozone Generator sets, air vessels, cooling system, PSU	360.0d	230.0d	28-Mar-22 18:00 A	10-Dec-24 18:00	28-Mar-22 18:00		-63.0d	36.11%
MTW1750	Procurement and delivery of POCT ozone gas valve trains, gas ejectors, sidestream pumps	300.0d	180.0d	25-Jun-22 08:00 A	29-Jul-24 18:00	25-Jun-22 08:00		70.0d	40%
MTW1760	Procurement and delivery of IOCT ozone gas valve trains, gas ejectors, sidestream pumps	150.0d	80.0d	25-Jun-22 08:00 A	07-Jul-24 18:00	25-Jun-22 08:00		-11.0d	46.67%
MTW1770	Procurement and delivery of DAF including flocculators, scrapers, mixers, recycle pump, air supply system, etc.	180.0d	80.0d	27-Jun-22 08:00 A	20-Apr-24 18:00	27-Jun-22 08:00		-11.0d	55.56%
MTW1780	Procurement and delivery of DAF drain pump, instrumentation, air dryer and weir box	160.0d	80.0d	27-Jun-22 08:00 A	20-Apr-24 18:00	27-Jun-22 08:00		-17.0d	50%
MTW1790	Procurement and delivery of BACF filter media, trough, underdrain system, mixers, penstocks	270.0d	180.0d	25-Jun-22 08:00 A	29-Jul-24 18:00	25-Jun-22 08:00		9.0d	33.33%
MTW1800	Procurement and delivery of SRGF filter media, trough, underdrain system, mixers, penstocks	250.0d	160.0d	25-Jun-22 08:00 A	09-Jul-24 18:00	25-Jun-22 08:00		12.0d	36%
MTW1810	Procurement and delivery of Sodium Phosphate Plant	280.0d	160.0d	26-Aug-22 08:00 A	09-Jul-24 18:00	26-Aug-22 08:00		97.0d	42.86%
MTW1820	Procurement and delivery of Ammonium Sulphate Plant	280.0d	160.0d	26-Aug-22 08:00 A	09-Jul-24 18:00	26-Aug-22 08:00		97.0d	42.86%
MTW1830	Procurement and delivery of Sodium Sulphite Plant	300.0d	200.0d	26-Aug-22 08:00 A	18-Aug-24 18:00	26-Aug-22 08:00		57.0d	33.33%
MTW1840	Procurement and delivery of Sampling system	100.0d	100.0d	01-Feb-24 08:00	10-May-24 18:00			-63.0d	0%
MTW1850	Procurement and delivery of Service Water System	240.0d	240.0d	02-Mar-24 08:00	27-Oct-24 18:00			-33.0d	0%
MTW1860	Procurement and delivery of Lamella & Supernatant Plant	160.0d	60.0d	10-Oct-22 08:00 A	31-Mar-24 18:00	10-Oct-22 08:00		-23.0d	62.5%
MTW1865	Procurement and delivery of Lifting Appliance	210.0d	160.0d	25-Jun-22 08:00 A	09-Jul-24 18:00	25-Jun-22 08:00		23.0d	23.81%
MTW1870	Procurement and delivery of Transformers	270.0d	90.0d	04-Jan-23 08:00 A	30-Apr-24 18:00	04-Jan-23 08:00		1.0d	66.67%
MTW1880	Procurement and delivery of LV Switchboards	180.0d	130.0d	15-Aug-22 08:00 A	09-Jun-24 18:00	15-Aug-22 08:00		28.0d	27.78%
MTW1890	Procurement and delivery of MCCs	120.0d	55.0d	10-Oct-23 08:00 A	26-Mar-24 18:00	10-Oct-23 08:00		-54.0d	54.17%
MTW1900	Procurement and delivery of Other electrical equipment	180.0d	50.0d	01-May-23 08:00 A	21-Mar-24 18:00	01-May-23 08:00		-49.0d	72.22%
MTW1910	Procurement and delivery of BS equipment (MVAC, FS, P&D, BS Electrical, CCTV, PA, PV Panels,genset)	120.0d	120.0d	01-Feb-24 08:00	30-May-24 18:00			-86.0d	0%
MTW1920	Procurement and delivery of Fresh Water pump	50.0d	20.0d	15-Nov-23 08:00 A	20-Feb-24 18:00	15-Nov-23 08:00		-21.0d	60%
MTW1930	Procurement and delivery of Lime system,Polymer System,Chlorine System	150.0d	150.0d	01-Feb-24 08:00	29-Jun-24 18:00			-74.0d	0%
MTW1940	Procurement and delivery of Sludge dewatering plant	160.0d	60.0d	03-Aug-22 08:00 A	08-Apr-24 18:00	03-Aug-22 08:00		-31.0d	62.5%
MTW1950	Procurement and delivery of Control Panels,HV switchboard	110.0d	110.0d	01-Feb-24 08:00	20-May-24 18:00			-109.0d	0%
MTW1960	Procurement and delivery of DCS	100.0d	25.0d	01-May-23 08:00 A	25-Feb-24 18:00	01-May-23 08:00		96.0d	75%
MTW2170	Procurement and delivery of UPS	100.0d	100.0d	12-Mar-24 08:00	19-Jun-24 18:00			-90.0d	0%
Method Statement Submission and Approval for Major Constructio		571.0d	113.0d	24-Oct-22 08:00 A	23-May-24 18:00	24-Oct-22 08:00		158.0d	80.21%
MSS2030	Method statement submission for structural works for Water Treatment Building	21.0d	21.0d	05-Oct-23 00:00 A	21-Feb-24 18:00	05-Oct-23 00:00		-99.0d	0%
MSS2035	Method statement comments and approval for structural works for Water Treatment Building	21.0d	21.0d	01-Feb-24 08:00	21-Feb-24 18:00			-99.0d	0%
MSS2100	Method statement submission for designing and implementing energy efficiency and optimization for BS	35.0d	35.0d	01-Feb-24 08:00	06-Mar-24 18:00			29.0d	0%
MSS2105	Method statement comments and approval for designing and implementing energy efficiency and optimization for BS	28.0d	28.0d	07-Mar-24 08:00	03-Apr-24 18:00			29.0d	0%
MSS2110	Method statement submission for modification of Chlorination Building	35.0d	35.0d	01-Feb-24 08:00	06-Mar-24 18:00			-106.0d	0%



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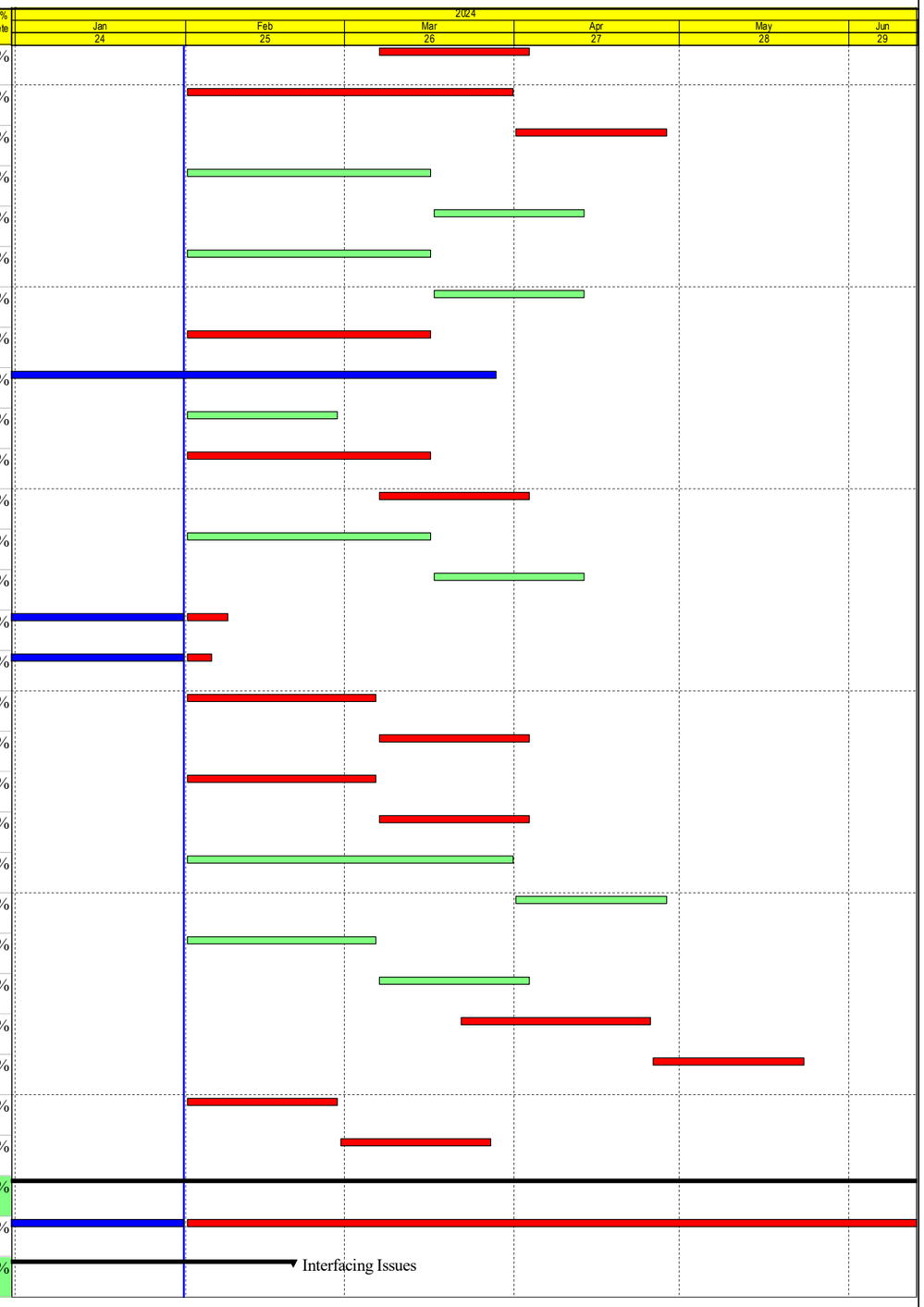
3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
MSS2115	Method statement comments and approval for modification of Chlorination Building	28.0d	28.0d	07-Mar-24 08:00	03-Apr-24 18:00			-106.0d	0%
MSS2120	Method statement submission for designing and implementing the proposed Near-Real-Time operation simulation	60.0d	60.0d	01-Feb-24 08:00	31-Mar-24 18:00			-83.0d	0%
MSS2125	Method statement comments and approval for designing and implementing the proposed Near-Real-Time operation simulation	28.0d	28.0d	01-Apr-24 08:00	28-Apr-24 18:00			-83.0d	0%
MSS2130	Method statement submission for pipe modification works	45.0d	45.0d	01-Feb-24 08:00	16-Mar-24 18:00			198.0d	0%
MSS2135	Method statement comments and approval for pipe modification works	28.0d	28.0d	17-Mar-24 08:00	13-Apr-24 18:00			198.0d	0%
MSS2210	Method statement submission for E&M works for water treatment building	45.0d	45.0d	01-Feb-24 08:00	16-Mar-24 18:00			74.0d	0%
MSS2215	Method statement comments and approval for E&M works for water treatment building	28.0d	28.0d	17-Mar-24 08:00	13-Apr-24 18:00			74.0d	0%
MSS2220	Method statement submission for E&M works for SHWRWBPS	45.0d	45.0d	01-Feb-24 08:00	16-Mar-24 18:00			-134.0d	0%
MSS2230	Method statement submission for E&M works for Office and Laboratory Building	45.0d	0.0d	23-Dec-23 08:00 A	28-Mar-24 18:00 A	23-Dec-23 08:00	28-Mar-24 18:00		100%
MSS2235	Method statement comments and approval for E&M works for Office and Laboratory Building	28.0d	28.0d	01-Feb-24 08:00	28-Feb-24 18:00			22.0d	0%
MSS2240	Method statement submission for ABWF for water treatment building	45.0d	45.0d	01-Feb-24 08:00	16-Mar-24 18:00			-98.0d	0%
MSS2245	Method statement comments and approval for ABWF for water treatment building	28.0d	28.0d	07-Mar-24 08:00	03-Apr-24 18:00			-98.0d	0%
MSS2260	Method statement submission for ABWF for Office and Laboratory Building	45.0d	45.0d	01-Feb-24 08:00	16-Mar-24 18:00			85.0d	0%
MSS2265	Method statement comments and approval for ABWF for Office and Laboratory Building	28.0d	28.0d	17-Mar-24 08:00	13-Apr-24 18:00			85.0d	0%
MSS2270	Method statement submission for modification of Washwater System	28.0d	8.0d	24-Oct-22 08:00 A	08-Feb-24 18:00	24-Oct-22 08:00		-139.0d	71.43%
MSS2275	Method statement comments and approval for modification of Washwater System	28.0d	5.0d	20-May-23 08:00 A	05-Feb-24 18:00	20-May-23 08:00		-144.0d	82.14%
MSS2280	Method statement submission for construction of flowmeter chambers	35.0d	35.0d	01-Feb-24 08:00	06-Mar-24 18:00			-73.0d	0%
MSS2285	Method statement comments and approval for construction of flowmeter chambers	28.0d	28.0d	07-Mar-24 08:00	03-Apr-24 18:00			-73.0d	0%
MSS2290	Method statement submission for equipment installation for Dewatering Building	35.0d	35.0d	01-Feb-24 08:00	06-Mar-24 18:00			-8.0d	0%
MSS2295	Method statement comments and approval for equipment installation for Dewatering Building	28.0d	28.0d	07-Mar-24 08:00	03-Apr-24 18:00			-8.0d	0%
MSS2300	Method statement submission for testing and commissioning	60.0d	60.0d	01-Feb-24 08:00	31-Mar-24 18:00			101.0d	0%
MSS2310	Method statement comments and approval for testing and commissioning	28.0d	28.0d	01-Apr-24 08:00	28-Apr-24 18:00			101.0d	0%
MSS2320	Method statement submission for replacement of existing 11KV swtich boards	35.0d	35.0d	01-Feb-24 08:00	06-Mar-24 18:00			125.0d	0%
MSS2330	Method statement comments and approval for replacement existing 11KV swtich boards	28.0d	28.0d	07-Mar-24 08:00	03-Apr-24 18:00			125.0d	0%
MSS2335	Method statement submission for changeover of existing DCS installation	35.0d	35.0d	22-Mar-24 08:00	25-Apr-24 18:00			-67.0d	0%
MSS2345	Method statement comments and approval for changeover of existing DCS installation	28.0d	28.0d	26-Apr-24 08:00	23-May-24 18:00			-67.0d	0%
MSS2385	Method statement submission for E&M for existing building	28.0d	28.0d	01-Feb-24 08:00	28-Feb-24 18:00			-120.0d	0%
MSS2395	Method statement comments and approval for E&M for existing building	28.0d	28.0d	29-Feb-24 08:00	27-Mar-24 18:00			-120.0d	0%
Precasting and Fabrication Works		210.0d	150.0d	28-Nov-22 08:00 A	29-Jun-24 18:00	28-Nov-22 08:00		-115.0d	28.57%
PRE2120	Fabrication of DfMA units for structural elements	210.0d	150.0d	28-Nov-22 08:00 A	29-Jun-24 18:00	28-Nov-22 08:00		-115.0d	28.57%
Interfacing Issues		150.0d	20.0d	05-May-22 08:00 A	20-Feb-24 18:00	05-May-22 08:00		234.5d	86.67%



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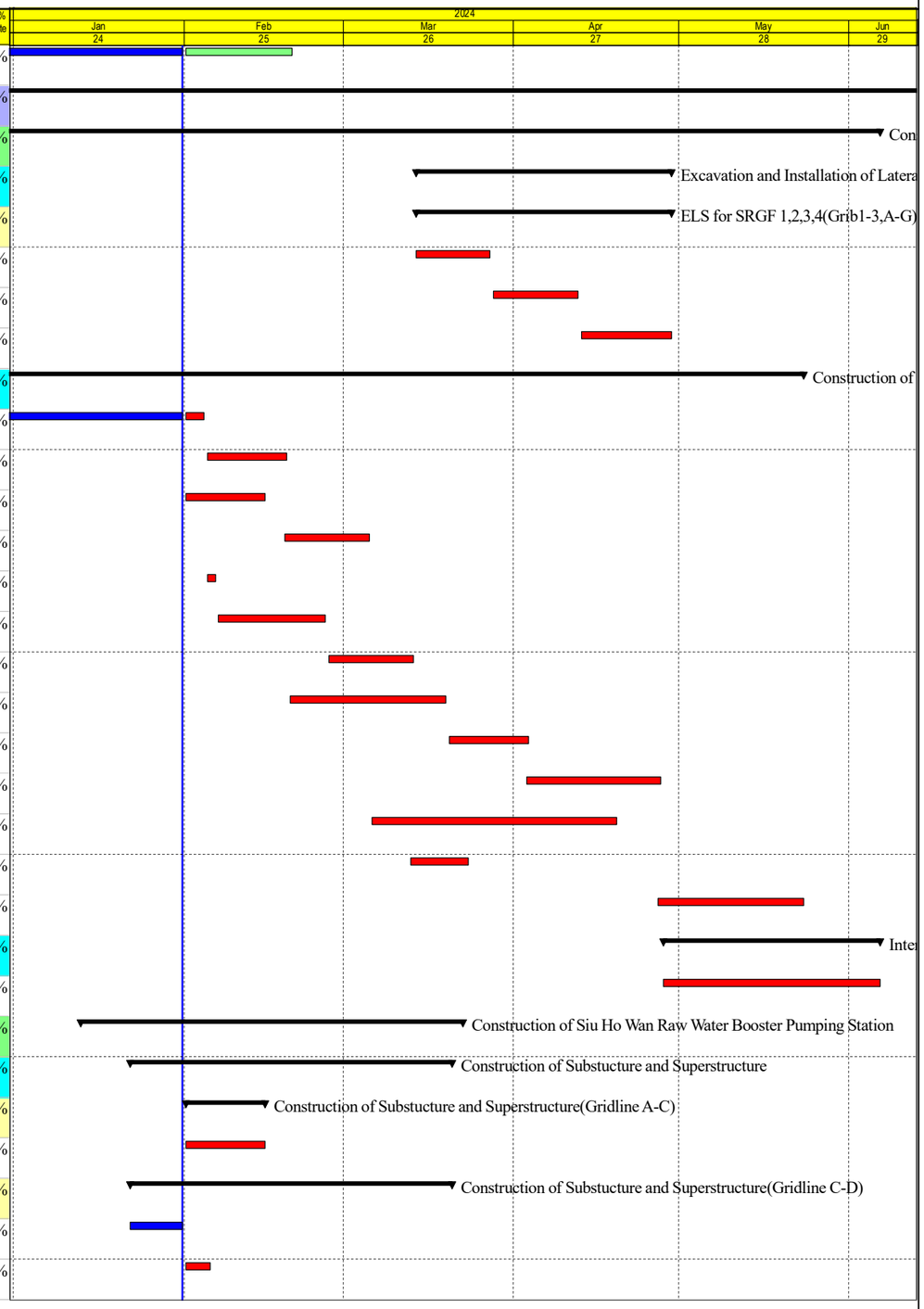
Contract No. 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping

Data Date:31-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
PRE2170	Establish interface meeting and conformation of interface schedule	150.0d	20.0d	05-May-22 08:00 A	20-Feb-24 18:00	05-May-22 08:00		234.5d	86.67%
Section 1 of the Works		277.0d	156.0d	18-Sep-23 08:00 A	05-Jul-24 18:00	18-Sep-23 08:00		118.0d	43.68%
Construction of Water Treatment Building		157.0d	127.0d	20-Dec-23 08:00 A	06-Jun-24 18:00	20-Dec-23 08:00		-122.0d	19.11%
Excavation and Installation of Lateral Support		36.0d	36.0d	14-Mar-24 08:00	29-Apr-24 18:00			-140.0d	0%
ELS for SRGF 1,2,3,4(Grib1-3,A-G)		36.0d	36.0d	14-Mar-24 08:00	29-Apr-24 18:00			-140.0d	0%
S110202	Installation of 1st layer of strut BS1a at +32.5m	12.0d	12.0d	14-Mar-24 08:00	27-Mar-24 18:00			-140.0d	0%
S110204	Excavation to +25.5mPD	10.0d	10.0d	28-Mar-24 08:00	12-Apr-24 18:00			-140.0d	0%
S110206	Installation of 2nd layer of strut BS2a at +26.5m	14.0d	14.0d	13-Apr-24 08:00	29-Apr-24 18:00			-140.0d	0%
Construction of Substructure and Superstructre		143.0d	113.0d	20-Dec-23 08:00 A	23-May-24 18:00	20-Dec-23 08:00		-139.0d	20.98%
S110340	Construction Footing & External Wall of Washwater Holding Tank, Supernatant Holding Tank(+19.8mPD)	22.0d	4.0d	20-Dec-23 08:00 A	04-Feb-24 18:00	20-Dec-23 08:00		-171.0d	81.82%
S110341	Construction Internal Wall of Washwater Holding Tank, Supernatant Holding Tank(+19.8mPD)	10.0d	10.0d	05-Feb-24 08:00	19-Feb-24 18:00			-110.0d	0%
S110362	Construction of Lamella settler room,SRGF Backwash Equalization Tanks(+25.0mPD to+29.5mPD)	10.0d	10.0d	01-Feb-24 08:00	15-Feb-24 18:00			-131.0d	0%
S110380	Construction of DAF maintenance floor Slab at level +25.0mPD	14.0d	14.0d	19-Feb-24 08:00	05-Mar-24 18:00			-90.0d	0%
S110381	Blinding of SRGF Maintenance Hall G.L(3-6 & A-G)-Bay 2	2.0d	2.0d	05-Feb-24 08:00	06-Feb-24 18:00			-140.0d	0%
S110391	Construction of SRGF Maintenance Hall for SRGF tanks No.5-8(+19.8mPD)	14.0d	14.0d	07-Feb-24 08:00	26-Feb-24 18:00			-140.0d	0%
S110420	Construction of SRGF tanks No.5-8(+25mPD~+32.5mPD)	14.0d	14.0d	27-Feb-24 08:00	13-Mar-24 18:00			-140.0d	0%
S110440	Construction of intermediate ozone contact tanks (IOCT)No.1&No.2 and access corridor at +24.0mPD	25.0d	25.0d	20-Feb-24 08:00	19-Mar-24 18:00			-110.0d	0%
S110445	Backfill and Removal of Strut S2	10.0d	10.0d	20-Mar-24 08:00	03-Apr-24 18:00			-110.0d	0%
S110460	Construction of floor slab at +29.5mPD(Gridline G-M/1-6)	21.0d	21.0d	03-Apr-24 08:00	27-Apr-24 18:00			-110.0d	0%
S110480	Construction of DAF Maintenance Hall(+25.0mPD~+29.5mPD)	35.0d	35.0d	06-Mar-24 08:00	19-Apr-24 18:00			-90.0d	0%
S110485	Backfill and Removal of Strut S1.5	10.0d	10.0d	13-Mar-24 08:00	23-Mar-24 18:00			-71.0d	0%
S110520	Construction of BAC filter tanks (No.5 -8) +29.5mPD	21.0d	21.0d	27-Apr-24 08:00	23-May-24 18:00			-110.0d	0%
Internal Finishing Works		40.0d	40.0d	28-Apr-24 08:00	06-Jun-24 18:00			-122.0d	0%
S110740	Finishing works up to +25.0mPD floor including water tightness test of tanks, finishing to SRGF Maintenance Hall	40.0d	40.0d	28-Apr-24 08:00	06-Jun-24 18:00			-122.0d	0%
Construction of Siu Ho Wan Raw Water Booster Pumping Station		51.0d	51.0d	13-Jan-24 08:00 A	22-Mar-24 18:00	13-Jan-24 08:00		131.0d	0%
Construction of Substructure and Superstructure		39.0d	39.0d	22-Jan-24 08:00 A	20-Mar-24 18:00	22-Jan-24 08:00		106.0d	0%
Construction of Substructure and Superstructure(Gridline A-C)		10.0d	10.0d	01-Feb-24 08:00	15-Feb-24 18:00			-108.0d	0%
S111111	Construction of planter wall(including DfMA Erection) of at +13.05 mPD (Grid C-A)	10.0d	10.0d	01-Feb-24 08:00	15-Feb-24 18:00			-108.0d	0%
Construction of Substructure and Superstructure(Gridline C-D)		39.0d	39.0d	22-Jan-24 08:00 A	20-Mar-24 18:00	22-Jan-24 08:00		106.0d	0%
S111036	Construction of roof at +15.05 mPD(Grid D-C)	11.0d	0.0d	22-Jan-24 08:00 A	31-Jan-24 18:00 A	22-Jan-24 08:00	31-Jan-24 18:00		100%
S111037	Construction of planter wall(including DfMA Erection) at +15.05 mPD(Grid D-C)	4.0d	4.0d	01-Feb-24 08:00	05-Feb-24 18:00			-109.0d	0%



水務署
Water Supplies Department

中國路橋 CRBC

Actual Work
Non-Critical Activity
Critical Activity
Milestone
Summary

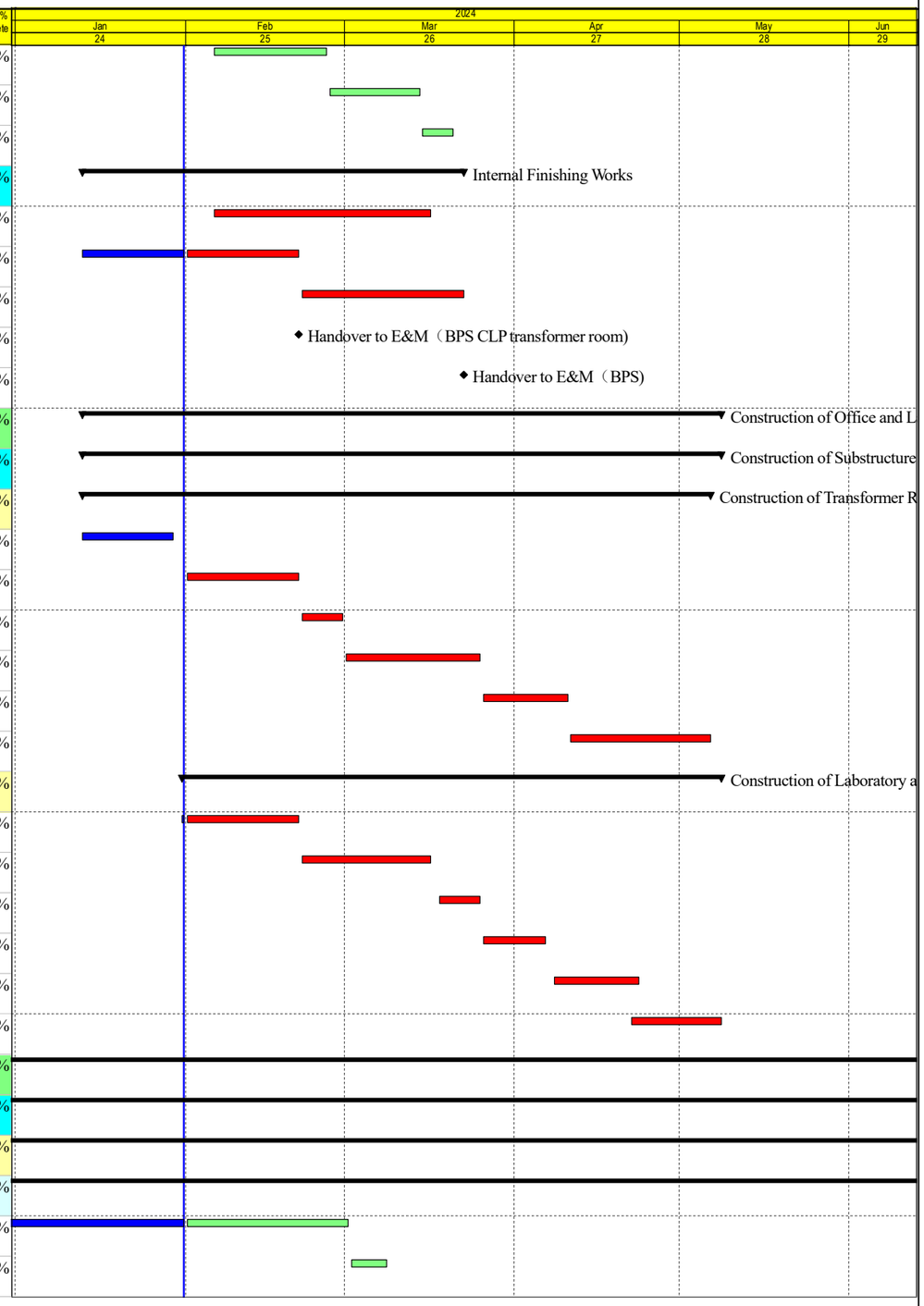
Date	Revision	Checked	Approved
31-Dec-23 18...	1	CLX	RM

3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
S111038.1	Rebar fixing of plinth for pumbling (Grid D-C)	15.0d	15.0d	06-Feb-24 08:00	26-Feb-24 18:00			106.0d	0%
S111038.2	Formwork erection of plinth for pumbling (Grid D-C)	15.0d	15.0d	27-Feb-24 08:00	14-Mar-24 18:00			106.0d	0%
S111038.3	Casting concrete of plinth for pumbling (Grid D-C)	5.0d	5.0d	15-Mar-24 08:00	20-Mar-24 18:00			106.0d	0%
Internal Finishing Works		51.0d	51.0d	13-Jan-24 08:00 A	22-Mar-24 18:00	13-Jan-24 08:00		-140.0d	0%
S111140	Finishing works from +1.25mPD to +15.05m (Grib D-C)	40.0d	40.0d	06-Feb-24 08:00	16-Mar-24 18:00			-134.0d	0%
S111160	Finishing works CLP transformer room (Grib A-B/1-3)	30.0d	21.0d	13-Jan-24 08:00 A	21-Feb-24 18:00	13-Jan-24 08:00		-140.0d	30%
S111161	Finishing works from +6.0mPD to +13.05m (Grib C-A)	30.0d	30.0d	22-Feb-24 08:00	22-Mar-24 18:00			-140.0d	0%
S111180	Handover to E&M（BPS CLP transformer room)	0.0d	0.0d		21-Feb-24 18:00			-110.0d	0%
S401780	Handover to E&M（BPS)	0.0d	0.0d		22-Mar-24 18:00			-140.0d	0%
Construction of Office and Laboratory Building		77.0d	76.0d	13-Jan-24 08:00 A	08-May-24 18:00	13-Jan-24 08:00		-86.0d	1.3%
Construction of Substructure and Superstructre		77.0d	76.0d	13-Jan-24 08:00 A	08-May-24 18:00	13-Jan-24 08:00		-86.0d	1.3%
Construction of Transformer Room(Grid 1-3)		74.0d	74.0d	13-Jan-24 08:00 A	06-May-24 18:00	13-Jan-24 08:00		-86.0d	0%
S120107	Construction Basement Slab from +26.15 to +27.15mPD-West Part(Grib 1-3)	15.0d	0.0d	13-Jan-24 08:00 A	29-Jan-24 18:00 A	13-Jan-24 08:00	29-Jan-24 18:00		100%
S120120	Construction of wall and column up +28.35mPD(Grid 1-3)	15.0d	15.0d	01-Feb-24 08:00	21-Feb-24 18:00			-86.0d	0%
S401690	Compacted fill to Cable Tench	7.0d	7.0d	22-Feb-24 08:00	29-Feb-24 18:00			-86.0d	0%
S401700	Construction of Slab at +28.35mPD -West Part(Grib 1-3)	21.0d	21.0d	01-Mar-24 08:00	25-Mar-24 18:00			-86.0d	0%
S401710	Construction of Column&Wall to +35.05mPD-West Part(Grib 1-3)	10.0d	10.0d	26-Mar-24 08:00	10-Apr-24 18:00			-86.0d	0%
S401720	Erection DfMA and Construction of Double Slab to +35.05mPD-West Part(Grib 1-3)	21.0d	21.0d	11-Apr-24 08:00	06-May-24 18:00			-86.0d	0%
Construction of Laboratory and Office(Grid 4-11)		77.0d	76.0d	31-Jan-24 08:00 A	08-May-24 18:00	31-Jan-24 08:00		-86.0d	1.3%
S120103	Blinding and Concreting from +26.5 to +27.7mPD -2ndPour(Remaining Part)	15.0d	15.0d	31-Jan-24 08:00 A	21-Feb-24 18:00	31-Jan-24 08:00		-86.0d	0%
S120121	Construction of wall and column up to ground floor(Grid 4-11)	21.0d	21.0d	22-Feb-24 08:00	16-Mar-24 18:00			-86.0d	0%
S120130	Erection DfMA of ground floor-East Part(Grid 4-11)	7.0d	7.0d	18-Mar-24 08:00	25-Mar-24 18:00			-86.0d	0%
S120131	Compacted fill-East Part(Grid 4-11)	7.0d	7.0d	26-Mar-24 08:00	06-Apr-24 18:00			-86.0d	0%
S120140	Erection DfMA and Construction of ground floor-East Part(Grid 4-11)	14.0d	14.0d	08-Apr-24 08:00	23-Apr-24 18:00			-86.0d	0%
S120160	Construction of wall and column up to roof floor-East Part(Grid 5-11)	14.0d	14.0d	22-Apr-24 08:00	08-May-24 18:00			-86.0d	0%
Construction of Raw Water Booster Pumping Station Pipework and		277.0d	156.0d	18-Sep-23 08:00 A	05-Jul-24 18:00	18-Sep-23 08:00		118.0d	43.68%
Raw Water Main Connections at Chenung Tung Road ((RWM-1) CHC 0 to 4		277.0d	156.0d	18-Sep-23 08:00 A	05-Jul-24 18:00	18-Sep-23 08:00		118.0d	43.68%
Raw Water Main Connections at Chenung Tung Road(CH0-5)		262.0d	148.0d	18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00		0.0d	43.51%
Preparation works		262.0d	148.0d	18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00		0.0d	43.51%
S401120	XP Application & Approval by HyD	100.0d	30.0d	16-Oct-23 08:00 A	01-Mar-24 18:00	16-Oct-23 08:00		44.0d	70%
S401130	RMO application	7.0d	7.0d	02-Mar-24 08:00	08-Mar-24 18:00			44.0d	0%



水務署
Water Supplies Department

中國路橋
CRBC

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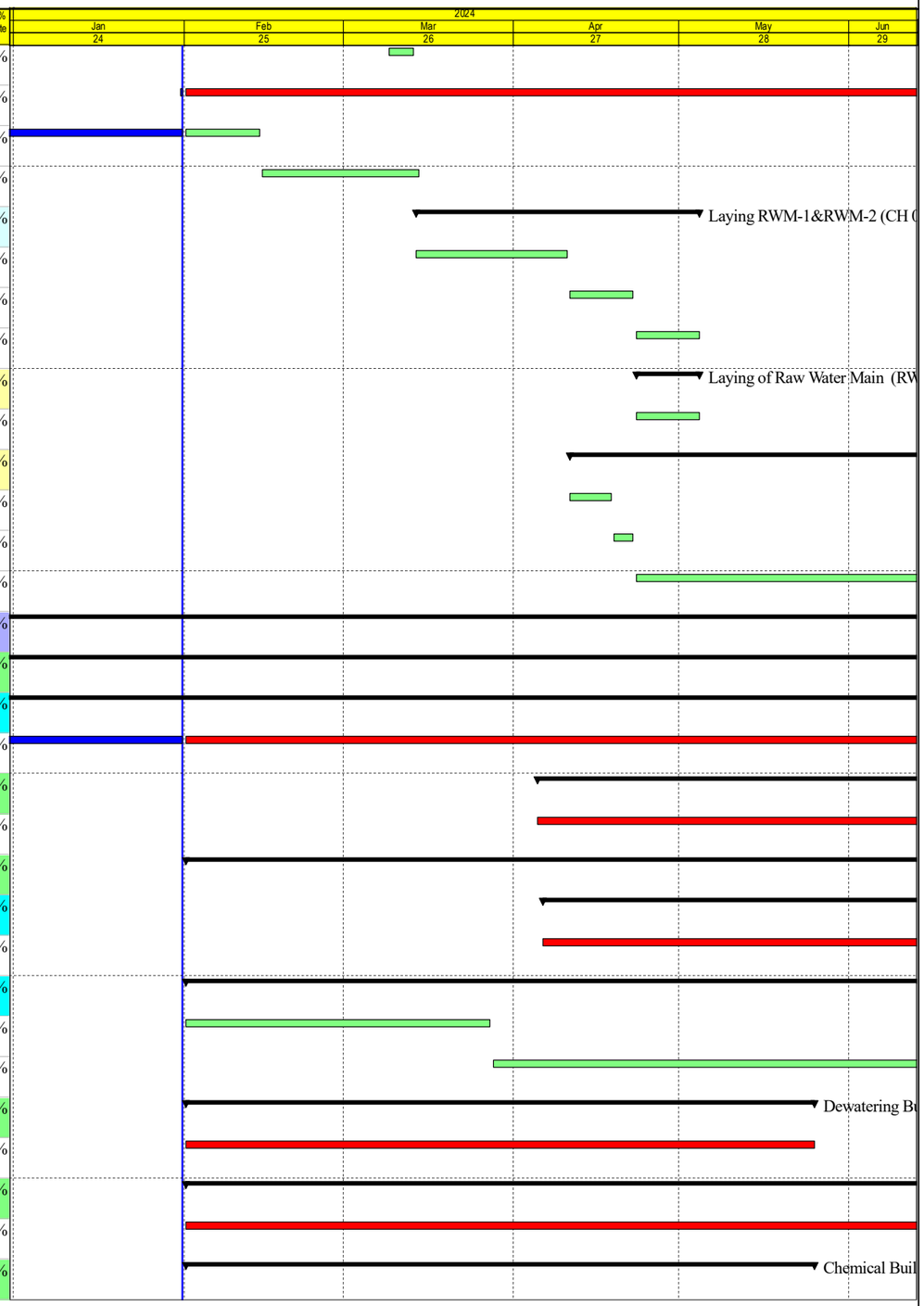
31-Dec-23 18...	1	CLX	RM

3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
S401131	Establishing TTA at Chungtung Road	5.0d	5.0d	09-Mar-24 08:00	13-Mar-24 18:00			44.0d	0%
S401140	Shut Down Plan Application & Approval by WSD	170.0d	148.0d	31-Jan-24 08:00 A	27-Jun-24 18:00	31-Jan-24 08:00		0.0d	12.94%
S401475	Provide new site access	55.0d	9.0d	18-Sep-23 08:00 A	14-Feb-24 18:00	18-Sep-23 08:00		77.0d	83.64%
S401480	Modification site access and fencing	25.0d	25.0d	15-Feb-24 08:00	14-Mar-24 18:00			77.0d	0%
Laying RWM-1&RWM-2 (CH 0-5)		40.0d	40.0d	14-Mar-24 08:00	04-May-24 18:00			34.0d	0%
S401180	Pit Excavation at Cheung Tung Road	20.0d	20.0d	14-Mar-24 08:00	10-Apr-24 18:00			34.0d	0%
S401181	Laying of RWM-2 CHD 0-5	10.0d	10.0d	11-Apr-24 08:00	22-Apr-24 18:00			34.0d	0%
S401182	Laying of RWM-1 CHC 0-5	10.0d	10.0d	23-Apr-24 08:00	04-May-24 18:00			34.0d	0%
Laying of Raw Water Main (RWM-2) CHD5 to 41.6&Chamber A		10.0d	10.0d	23-Apr-24 08:00	04-May-24 18:00			48.0d	0%
S401309.0	Excavation works for CHD5-20.2	10.0d	10.0d	23-Apr-24 08:00	04-May-24 18:00			48.0d	0%
Laying of Raw Water Main (RWM-2) CHD 43.6 to 100 & Chamber B,C		70.0d	70.0d	11-Apr-24 08:00	05-Jul-24 18:00			98.0d	0%
S401160	Excavation works for laying of RWM-2	7.0d	7.0d	11-Apr-24 08:00	18-Apr-24 18:00			38.0d	0%
S401200	Laying of blinding layer	3.0d	3.0d	19-Apr-24 08:00	22-Apr-24 18:00			98.0d	0%
S401205	Construction of valve chambers bottom slab(3 nos.)	60.0d	60.0d	23-Apr-24 08:00	05-Jul-24 18:00			98.0d	0%
Section 2 of the Works		863.0d	300.0d	27-Jun-22 08:00 A	26-Nov-24 18:00	27-Jun-22 08:00		1.0d	65.24%
Water Treatment Building		580.0d	300.0d	27-Jun-22 08:00 A	26-Nov-24 18:00	27-Jun-22 08:00		1.0d	55.88%
Statutory Submission schedule		580.0d	300.0d	27-Jun-22 08:00 A	26-Nov-24 18:00	27-Jun-22 08:00		1.0d	55.88%
S210060	DG (Ozone) installation approval - dwg & layout by FSD for WTB	580.0d	300.0d	27-Jun-22 08:00 A	26-Nov-24 18:00	27-Jun-22 08:00		1.0d	55.88%
Flowmeter Chambers		120.0d	120.0d	05-Apr-24 08:00	27-Aug-24 18:00			-57.0d	0%
S223320	Construction of flow meter chambers	120.0d	120.0d	05-Apr-24 08:00	27-Aug-24 18:00			-57.0d	0%
Office and Laboratory Building		279.0d	279.0d	01-Feb-24 08:00	05-Nov-24 18:00			-44.0d	0%
Procurement of Laboratory Funiture and Equiopment		214.0d	214.0d	06-Apr-24 08:00	05-Nov-24 18:00			-44.0d	0%
MTW1905	Procurement of furniture and laboratory equipment	214.0d	214.0d	06-Apr-24 08:00	05-Nov-24 18:00			-44.0d	0%
CLP Interface		105.0d	105.0d	01-Feb-24 08:00	13-Jun-24 18:00			42.0d	0%
S401531	Excavation on the Footpath for HKT, Water Main and CLP diversion (to be under PMI/CE(Activity ID S401530))	45.0d	45.0d	01-Feb-24 08:00	27-Mar-24 18:00			42.0d	0%
S401532	Construction of New HKT Cable draw pits and duct (to be under PMI/CE(Activity ID S401530))	60.0d	60.0d	28-Mar-24 08:00	13-Jun-24 18:00			42.0d	0%
Dewatering Building		90.0d	90.0d	01-Feb-24 08:00	25-May-24 18:00			-26.0d	0%
S223600	Modification of structural works	90.0d	90.0d	01-Feb-24 08:00	25-May-24 18:00			-26.0d	0%
Washwater System		115.0d	115.0d	01-Feb-24 08:00	25-Jun-24 18:00			-130.0d	0%
S223620	Modification of washwater equalization tanks No.1 and No.2	115.0d	115.0d	01-Feb-24 08:00	25-Jun-24 18:00			-130.0d	0%
Chemical Building		90.0d	90.0d	01-Feb-24 08:00	25-May-24 18:00			113.0d	0%



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中國路橋 CRBC

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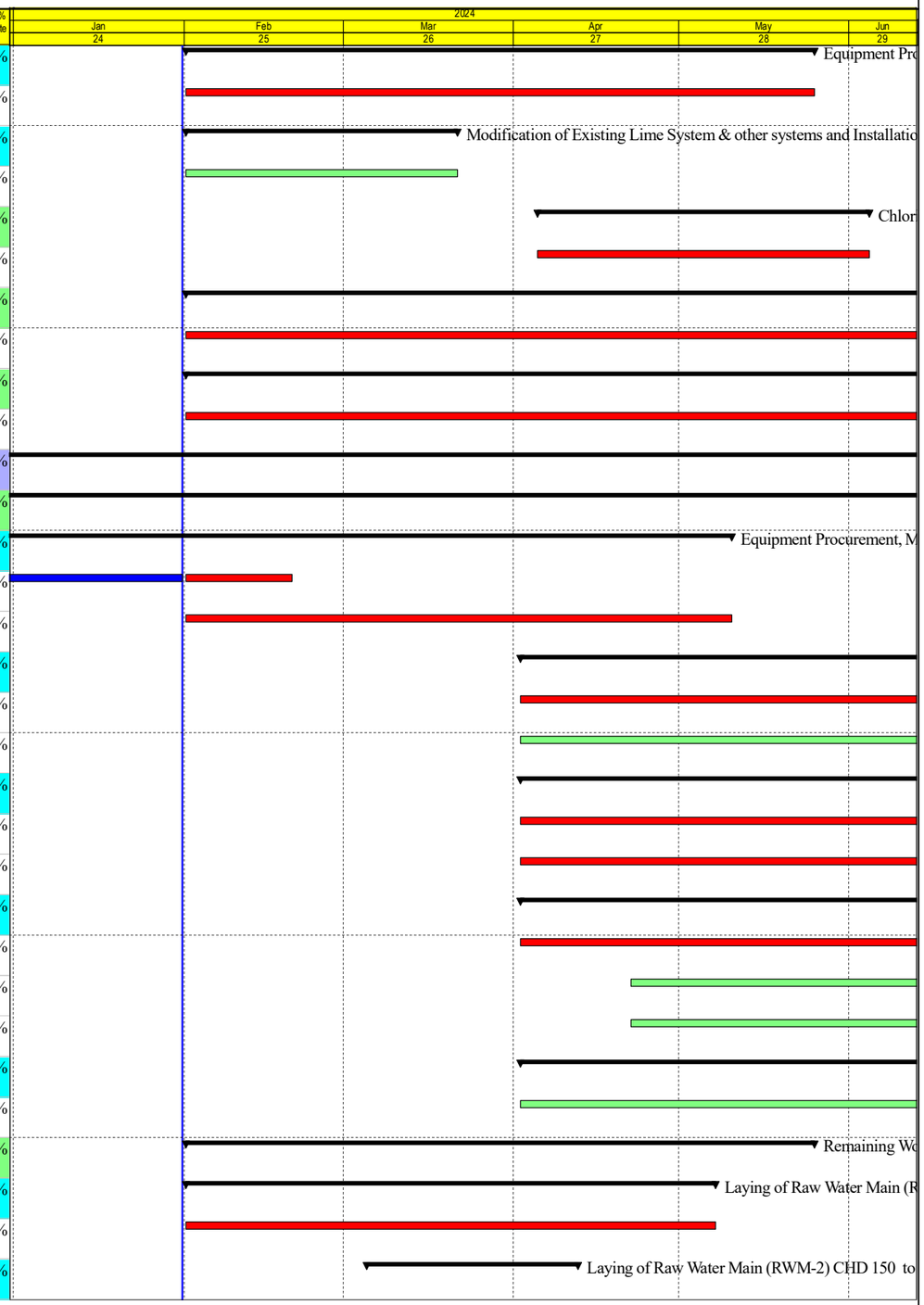
3 Month Rolling Programme - January 2024 to March 2024

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-Jan-24

Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
Equipment Procurement, Manufacture, FAT and Delivery		90.0d	90.0d	01-Feb-24 08:00	25-May-24 18:00			-142.0d	0%
S223710	Equipment manufacture,FAT and delivery	90.0d	90.0d	01-Feb-24 08:00	25-May-24 18:00			-142.0d	0%
Modification of Existing Lime System & other systems and Installation of M		40.0d	40.0d	01-Feb-24 08:00	21-Mar-24 18:00			163.0d	0%
S223726	MiMEP erection in Chamical Building	40.0d	40.0d	01-Feb-24 08:00	21-Mar-24 18:00			163.0d	0%
Chlorination Building		50.0d	50.0d	05-Apr-24 08:00	04-Jun-24 18:00			-82.0d	0%
S224000	Installation of chlorinators	50.0d	50.0d	05-Apr-24 08:00	04-Jun-24 18:00			-82.0d	0%
Siu Ho Wan Pumping Station		180.0d	180.0d	01-Feb-24 08:00	10-Sep-24 18:00			-16.0d	0%
S224050	Modification of backwash pump to stream IIA SRGF	180.0d	180.0d	01-Feb-24 08:00	10-Sep-24 18:00			-16.0d	0%
Administration Building		180.0d	180.0d	01-Feb-24 08:00	10-Sep-24 18:00			-98.0d	0%
S201760	Modification work to the existing Control Room located on the 1st Floor	180.0d	180.0d	01-Feb-24 08:00	10-Sep-24 18:00			-98.0d	0%
Section 3 of the Works		542.0d	266.0d	30-Aug-22 18:00 A	23-Oct-24 18:00	30-Aug-22 18:00		89.0d	50.92%
Siu Ho Wan Raw Water Booster Pumping Station		540.0d	264.0d	30-Aug-22 18:00 A	21-Oct-24 18:00	30-Aug-22 18:00		38.0d	51.11%
Equipment Procurement, Manufacture, FAT and Delivery		376.0d	100.0d	30-Aug-22 18:00 A	10-May-24 18:00	30-Aug-22 18:00		-119.0d	73.4%
S312000	Procurement of process and E&M equipment	60.0d	20.0d	30-Aug-22 18:00 A	20-Feb-24 18:00	30-Aug-22 18:00		-119.0d	66.67%
S312020	Manufacture,FAT and delivery of process and E&M equipment	100.0d	100.0d	01-Feb-24 08:00	10-May-24 18:00			-119.0d	0%
Mechanical Works		150.0d	150.0d	02-Apr-24 08:00	30-Sep-24 18:00			49.0d	0%
S312100	Installation of lifting appliances,raw water booster pumpsets	120.0d	120.0d	02-Apr-24 08:00	24-Aug-24 18:00			-119.0d	0%
S312120	Installation of station pipework, valves and flowmeters	150.0d	150.0d	02-Apr-24 08:00	30-Sep-24 18:00			49.0d	0%
Electrical Works		140.0d	140.0d	02-Apr-24 08:00	17-Sep-24 18:00			-47.0d	0%
S312140	Installation of cables	140.0d	140.0d	02-Apr-24 08:00	17-Sep-24 18:00			-47.0d	0%
S312150	Installation of external cables to Water treatment building	120.0d	120.0d	02-Apr-24 08:00	24-Aug-24 18:00			-47.0d	0%
Building Services		166.0d	166.0d	02-Apr-24 08:00	21-Oct-24 18:00			33.0d	0%
S312200	Installation of MVAC system, fire services system,plumbing and drainage system	120.0d	120.0d	02-Apr-24 08:00	24-Aug-24 18:00			-12.0d	0%
S312240	Installation of electrical services,CCTV, security access control system, wireless communication system and PA system	150.0d	150.0d	22-Apr-24 08:00	21-Oct-24 18:00			33.0d	0%
S312245	Installation of lightning protection,lighting and small power system	150.0d	150.0d	22-Apr-24 08:00	21-Oct-24 18:00			33.0d	0%
Control System		150.0d	150.0d	02-Apr-24 08:00	30-Sep-24 18:00			49.0d	0%
S312220	Installation of new DCS and BEMS,LCPs,PLCs, ALCPs AND MMIs	150.0d	150.0d	02-Apr-24 08:00	30-Sep-24 18:00			49.0d	0%
Remaining Works		90.0d	90.0d	01-Feb-24 08:00	25-May-24 18:00			98.0d	0%
Laying of Raw Water Main (RWM-2) CHD 100 to 150		75.0d	75.0d	01-Feb-24 08:00	07-May-24 18:00			-135.0d	0%
S313080	Laying of Raw water main(RWM-2) CHD 100 to 150	75.0d	75.0d	01-Feb-24 08:00	07-May-24 18:00			-135.0d	0%
Laying of Raw Water Main (RWM-2) CHD 150 to 403.3		30.0d	30.0d	05-Mar-24 08:00	12-Apr-24 18:00			-84.0d	0%



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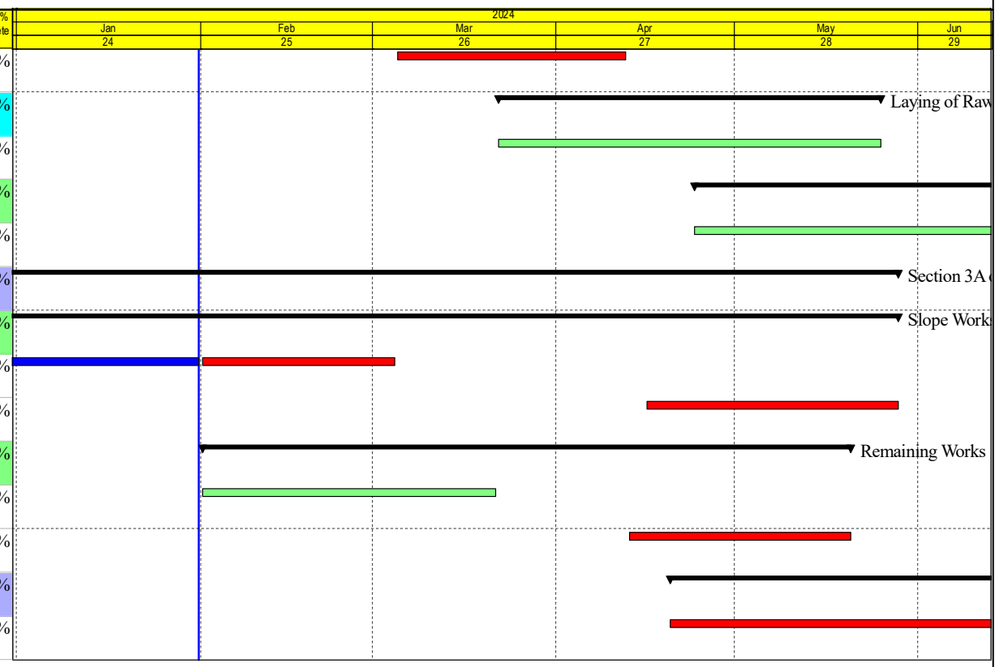
Activity ID	Activity Name	Duration	Remaining Duration	Start	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete
S312990	Construction of pipe trough for Laying of Raw water main(RWM-2) CHD 216 to 260	30.0d	30.0d	05-Mar-24 08:00	12-Apr-24 18:00			-84.0d	0%
Laying of Raw Water Main (RWM-3) CHE 0 to 200.9		50.0d	50.0d	22-Mar-24 08:00	25-May-24 18:00			98.0d	0%
S313400	Laying of Raw water main(RWM-3) CHE 75 to 125	50.0d	50.0d	22-Mar-24 08:00	25-May-24 18:00			98.0d	0%
Roadwork		150.0d	150.0d	24-Apr-24 08:00	23-Oct-24 18:00			73.0d	0%
S314000	Laying of water transfer pipes,construction of drainage system,valve chambers and installation of associated pipeworks	150.0d	150.0d	24-Apr-24 08:00	23-Oct-24 18:00			73.0d	0%
Section 3A of the Works - Entrustment Works		142.0d	92.0d	10-Nov-23 08:00 A	28-May-24 18:00	10-Nov-23 08:00		27.5d	35.21%
Slope Works		142.0d	92.0d	10-Nov-23 08:00 A	28-May-24 18:00	10-Nov-23 08:00		-84.0d	35.21%
S3A1075	Construction of pipe trough for laying of DN1200 FWM (CHFC320 to 380 -pipe trough)	35.0d	25.0d	10-Nov-23 08:00 A	04-Mar-24 18:00	10-Nov-23 08:00		-84.0d	28.57%
S3A1076	Construction of pipe trough for laying of DN1200 FWM (CHFC380 to 450.939 -pipe trough)	35.0d	35.0d	16-Apr-24 08:00	28-May-24 18:00			-84.0d	0%
Remaining Works		85.0d	85.0d	01-Feb-24 08:00	20-May-24 18:00			34.5d	0%
S3A2030	Laying of DN1200 fresh water main (CHFC35 to 60) including construction of the valve chambers	40.0d	40.0d	01-Feb-24 08:00	21-Mar-24 18:00			79.5d	0%
S3A2045	Laying of DN1200 fresh water main (CHFC320 to 380 -pipe trough) including construction of the valve chambers	30.0d	30.0d	13-Apr-24 08:00	20-May-24 18:00			-65.0d	0%
Section 4 of the Works-Landscape Softworks and Establishmei		210.0d	210.0d	20-Apr-24 08:00	15-Nov-24 18:00			-108.0d	0%
S401000	Landscape softworks	210.0d	210.0d	20-Apr-24 08:00	15-Nov-24 18:00			-108.0d	0%



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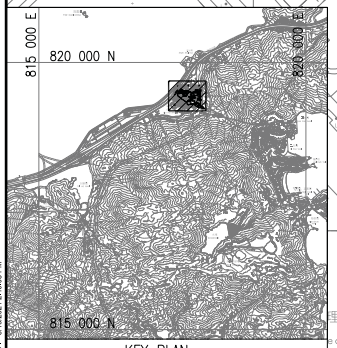
Appendix D

Monitoring Locations

LEGEND:

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

NOTE1:
THE EXISTING WASHWATER EQUALIZATION TANKS TO BE RENAMED AS "THICKENER FEED TANKS"



KEY PLAN
A1 1 : 50000

Revision	Date	Description	Initial
0	05/21	ISSUE FOR TENDER DRAWING	JC

	Designed	Checked	Drawn	Checked
Initial	CT/CCK	YFC/AS	SZ	JC
Date	05/21	05/21	05/21	05/21

Approved

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

水務署
Water Supplies Department

BINNIES HONG KONG LIMITED
賓尼新工程顧問有限公司

Plot Date : 5/13/2021 12:45:05 PM

File Name : Y:\Daily Work\02 From other HK Projects\199755 - Tender Drawing\DWG\199755A-B&V-GN-00001

Appendix E

Calibration Certificates

TISCH Environmental

RECALIBRATION DUE DATE:
December 15, 2024

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	December 15, 2023	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 748.5	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1941**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4590	3.2	2.00
2	3	4	1	1.0360	6.4	4.00
3	5	6	1	0.9260	8.0	5.00
4	7	8	1	0.8840	8.9	5.50
5	9	10	1	0.7290	12.9	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9907	0.6790	1.4106	0.9957	0.6825	0.8878
0.9864	0.9522	1.9949	0.9914	0.9570	1.2556
0.9843	1.0630	2.2304	0.9893	1.0684	1.4037
0.9831	1.1121	2.3393	0.9881	1.1178	1.4723
0.9778	1.3413	2.8213	0.9828	1.3481	1.7756
QSTD	**m=**	**2.13163**	**QA**	**m=**	**1.33479**
	b=	**-0.03523**		**b=**	**-0.02217**
	r=	**0.99999**		**r=**	**0.99999**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Siu Ho Wan WTW Administration
Location ID : SHWAB
Name and Model: TISCH HVS Model TE-5170

Date of Calibration: 30-Jan-24
Next Calibration Date: 30-Mar-24
Technician: Martin

CONDITIONS

Sea Level Pressure (hPa)	1006.3	Corrected Pressure (mm Hg)	754.725
Temperature (°C)	29.1	Temperature (K)	302

CALIBRATION ORIFICE

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

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.00	12.2	1.656	55	54.06	Slope = 27.0058
13	4.70	4.90	9.6	1.471	51	50.13	Intercept = 9.9511
10	3.30	3.50	6.8	1.241	45	44.23	Corr. coeff. = 0.9982
7	2.40	2.60	5.0	1.067	39	38.34	
5	1.20	1.10	2.3	0.729	30	29.49	

Calculations :

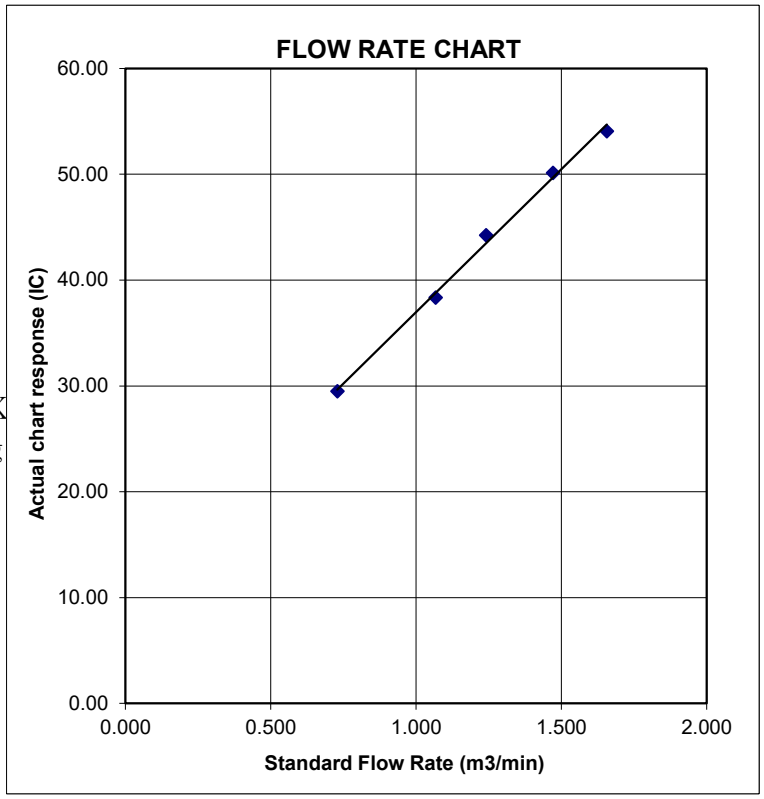
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Appendix F

Event and Action Plan

Event Action Plan for Air Quality

Event	Action			
	ET	**IEC**	***PM*D**	***Contractor***
Action Level exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, *PM*D and *Contractor*; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check *Contractor*'s working method; and 3. Review and advise the ET and *PM*D on the effectiveness of the proposed remedial measures.	1. Notify *Contractor*.	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 *PM*D if appropriate.
Action Level exceedance for two or more consecutive samples	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, *PM*D and *Contractor*; 3. Advise the *PM*D and *Contractor* on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC, *PM*D and *Contractor* on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and *PM*D; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check *Contractor*'s working method; 3. Discuss with ET and *Contractor* on possible remedial measures; 4. Advise the ET and *PM*D on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify *Contractor*; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Submit proposals for remedial actions to *PM*D 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	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform *PM*D, *Contractor*, IEC and EPD;	1. Check monitoring data submitted by ET; 2. Check *Contractor*'s working method; 3. Discuss with ET, *PM*D and *Contractor* on possible remedial	1. Confirm receipt of notification of failure in writing; 2. Notify *Contractor*; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance;

	3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of *Contractor*'s remedial actions and keep IEC, EPD and *PM*D informed of the results.	measures; 4. Advise the *PM*D and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.		3. Submit proposals for remedial actions to *PM*D 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	1. Notify IEC, *PM*D, *Contractor* and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of *Contractor*'s working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, *Contractor* and *PM*D to discuss the remedial actions to be taken; 7. Assess effectiveness of *Contractor*'s remedial actions and keep IEC, EPD and *PM*D informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check *Contractor*'s working method; 3. Discuss amongst *PM*D, ET, and *Contractor* on the potential remedial actions; 4. Review *Contractor*'s remedial actions whenever necessary to assure their effectiveness and advise the *PM*D accordingly; and 5. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify *Contractor*; 3. In consultation with the ET and IEC, agree with the *Contractor* 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 *Contractor* to stop that portion of work until the exceedance is abated.	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 *PM*D 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 *PM*D until the exceedance is abated.

Note:
ET – Environmental Team
IEC – Independent Environmental Checker
*PM*D – *Project Manager*'s Delegate

Appendix G

Monitoring Schedule

Impact Air Quality Monitoring Schedule for the Reporting Period

Date		AIR QUALITY MONITORING (24-HOUR TSP)
Thu	1-Feb-24	
Fri	2-Feb-24	✓
Sat	3-Feb-24	
Sun	4-Feb-24	
Mon	5-Feb-24	
Tue	6-Feb-24	
Wed	7-Feb-24	
Thu	8-Feb-24	✓
Fri	9-Feb-24	
Sat	10-Feb-24	
Sun	11-Feb-24	
Mon	12-Feb-24	
Tue	13-Feb-24	
Wed	14-Feb-24	✓
Thu	15-Feb-24	
Fri	16-Feb-24	
Sat	17-Feb-24	
Sun	18-Feb-24	
Mon	19-Feb-24	
Tue	20-Feb-24	✓
Wed	21-Feb-24	
Thu	22-Feb-24	
Fri	23-Feb-24	
Sat	24-Feb-24	
Sun	25-Feb-24	
Mon	26-Feb-24	✓
Tue	27-Feb-24	
Wed	28-Feb-24	
Thu	29-Feb-24	

✓	Monitoring Day
	Sunday or Public Holiday

Impact Air Quality Monitoring Schedule for next Reporting Period

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

✓	Monitoring Day
	Sunday or Public Holiday

Appendix H

Database of Monitoring Result

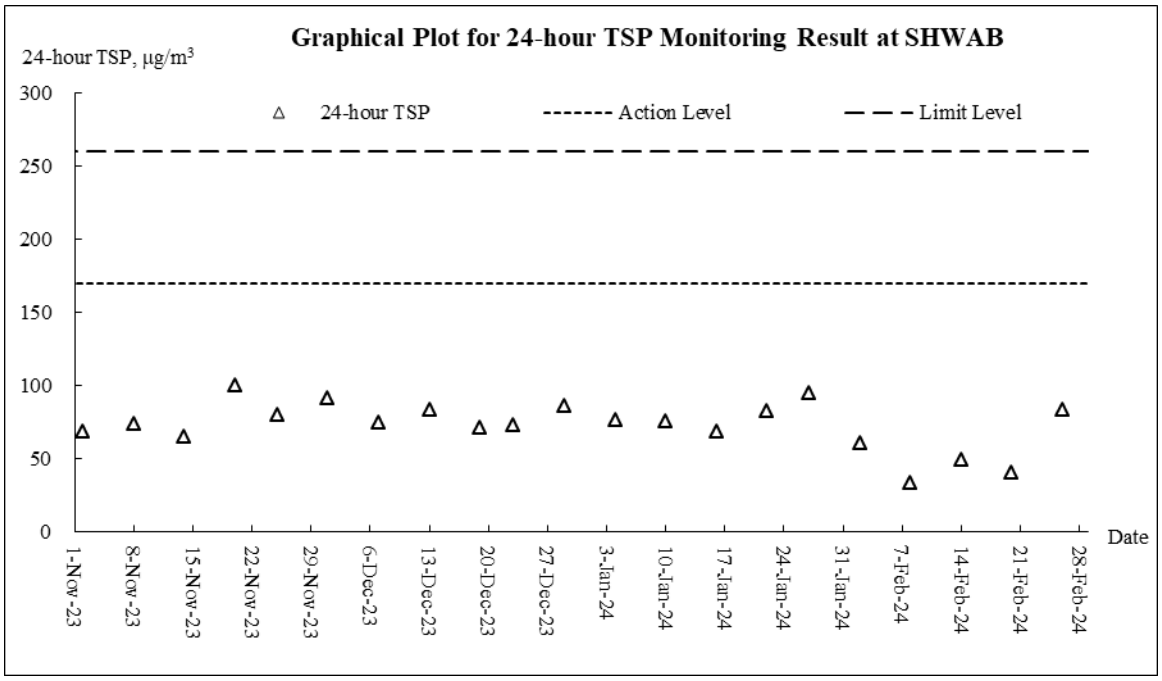
Impact Monitoring Results for 24-hour TSP at SHWAB

DATE	SAMPLE NUMBER	ELAPSED TIME		ACTUAL (min)	CHART READING			AVG TEMP (℃)	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		
2-Feb-24	20015	20614.46	20638.46	1440.00	40	40	40.0	21.7	1017.6	1.12	1619	2.7972	2.8950	0.0978	60
8-Feb-24	20104	20638.46	20662.46	1440.00	38	38	38.0	13.0	1018.8	1.07	1543	2.7535	2.8055	0.0520	34
14-Feb-24	20083	20662.46	20686.46	1440.00	40	40	40.0	21.0	1020.2	1.13	1624	2.7641	2.8442	0.0801	49
20-Feb-24	20143	20686.46	20710.46	1440.00	40	40	40.0	23.9	1014.7	1.12	1608	2.7506	2.8157	0.0651	40
26-Feb-24	20144	20710.46	20734.46	1440.00	40	40	40.0	18.2	1021.1	1.14	1635	2.7519	2.8883	0.1364	83

Appendix I

Graphical Plots for Monitoring Result

24-Hour TSP


Graphical Plot for 24-hour TSP Monitoring Result at SHWAB
24-hour TSP, μg/m³
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
Date
1-Nov-23
8-Nov-23
15-Nov-23
22-Nov-23
29-Nov-23
6-Dec-23
13-Dec-23
20-Dec-23
27-Dec-23
3-Jan-24
10-Jan-24
17-Jan-24
24-Jan-24
31-Jan-24
7-Feb-24
14-Feb-24
21-Feb-24
28-Feb-24

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-Feb-24	Thu	Warm in the afternoon. Light winds.	0.2	22.8	11.7	82.0	E/NE	1018
2-Feb-24	Fri	Sunny periods. Coastal fog patches in the morning.	Trace	23.8	15.5	74.0	W	1017.6
3-Feb-24	Sat	occasionally fresh with one or two light rain patches later.	Trace	21.2	20	77.5	E	1018.8
4-Feb-24	Sun	Moderate northeasterly winds.	Trace	22.0	18	81.2	E/NE	1017.3
5-Feb-24	Mon	Mainly cloudy with one or two rain patches and coastal fog.	Trace	19.6	10	82.5	NW	1018.8
6-Feb-24	Tue	Mainly cloudy with one or two rain patches tonight	0.6	20.6	20	72.0	E	1019.6
7-Feb-24	Wed	Cloudy with a few rain patches.	Trace	16.2	12.7	89.2	NW	1017.3
8-Feb-24	Thu	It will be cold. Cloudy with a few rain patches.	2.2	11.7	10.5	80.7	N/NE	1018.8
9-Feb-24	Fri	Mainly cloudy with one or two light rain patches.	0.6	11.5	11.7	75.5	N/NE	1023.5
10-Feb-24	Sat	It will be cold.Moderate north to northeasterly winds.	0.5	14.8	10.7	58.2	NE	1026.5
11-Feb-24	Sun	It will be cold. Cloudy with a few rain patches.	0	17.4	12.5	44.0	E	1026.9
12-Feb-24	Mon	Rather warm during the day. Light winds.	0	19.1	13.1	57.0	E/NE	1025.8
13-Feb-24	Tue	Light to moderate easterly winds.	0	20.8	13.7	62.5	E/NE	1023.2
14-Feb-24	Wed	Mainly fine. Warm during the day.	0	22.0	12.0	69.0	E	1020.2
15-Feb-24	Thu	Light to moderate easterly winds.	0	22.9	11.2	64.5	W/NW	1019
16-Feb-24	Fri	Mainly fine. Warm during the day.	Trace	21.6	18.5	66.0	N/NW	1019.7
17-Feb-24	Sat	Light to moderate southeasterly winds.	Trace	40.4	20.5	71.0	E	1017.4
18-Feb-24	Sun	Sunny intervals in the afternoon.	0	24.7	15.5	66.0	S/SE	1015.2
19-Feb-24	Mon	Mainly cloudy. Foggy in the morning and at night.	0	24.3	12.2	74.7	SE	1015.1
20-Feb-24	Tue	Sunny periods. Warm during the day.	0	25.5	17.7	75.7	SE	1014.7
21-Feb-24	Wed	Coastal fog and one or two light rain patches at night.	0	23.8	13.7	72.5	SE	1014.5
22-Feb-24	Thu	Foggy with one or two rain patches in the morning and at night.	0	24.4	15	71.0	S/SE	1016.6
23-Feb-24	Fri	Slightly cooler and mainly cloudy with one or two light rain patches.	Trace	18.7	11.7	77.5	NW	1019.9
24-Feb-24	Sat	Light to moderate east to southeasterly winds.	Trace	17.3	15	70.0	N/NW	1021.1
25-Feb-24	Sun	Mainly cloudy. Bright periods in the afternoon.	0	15.0	12	67.7	N/NW	1020.7
26-Feb-24	Mon	Cool with one or two light rain patches tonight.	Trace	17.1	10.5	64.5	N/NW	1021.1
27-Feb-24	Tue	Mainly cloudy. Sunny intervals in the afternoon.	Trace	16.0	13.7	64.5	NW	1020.9
28-Feb-24	Wed	Mainly cloudy. Moderate to fresh easterly winds.	Trace	17.5	15.7	73.0	NW	1018
29-Feb-24	Thu	Mainly cloudy. Bright periods in the afternoon.	Trace	16.2	15	83.7	NW	1017.6

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 _2024__ (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	1524.840	14.460	0.000	0.000	1510.380	310.040	0.0022	0.4101	0.0030	0.0000	31.630
Feb	1076.950	14.040	0.000	0.000	1062.910	0.000	16.7324	0.0000	0.0026	0.0000	21.120
Mar											
Apr											
May											
Jun											
Sub-total	2601.790	28.500	0.000	0.000	2573.290	310.040	16.7346	0.4101	0.0056	0.0000	52.750
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	2601.790	28.500	0.000	0.000	2573.290	310.040	16.7346	0.4101	0.0056	0.0000	52.750

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 Gernerated = 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: • 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 scaled 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: • 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

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	*Construction Site Runoff and Drainage* • 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	*General Construction Activities* • 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	• 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	*Sewage from Construction Workforce* • 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	*Mitigation to minimise impacts on vegetation in woodland* • 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 phase and construction period	WSD/ *Contractor*	√	√		EIAO

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	Landscape and Visual). • 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	*Mitigation to minimise impacts on aquatic ecology* • 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	*Mitigation to minimise general disturbance to wildlife* • 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	*General good site practice* • 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.	*Re-vegetation to reinstate works areas* • 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	• 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)							

EIA Ref	Environmental Protection Measures	Location/Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
				D	C	O	
S7.9	• 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	• 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	*Good Site Practices* Good site practices during the construction activities include: • 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	*Waste Reduction Measures* 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	Work site / During planning & design stage, and construction	WSD/*Contractor*	√	√		WBTC No.4/98, ETWB TCW No. 15/2003

EIA Ref	Environmental Protection Measures	Location/Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
				D	C	O	
	include: • 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	*General Refuse* 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	*Construction & Demolition (C&D) Material* 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	*Chemical Wastes* 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