JOB NO.: TCS01216/21

WSD Contract No.: 3/WSD/20 -

Reclaimed Water Supply to Sheung Shui and Fanling

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT (NO.22) – SEPTEMBER 2023

PREPARED FOR

WATER SUPPLIES DEPARTMENT

Quality Index

Date	Reference No.	Prepared By	Approved By
11 October 2023	TCS01216/21/600/R0087v1	Martin Li Environmental Consultant	TW Tam Environmental Team Leader

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1	11 October 2023	First Submission

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Date: 12th October 2023

Project Manager
Water Supplies Department
Immigration Tower, 7 Gloucester Road,
Wan Chai, Hong Kong
Attn: Mr. Tim Wong

Dear Sir,

Agreement No. CE67/2017(WS)
Reclaimed Water Supply to Sheung Shi and Fanling – Investigation, Design and Construction
Independent Environmental Checker (IEC) Services for
Shek Wu Hui Water Reclamation Plant under Contract No. 3/WSD/20

Monthly EM&A Monitoring Report for September 2023

We refer to the monthly EM&A Report for September 2023 for WSD Contract No.: 3/WSD/20 – Reclaimed Water Supply to Sheung Shui and Fanling certified by the Environmental Team Leader on 11th October 2023. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 3.4 of Environmental Permit No. FEP-01/470/2013.

Should you have any query, please feel free to contact the undersigned at 8493 5543.

Yours Sincerely,

Vega Wong
Independent Environmental Checker

c.c.

- ET Leader – AUES (Attn: Mr. T.W. Tam) [by Email: twtam@fordbusiness.com]
- Resident Engineer – Binnies Hong Kong Limited (Attn: Mr. Chester Chan) [by Email: chancw@binnies.com]

EXECUTIVE SUMMARY

ES.01 Water Supplies Department (WSD) is the Project Proponent and the Permit Holder of **Reclaimed Water Supply to Sheung Shui and Fanling** (hereinafter referred as "the Contract Works"), which is a Designated Project to be implemented under Further Environmental Permit number FEP-01/470/2013 (hereinafter referred as "the FEP-01/470/2013" or "the FEP").

ES.02 In according with the Updated EM&A Manual stipulation and the location of Contract Works, only construction noise monitoring and waterbird of ecological monitoring are required during the construction phase of the Contract Works.

ES.03 As part of the EM&A programme, Baseline Monitoring Report which determined Action and Limit Levels (A/L Levels) based on the baseline data, has been verified by Independent Environmental Checker (IEC) and submitted to EPD endorsement on ***24 November 2021***. Also, construction activities under the Contract Works were commenced on ***7 December 2021***.

ES.04 This is the **22nd** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1** to **30 September 2023** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.06 Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Table ES-1 Environmental monitoring activities in the Reporting Period

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Total Occasions during Reporting Period
Construction Noise	$L_{eq(30min)}$ Daytime	**4**
Ecology	Waterbirds	**4**
Site Inspection / Audit	ET, the Contractor and RE joint site Environmental Inspection	**4**

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.07 In the Reporting Period, no construction noise limit level exceedance construction noise was recorded and no noise complaint (i.e. Action Level) was received. No action and limit level exceedance for waterbirds survey was recorded in the Reporting Period. No Notifications of Exceedances (NOEs) was issued to the Resident Engineer (RE), IEC and the Main Contractor. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Table ES-2 Breach of Action and Limit (A/L) Levels in the Reporting Period

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	0	0
Ecology	Waterbirds Abundance	0	0	0	0	0

ENVIRONMENTAL COMPLAINT

ES.08 No environmental complaint was recorded or received in this Reporting Month. The statistics of environmental complaint are summarized in the following table.

Table ES-3 Environmental Complaint Summaries in the Reporting Month

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	0	0	NA

ES.09 In addition, no complaint received and emergency events relating to violation of environmental legislation for illegal dumping and landfilling were received.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.10 No environmental summons or successful prosecution was recorded in this Reporting Month. The statistics of summons or successful prosecutions are summarized in the following tables.

Table ES-4 Environmental Summons Summaries in the Reporting Month

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	0	0	NA

Table ES-5 Environmental Prosecution Summaries in the Reporting Month

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	0	0	NA

REPORTING CHANGE

ES.11 No report change in the reporting period.

SITE INSPECTION

ES.12 Weekly site inspections to evaluate the site environmental performance have been carried out by the RE, ET and the Main Contractor on ***7, 14, 18*** and ***28 September 2023***. No non-compliance was noted during the site inspection.

ES.13 IEC inspection was conducted on ***18 September 2023***.

FUTURE KEY ISSUES

ES.14 E&M work at ReWPS & HCF, and fence wall construction work at SWHWRP will be the major construction work in the coming month. The Contractor should pay attention to potential water quality impact from fence wall construction work and waste impact from E&M Work, and implement mitigation measures according to the ISEMM.

ES.15 As wet season has approached, the Contractor was general reminded to paid attention to water quality mitigation measures such as ensure sufficient wastewater treatment facilities capacity is provided on site and keep review on the temporary drainage system to avoid water quality impact arise from the Project.

ES.16 Details of the future issues in the coming month are described in Section 9.4.

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1. INTRODUCTION

1.1 BACKGROUND

1.1.1 Water Supplies Department (WSD) is the Project Proponent of Utilization of Treated Sewage Effluent (TSE) from Shek Wu Hui Sewage Treatment Works. On 30th July 2021, China Geo-Engineering Corporation (hereinafter named as "the Main-Contractor") was awarded WSD Contract Works 3/WSD/20 - Reclaimed Water Supply to Sheung Shui and Fanling (hereinafter referred as "the Contract Works").

1.1.2 The reclaimed water supply to Sheung Shui and Fanling (SSF) comprises a Shek Wu Hui Water Reclamation Plant (SWHWRP), part of pumping water mains to Table Hill Reclaimed Water Service Reservoir (TBHRWSR), and Kwu Tung North (KTN) New Development Area (NDA) and distribution water mains to SSF area.

1.1.3 The SWHWRP, which comprises Hypo-Chlorination Facilities (HCF) and Reclaimed Water Pumping Station (ReWPS), will be located at a long-stripped area between Ng Tung River and Sheung Shui Slaughter House at the northwest of the Shek Wu Hui Sewage Treatment Works (SWHSTW).

1.1.4 The HCF, which consists of a hypo-chlorination dosing plant, a chlorine contact tank, dye dosing system, water refilling station, other post-treatment facilitates and storage areas for chemicals, would produce reclaimed water by further treatment of the treated sewage effluent (TSE) pumped from the discharge outlet of the SWHSTW. The treatment capacity of the SWHWRP will be 73,000m3/day.

1.1.5 The Reclaimed Water P/S, which will be located at the northwest of the HCF, will receive reclaimed water by gravity from the HCF and deliver to the TBHRWSR serving SSF areas, Kwu Tung North Flushing Water Service Reservoir (KTN FLWSR) serving KTN NDA and Fanling North Flushing Water Service Reservoir (FLN FLWSR) serving Fanling North (FLN) NDA

1.1.6 This Work Contract mainly comprise construction of Shek Wu Hui Water Reclamation Plant and laying of the associated water main to produce reclaimed water for supply to the Northeast New Territories areas for non-potable used. It is estimated that about 22 million cubic metres of fresh water can be saved each year ultimately.

1.1.7 The construction of Shek Wu Hui Water Reclamation Plant under the Work Contract is a Designated Project to be implemented under Further Environmental Permit number FEP-01/470/2013 (hereinafter referred as "the FEP-01/470/2013" or "the FEP"). Location of Shek Wu Hui Water Reclamation Plant is shown in ***Appendix A***.

1.1.8 The major work of the Work Contract under FEP included:

- Civil engineering construction works, including structures, foundations and earthworks for the SWHWRP and ancillary buildings;
- Electrical and mechanical (E&M), building services, fire services installations, and treatment process system engineering work;
- Other associated systems and facilities for the SWHWRP.

1.1.9 Pursuant to the FEP stipulation, the Main Contractor has commissioned Action-United Environmental Services & Consulting (hereinafter referred as "AUES") as Environmental Team (hereinafter referred as "ET") perform relevant EM&A programme and as well as the associated duties.

1.1.10 As part of the EM&A programme, Baseline Monitoring Report which determined Action and Limit Levels (A/L Levels) based on the baseline data, has been verified by Independent Environmental Checker (IEC) and submitted to EPD endorsement on ***24 November 2021***. Also, construction activities of the Contract were commencement on ***7 December 2021***.

1.1.11 This is ***22nd*** monthly EM&A report to presenting the monitoring results and inspection findings from ***1*** to ***30 September 2023*** of the Reporting Period.

1.2 REPORT STRUCTURE

1.2.1 The report was structured into the following sections:-

Section 1	*Introduction*
Section 2	*Project Organization and Construction Progress*
Section 3	*Summary of Impact Monitoring Requirements*
Section 4	*Construction Noise Monitoring*
Section 5	*Ecology Waterbirds Monitoring*
Section 6	*Waste Management*
Section 7	*Site Inspections*
Section 8	*Environmental Complaints and Non-Compliance*
Section 9	*Implementation Status of Mitigation Measures*
Section 10	*Conclusions and Recommendations*

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 PROJECT ORGANIZATION

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.

Engineer or Engineers Representative (ER)

2.1.4 The ER 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 ER with respect to EM&A are:

- Supervise the Contractor's activities and ensure that the requirements in the Contract Works Specific EM&A Manual are fully complied with;
- Inform the Contractor when action is required to reduce impacts in accordance with the Even and Action Plans;
- Employ an IEC to audit the results of the EM&A works carried out by the ET; and
- Comply with the agreed Event Contingency Plan in the event of any exceedance.

The Main 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 Environmental Team (ET) to undertake monitoring, laboratory analysis and reporting of environmental monitoring and audit;
- Provide assistance to ET in carrying out monitoring and auditing;
- 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 where Action and Limit levels are exceeded; and
- Adhere to the agreed procedures for carrying out compliant 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 Contractors' 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 ER 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 ER 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 ER 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 In the Reporting Period, the major construction activities of the Contract Works under FEP are listed in below. Moreover, the master construction program and site overview photo in the reporting period are enclosed in ***Appendix C***.
- ReWPS (Pump Hall & Pump sump) – BS Works (Fire service conduits, installation of lifting appliances, construction of Dividing Wall, installation of main pumps & associated pipe works
- CLP Cable Laying Work
- External Works at SWHWRP – Fence wall footing & Stem wall, Drainage Pipe & Catchpit, CLP Ducts & Drawpits, E&M Ducts & Drawpits, Reclaimed Water Mains, DN450 Overflow pipe, NS180 FS Pipe, NS32 & NS40 Fresh Water Pipe & Flushing Water Pipe
- Fence wall at SWHWRP

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 To according with the FEP stipulation, the required documents has submitted to EPD for retention as listed below:
- Project Location Plans;
- Updated Environmental Monitoring and Audit Manual of Project Specific (*TCS01176/21/600/R0012v2*); and
- Baseline Monitoring Report (*TCS01216/21/600/R0017v3*) for the Project.

2.3.2 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project is presented in ***Table 2-3-1***.

Table 2-3-1 Status of Environmental Licenses and Permits

Item	Description	Licence/Permit Status		
		Ref. no.	Effective Date	Expiry Date
1	Air Pollution Control (Construction Dust) Regulation	Notification was made on 3 Aug 2021	3 Aug 2021	Till the Contract ends
2	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	Account No.: 7041397	8 Aug 2021	Till the Contract ends

Item	Description	Licence/Permit Status		
		Ref. no.	Effective Date	Expiry Date
3	Chemical Waste Producer Registration	Application was made on 3 Aug 2021	3 Aug 2021	Till the Contract ends
4	Water Pollution Control Ordinance – Discharge Licence	Discharge Licence No.: WT00039707-2021	17 Nov 2021	30 Nov 2026
5	Construction Noise Permit	CNP No. GW-RN0869-23	27 Aug 2023	26 Nov 2023

3. SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

3.1.1 According to the Updated EM&A Manual and the location of the Contract Works, only construction noise monitoring and waterbirds ecological of environmental monitoring are related the Contract Works during the construction phase. Details requirement of noise and waterbirds ecological impact monitoring are presented sub-sections as below.

3.2 REQUIREMENT OF CONSTRUCTION NOISE MONITORING

3.2.1 One set of $L_{eq(30min)}$ as 6 consecutive $L_{eq(5min)}$ between 0700-1900 hours on normal weekdays and once every week during course of works. If construction work necessary to carry out at other time periods, i.e. restricted time period (19:00 to 07:00 the next morning and whole day on public holidays) (hereinafter referred as "the restricted hours"), $L_{eq(5min)}$ measurement will be carried out in accordance with the CNP requirements. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

3.2.2 Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.3 LOCATION OF CONSTRUCTION NOISE IMPACT MONITORING

3.3.1 According to the Updated EM&A Manual of CEDD Contract No. NDO 14/2018 - *Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas*, four noise sensitive receivers are designated on Fanling North New Development Areas for construction noise monitoring.

3.3.2 According to the geographic location of proposed Shek Wu Hui Water Reclamation Plant and all the recommended designated construction noise monitoring stations, only the designated noise monitoring station CP-KTN-NMS5 (prior named "CP-NMS7") shown in ***Appendix D***, is located near the proposed Shek Wu Hui Water Reclamation Plant within 300m (distance about 110m). Therefore, the designated noise monitoring station CP-KTN-NMS5 is recommended for the Contract Works to undertake construction noise monitoring. If the recommended noise monitoring location CP-KTN-NMS5 not available, the ET shall propose alternative monitoring locations/additional monitoring locations and seek approval from the Supervisor of the proposal. When alternative/new monitoring location is proposed, the monitoring location shall be chosen based on the following criteria:

(i) at locations close to the major site activities which are likely to have noise impacts;
(ii) close to the noise sensitive receivers; and
(iii) for monitoring locations located in the vicinity of the sensitive receivers, care shall be taken to cause minimal disturbance to the occupants during monitoring.

3.3.3 The construction noise monitoring station shall normally be at a point 1 m from the exterior of the sensitive receivers building façade and be a position 1.2m above the ground. If there is problem with access to the normal monitoring position, an alternative position may be chosen, and a correction to the measurements shall be made to the free field measurements. The ET shall agree with the Supervisor on the monitoring station that is chosen for impact monitoring.

3.4 ACTION AND LIMIT LEVEL FOR CONSTRUCTION NOISE

3.4.1 The Action and Limit levels for construction noise are defined in ***Table 3-4-1***. Should non-compliance of the criteria occur, action in accordance with the Action Plan which shown in Section 4 of this report**,** shall be carried out.

Table 3-4-1 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
CP-KTN-NMS5	When one or more documented complaints are received	75 dB(A)[Note 1]
Note 1: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.		

3.5 NOISE MONITORING METHODOLOGY

Monitoring Equipment

3.5.1 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications was used for carrying out the noise monitoring. Noise equipment used for impact monitoring is listed in ***Table 3-5-1***.

Table 3-5-1 Equipment of Noise Impact Monitoring

Equipment	Model
Integrating Sound Level Meter	Rion NL – 52
Calibrator	Rion NC – 75

Remark: Sound level meter IEC 60651:1979 (Type 1) was replaced by 60672 (Type 1) in 2002 (Ref: https://webstore.iec.ch/publication/17086

3.5.2 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The valid calibration certificates of the monitoring equipment are shown in ***Appendix E***.

3.6 MONITORING PROCEDURE

3.6.1 All noise measurements were performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). $Leq_{(30min)}$ in six consecutive $Leq_{(5min)}$ measurements was used as the monitoring parameter for the time period between 07:00-19:00 hours during the baseline monitoring.

3.6.2 In general, the sound level meter would be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone was pointed to the site with the microphone facing perpendicular to the line of sight. The windshield would be fitted for all measurement. Where a measurement was to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement was to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.

3.6.3 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements would be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.

3.6.4 Noise measurements would not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed would be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.7 DATA MANAGEMENT AND DATA QA/QC CONTROL

3.7.1 The monitoring data recorded in the equipment would be downloaded directly from the equipment at each monitoring day. The downloaded monitoring data would input into a computerized database properly maintained and handled by the ET's in-house data recording and management system.

3.8 REQUIREMENT OF WATERBIRDS ECOLOGICAL IMPACT MONITORING

3.8.1 Where development under the NDAs project is undertaken within 200m (the maximum distance at which it is predicted there may be some disturbance, and hence a reduction in numbers, of large waterbirds) of the Ng Tung, Sheung Yue and Shek Sheung Rivers and Long Valley the monitoring protocol detailed in the updated EM&A Manual Table 12.1 should be followed. A transect should be undertaken throughout the sections of the rivers where NDA construction activities are proposed; as the sensitive receivers (large waterbirds) are easily visible, the transect route needs only follow one bank of the rivers. The transect route should remain the same during the different phases in order to ensure that data are comparable. Monitoring of large waterbirds should be conducted in pre-construction, construction and operational phases of the concerned development.

3.8.2 The proposed Shek Wu Hui Water Reclamation Plant location is located less than 200m to Ng Tung River, Sheung Yue River and Shek Sheung River, waterbirds ecological monitoring included pre-construction (i.e. baseline), construction (i.e. impact) and post-construction (i.e. operating) should be requires. The detailed monitoring protocol is listed in ***Table 3-8-1***.

Table 3-8-1 Monitoring of Measures to Minimize Disturbance to Waterbirds on the Ng Tung, Sheung Yue and Shek Sheung Rivers

Phase	Methodology
Pre-construction (baseline)	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels for 12 months prior to the commencement of construction.
Construction	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to construction activities throughout the construction period.
Post-construction	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to operational activities for 12 months following the completion of the construction period.

3.8.3 Waterbirds ecological baseline monitoring at Ng Tung River, Sheung Yue River and Shek Sheung River was conducted by DSD between ***December 2017*** and ***June 2019*** (total 19 months baseline monitoring)**,** in compliance with the Updated EM&A Manual. Thus, the action and limit levels and responses to evidence of disturbance to waterbirds using in Ng Tung, Sheung Yue and Shek Sheung Rivers will be made reference during construction phase of the Project.

3.9 MONITORING METHODOLOGY FOR WATERBIRDS ECOLOGICAL IMPACT MONITORING

3.9.1 Three transects and seven point count locations were selected at the Ng Tung, Sheung Yue and Shek Sheung River. These locations are shown in Appendix L and summarized in ***Table 3-9-1***.

Table 3-9-1 Ecological Monitoring Stations

Monitoring Stations	Descriptions	Influenced by Tidal Action
Transect T1	Along Ng Tung River	No
Transect T2		
Point Count Location P1		
Point Count Location P2		
Point Count Location P3		
Point Count Location P4		
Point Count Location P5	At Shek Sheung River (Low-flow Channel)	No
Transect T3	Along Shek Sheung River & Sheung Yue River	Yes
Point Count Location P6	At Shek Sheung River	Yes
Point Count Location P7	At Intersection between Sheung Yue and Shek Sheung River	Yes

3.9.2 Surveys will be conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal level are below 1.5m at Tsim Bei Tsui Station).

3.9.3 All avifauna species that were seen or heard would be identified and quantified along transects and at point count locations. Survey data would be recorded continuously by the surveyor as they walk along the transects, while survey data of each point count location would be collected for 5-minutes after surveyor reaches the designated point count location.

3.9.4 Noticeable behaviours such as breeding, nesting, roosting, feeding and presences of recently fledged juveniles were recorded and reported. In the case which such behaviours were observed for species of conservation importance, the Resident Engineer (RE), the Contractor and the Independent Environmental Checker (IEC) would be immediately notified after the survey such that the Contractor could review the current construction programme and minimize disturbances due to construction activities.

3.10 EVENT ACTION PLAN

Noise

3.10.1 Should non-compliance of the construction noise criteria occur, action in accordance with the Action Plan in **Table 3-10-1** shall be carried out.

Table 3-10-1 Event and Action Plan for Construction Noise

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Action Level Exceedance	1. Notify the IEC, ER and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the monitoring data submitted by the ET; 2. Review the construction methods and proposed remedial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify the Contractor; 3. Require the Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to the ER and IEC and copy to the ET; 2. Implement noise mitigation proposals.
Limit Level Exceedance	1. Identify sources. 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase the monitoring frequency; 5. Carry out analysis of the Contractor's working procedures with the ER and Contractor to determine possible mitigations to be implemented; 6. Inform IEC, ER, EPD and Contractor the causes and	1. Discuss amongst the ER, ET and Contractor on the potential remedial actions; 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analyzed noise problems; 4. Ensure remedial measures are properly implemented; 5. If exceedance continues,	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial action to the ER and IEC and copy to the ET within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit

Event	Action			
	ET	IEC	ER	Contractor
	actions taken for the exceedances; 7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results; 8. If exceedance stops, cease additional monitoring.		consider what portion of work is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	proposals if problems still not under control; stop the relevant portion of works as determined by the ER until the exceedance is abated.

Waterbird of Ecological

3.10.2 Should any exceedance encountered during construction phase, action in accordance with the Action Plan listed in ***Table 3-10-2*** shall be carried out.

Table 3-10-2 Event and Action Plan of Waterbirds of Ecological

Action Level	Response	Limit Level	Response
Construction Phase			
Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to NDAs project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to NDAs project instigate remedial action. Review and adjust LVNP management measures to improve conditions for affected species.
Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to NDAs project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to NDAs project instigate remedial action. Review and adjust LVNP management measures to improve conditions for affected species.

(*) W*aterbird numbers refer to combined numbers using the channels*

4. CONSTRUCTION NOISE MONITORING

4.1 GENERAL

4.1.1 The noise monitoring schedule is presented in ***Appendix F*** and the monitoring results are presented in the following sections.

4.2 RESULTS OF NOISE MONITORING

4.2.1 In the Reporting Period, a total of **4** occasions noise monitoring were carried out at the designated location CP-KTN-NMS5. The sound level meter was set in free-field situation, and therefore, façade correction (+3dB) is added according to acoustical principles and EPD guidelines. The noise monitoring results at the designated locations are summarized in ***Tables 4-2-1.*** The detailed noise monitoring data is presented in ***Appendix G*** and the relevant graphical plot shown in ***Appendix H***.

Table 4-2-1 Summaries of Noise Monitoring Results of CP-KTN-NMS5

Date	Start Time	$L_{Aeq30min}$ (dB(A))
5-Sep-23	14:22	64
11-Sep-23	15:56	61
22-Sep-23	10:31	60
27-Sep-23	13:00	61
Limit Level		**75 dB(A)**

Note: façade correction +3dB has added according to acoustical principles and EPD guidelines

4.2.2 During construction noise monitoring, no rain was encountered and wind speed is below 5m/s and gusts not exceeding 10m/s.

4.2.3 As shown in ***Table 4-2-1***, the noise level measured at the designated monitoring location was below 75dB(A). Furthermore, there were no noise complaints (Action Level exceedance) received by the RE, Contractor, WSD or EPD in the Reporting Period. Therefore, no Action or Limit Level exceedance was triggered and no corrective action was therefore required.

4.2.4 During the reporting period, no construction work was carried out during restricted hours.

5. ECOLOGY WATERBIRD MONITORING

5.1 GENERAL

5.1.1 Ecological monitoring for waterbirds shall be performed as transects and point count surveys along Ng Tung River, Sheung Yue River and Shek Sheung River in accordance with general surveying practices.

5.1.2 The surveying shall be undertaken by a qualified ecologist and he/she shall be a member of the ET. Throughout the construction period, weekly transect shall be conducted at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to construction activities.

5.1.3 Since occurrence of waterbirds has distinctive seasonal pattern, the construction phase data for all waterbirds and representative waterbirds shall be compared with the baseline data for the respective month and season. Total number of Waterbirds and six representative Waterbird species are used as an indicator of the level disturbance to water birds at each of the survey location. The representatives of waterbirds are listed in ***Table 5-1-1***.

Table 5-1-1 Representative Waterbirds

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

5.2 RESULTS OF WATERBIRDS SURVEY

5.2.1 ***Four (4)*** occasion of waterbirds survey were conducted in the Reporting Month.

5.2.2 Abundance and diversity of total bird species and key waterbirds species in the Reporting Month are summarized in **Table 5-2-1** and **Table 5-2-2**.

Table 5-2-1 Total Bird Species and Abundance at Point Count Locations in the Reporting Month

Category	Number of Species	Abundance
All Avifauna	32	500
Waterbirds	14	302

Table 5-2-2 Abundance of Representative Waterbirds at Point Count Locations in the Reporting Month

Common Name	Species Name	Chinese Name	Abundance
Chinese Pond Heron	Ardeola bacchus	池鷺	28
Eastern Cattle Egret	Bubulcus coromandus	牛背鷺	63
Grey Heron	Ardea cinerea	蒼鷺	12
Great Egret	Ardea alba	大白鷺	46
Little Egret	Egretta garzetta	小白鷺	113
Great Cormorant	Phalacrocorax carbo	普通鸕鷀	0

5.2.3 The result was compared with the baseline data (both September average and Autumn average) and decline in abundance of Chinese Pond Heron and Grey Heron were recorded. A table showing the waterbirds abundance comparison with baseline data was provided in **Appendix L**. (Appendix C of the waterbirds survey report).

5.2.4 As discussed in previous reporting period, the decline of individual waterbird species should not be the result of increased disturbances from the Project or its surrounding on-going projects, as increased disturbance would discourage multiple waterbird species from foraging near the transect and point count locations instead. Thus it is concluded that the decline in the two bird species are not related to the construction works of the Project.

5.2.5 According to surveyors, the construction works by other Projects around the survey transects observed in previous month are still active during the reporting month.

5.2.6 Cabling works of the current project (under non-EP section) was observed to have extended beyond the site hoarding, the pavement outside the northern site entrance was seen to be excavated since the survey in early June 2023, and the cabling work is still on-going. Abundance of waterbirds at P4 had always been low and there was no indication that these additional works had caused increased disturbance to waterbirds.

5.2.7 A playback device for bird calls was seen to be installed near the pond in T1 during the survey in early April 2023 by other Project. This may directly lower the number of waterbirds and representative waterbirds visiting P1 and P2 as the birds would be incentivized to forage away from these two points and in the pond instead. The playback device was switched on during the survey on 6th September 2023.

5.2.8 Road enhancement and sewerage system upgrade works by other Project was observed remain active along T2 near P3.

5.2.9 An extension of this sewerage system upgrade was observed to be in operation at the Eastern bank of Shek Sheung River near P5 since the survey in late August 2023. Piling works, other machinery and stockpiles were observed within its construction area, which may be a potential source of disturbance that discourages birds from foraging near P5.

5.2.10 The construction work by other Project near P7 was also observed active throughout the entire reporting month. Piling works of the same construction was also observed at T3, roughly midway between P6 and P7, and since the survey on 11th September 2023, excavators were observed on the opposite bank to the survey transect.

5.2.11 The details of the waterbirds survey for the Reporting Month can be referred to the full waterbirds survey report provided in **Appendix L**.

6. WASTE MANAGEMENT

6.1 GENERAL WASTE MANAGEMENT

6.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

6.2 RECORDS OF WASTE QUANTITIES

6.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

6.2.2 The quantities of waste for disposal in this Reporting Period are summarized in ***Tables 6-2-1*** and ***6-2-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix I***. Whenever possible, materials were reused on-site as far as practicable.

Table 6-2-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (in '000m^3)	0.267	-
Reused in this Contract (Inert) (in '000 m^3)	0	-
Reused in other Contracts/ Projects (Inert) (in '000 m^3)	0	-
Disposal as Public Fill (Inert) (in '000 m^3)	0.267	TM38

Table 6-2-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal (‘000kg)	0	-
Recycled Paper / Cardboard Packing (‘000kg)	0	-
Recycled Plastic (‘000kg)	0	-
Chemical Wastes (‘000kg)	0	-
General Refuses (‘000m^3)	0.019	SENT

7. SITE INSPECTION

7.1 REQUIREMENTS

7.1.1 According to the approved Updated EM&A Manual, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

7.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

7.2.1 In the Reporting Month, weekly regular site inspection by the RE, the Main Contractor and ET was carried out on ***7, 14, 18*** and ***28 September 2023*** to evaluate site environmental performance of the Contract Works. During the site inspections, no non-compliance was noted.

7.2.2 The findings/deficiencies of the Contract Works observed that during the weekly site inspection are listed in ***Table 7-2-1***.

Table 7-2-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
7 September 2023	• The Contractor was advised to dispose of cumulated construction waste within site area.	Cumulated construction waste was disposed of regularly.
14 September 2023	• The Contractor was advised to place chemical containers inside drip tray to prevent potential oil leakage.	Chemical containers was removed from site area.
18 September 2023	• Chemical containers should be placed inside drip tray to prevent any land contamination. • Green fence along site boundary near Ng Tung River should be properly maintained.	Chemical containers was removed from site area. Green fence along site boundary near Ng Tung River was properly maintained.
31 August 2023	• The Contractor was advised to dispose of open cement bags properly.	Open cement bags was disposed of regularly.

8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

8.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

8.1.1 For the Contract Works, no environmental complaint, summons and prosecution was received in the Reporting Period. The statistical summary table of environmental complaint is presented in ***Tables 8-1-1, 8-1-2*** and ***8-1-3***.

Table 8-1-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	0	0	NA

Table 8-1-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	0	0	NA

Table 8-1-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	0	0	NA

9. IMPLEMENTATION STATUS OF MITIGATION MEASURES

9.1 GENERAL REQUIREMENTS

9.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved Updated EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in ***Appendix J.***

9.2 IMPLEMENTATION STATUS OF THE MITIGATION MEASURES IN THE REPORTING PERIOD

9.2.1 The Contract Works shall be implementing the required environmental mitigation measures according to the approved Updated EM&A Manual as subject to the site condition. Environmental mitigation measures implemented by the Main Contractor in this Reporting Month are summarized in ***Table 9-1-1***. An as-built drawing of site temporary drainage is shown in ***Appendix K***.

Table 9-1-1 Environmental Mitigation Measures Implemented in the Reporting Period

Issues	Environmental Mitigation Measures
Air Quality	• All vehicles must be washed before leaving the site; • Sprayed water during excavation works; • Stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • Water spraying on haul road and dry site area was provided regularly; and • Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting;
Constriction Noise	• Keep all vehicles/plants in good condition to minimize noise impact; • Shut down the plants when not in used; • Provided quiet powered mechanical equipment to use onsite; • Avoided using multiple vehicles at the same time as far as practicable
Water Quality	• All the surface runoff are collected to sedimentation pit and tanks for sedimentation prior discharged • Sand bag bund was provided along the boundary of the site area near Ng Tung River to divert the surface runoff to sedimentation pit and avoid direct discharge of surface runoff. • Standby water pumps were provided on site to pump the runoff water collected at pit to the sedimentation tank for sedimentation. • Standby sedimentation tanks were provided on site to ensure sufficient sedimentation capacity. • Complied with the requirement under the discharge license. • Avoid spilt concrete during concreting works • Haul road was hard paved to reduce muddy runoff during rainy days.
Waste and Chemical Management	• Disposal of C&D wastes to any designated public filling facility and/or landfill followed a trip ticket system; • Debris and refuse generated on-site collected regularly; • Oils and fuels were stored in designated areas; • Kept the site tidy and clean.

9.3 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

9.3.1 The tentative construction works schedule of the Contract Works under FEP in the coming month are listed below:

- ReWPS (Pump Hall & Pump Sump) - Main pump and associated pipe work and water test
- CLP Cable Laying Work
- External Works at SWHWRP
- Fence wall construction at SWHWRP
- Metal works at HCF & ReWPS

9.4 KEY ISSUES FOR THE COMING MONTH

9.4.1 Key issues to be considered in the coming month for the Contract Works under FEP include:

Fence wall construction and cable laying work at SWHWRP

- Cover the excavated material from pipe laying work with impervious sheet to avoid water quality impact during rainy days.
- Restrict operation time of PME from 07:00 to 19:00 on any working day;

General

- Ensure the sand bag bund at site boundary near the Ng Tung River is properly maintained to avoid muddy discharge during heavy rain;
- Ensure sufficient capacity of sedimentation pit and tanks for wastewater sedimentation;
- Ensure all surface runoff are diverted to sedimentation pit and tanks properly;
- Sufficient stock of standby pump should be available on site for pumping the runoff water/wastewater to the sedimentation tank.
- Cover the dusty stockpile on site to reduce potential fugitive dust quality impact;
- Spraying water at dry haul road more frequently to reduce dust generation;
- All the vehicles should be properly washed prior leaving the site;
- Use Quiet powered mechanical equipment (QPME) whenever applicable;
- Minimize the number of plants used at the same time to reduce cumulative noise impact;
- Proper management of general refuse and chemical waste generated on site.
- Keep review the temporary drainage system on site during rainy reason
- Chemical label for chemical container should be regularly checked and provided.
- Sufficient secondary containment for chemical containers should be provided at work area.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 CONCLUSIONS

10.1.1 This is **22nd** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1** to **30 September 2023**.

10.1.2 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in the Reporting Period. No NOEs or the associated corrective actions were therefore issued.

10.1.3 Four (4) occasions of the weekly waterbirds survey has been taken in the Reporting Period. Although decline in waterbirds were recorded in the Reporting Period, the cause of decline was considered unlikely due to the Project. No action and limit level exceedance was considered triggered in the Reporting Month.

10.1.4 No documented complaint, notification of summons or successful prosecution was received by either the RE or WSD or the Main Contractor.

10.1.5 Weekly site inspection by the RE, ET and the Main Contractor had carried out on ***7, 14, 18*** and ***28 September 2023***. The mitigation measures implemented was considered satisfactory. No non-compliance observed during the site inspection.

10.2 RECOMMENDATIONS

10.2.1 E&M work at ReWPS & HCF, and fence wall construction work at SWHWRP will be the major construction work in the coming month. The Contractor should pay attention to potential water quality impact from fence wall construction work and waste impact from E&M Work, and implement mitigation measures according to the ISEMM.

10.2.2 As wet season has approached, the Contractor was general reminded to paid attention to water quality mitigation measures such as ensure sufficient wastewater treatment facilities capacity is provided on site and keep review on the temporary drainage system to avoid water quality impact arise from the Project.

10.2.3 The Contractor was reminded to pay attention to the key issues for the coming month mentioned in Section 9.4.

Appendix A

Location of Shek Wu Hui Water Reclamation Plant

N

830100 E

841700 N

841600 N

SURGE VESSEL

UNDERGROUND FLOWMETER CHAMBER

ANCILLARY ROOMS

MOTOR HALL

RECLAIMED WATER REFILLING STATION WITH UNDERGEOUND WATER TANK

ANCILLARY ROOMS

BUFFER TANK

HYPO-CHLORINATION CONTACT TANK

INLET CHAMBER

SHEUNG SHUI SLAUGHTER HOUSE

TO BE CONNECTED WITH PROPOSED PEOMENADE TO BE CONSTRUCTED BY OTHERS

NG TUNG RIVER (RIVER INDUS)

Ramp

Platform

Road

Outfall

CUL

FP

TS

FB

Sheung Shui Slaughter House

PLAN
SCALE 1 : 400

N

830300 E

FU TEI AU ROAD

導管

SHEUNG YUE RIVER

石上河

SHEK SHEUNG

CHUK WAN STREET

污水處理廠
Sewage Treatment Works

SITE PLAN
SCALE 1 : 5000

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFED.
2. THE BASE PLAN IS EXTRACTED FROM SURVEY SHEET NOS. 2-SE ADN 3-SW.
3. TOP SLABS OF STRUCTURES ARE NOT SHOWN FOR CLARITY.

LEGEND:

- SITE BOUNDARY OF SWHWRP
- FENCING
- EVA
- PLANTER GREENING AREA
- GRASSCRETE
- RIVERSIDE PROMENADE
- GROUND LEVEL
- TREE (INDICATIVE)
- F/P — FOOTPATH
- MANHOLE/CABLE PIT
- ACCESS GATE

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	CWC	GC	SZ	GC
Date	02/21	02/21	02/21	02/21

Approved

Contract No.
3 / WSD / 20

Contract Title
RECLAIMED WATER SUPPLY TO SHEUNG SHUI AND FANLING

Drawing Title
GENERAL ARRANGEMENT OF SWHWRP - GENERAL PLAN

Drawing No.
401582/B&V/WRP/GA/101

Revision
-

Scale
AS SHOWN

水務署
Water Supplies Department

BINNIES HONG KONG LIMITED
賓尼斯工程顧問有限公司

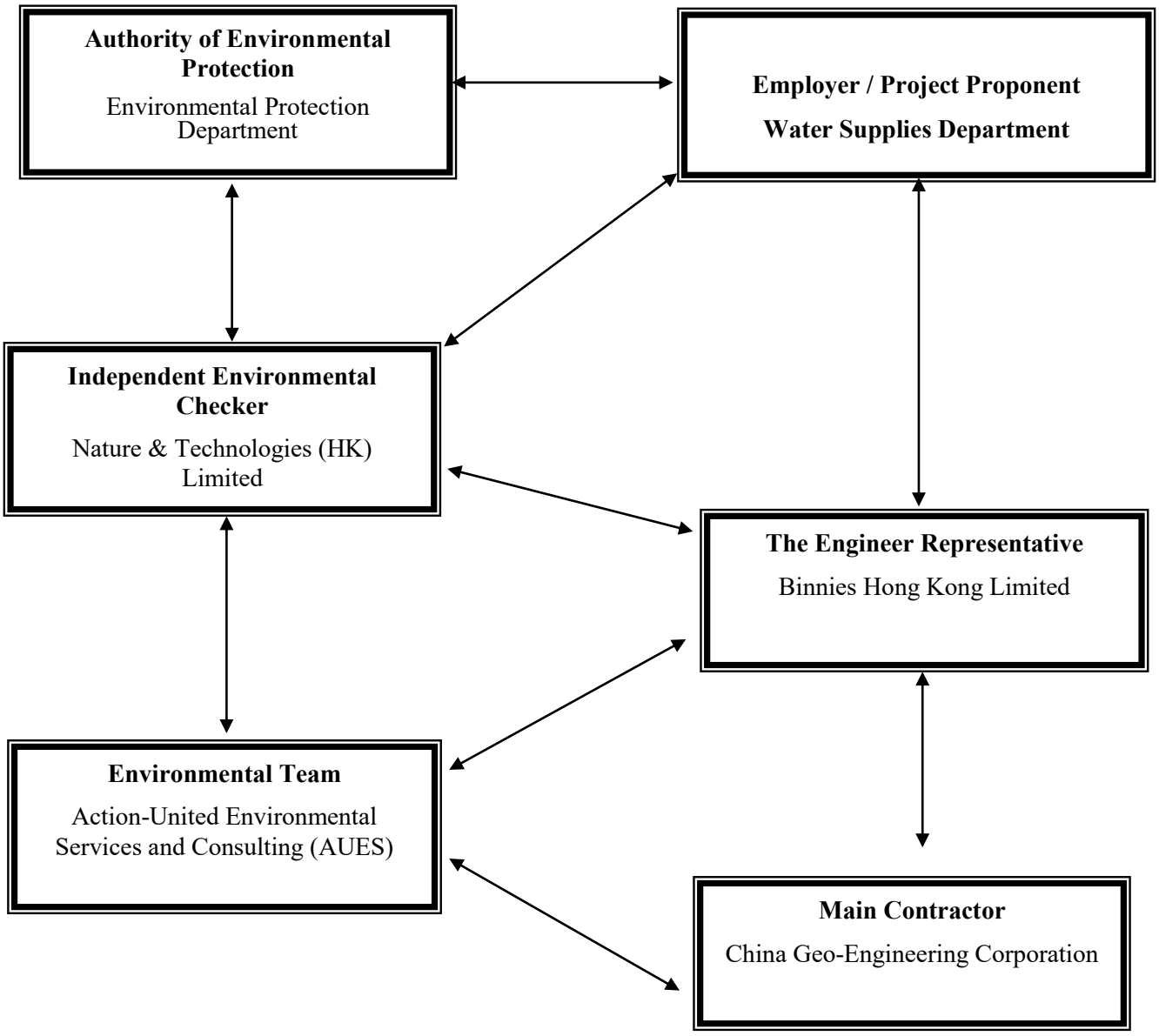
Plot Date: 3/15/2021 11:20:19 AM

File Name: BIM 360://401582 - Sheung Shui & Fanling Reclaimed Water IDC/BV-401582-WRP-SI-N.rvt

Appendix B

Project Organization

Project Organization Chart



Contact Details of Key Personnel for the Project

Organization	Project Role	Name of Key Staff	Tel No.	Email
WSD	Project Proponent	Tim Wong	2829 5638	tim_cw_wong@wsd.gov.hk
Binnies	Senior Resident Engineer	S.H. Chung	2608 7380	sre.3wsd20@gmail.com
Binnies	Resident Engineer	Chester Chan,	2608 7380	chancw@binnies.com
N&T	Independent Environmental Checker	Vega Wong	2877 3122	vegawong@nt.com.hk
CGC	Site Agent	Wong Fai	9785 2545	3wsd20@gmail.com
CGC	Environmental Officer	Chedison Lau	6274 3903	3wsd20@gmail.com
AUES	Environmental Team Leader	T. W. Tam	2959 6059	twtam@fordbusiness.com
AUES	Environmental Consultant	Martin Li	2959 6059	martinli@fordbusiness.com
AUES	Assistant Environmental Consultant	Fai So	2959 6059	faiso@fordbusiness.com

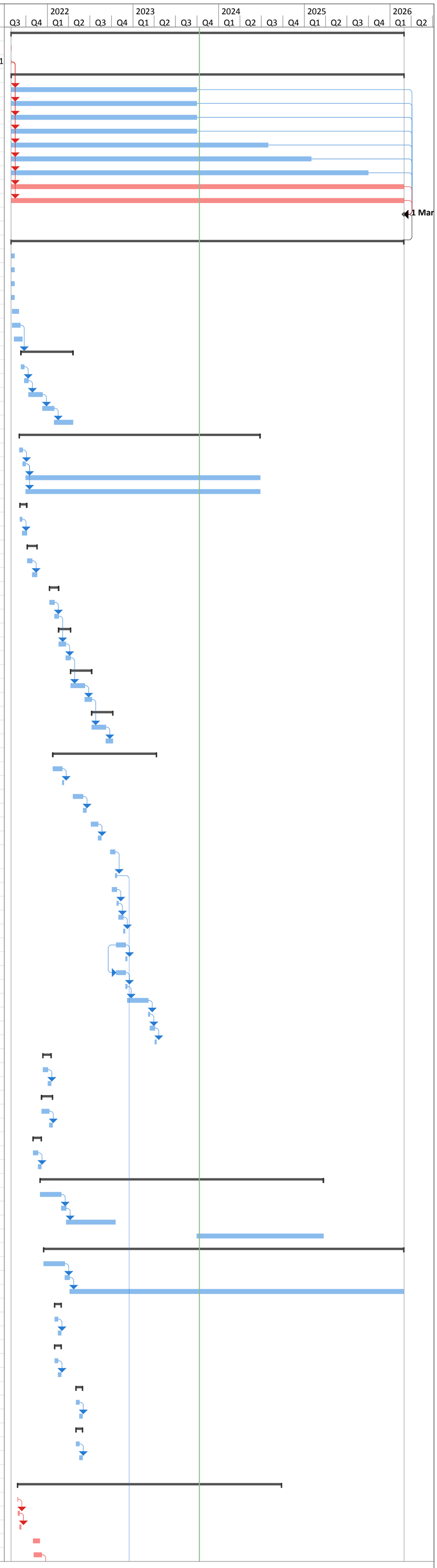
Legend:

WSD (Employer) – Water Supplies Department
Binnies (Engineer Representative) – Binnies Hong Kong Limited
CGC (Main Contractor) –China Geo-Engineering Corporation
N&T (IEC) –Nature & Technologies (HK) Limited
AUES (ET) – Action-United Environmental Services and Consulting (AUES)

Appendix C

Master Construction Program and Site Overview Photo in the Reporting Period

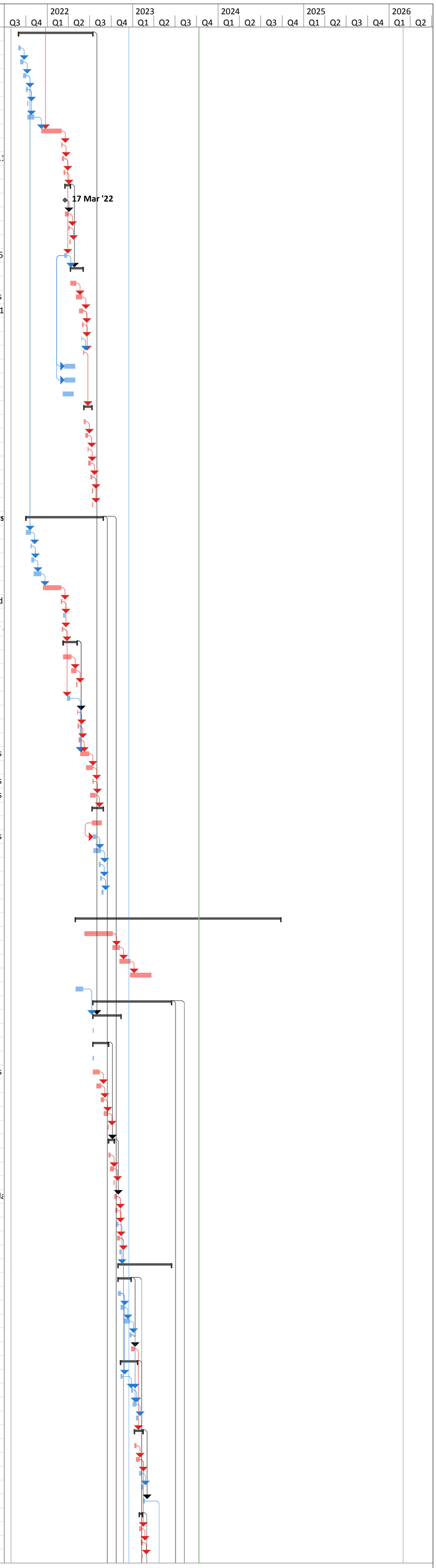
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1	**Key Dates**	**1676 days**	**30/7/21**	**1/3/26**			
2	Contract Date	1 day	30/7/21	30/7/21			
3	Starting Date	1 day	30/7/21	30/7/21			5,6,7,8,9,10,11
4	**Contract Period**	**1675 days**	**31/7/21**	**1/3/26**			
5	Section 1 - Shek Wu Hui Water Reclamation Plant (SWHWRP)	791 days	31/7/21	29/9/23		3	14FF
6	Section 2 - Landscaping works of SWHWRP	791 days	31/7/21	29/9/23		3	14FF
7	Section 3 - Modification of Table Hill Reclaimed Water Service Reservoir	791 days	31/7/21	29/9/23		3	14FF
8	Section 4 - Mainlaying works in part 3 of the Site	791 days	31/7/21	29/9/23		3	14FF
9	Section 5 - Mainlaying works in part 4 of the Site	1095 days	31/7/21	29/7/24		3	14FF
10	Section 6 - Mainlaying works in part 5 of the Site	1279 days	31/7/21	29/1/25		3	14FF
11	Section 7 - Mainlaying works in part 6 of the Site	1522 days	31/7/21	29/9/25		3	14FF
12	Section 8 - Mainlaying works in part 7 of the Site & remaining WM works	1675 days	31/7/21	1/3/26		3	14FF
13	Section 9 - Conversion works of reclaimed water	1675 days	31/7/21	1/3/26		3	14FF
14	**Contract Completion date**	**0 days**	**1/3/26**	**1/3/26**		**5FF,6FF,7FF,8FF**	
15							
16	**Preliminary & General**	**1675 days**	**30/7/21**	**28/2/26**			**14FF**
17	Submission of Draft Safety Plan	14 days	30/7/21	12/8/21			
18	Submission of Draft Environmental Management Plan	14 days	30/7/21	12/8/21			
19	Submission of Sub-contractor Management Plan	14 days	30/7/21	12/8/21			
20	Notification & request for UU record from utility undertakers	14 days	30/7/21	12/8/21			
21	Submission and acceptance of selection procedure for supplier	29 days	3/8/21	31/8/21			
22	Submission and acceptance of selection procedure for subcontractor	35 days	3/8/21	6/9/21			24
23	Agreement on preliminary office layout	35 days	12/8/21	15/9/21			
24	Provision of Project Manager's Accommodation	222 days	10/9/21	19/4/22		22	
25	Submission and acceptance of subletting package	14 days	10/9/21	23/9/21			26
26	Selection of Subcontractor	18 days	24/9/21	11/10/21		25	27
27	Submission and acceptance of design and material	60 days	12/10/21	10/12/21		26	28
28	Manufacture and delivery of MiC office	50 days	11/12/21	29/1/22		27	29
29	Erection of Project Manager's Accommodation	80 days	30/1/22	19/4/22		28	
30	**Selection of Traffic Consultant**	**1027 days**	**3/9/21**	**25/6/24**			
31	Submission and acceptance of subletting package	14 days	3/9/21	16/9/21			32
32	Selection of traffic consultant	13 days	17/9/21	29/9/21		31	33,34
33	XP application for different Sections	1000 days	30/9/21	25/6/24		32	
34	TTA application and Attend TMLG Meetings for different Sections	1000 days	30/9/21	25/6/24		32	
35	**Selection of Concrete Supplier**	**29 days**	**6/9/21**	**4/10/21**			
36	Submission and acceptance of subletting package	9 days	6/9/21	14/9/21			37
37	Selection of concrete supplier	20 days	15/9/21	4/10/21		36	
38	**Selection of Subcontractor for Excavation and ELS Works at SWHWRP**	**42 days**	**7/10/21**	**17/11/21**			
39	Submission and acceptance of subletting package	21 days	7/10/21	27/10/21			40
40	Selection of subcontractor	21 days	28/10/21	17/11/21		39	
41	**Selection of Subcontractor for Structural Works**	**39 days**	**10/1/22**	**17/2/22**			
42	Submission and acceptance of subletting package	21 days	10/1/22	30/1/22			43
43	Selection of subcontractor	18 days	31/1/22	17/2/22		42	45
44	**Selection of Subcontractor for Roadworks**	**51 days**	**18/2/22**	**9/4/22**			
45	Submission and acceptance of subletting package	30 days	18/2/22	19/3/22		43	46
46	Selection of subcontractor	21 days	20/3/22	9/4/22		45	48
47	**Selection of Subcontractor for Architectural Works**	**90 days**	**10/4/22**	**8/7/22**			
48	Submission and acceptance of subletting package	60 days	10/4/22	8/6/22		46	49
49	Selection of subcontractor	30 days	9/6/22	8/7/22		48	51
50	**Selection of Subcontractor for Landscape Works**	**90 days**	**9/7/22**	**6/10/22**			
51	Submission and acceptance of subletting package	60 days	9/7/22	6/9/22		49	52
52	Selection of subcontractor	30 days	7/9/22	6/10/22		51	
53	**Selection of Subcontractor for Mainlaying Works**	**442 days**	**24/1/22**	**10/4/23**			
54	Submission and acceptance of subletting package - open trench (for Section 4)	40 days	24/1/22	4/3/22			55
55	Selection of subcontractor - open trench (for Section 4)	7 days	5/3/22	11/3/22		54	
56	Submission and acceptance of subletting package - open trench (for Section 5)	43 days	20/4/22	1/6/22			57
57	Selection of subcontractor - open trench (for Section 5)	14 days	2/6/22	15/6/22		56	
58	Submission and acceptance of subletting package - open trench (SC-028)	30 days	6/7/22	4/8/22			59
59	Selection of subcontractor - open trench (SC-028)	14 days	5/8/22	18/8/22		58	
60	Submission and acceptance of subletting package - open trench (Shek Wu Hui) (SC-035)	21 days	26/9/22	16/10/22			61
61	Selection of subcontractor - open trench (Shek Wu Hui) (SC-035)	7 days	17/10/22	23/10/22		60	1353
62	Submission and acceptance of subletting package - open trench (Remaining) (SC-036)	21 days	3/10/22	23/10/22			63
63	Selection of subcontractor - open trench (Remaining) (SC-036)	7 days	24/10/22	30/10/22		62	64
64	Submission and acceptance of subletting package - road marking	21 days	31/10/22	20/11/22		63	65
65	Selection of subcontractor - road marking	7 days	21/11/22	27/11/22		64	
66	Submission and acceptance of subletting package - trenchless (SC-029)	40 days	21/10/22	29/11/22			67,68SS
67	Selection of subcontractor - trenchless (SC-029)	7 days	30/11/22	6/12/22		66	
68	Submission and acceptance of subletting package - trenchless (SC-042)	40 days	21/10/22	29/11/22		66SS	69
69	Selection of subcontractor - trenchless (SC-042)	7 days	30/11/22	6/12/22		68	70
70	Submission and acceptance of subletting package - trenchless (SC-051)	90 days	7/12/22	6/3/23		69	71
71	Selection of subcontractor - trenchless (SC-051)	7 days	7/3/23	13/3/23		70	72
72	Submission and acceptance of subletting package - trenchless (SC-052)	21 days	14/3/23	3/4/23		71	73
73	Selection of subcontractor - trenchless (SC-052)	7 days	4/4/23	10/4/23		72	
74	**Selection of Supplier for Survey Equipment**	**35 days**	**13/12/21**	**16/1/22**			
75	Submission and acceptance of subletting package	21 days	13/12/21	2/1/22			76
76	Selection of subcontractor	14 days	3/1/22	16/1/22		75	
77	**Selection of Supplier for Computer Facilities**	**47 days**	**7/12/21**	**22/1/22**			
78	Submission and acceptance of subletting package	33 days	7/12/21	8/1/22			79
79	Selection of subcontractor	14 days	9/1/22	22/1/22		78	
80	**Selection of Environment Team**	**35 days**	**1/11/21**	**5/12/21**			
81	Submission and acceptance of subletting package	21 days	1/11/21	21/11/21			82
82	Selection of Environment Team	14 days	22/11/21	5/12/21		81	
83	**BEAM Plus**	**1208 days**	**1/12/21**	**22/3/25**			
84	Submission and acceptance of subletting package	90 days	1/12/21	28/2/22			85
85	Selection of BEAM plus consultant	21 days	1/3/22	21/3/22		84	86
86	BEAM Plus PA submission	210 days	22/3/22	17/10/22		85	
87	BEAM Plus FA submission	540 days	30/9/23	22/3/25			
88	**BIM**	**1536 days**	**16/12/21**	**28/2/26**			
89	Submission and acceptance of subletting package	90 days	16/12/21	15/3/22			90
90	Selection of BIM consultant	21 days	16/3/22	5/4/22		89	91
91	Execution of BIM (rebar BIM, CSD and CBWD coordination and production)	1425 days	6/4/22	28/2/26		90	
92	**Selection of Contractor's Designer for foundation works**	**28 days**	**1/2/22**	**28/2/22**			
93	Submission and acceptance of subletting package	14 days	1/2/22	14/2/22			94
94	Selection of Contractor's Designer	14 days	15/2/22	28/2/22		93	
95	**Selection of Independent Checking Engineer (ICE) for Permanent Works (foundation)**	**28 days**	**1/2/22**	**28/2/22**			
96	Submission and acceptance of subletting package	14 days	1/2/22	14/2/22			97
97	Selection of ICE for Permanent Works	14 days	15/2/22	28/2/22		96	
98	**Selection of Contractor's Designer for Civil & Structural Works**	**28 days**	**3/5/22**	**30/5/22**			
99	Submission and acceptance of subletting package	14 days	3/5/22	16/5/22			100
100	Selection of Contractor's Designer	14 days	17/5/22	30/5/22		99	
101	**Selection of Independent Checking Engineer (ICE) for Permanent Works (Civil & Structural)**	**28 days**	**3/5/22**	**30/5/22**			
102	Submission and acceptance of subletting package	14 days	3/5/22	16/5/22			103
103	Selection of ICE for Permanent Works	14 days	17/5/22	30/5/22		102	
104							
105	**Section 1 & 2 - Construction of SWHWRP and Landscaping Works**	**1125.5 days**	**27/8/21**	**25/9/24**			
106	Access Date (part 1 of the Site)	1 day	27/8/21	27/8/21			107
107	Site clearance	7 days	28/8/21	3/9/21		106	108
108	Initial survey	7 days	4/9/21	10/9/21		107	
109	Installation of monitoring instruments and take initial readings	28 days	1/11/21	28/11/21			
110	Environmental baseline montioring by ET	33 days	4/11/21	6/12/21			118



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
111	**Foundation Works - ReWPS**	**318 days**	**31/8/21**	**14/7/22**			**182**
112	Submission and approval of subletting package for pre-drilling works	7 days	31/8/21	6/9/21			113
113	Selection of pre-drilling subcontractor	13 days	7/9/21	19/9/21		112	114
114	Pre-drilling works (15 nos.)	12 days	20/9/21	1/10/21		113	147,115
115	Pre-drill log report and Point Load Test	6 days	2/10/21	7/10/21		114	117,116
116	CE-020 _ Inclement Weather in October 2021	3 days	8/10/21	10/10/21		115	
117	Design review for foundation works	28 days	8/10/21	4/11/21		115	118
118	Piling works (54 nos. of pre-bored H piles) - Total length = 2387m	85 days	7/12/21	1/3/22		110,117	119
119	CE-040 _ Inclement Weather in February 2022	3.5 days	2/3/22	5/3/22		118	120
120	Installation of King Post	7 days	5/3/22	12/3/22		119	127FS+3 days,1
121	CE-041 _ Inclement Weather in March 2022	5 days	12/3/22	17/3/22		120	122
122	**Testing of pre-bored H-pile - tension load test**	**23.5 days**	**17/3/22**	**9/4/22**		**121**	**128**
123	Site ready for setting up of tension load test	0 days	17/3/22	17/3/22			124
124	(CE-044) EoT due to Shortage of Acetylene Gas Supply	15 days	17/3/22	1/4/22		123	125
125	Setting up of load test	4.5 days	1/4/22	5/4/22		124	126
126	Tension Load Test	4 days	6/4/22	9/4/22		125	
127	Sheet piling works for ELS - 300 pcs (length 12m)	10 days	15/3/22	25/3/22		120FS+3 days	128,135SS,136
128	**Excavation works (6900m3) and ELS installation**	**54.5 days**	**10/4/22**	**3/6/22**		**122,127**	
129	(CE-044) EoT due to Shortage of Acetylene Gas Supply	24 days	10/4/22	3/5/22			130
130	ELS installation and excavation	25 days	4/5/22	28/5/22		129	131FS-11 days
131	Welding of pile head capping plate	15 days	18/5/22	1/6/22		130FS-11 days	132FS-3 days,1
132	CE-052 _ Inclement Weather in May 2022 (under assessment)	4.5 days	30/5/22	3/6/22		131FS-3 days	134
133	Laying of blinding layer (1st pour)	1 day	27/5/22	27/5/22		131FS-6 days	134
134	Laying of blinding layer (2nd pour)	3 days	3/6/22	6/6/22		132,133	138
135	Submission and acceptance of method statement for pile cap construction	45 days	15/3/22	29/4/22		127SS	
136	Submission and acceptance of water proofing material	45 days	15/3/22	29/4/22		127SS	
137	Concrete mix submission, plant trial and acceptance of Grade 50 concrete	45 days	9/3/22	22/4/22			
138	**Construction of pile cap**	**34.5 days**	**6/6/22**	**10/7/22**		**134**	
139	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	6/6/22	12/6/22			140
140	Installation of water proofing system and testing	10 days	13/6/22	22/6/22		139	141
141	CE-025 _ GI works of Contract ND/2021/01	2 days	23/6/22	24/6/22		140	142
142	Rebar fixing	10 days	25/6/22	4/7/22		141	143
143	Concreting of pile cap (996 m3)	6 days	5/7/22	10/7/22		142	144,145
144	Backfilling to pile cap top level	4 days	11/7/22	14/7/22		143	
145	Rebar fixing (horizontal bars at starter bars from pile cap)	3 days	12/7/22	14/7/22		143	
146	**Foundation Works - HCF**	**330.5 days**	**2/10/21**	**28/8/22**			**319FS+60 days**
147	Pre-drilling works (25 nos.)	20 days	2/10/21	21/10/21		114	148
148	CE-020 _ Inclement Weather in October 2021	3 days	22/10/21	24/10/21		147	149
149	Pre-drill log report and Point Load Test	11 days	25/10/21	4/11/21		148	150
150	Design review for foundation works	30 days	5/11/21	4/12/21		149	151
151	Piling works - HCF (56 nos. of pre-bored H piles) - Total length = 1871m	77 days	14/12/21	28/2/22		150	152
152	CE-040 _ Inclement Weather in February 2022	3.5 days	1/3/22	4/3/22		151	154,153FS+6 d
153	Testing of pre-bored H-pile - proof drilling	7 days	10/3/22	17/3/22		152FS+6 days	
154	CE-041 _ Inclement Weather in March 2022	5 days	4/3/22	9/3/22		152	155,159FS+17
155	**Testing of pre-bored H-pile - compression load test**	**60.5 days**	**9/3/22**	**8/5/22**		**154**	**163,160**
156	(CE-044) EoT due to Shortage of Acetylene Gas Supply	35 days	9/3/22	13/4/22			157
157	Construction of mini-piles and setting up of load test	21 days	13/4/22	4/5/22		156	158
158	Compression load test	4.5 days	4/5/22	8/5/22		157	
159	Sheet piling works for ELS - 425 pcs (length 6m)	13 days	26/3/22	8/4/22	3	154FS+17 days	163
160	CE-025 _ GI works of Contract ND/2021/01	2 days	9/5/22	10/5/22		155	161
161	CE-052 _ Inclement Weather in May 2022	4.5 days	11/5/22	15/5/22		160	162
162	CE-053 _ Inclement Weather in June 2022	6.5 days	15/5/22	21/5/22		161	163
163	Excavation works (7600m3)	37 days	22/5/22	27/6/22		155,159,162	164FS-12 days
164	Welding of pile head capping plate	28 days	16/6/22	13/7/22		163FS-12 days	165
165	CE-054 _ Inclement Weather in July 2022	3.5 days	14/7/22	17/7/22		164	166FS-14 days
166	Laying of blinding layer	22 days	3/7/22	25/7/22		165FS-14 days	167FS-14 days
167	**Construction of pile cap**	**48 days**	**11/7/22**	**28/8/22**		**166FS-14 days**	
168	Formwork erection	40 days	11/7/22	20/8/22			169SS+4 days
169	Installation of water proofing system and testing	12 days	15/7/22	27/7/22		168SS+4 days	170FS-10 days
170	Rebar fixing	31 days	17/7/22	17/8/22		169FS-10 days	171FS-7 days
171	Concreting of pile cap - 1600m3	5 days	10/8/22	15/8/22		170FS-7 days	172
172	Concreting of pile cap - 400m3	6 days	15/8/22	21/8/22		171	173
173	Concreting of pile cap - 1000m3	7 days	21/8/22	28/8/22		172	
174							
175	**Construction of SWHWRP**	**878.5 days**	**1/5/22**	**25/9/24**			
176	Submission and acceptance of DfMA proposal	120 days	9/6/22	6/10/22			177
177	Selection of Designer & Supplier for DfMA	30 days	7/10/22	5/11/22		176	178
178	Manufacture of DfMA Precast Segments	45 days	6/11/22	20/12/22		177	179
179	Installation of DfMA segments	90 days	21/12/22	20/3/23		178	
180	Submission and acceptance of method statement for construction of ReWPS and HCF	30 days	3/5/22	1/6/22			182
181	**Construction of RC structure of ReWPS**	**336.5 days**	**15/7/22**	**16/6/23**			**472,312**
182	**Construction of basement (below ground) - Grid Line 1-4**	**120.5 days**	**15/7/22**	**12/11/22**		**111,180**	
183	Removal of ELS strut and wailing (2nd layer)	2 days	15/7/22	16/7/22			
184	Construction of external walls, W6, W8-W15 (+0mPD to +3.6mPD)	66.5 days	15/7/22	19/9/22			191
185	CE-054 _ Inclement Weather in July 2022	3.5 days	15/7/22	18/7/22			
186	Scaffolding and Falsework erection	28 days	15/7/22	11/8/22			187FS-13 days
187	Formwork erection	19 days	30/7/22	17/8/22		186FS-13 days	188
188	CE-068 _ Inclement Weather in August 2022	12.5 days	18/8/22	30/8/22		187	189
189	Rebar fixing (up to +7.2mPD) and formwork erection (up to +3.6mPD)	18 days	30/8/22	17/9/22		188	190
190	Concreting	2 days	17/9/22	19/9/22		189	
191	Construction of external walls, W6, W8-W15 (+3.6mPD to +5.7mPD)	25 days	19/9/22	14/10/22		184	195
192	C.J. preparation at +3.6mPD	7 days	19/9/22	26/9/22			193
193	Formwork erection	15 days	26/9/22	11/10/22		192	194
194	Concreting	3 days	11/10/22	14/10/22		193	
195	Removal of formwork (+0mPD to +5.7mPD)	9 days	14/10/22	23/10/22		191	197,196FS-4 da
196	Rectification of exposed piles between G.L. 4-5	7 days	19/10/22	26/10/22		195FS-4 days	198
197	Installation and testing of water proofing system (+0mPD to +5.7mPD)	7 days	23/10/22	30/10/22		195	200
198	Backfilling of sand (+0mPD to +4.4mPD)	10 days	26/10/22	5/11/22		196	246,199
199	Removal of ELS strut and wailing	7 days	5/11/22	12/11/22		198	
200	**Construction of Superstructure (above ground) - Grid Line 1-4**	**229 days**	**30/10/22**	**16/6/23**		**197**	
201	Construction of Beams and Slabs at +7.2mPD	56 days	30/10/22	25/12/22			206,222
202	Falsework erection	11 days	30/10/22	10/11/22			203,208
203	Formwork erection	14 days	10/11/22	24/11/22		202	204
204	Rebar fixing	24 days	24/11/22	18/12/22		203	205
205	Concreting (+5.7mPD to +7.2mPD)	7 days	18/12/22	25/12/22		204	210,209
206	Partial Removal of formwork and falsework below +7.2mPD	14 days	25/12/22	8/1/23		201	212
207	Construction of Beams and Slabs at +9.1mPD	73 days	10/11/22	22/1/23			222
208	Falsework erection	7 days	10/11/22	17/11/22		202	209
209	Formwork erection	7 days	25/12/22	1/1/23		208,205	210
210	Rebar fixing	14 days	1/1/23	15/1/23		205,209	211
211	Concreting (+7.2mPD to +9.1mPD)	7 days	15/1/23	22/1/23		210	
212	Construction of Beams and Slabs at +3.6mPD and ST6	37 days	8/1/23	14/2/23		206	217
213	Scaffolding and falsework erection	7 days	8/1/23	15/1/23			214
214	Formwork erection	14 days	15/1/23	29/1/23		213	215,219
215	Rebar fixing	9 days	29/1/23	7/2/23		214	216
216	Concreting (+3.6mPD)	7 days	7/2/23	14/2/23		215	
217	Re-instatement of falsework below +7.2mPD	7 days	14/2/23	21/2/23		212	234
218	Construction of Staircase ST4 & ST5 (+7.2mPD to +8.85mPD)	14 days	29/1/23	12/2/23			222
219	Formwork erection	7 days	29/1/23	5/2/23		214	220
220	Rebar fixing	6 days	5/2/23	11/2/23		219	221
221	Concreting	1 day	11/2/23	12/2/23		220	



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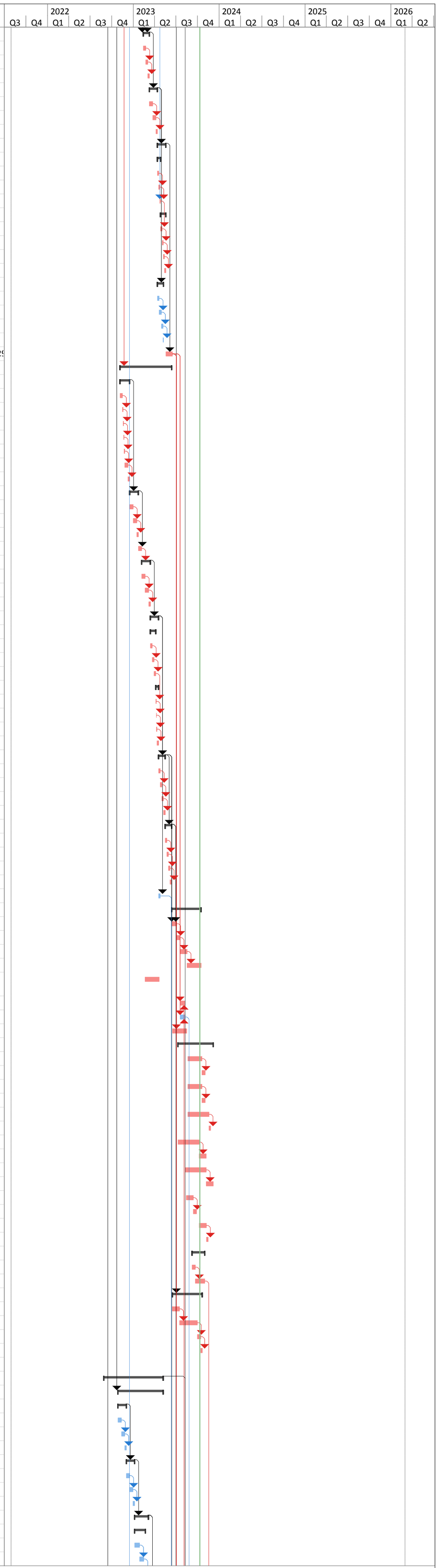
Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

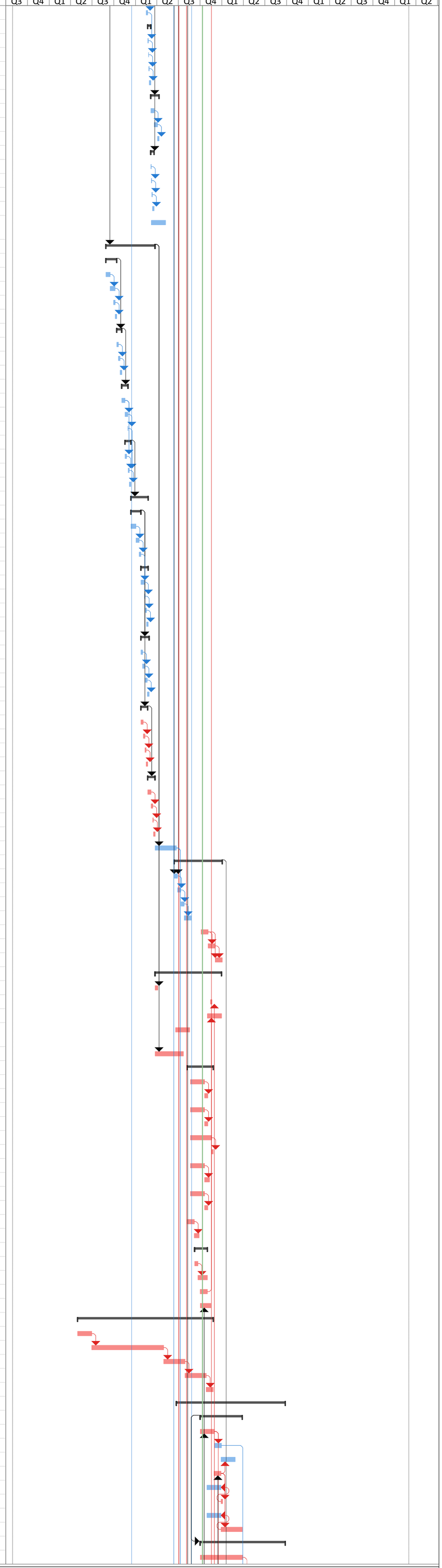
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
222	Construction of Walls and Columns (+7.2mPD/+9.1mPD to +12.2mPD)	26 days	12/2/23	10/3/23		207,218,201	226
223	Scaffolding erection and Formwork erection	10 days	12/2/23	22/2/23			224
224	Rebar fixing and Formwork erection	9 days	22/2/23	3/3/23		223	225
225	Concreting	7 days	3/3/23	10/3/23		224	
226	Construction of Walls and Columns (+12.2mPD to +15.2mPD)	34 days	10/3/23	13/4/23		222	230,240
227	Scaffolding erection and Formwork erection	14 days	10/3/23	24/3/23			228
228	Rebar fixing and Formwork erection	14 days	24/3/23	7/4/23		227	229
229	Concreting	6 days	7/4/23	13/4/23		228	
230	Construction of Beams and Slabs at +15.2mPD	36 days	13/4/23	19/5/23		226	245
231	Construction of Beams	13 days	13/4/23	26/4/23			
232	Falsework and formwork erection for beam	5 days	13/4/23	18/4/23			233
233	Rebar fixing for beam	5 days	18/4/23	23/4/23		232	234
234	Concreting and curing of concrete for beam	3 days	23/4/23	26/4/23		233,217	236
235	Construction of Slabs	23 days	26/4/23	19/5/23			
236	Installation of precast segments (65 nos.)	7 days	26/4/23	3/5/23		234	237
237	Formwork erection for half slab	5 days	3/5/23	8/5/23		236	238
238	Rebar fixing for half slab	5 days	8/5/23	13/5/23		237	239
239	Concreting for half slab and curing of concrete	6 days	13/5/23	19/5/23		238	
240	Construction of Parapet Walls (+15.2mPD to +16.6mPD)	26 days	13/4/23	9/5/23		226	
241	Scaffolding erection	7 days	13/4/23	20/4/23			242
242	Rebar fixing	10 days	20/4/23	30/4/23		241	243
243	Formwork erection	7 days	30/4/23	7/5/23		242	244
244	Concreting	2 days	7/5/23	9/5/23		243	
245	Removal of formwork and falsework below +15.2mPD	28 days	19/5/23	16/6/23		230	561,565,291,29
246	**Construction of Superstructure (above ground) - Grid Line 4-6**	**220 days**	**5/11/22**	**13/6/23**		**198**	
247	Construction of base slab (+4.45mPD to +5.95mPD & +5.6mPD to +7.1mPD)	41 days	5/11/22	16/12/22			255
248	Open-cut excavation to formation level	10 days	5/11/22	15/11/22			249
249	Welding of pile head capping plate (11 nos.)	3 days	15/11/22	18/11/22		248	250
250	Laying of blinding layer	2 days	18/11/22	20/11/22		249	251
251	Installation of water proofing system and testing	2 days	20/11/22	22/11/22		250	252
252	Formwork erection	3 days	22/11/22	25/11/22		251	253
253	Rebar fixing	14 days	25/11/22	9/12/22		252	254
254	Concreting	7 days	9/12/22	16/12/22		253	
255	Construction of Bearing walls and Slabs (+5.95mPD to +7.2mPD)	37 days	16/12/22	22/1/23		247	259
256	Formwork erection and Rebar fixing	15 days	16/12/22	31/12/22			257
257	Formwork erection	15 days	31/12/22	15/1/23		256	258
258	Concreting	7 days	15/1/23	22/1/23		257	
259	Backfilling of pile cap edge	14 days	22/1/23	5/2/23		255	260
260	Construction of Columns, Walls, Beams & Slabs (+7.2mPD to +11.8mPD)	37 days	5/2/23	14/3/23		259	264
261	Scaffolding erection and formwork erection	15 days	5/2/23	20/2/23			262
262	Rebar fixing and formwork erection	15 days	20/2/23	7/3/23		261	263
263	Concreting	7 days	7/3/23	14/3/23		262	
264	Construction of Columns, Walls, Beams & Slabs (+11.8mPD to +13.25mPD)	35 days	14/3/23	18/4/23		260	274,284
265	Construction of Columns, Walls and Beams (+11.8mPD to +13.05mPD)	23 days	14/3/23	6/4/23			
266	Falsework and formwork erection	8 days	14/3/23	22/3/23			267
267	Rebar fixing	8 days	22/3/23	30/3/23		266	268
268	Concreting and curing of concrete	7 days	30/3/23	6/4/23		267	270
269	Construction of Slabs at +13.25mPD	12 days	6/4/23	18/4/23			
270	Installation of precast segments (22 nos.)	2 days	6/4/23	8/4/23		268	271
271	Formwork erection for half slab	1 day	8/4/23	9/4/23		270	272
272	Rebar fixing for half slab	2 days	9/4/23	11/4/23		271	273
273	Concreting for half slab	7 days	11/4/23	18/4/23		272	
274	Construction of Parapet Walls (+13.25mPD to +14.65mPD)	28 days	18/4/23	16/5/23		264	286,279,393
275	Scaffolding erection	7 days	18/4/23	25/4/23			276
276	Rebar fixing	7 days	25/4/23	2/5/23		275	277
277	Formwork erection	7 days	2/5/23	9/5/23		276	278
278	Concreting	7 days	9/5/23	16/5/23		277	
279	Construction of Staircase ST3 (+7.1mPD to +15.45mPD)	28 days	16/5/23	13/6/23		274	286,393
280	Scaffolding and falsework erection	7 days	16/5/23	23/5/23			281
281	Formwork erection	7 days	23/5/23	30/5/23		280	282
282	Rebar fixing	7 days	30/5/23	6/6/23		281	283
283	Concreting	7 days	6/6/23	13/6/23		282	
284	Removal of formwork and falsework below +11.8mPD & +13.25mPD	7 days	18/4/23	25/4/23		264	561
285	**Roof Works**	**125 days**	**13/6/23**	**16/10/23**			
286	Water tightness test for roof slab of ReWPS	21 days	13/6/23	4/7/23		274,279	287
287	Construction of water proofing system at roof slab of ReWPS	14 days	4/7/23	18/7/23		286	288
288	Construction of Screeding	30 days	18/7/23	17/8/23		287	289
289	Construction of Drainage System	60 days	17/8/23	16/10/23		288	
290	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	20/2/23	20/4/23			
291	Fitting out Works for Motor Hall & Maintenance Room	21 days	19/7/23	8/8/23		245,565	
292	Waterproofing & Fitting out Works for Pump Hall	21 days	19/7/23	8/8/23		245,565	566
293	Fitting out Works for Other Rooms	60 days	16/6/23	15/8/23		245	
294	**Steelworks and Staircases**	**150 days**	**10/7/23**	**6/12/23**			
295	Ordering and Manufacturing of Louvres	60 days	21/8/23	19/10/23			296
296	Installation of Louvres	14 days	20/10/23	2/11/23		295	
297	Ordering and Manufacturing of Steel Doors	60 days	21/8/23	19/10/23			298
298	Installation of Steel Doors	14 days	20/10/23	2/11/23		297	
299	Ordering and Manufacturing of Roller Shutter	90 days	21/8/23	18/11/23			300
300	Installation of Roller Shutter	7 days	19/11/23	25/11/23		299	
301	Ordering and Manufacturing of FRP Staircase ST1	90 days	10/7/23	7/10/23			302
302	Installation of Staircase ST1	30 days	8/10/23	6/11/23		301	
303	Ordering and Manufacturing of FRP Staircase ST2	90 days	9/8/23	6/11/23			304
304	Installation of Staircase ST2	30 days	7/11/23	6/12/23		303	
305	Ordering and Manufacturing of Chequer Plates	30 days	14/8/23	12/9/23			306
306	Installation of Chequer Plates at Switchroom	14 days	13/9/23	26/9/23		305	
307	Manufacturing of Concrete Staircase ST7 by DfMA	30 days	9/10/23	7/11/23			308
308	Installation of Staircase ST7 and Concreting for Wet Joints	7 days	8/11/23	14/11/23		307	
309	**Black Rainstorm Signal on 8 September 2023**	**54 days**	**8/9/23**	**31/10/23**			
310	Water Pumping and Cleaning of Flooded Pump Hall	14 days	8/9/23	21/9/23			311
311	Remedial Works for Damaged Fitting out at Pump Hall due to Black Rainstorm	40 days	22/9/23	31/10/23		310	605
312	**Pump Sump**	**127 days**	**16/6/23**	**21/10/23**		**181**	
313	Trial of Watertightness Test	30 days	16/6/23	16/7/23			314
314	Additional Modification Works of Dividing Walls	76 days	16/7/23	30/9/23		313	315
315	Watertightness Test	14 days	30/9/23	14/10/23		314	316
316	Application of Waterproofing Materials	7 days	14/10/23	21/10/23		315	
317							
318	**Construction of RC structure of HCF**	**252.5 days**	**28/8/22**	**7/5/23**			**472**
319	**Construction of Superstructure (above ground) - Grid Line 1-3**	**192.5 days**	**27/10/22**	**7/5/23**		**146FS+60 days**	
320	Construction of Columns and Walls (+5.55mPD to +10.2mPD)	36 days	27/10/22	2/12/22			324
321	Scaffolding erection and formwork erection	15 days	27/10/22	11/11/22			322
322	Rebar fixing and formwork erection	14 days	11/11/22	25/11/22		321	323
323	Concreting	7 days	25/11/22	2/12/22		322	
324	Construction of Columns and Walls (+10.2mPD to +13.00mPD)	35 days	2/12/22	6/1/23		320	328
325	Scaffolding erection and formwork erection	14 days	2/12/22	16/12/22			326
326	Rebar fixing and formwork erection	14 days	16/12/22	30/12/22		325	327
327	Concreting	7 days	30/12/22	6/1/23		326	
328	Construction of Beams and Slabs at +13.00mPD	59 days	6/1/23	6/3/23		324	338,342
329	Construction of Beams	46 days	6/1/23	21/2/23			
330	Falsework and formwork erection for beam	21 days	6/1/23	27/1/23			331
331	Rebar fixing for beam	18 days	27/1/23	14/2/23		330	332



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
332	Concreting and curing of concrete for beam	7 days	14/2/23	21/2/23		331	334
333	Construction of Slabs	13 days	21/2/23	6/3/23			
334	Installation of precast segments (32 nos.)	3 days	21/2/23	24/2/23		332	335
335	Formwork erection for half slab	1 day	24/2/23	25/2/23		334	336
336	Rebar fixing for half slab	2 days	25/2/23	27/2/23		335	337
337	Concreting for half slab	7 days	27/2/23	6/3/23		336	
338	Construction of Bearing walls and Slabs (+5.55mPD to +7.1mPD)	35 days	6/3/23	10/4/23		328	
339	Formwork erection	14 days	6/3/23	20/3/23			340
340	Rebar fixing and formwork erection	14 days	20/3/23	3/4/23		339	341
341	Concreting	7 days	3/4/23	10/4/23		340	
342	Construction of Parapet Walls (+13.00mPD to +15.1mPD)	14 days	6/3/23	20/3/23		328	
343	Scaffolding erection	2 days	6/3/23	8/3/23			344
344	Rebar fixing	2 days	8/3/23	10/3/23		343	345
345	Formwork erection	3 days	10/3/23	13/3/23		344	346
346	Concreting	7 days	13/3/23	20/3/23		345	
347	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	9/3/23	7/5/23			
348	**Construction of Superstructure (above ground) - Grid Line 3-7**	**208 days**	**28/8/22**	**24/3/23**		**146**	**391,405,401**
349	Construction of Walls W2, W3, W5, W6 and columns within G.L. 3-5	46 days	28/8/22	13/10/22			354
350	Scaffolding erection and Formwork erection	18 days	28/8/22	15/9/22			351
351	Rebar fixing and Formwork erection	21 days	15/9/22	6/10/22		350	352FS-7 days
352	Concreting of walls W2, W3 and Columns	7 days	29/9/22	6/10/22		351FS-7 days	353
353	Concreting of walls W5, W6 and Columns	7 days	6/10/22	13/10/22		352	
354	Construction of remaining walls and columns within G.L. 3-5	21 days	13/10/22	3/11/22		349	358
355	Scaffolding erection and Formwork erection	7 days	13/10/22	20/10/22			356
356	Rebar fixing and Formwork erection	7 days	20/10/22	27/10/22		355	357
357	Concreting	7 days	27/10/22	3/11/22		356	
358	Construction of walls and columns within G.L. 5-7 (+4.55mPD to +9.2mPD)	27 days	3/11/22	30/11/22		354	
359	Scaffolding erection and Formwork erection	14 days	3/11/22	17/11/22			360,363
360	Rebar fixing and Formwork erection	12 days	17/11/22	29/11/22		359	361
361	Concreting	1 day	29/11/22	30/11/22		360	364
362	Construction of walls and columns within G.L. 5-7 (+9.2mPD to +10.8mPD)	**25 days**	**17/11/22**	**12/12/22**			**366**
363	Scaffolding erection and Formwork erection	7 days	17/11/22	24/11/22		359	364
364	Rebar fixing and Formwork erection	5 days	30/11/22	5/12/22		361,363	365
365	Concreting	7 days	5/12/22	12/12/22		364	
366	Construction of Beams and Slabs at +10.4mPD and +10.8mPD	73 days	12/12/22	23/2/23		362	
367	Construction of Beams	42 days	12/12/22	23/1/23			381,376
368	Falsework and formwork erection for beam	21 days	12/12/22	2/1/23			369
369	Rebar fixing for beam	14 days	2/1/23	16/1/23		368	370
370	Concreting and curing of concrete	7 days	16/1/23	23/1/23		369	372
371	Construction of Slabs	31 days	23/1/23	23/2/23			
372	Installation of precast segments (156 nos.)	15 days	23/1/23	7/2/23		370	373
373	Formwork erection for half slab	3 days	7/2/23	10/2/23		372	374
374	Rebar fixing for half slab	6 days	10/2/23	16/2/23		373	375
375	Concreting for half slab	7 days	16/2/23	23/2/23		374	
376	Construction of Parapet Walls (+10.4mPD/+10.8mPD to +12.5mPD)	35 days	23/1/23	27/2/23		367	
377	Scaffolding erection	7 days	23/1/23	30/1/23			378
378	Rebar fixing	10 days	30/1/23	9/2/23		377	379
379	Formwork erection	10 days	9/2/23	19/2/23		378	380
380	Concreting	8 days	19/2/23	27/2/23		379	
381	Construction of Staircase ST01 (+7.1mPD to +11.35mPD)	29 days	23/1/23	21/2/23		367	386
382	Scaffolding and falsework erection	10 days	23/1/23	2/2/23			383
383	Rebar fixing	7 days	2/2/23	9/2/23		382	384
384	Formwork erection	5 days	9/2/23	14/2/23		383	385
385	Concreting	7 days	14/2/23	21/2/23		384	
386	Construction of Staircase ST02 (+10.4mPD to +13.95mPD)	31 days	21/2/23	24/3/23		381	
387	Scaffolding and falsework erection	14 days	21/2/23	7/3/23			388
388	Rebar fixing	7 days	7/3/23	14/3/23		387	389
389	Formwork erection	3 days	14/3/23	17/3/23		388	390
390	Concreting	7 days	17/3/23	24/3/23		389	
391	Backfilling of general fill material up to +7.2mPD, and removal of ELS	90 days	24/3/23	22/6/23		348	446,444
392	**Roof Works**	**203.5 days**	**13/6/23**	**2/1/24**			**484**
393	Water tightness test for roof slab of ReWPS	14 days	13/6/23	27/6/23		274,279	394
394	Construction of water proofing system at roof slab of ReWPS	14 days	27/6/23	11/7/23		393	395
395	Construction of Screeding	14 days	11/7/23	25/7/23		394	396
396	Construction of Drainage System	30 days	25/7/23	24/8/23		395	
397	Forming Additional Roof Opening at Outlet Channel	30 days	5/10/23	3/11/23			399,398
398	Forming Additional Roof Opening at Inlet Channel	30 days	4/11/23	3/12/23		397	399
399	Construction of Footpath	30 days	4/12/23	2/1/24		397,398	
400	**Contact Tank**	**281.5 days**	**24/3/23**	**30/12/23**			
401	Overall water retaining structure at HCF	12 days	24/3/23	5/4/23		348	
402	Application of Floor Screeding to Level the Ground Slab	7 days	13/11/23	20/11/23		568	
403	Application of Waterproofing Materials	60 days	1/11/23	30/12/23		422	
404	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	19/6/23	17/8/23			
405	Fitting out Works for Rooms	120 days	24/3/23	22/7/23		348	
406	**Steelworks**	**111 days**	**7/8/23**	**25/11/23**			
407	Ordering and Manufacturing of Louvres	60 days	21/8/23	19/10/23			408
408	Installation of Louvres	14 days	20/10/23	2/11/23		407	
409	Ordering and Manufacturing of Steel Doors	60 days	21/8/23	19/10/23			410
410	Installation of Steel Doors	14 days	20/10/23	2/11/23		409	
411	Ordering and Manufacturing of Roller Shutter	90 days	21/8/23	18/11/23			412
412	Installation of Roller Shutter	7 days	19/11/23	25/11/23		411	
413	Ordering and Manufacturing of Cat-ladders and Covers	60 days	21/8/23	19/10/23			414
414	Installation of Cat-ladders and Covers	21 days	20/10/23	9/11/23		413	
415	Ordering and Manufacturing of Gratings at Chemical Rooms	60 days	21/8/23	19/10/23			416
416	Installation of Gratings at Chemical Rooms	14 days	20/10/23	2/11/23		415	
417	Ordering and Manufacturing of Chequer Plates	30 days	7/8/23	5/9/23			418
418	Installation of Chequer Plates at CLP room, Switchroom and Electrical Room	21 days	6/9/23	26/9/23		417	
419	**Black Rainstorm Signal on 8 September 2023**	**54 days**	**8/9/23**	**31/10/23**			
420	Water Pumping and Cleaning of Flooded Pipe Gallery	14 days	8/9/23	21/9/23			421
421	Remedial Works for Damaged Fitting out at Pipe Gallery due to Black Rainstorm	40 days	22/9/23	31/10/23		420	
422	Re-Ordering of Flooded Waterproofing Materials for Contact Tank	31 days	1/10/23	31/10/23			403
423	Additional Corridor at Chemical Room	45 days	1/10/23	15/11/23		445	
424	**Provisional of Fire Service, Flushing and Fresh Water Supply by WSD**	**574 days**	**1/5/22**	**25/11/23**			
425	WWO542 design submission for Fire Service, Flushing and Fresh Water Supply	60 days	1/5/22	29/6/22			426
426	Withhold Acceptance of WWO542 submission by WSD due to EVA Issue	304 days	30/6/22	29/4/23		425	427
427	Re-Submission of WWO542	90 days	30/4/23	28/7/23		426	428
428	Acceptance of WWO542 by WSD	90 days	29/7/23	26/10/23		427	429
429	Provision of water supply to Part 1 by WSD	30 days	27/10/23	25/11/23		428	
430	**Construction of roadworks**	**461 days**	**22/6/23**	**25/9/24**			
431	**Construction of fence wall**	**178 days**	**1/10/23**	**27/3/24**			**466SS,440SS**
432	Upper Wall near Slaughter House	60 days	1/10/23	30/11/23		445	433,462
433	Upper Wall at Surge Vessel Area	30 days	30/11/23	30/12/23		432	442
434	Upper Wall near Ng Tung River	60 days	28/12/23	26/2/24		435	
435	Upper Wall near STW	30 days	28/11/23	28/12/23		455	434,437,439
436	Fabrication of Entrance Gates and Logo Feature	60 days	29/10/23	28/12/23		437SF	
437	Installation of Gate 1 and Gate 2	7 days	28/12/23	4/1/24		435	436SF
438	Fabrication of steelworks	60 days	29/10/23	28/12/23		439SF	
439	Installation of wall finishes and steelworks	90 days	28/12/23	27/3/24		435	438SF
440	**Construction of River Promenade**	**360 days**	**1/10/23**	**25/9/24**		**431SS**	
441	Detailed design of River Promenade	180 days	1/10/23	29/3/24			442



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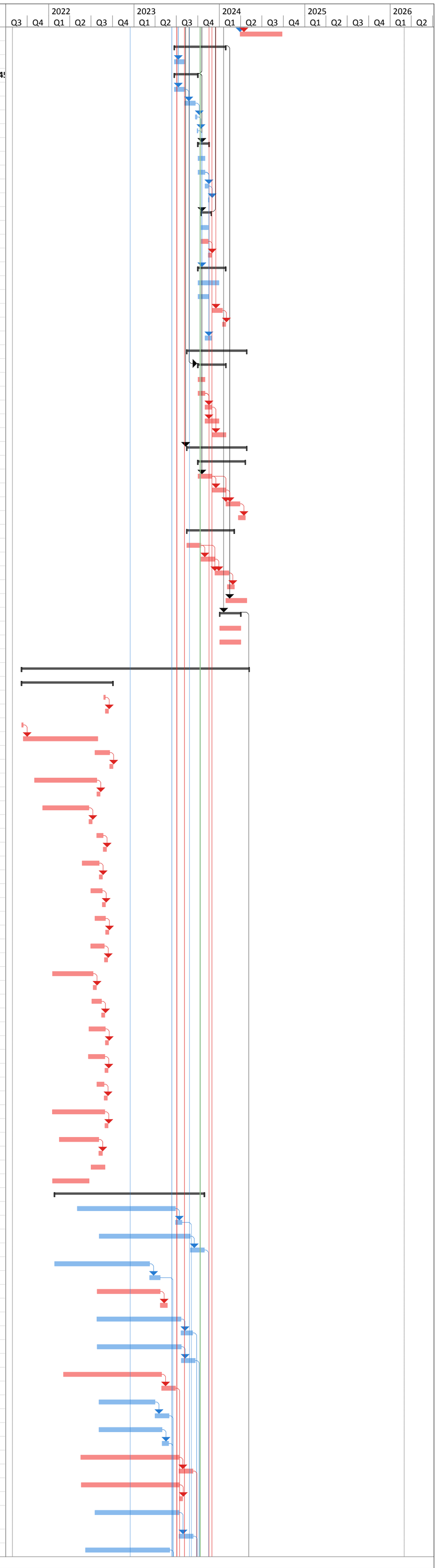
Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
442	Construction of River Promenade	180 days	29/3/24	25/9/24		433,441	
443	**Construction of underground utilities**	**220 days**	**22/6/23**	**28/1/24**			**483**
444	Construction of CLP Drawpits and Ducts	45 days	22/6/23	6/8/23		391	
445	**EVA near Slaughter House**	**101 days**	**22/6/23**	**1/10/23**			**423,450,432,4**
446	Fence Wall Footing	45 days	22/6/23	6/8/23		391	447
447	UU and Chambers	45 days	6/8/23	20/9/23		446	448
448	Backfilling of Type B Material	7 days	20/9/23	27/9/23		447	449
449	Concreting of EVA	4 days	27/9/23	1/10/23		448	459
450	**Surge Vessel Area**	**48 days**	**1/10/23**	**18/11/23**		**445**	
451	Fence Wall Footing	30 days	1/10/23	31/10/23			
452	UU and Chambers	30 days	1/10/23	31/10/23			453,464
453	Backfilling of Type B Material	14 days	31/10/23	14/11/23		452	454
454	Concreting of EVA	4 days	14/11/23	18/11/23		453	
455	**near STW**	**44 days**	**15/10/23**	**28/11/23**		**445FS+14 days**	**435**
456	Fence Wall Footing	30 days	15/10/23	14/11/23			
457	UU and Chambers	30 days	15/10/23	14/11/23			458
458	Backfilling of Type B Material	14 days	14/11/23	28/11/23		457	
459	**Riverside**	**119 days**	**1/10/23**	**28/1/24**		**449**	
460	Fence Wall Footing	90 days	1/10/23	30/12/23			
461	HKT Cable Drawpits and Ducts	45 days	1/10/23	15/11/23			
462	Other UU and Chambers	45 days	30/11/23	14/1/24		432	463
463	Backfilling of Type B Material	14 days	14/1/24	28/1/24		462	
464	Watertightness Test of Laid Mains	30 days	31/10/23	30/11/23		452	
465	**External Finishing Works**	**256.5 days**	**15/8/23**	**27/4/24**			
466	**Design submission and fabrication of steelwork system for the aluminum fin**	**120 days**	**1/10/23**	**29/1/24**		**431SS**	
467	Detailed Design for External Façade Treatment and Vertical Green Wall	30 days	1/10/23	31/10/23			
468	Design submission of steelwork system for vertical aluminum fin at ReWPS	30 days	1/10/23	31/10/23			469,470
469	Design submission of steelwork system for horizontal aluminum fin at HCF	30 days	31/10/23	30/11/23		468	471
470	Fabrication of vertical aluminum fin for ReWPS	60 days	31/10/23	30/12/23		468	
471	Fabrication of horizontal aluminum fin for HCF	60 days	30/11/23	29/1/24		469	
472	**Installation of architectural works**	**256.5 days**	**15/8/23**	**27/4/24**		**181,318**	
473	**Installation of architectural works for RWPS**	**203 days**	**1/10/23**	**21/4/24**			
474	Laying of artificial granite tile at the sides of slaughter house and CLP rooms	60 days	1/10/23	30/11/23		445	475,476
475	Laying of artificial granite tile at other sides	60 days	30/11/23	29/1/24		474	476
476	Installation of steelworks	60 days	29/1/24	29/3/24		474,475	477FS-7 days
477	Installation of cladding	30 days	22/3/24	21/4/24		476FS-7 days	
478	**Installation of architectural works for HCF**	**203 days**	**15/8/23**	**4/3/24**			
479	Laying of artificial granite tile at riverside	60 days	15/8/23	13/10/23			480,481
480	Laying of artificial granite tile at other sides	60 days	14/10/23	12/12/23		479	481
481	Installation of steelworks	60 days	13/12/23	10/2/24		479,480	482FS-7 days
482	Installation of cladding	30 days	4/2/24	4/3/24		481FS-7 days	
483	**Pavement Works**	**90 days**	**28/1/24**	**27/4/24**		**443**	
484	**Landscape works**	**90 days**	**3/1/24**	**1/4/24**		**392**	**643FF**
485	Landscape works at roof top	90 days	3/1/24	1/4/24			
486	Landscape works within SWHWRP	90 days	3/1/24	1/4/24			
487							
488	**E&M Works of SWHWRP**	**974 days**	**7/9/21**	**7/5/24**			
489	**Design and Submission Stage**	**391 days**	**7/9/21**	**2/10/22**			
490	Submission of Surge Analysis Report	7 days	24/8/22	30/8/22			491
491	Acceptance of Surge Analysis Report	14 days	31/8/22	13/9/22		490	
492	Submission and review of Reclaimed Water Main Pumps	7 days	7/9/21	13/9/21			493
493	Acceptance of Reclaimed Water Main Pumps	319 days	14/9/21	29/7/22		492	
494	Submission and review of Surge Vessels and Air Compressors	63 days	18/7/22	18/9/22			495
495	Acceptance of Surge Vessels and Air Compressors	14 days	19/9/22	2/10/22		494	
496	Submission and review of Penstock & Stoplog	267 days	1/11/21	25/7/22			497
497	Acceptance of Penstock & Stoplog	14 days	26/7/22	8/8/22		496	
498	Submission and review of Chemical Dosing System & Static In-line Mixer	198 days	6/12/21	21/6/22			499
499	Acceptance of Chemical Dosing System & Static In-line Mixer	14 days	22/6/22	5/7/22		498	
500	Submission and review of Air Blower and Air Diffuser	28 days	25/7/22	21/8/22			501
501	Acceptance of Air Blower and Air Diffuser	14 days	22/8/22	4/9/22		500	
502	Submission and review of Lifting Appliances	73 days	24/5/22	4/8/22			503
503	Acceptance of Lifting Appliances	14 days	5/8/22	18/8/22		502	
504	Submission and review of Minor Mechanical Equipment	49 days	30/6/22	17/8/22			505
505	Acceptance of Minor Mechanical Equipment	14 days	18/8/22	31/8/22		504	
506	Submission and review of LV switchboard	45 days	18/7/22	31/8/22			507
507	Acceptance of LV switchboard	14 days	1/9/22	14/9/22		506	
508	Submission and review of DCS	58 days	30/6/22	26/8/22			509
509	Acceptance of DCS	14 days	27/8/22	9/9/22		508	
510	Submission and review of Instrumenation & Water Monitoring Equipment	174 days	17/1/22	9/7/22			511
511	Acceptance of Instrumenation & Water Monitoring Equipment	14 days	10/7/22	23/7/22		510	
512	Submission and review of Misc. Electrical Items	42 days	4/7/22	14/8/22			513
513	Acceptance of Misc. Electrical Items	14 days	15/8/22	28/8/22		512	
514	Submission and review of Fire Services Equipment	70 days	22/6/22	30/8/22			515
515	Acceptance of Fire Services Equipment	14 days	31/8/22	13/9/22		514	
516	Submission and review of MVAC Equipment	70 days	20/6/22	28/8/22			517
517	Acceptance of MVAC Equipment	14 days	29/8/22	11/9/22		516	
518	Submission and review of Plumbing & Drainage Equipment	31 days	26/7/22	25/8/22			519
519	Acceptance of Plumbing & Drainage Equipment	14 days	26/8/22	8/9/22		518	
520	Submission and review of General Arrangement Drawing	224 days	17/1/22	28/8/22			521
521	Acceptance of General Arrangement Drawing	14 days	29/8/22	11/9/22		520	
522	Submission and review of Civil Requirement Drawing	169 days	15/2/22	2/8/22			523
523	Acceptance of Civil Requirement Drawing	16 days	3/8/22	18/8/22		522	
524	Submission and acceptance of method statement for E&M installation works	60 days	1/7/22	29/8/22			
525	CSD, CBWD coordination	157 days	17/1/22	22/6/22			
526	**Procurement and Delivery of Equipment**	**641 days**	**26/1/22**	**28/10/23**			
527	Procerement and manufacturing of Reclaimed Water Main Pumps (6 nos.)	420 days	3/5/22	26/6/23			528
528	Delivery of Reclaimed Water Main Pumps (6 nos.)	28 days	27/6/23	24/7/23		527	579
529	Procerement and manufacturing of Surge Vessels and Air Compressors	390 days	5/8/22	29/8/23			530
530	Delivery of Surge Vessels and Air Compressors	60 days	30/8/23	28/10/23		529	569
531	Procerement and manufacturing of Penstock & Stoplog	407 days	26/1/22	8/3/23			532
532	Delivery of Penstock & Stoplog	45 days	9/3/23	22/4/23		531	568
533	Procerement and manufacturing of Chemical Dosing System	270 days	27/7/22	22/4/23			534
534	Delivery of Chemical Dosing System	30 days	23/4/23	22/5/23		533	
535	Procerement and manufacturing of Static In-line Mixer	360 days	26/7/22	20/7/23			536
536	Delivery of Static In-line Mixer	50 days	21/7/23	8/9/23		535	571
537	Procerement and manufacturing of Air Blower and Air Diffuser	360 days	27/7/22	21/7/23			538
538	Delivery of Air Blower and Air Diffuser	60 days	22/7/23	19/9/23		537	570
539	Procerement and manufacturing of Lifting Appliances	420 days	5/3/22	28/4/23			540
540	Delivery of Lifting Appliances	60 days	29/4/23	27/6/23		539	565
541	Procerement and manufacturing of Sump Pumps	240 days	4/8/22	31/3/23			542
542	Delivery of Sump Pumps	60 days	1/4/23	30/5/23		541	576
543	Procerement and manufacturing of Pipework and Valves	270 days	4/8/22	30/4/23			544
544	Delivery of Pipework and Valves	28 days	1/5/23	28/5/23		543	572
545	Procerement and manufacturing of LV switchboard	420 days	18/5/22	11/7/23			546
546	Delivery of LV switchboard	60 days	12/7/23	9/9/23		545	578
547	Procerement and manufacturing of DCS	420 days	20/5/22	13/7/23			548
548	Delivery of DCS	14 days	14/7/23	27/7/23		547	
549	Procerement and manufacturing of Instrumenation and Water Monitoring Equipment	360 days	18/7/22	12/7/23			550
550	Delivery of Instrumenation and Water Monitoring Equipment	60 days	13/7/23	10/9/23		549	574
551	Procerement and manufacturing of Misc. Electrical Items (PV Panel, Earthing, etc)	360 days	7/6/22	1/6/23			552



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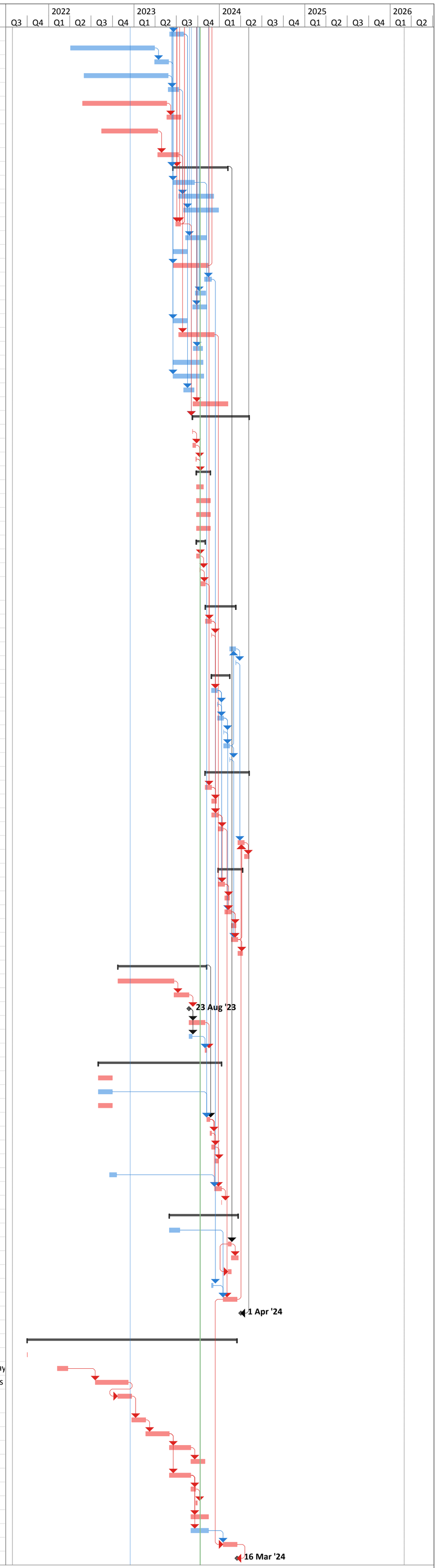
Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
552	Delivery of Misc. Electrical Items (PV Panel, Earthing, etc)	60 days	2/6/23	31/7/23		551	564,577
553	Procerement and manufacturing of Fire Services Equipment	360 days	4/4/22	29/3/23			554
554	Delivery of Fire Services Equipment	60 days	30/3/23	28/5/23		553	562
555	Procerement and manufacturing of MVAC Equipment	360 days	1/6/22	26/5/23			556
556	Delivery of MVAC Equipment	45 days	27/5/23	10/7/23		555	563
557	Procerement and manufacturing of Plumbing & Drainage Equipment	360 days	26/5/22	20/5/23			558
558	Delivery of Plumbing & Drainage Equipment	60 days	21/5/23	19/7/23		557	
559	Procerement and manufacturing of Misc. Electrical Items (Cables, Cable Containment, Lightings)	240 days	15/8/22	11/4/23			560
560	Delivery of Misc. Electrical Items (Cables, Cable Containment, Lightings)	90 days	12/4/23	10/7/23		559	573
561	**Installation Works except Main Pumps**	**235.5 days**	**16/6/23**	**6/2/24**		**245,284**	**638**
562	Installation of FS Equipment	92 days	16/6/23	16/9/23		554	629
563	Installation of MVAC Equipment	150 days	11/7/23	7/12/23		556	
564	Installation of BS/lighting Equipment	150 days	1/8/23	28/12/23		552	
565	Installation of Lifting Appliance at Motor Hall & Maintenance Room of RWPS	21 days	28/6/23	18/7/23		540,245	291,292,579
566	Installation of Lifting Appliance at Pump Hall of RWPS	90 days	9/8/23	6/11/23		292	
567	Installation of Lifting Appliance at Pipe Gallery of HCF	60 days	16/6/23	15/8/23			
568	Installation of penstocks (10 nos.) & Stoplogs (2 nos.)	150 days	16/6/23	13/11/23		532	402
569	Installation of Surge Vessel (4 Nos.) & Air Compressor (4 Nos.)	30 days	29/10/23	27/11/23		530	641
570	Installation of Air Blower (2 Nos.) & Air Diffuser (1 set)	45 days	20/9/23	3/11/23		538	
571	Installation of tanks (14 nos.) & Chemical Pumps (12 nos.)	60 days	9/9/23	7/11/23		536	
572	Installation of Pipeworks (DI, Chemical pipe, Air pipe)	60 days	16/6/23	15/8/23		544	
573	Installation of Cabling, MCC & DCS	153 days	11/7/23	10/12/23		560	634
574	Installation of Instrumentation and Monitoring Stations	40 days	11/9/23	20/10/23		550	
575	Installation of ELV System (CCTV & Access Control)	129 days	16/6/23	23/10/23			
576	Installation of Plumbing & Drainage Equipment	132 days	16/6/23	26/10/23		542	
577	Installation of PV Panels	45 days	1/8/23	14/9/23		552	
578	Installation of LV Switchborad / MCC	150 days	10/9/23	6/2/24		546	
579	**Installation of Reclaimed Water Pumps (6 Nos.)**	**243 days**	**8/9/23**	**7/5/24**		**528,565**	
580	Black Rainstorm Signal on 8 September 2023	1 day	8/9/23	8/9/23			581
581	Preliminary Investigation on the Flooded Pumps (5 Nos.)	13 days	9/9/23	21/9/23		580	582
582	Ordering of Parts for Reparing based on Investigation Results	3 days	22/9/23	24/9/23		581	583,589
583	**Delivery of Parts**	**60 days**	**25/9/23**	**23/11/23**		**582**	
584	Delivery of Bearings	30 days	25/9/23	24/10/23			
585	Delivery of RTD	60 days	25/9/23	23/11/23			
586	Delivery of Casing Open up Spare Kit	60 days	25/9/23	23/11/23			
587	Delivery of Paint (Internal Coating)	60 days	25/9/23	23/11/23			
588	**Detailed Investigation**	**38 days**	**25/9/23**	**1/11/23**			
589	Confirmation of Work Details to Local Workshop	14 days	25/9/23	8/10/23		582	590
590	Delivery of Flooded Pumps to Workshop	3 days	9/10/23	11/10/23		589	591
591	Pump A (TBH Worst Condition) - Open Half Casing for Full Inspection and Obtain Consent from Tori Japan	21 days	12/10/23	1/11/23		590	593
592	**KTN Pump Repairing**	**131 days**	**2/11/23**	**11/3/24**			
593	Repair Pump No.2 in Workshop	26 days	2/11/23	27/11/23		591	594,598
594	Return Pump No.2 to Site	1 day	28/11/23	28/11/23		593	607
595	Repair Pump No.3 in Workshop	26 days	14/2/24	10/3/24		602	596
596	Return Pump No.3 to Site	1 day	11/3/24	11/3/24		595	609
597	**TBH Pump Repairing**	**79 days**	**28/11/23**	**14/2/24**			
598	Repair Pump No.1 in Workshop	26 days	28/11/23	23/12/23		593	599,600
599	Return Pump No.1 to Site	1 day	24/12/23	24/12/23		598	612
600	Repair Pump No.2 in Workshop	26 days	24/12/23	18/1/24		598	602,601
601	Return Pump No.2 to Site	1 day	19/1/24	19/1/24		600	614
602	Repair Pump No.3 in Workshop	26 days	19/1/24	13/2/24		600	595,603
603	Return Pump No.3 to Site	1 day	14/2/24	14/2/24		602	616
604	**KTN Pump Installation**	**189 days**	**1/11/23**	**7/5/24**			
605	Installation of Pump No.1 (Good Condition)	28 days	1/11/23	28/11/23		311	606,607
606	SAT for Pump No.1	21 days	29/11/23	19/12/23		605	
607	Installation of Pump No.2 (Repaired)	28 days	29/11/23	26/12/23		594,605	608,612
608	SAT for Pump No.2	21 days	27/12/23	16/1/24		607	642
609	Installation of Pump No.3 (Repaired)	28 days	20/3/24	16/4/24		596,616,642	610
610	SAT for Pump No.3	21 days	17/4/24	7/5/24		609	
611	**TBH Pump Installation**	**105 days**	**27/12/23**	**9/4/24**			
612	Installation of Pump No.1 (Repaired)	28 days	27/12/23	23/1/24		599,607	613,614
613	SAT for Pump No.1	21 days	24/1/24	13/2/24		612	
614	Installation of Pump No.2 (Repaired)	28 days	24/1/24	20/2/24		601,612	615,616
615	SAT for Pump No.2	21 days	21/2/24	12/3/24		614	
616	Installation of Pump No.3 (Repaired)	28 days	21/2/24	19/3/24		603,614	609,617
617	SAT for Pump No.3	21 days	20/3/24	9/4/24		616	
618	**Power Energization Related Items**	**380 days**	**24/10/22**	**7/11/23**			**629**
619	CLP meter application	240 days	24/10/22	20/6/23			620
620	CLP Room & Drawpits Handover Inspections	64 days	21/6/23	23/8/23		619	621
621	Handover of Transformer Room to CLP	0 days	23/8/23	23/8/23		620	622,623
622	Cabling by CLP	69 days	24/8/23	31/10/23		621	624
623	Installation of Transformers by CLP	14 days	24/8/23	6/9/23		621	624
624	Power Energization	7 days	1/11/23	7/11/23		623,622	
625	**FS / DG Inspection Related Items**	**528 days**	**1/8/22**	**10/1/24**			
626	VAC Desgin Submission to FSD	60 days	1/8/22	29/9/22			
627	FS related statutory submission to FSD	60 days	1/8/22	29/9/22			629
628	Submission of General Building Plan (GBP) to FSD	60 days	1/8/22	29/9/22			
629	T&C of FS Related Installation (Integrated Test & Rehearsal)	14 days	8/11/23	21/11/23		562,618,627	630,634
630	Submission of FSI 314 & 501	7 days	22/11/23	28/11/23		629	631
631	Target FS Inpsection	15 days	29/11/23	13/12/23		630	632
632	Obtain FSD approval letter (Form FS172 Fire Certificate)	14 days	14/12/23	27/12/23		631	
633	DG Design Submission to FSD	30 days	18/9/22	17/10/22			634
634	DG Inspection	30 days	11/12/23	9/1/24		573,629,633	635
635	Obtain DG License	1 day	10/1/24	10/1/24		634	
636	**Submission**	**295 days**	**1/6/23**	**21/3/24**			
637	Submission of Testing Procedures & Commissioning Plan	45 days	1/6/23	15/7/23			642
638	Submission of As Fitted Drawings	14 days	7/2/24	20/2/24		561	639,640SS
639	Submission of O&M Manual	30 days	21/2/24	21/3/24		638	
640	Submission of Training Material	14 days	7/2/24	20/2/24		638SS	
641	**Registration of Surge Vessels**	7 days	28/11/23	4/12/23		569	642
642	**System Commissioning Test (2 nos. of Pumps)**	**60 days**	**17/1/24**	**16/3/24**		**637,641,608**	**659SS,609**
643	Planned completion for section 2	0 days	1/4/24	1/4/24		484FF	
644							
645	**Section 3 - Modification of Table Hill Reclaimed Water Service Reservoir**	**898 days**	**1/10/21**	**16/3/24**			
646	Access Date (part 2 of the Site)	1 day	1/10/21	1/10/21			
647	Initial survey and condition survey	45 days	7/2/22	23/3/22			648FS+117 day
648	Design submission and acceptance of the supplementary dosing and dyeing system (E&M)	141 days	19/7/22	6/12/22		647FS+117 days	649FS-45 days
649	Submission and acceptance of method statement for supplementary dosing and dyeing system	60 days	23/10/22	21/12/22		648FS-45 days	650
650	Selection of sub-contractor	60 days	22/12/22	19/2/23		649	651
651	Construction of Chemical Dosing Room	101 days	20/2/23	31/5/23		650	652,654
652	Hole Coring and Installation of Pipes into Service Reservoir	92 days	1/6/23	31/8/23		651	653
653	Construction of Pipe Trough from Dosing Room to Service Reservoir	60 days	1/9/23	30/10/23		652	
654	Fitting out Works	92 days	1/6/23	31/8/23		651	655,657,658
655	Watertightness Test of Roof Slab	21 days	1/9/23	21/9/23		654	656
656	Waterproofing Application on Roof Slab	7 days	22/9/23	28/9/23		655	
657	Installation of Steelworks	76 days	1/9/23	15/11/23		654	
658	Installation of supplementary dosing and dyeing system	76 days	1/9/23	15/11/23		654	659
659	T&C of E&M equipment	60 days	17/1/24	16/3/24		658,642SS	660FF
660	Planned completion for section 3	0 days	16/3/24	16/3/24		659FF	



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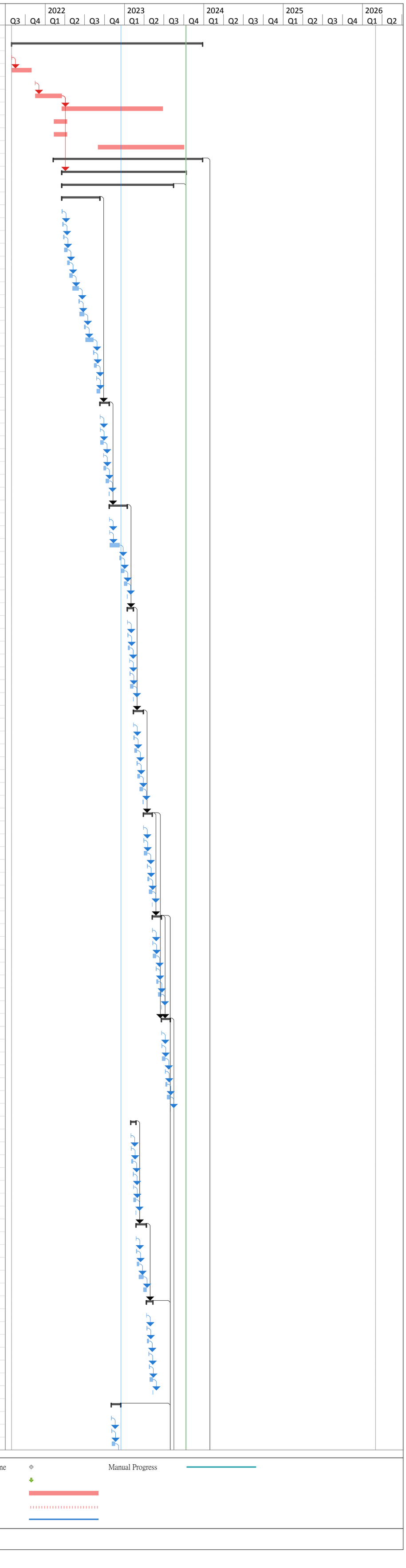
Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
661							
662	**Section 4 - Water main laying works in part 3 of the Site**	**880 days**	**30/7/21**	**26/12/23**			
663	Access Date (part 3 of the Site)	1 day	30/7/21	30/7/21			664
664	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		663	
665	1st TMLG meeting	1 day	15/11/21	15/11/21			666
666	Application and approval of XP and TTA, including local consultation	122 days	16/11/21	17/3/22		665	667,672
667	Implementation of TTA by stages	465 days	18/3/22	25/6/23		666	
668	Procurement and Delivery of pipes, fittings and related materials	60 days	10/2/22	10/4/22			
669	Submission and acceptance of method statement and material	60 days	10/2/22	10/4/22			
670	Excavation of Inspection Pit	396 days	1/9/22	1/10/23			
671	**Mainlaying by open trench method (RW03 & RW43)**	**688 days**	**7/2/22**	**26/12/23**			**1105FF**
672	**RW03 : DN600 DI pipe - 1092m (XP ID: 1301128, 1301129)**	**573.5 days**	**18/3/22**	**12/10/23**		**666**	
673	**Team A : CH000 - CH550**	**515 days**	**18/3/22**	**14/8/23**			**869**
674	**CH450 - CH550 (100m)**	**176 days**	**18/3/22**	**9/9/22**			**690**
675	TTA establishment	3 days	18/3/22	20/3/22			676
676	CE-041 _ Inclement Weather in March 2022	4.5 days	21/3/22	25/3/22		675	677
677	Hard material excavation and disposal	4 days	25/3/22	29/3/22		676	678
678	Soil excavation , laying sheetpile and disposal	14 days	29/3/22	12/4/22		677	679
679	Obstruction of uncharted 900mm pipe	10 days	12/4/22	22/4/22		678	680
680	Pending for setting out of DSD	14 days	22/4/22	6/5/22		679	681
681	Amendment of ELS	28 days	6/5/22	3/6/22		680	682
682	CE-052 _ Inclement Weather in May 2022	4.5 days	3/6/22	7/6/22		681	683
683	Treatment of bedding	21 days	8/6/22	28/6/22		682	684
684	CE-053 _ Inclement Weather in June 2022	6.5 days	29/6/22	5/7/22		683	685
685	Pipe laying D.I. & PE (DSD's pipe)	36 days	5/7/22	10/8/22		684	686
686	CE-054 _ Inclement Weather in July 2022	3.5 days	10/8/22	13/8/22		685	687
687	Backfilling sand/aggregate, concurrent bend block/chambers	11 days	14/8/22	24/8/22		686	688
688	Reinstatement	1 day	25/8/22	25/8/22		687	689
689	CE-068 _ Inclement Weather in August 2022	15 days	26/8/22	9/9/22		688	
690	**CH420 - CH450 (30m)**	**43 days**	**10/9/22**	**22/10/22**		**674**	**698**
691	TTA establishment	1 day	10/9/22	10/9/22			692
692	Hard material excavation and disposal	1 day	11/9/22	11/9/22		691	693
693	Soil excavation , laying sheetpile and disposal	14 days	12/9/22	25/9/22		692	694
694	Treatment of bedding	1 day	26/9/22	26/9/22		693	695
695	Pipe laying D.I.	10 days	27/9/22	6/10/22		694	696
696	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	7/10/22	20/10/22		695	697
697	Reinstatement	2 days	21/10/22	22/10/22		696	
698	**CH390 - CH420 (30m)**	**83 days**	**23/10/22**	**13/1/23**		**690**	**706**
699	TTA establishment	1 day	23/10/22	23/10/22			700
700	Hard material excavation and disposal	1 day	24/10/22	24/10/22		699	701
701	Soil excavation , laying sheetpile and disposal	45 days	25/10/22	8/12/22		700	702
702	Treatment of bedding	7 days	9/12/22	15/12/22		701	703
703	Pipe laying D.I.	14 days	16/12/22	29/12/22		702	704
704	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	30/12/22	12/1/23		703	705
705	Reinstatement	1 day	13/1/23	13/1/23		704	
706	**CH360 - CH390 (30m)**	**28 days**	**14/1/23**	**10/2/23**		**698**	**714**
707	TTA establishment	1 day	14/1/23	14/1/23			708
708	Hard material excavation and disposal	2 days	15/1/23	16/1/23		707	709
709	Soil excavation , laying sheetpile and disposal	7 days	17/1/23	23/1/23		708	710
710	Treatment of bedding	1 day	24/1/23	24/1/23		709	711
711	Pipe laying D.I.	2 days	25/1/23	26/1/23		710	712
712	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	27/1/23	9/2/23		711	713
713	Reinstatement	1 day	10/2/23	10/2/23		712	
714	**CH300 - CH360 (60m)**	**46 days**	**11/2/23**	**28/3/23**		**706**	**722**
715	TTA establishment	1 day	11/2/23	11/2/23			716
716	Hard material excavation and disposal	4 days	12/2/23	15/2/23		715	717
717	Soil excavation , laying sheetpile and disposal	10 days	16/2/23	25/2/23		716	718
718	Treatment of bedding	4 days	26/2/23	1/3/23		717	719
719	Pipe laying D.I.	10 days	2/3/23	11/3/23		718	720
720	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	12/3/23	25/3/23		719	721
721	Reinstatement	3 days	26/3/23	28/3/23		720	
722	**CH270 - CH300 (30m)**	**41 days**	**29/3/23**	**8/5/23**		**714**	**730,738**
723	TTA establishment	1 day	29/3/23	29/3/23			724
724	Hard material excavation and disposal	2 days	30/3/23	31/3/23		723	725
725	Soil excavation , laying sheetpile and disposal	14 days	1/4/23	14/4/23		724	726
726	Treatment of bedding	2 days	15/4/23	16/4/23		725	727
727	Pipe laying D.I.	7 days	17/4/23	23/4/23		726	728
728	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	24/4/23	7/5/23		727	729
729	Reinstatement	1 day	8/5/23	8/5/23		728	
730	**CH190 - CH240 (50m)**	**42 days**	**9/5/23**	**19/6/23**		**722**	**776,738**
731	TTA establishment	1 day	9/5/23	9/5/23			732
732	Hard material excavation and disposal	2 days	10/5/23	11/5/23		731	733
733	Soil excavation , laying sheetpile and disposal	14 days	12/5/23	25/5/23		732	734
734	Treatment of bedding	2 days	26/5/23	27/5/23		733	735
735	Pipe laying D.I.	8 days	28/5/23	4/6/23		734	736
736	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	5/6/23	18/6/23		735	737
737	Reinstatement	1 day	19/6/23	19/6/23		736	
738	**CH240 - CH270 (65m, Re-alignment)**	**41 days**	**20/6/23**	**30/7/23**		**722,730**	**776**
739	TTA establishment	1 day	20/6/23	20/6/23			740
740	Hard material excavation and disposal	2 days	21/6/23	22/6/23		739	741
741	Soil excavation , laying sheetpile and disposal	14 days	23/6/23	6/7/23		740	742
742	Treatment of bedding	2 days	7/7/23	8/7/23		741	743
743	Pipe laying D.I.	7 days	9/7/23	15/7/23		742	744
744	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	16/7/23	29/7/23		743	745
745	Reinstatement	1 day	30/7/23	30/7/23		744	
746	**CH170 - CH190 (20m)**	**24 days**	**30/1/23**	**22/2/23**			**754**
747	TTA establishment	1 day	30/1/23	30/1/23			748
748	Hard material excavation and disposal	2 days	31/1/23	1/2/23		747	749
749	Soil excavation , laying sheetpile and disposal	7 days	2/2/23	8/2/23		748	750
750	Treatment of bedding	2 days	9/2/23	10/2/23		749	751
751	Pipe laying D.I.	1 day	11/2/23	11/2/23		750	752
752	Backfilling sand/aggregate, concurrent bend block/chambers	10 days	12/2/23	21/2/23		751	753
753	Reinstatement	1 day	22/2/23	22/2/23		752	
754	**CH120 - CH170 (50m)**	**48 days**	**23/2/23**	**11/4/23**		**746**	**760**
755	TTA establishment	1 day	23/2/23	23/2/23			756
756	Removal of existing railing	3 days	24/2/23	26/2/23		755	757
757	Installation of mild steel pipe	9 days	27/2/23	7/3/23		756	758
758	Construction of thrust block	21 days	8/3/23	28/3/23		757	759
759	Reinstatement of railing	14 days	29/3/23	11/4/23		758	
760	**CH080 - CH120 (40m)**	**30 days**	**12/4/23**	**11/5/23**		**754**	**776**
761	TTA establishment	1 day	12/4/23	12/4/23			762
762	Hard material excavation and disposal	2 days	13/4/23	14/4/23		761	763
763	Soil excavation , laying sheetpile and disposal	7 days	15/4/23	21/4/23		762	764
764	Treatment of bedding	2 days	22/4/23	23/4/23		763	765
765	Pipe laying D.I.	3 days	24/4/23	26/4/23		764	766
766	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	27/4/23	10/5/23		765	767
767	Reinstatement	1 day	11/5/23	11/5/23		766	
768	**CH020 - CH080 (60m)**	**44 days**	**1/11/22**	**14/12/22**			**776**
769	TTA establishment	1 day	1/11/22	1/11/22			770
770	Hard material excavation and disposal	2 days	2/11/22	3/11/22		769	771
771	Soil excavation , laying sheetpile and disposal	14 days	4/11/22	17/11/22		770	772



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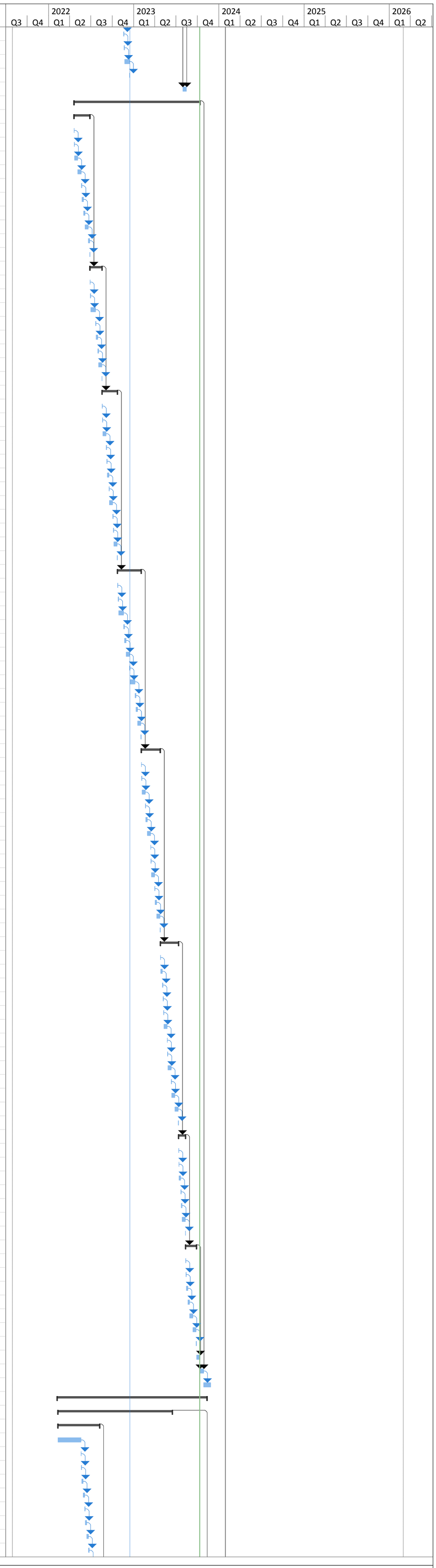
Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
772	Treatment of bedding	2 days	18/11/22	19/11/22		771	773
773	Pipe laying D.I.	3 days	20/11/22	22/11/22		772	774
774	Backfilling sand/aggregate, concurrent bend block/chambers	21 days	23/11/22	13/12/22		773	775
775	Reinstatement	1 day	14/12/22	14/12/22		774	
776	Pressure test, swabbing and CCTV	15 days	31/7/23	14/8/23		760,730,768,738	
777	**Team B : CH550 - CH1090 (540m)**	**540.5 days**	**20/4/22**	**12/10/23**			**869**
778	**CH970 - CH1010 (40m)**	**68.5 days**	**20/4/22**	**27/6/22**			**789**
779	TTA establishment	1 day	20/4/22	20/4/22			780
780	Hard material excavation and disposal	1 day	21/4/22	21/4/22		779	781
781	Soil excavation , laying sheetpile and disposal	14 days	22/4/22	5/5/22		780	782
782	CE-068 _ Inclement Weather in August 2022	15 days	6/5/22	20/5/22		781	783
783	Treatment of bedding	3 days	21/5/22	23/5/22		782	784
784	Pipe laying D.I.	7 days	24/5/22	30/5/22		783	785
785	CE-052 _ Inclement Weather in May 2022 (under assessment)	6 days	31/5/22	5/6/22		784	786
786	Backfilling sand/aggregate	14 days	6/6/22	19/6/22		785	787
787	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	20/6/22	26/6/22		786	788
788	Reinstatement	1 day	26/6/22	27/6/22		787	
789	**CH930 - CH970 (40m)**	**52 days**	**27/6/22**	**18/8/22**		**778**	**798**
790	TTA establishment	1 day	27/6/22	28/6/22			791
791	Hard material excavation and disposal	2 days	28/6/22	30/6/22		790	792
792	Soil excavation , laying sheetpile and disposal	21 days	30/6/22	21/7/22		791	793
793	Treatment of bedding	2 days	21/7/22	23/7/22		792	794
794	Pipe laying D.I.	7 days	23/7/22	30/7/22		793	795
795	CE-054 _ Inclement Weather in July 2022 (under assessment)	4 days	30/7/22	3/8/22		794	796
796	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	3/8/22	17/8/22		795	797
797	Reinstatement	1 day	17/8/22	18/8/22		796	
798	**CH880 - CH930 (50m)**	**66 days**	**18/8/22**	**23/10/22**		**789**	**811**
799	TTA establishment	1 day	18/8/22	19/8/22			800
800	Hard material excavation and disposal (CH880 - CH910)	2 days	19/8/22	21/8/22		799	801
801	Soil excavation, laying sheetpile and disposal (CH880 - CH910)	14 days	21/8/22	4/9/22		800	802
802	Treatment of bedding (CH880 - CH910)	3 days	4/9/22	7/9/22		801	803
803	Pipe laying D.I. (CH880 - CH910)	2 days	7/9/22	9/9/22		802	804
804	Backfilling sand/aggregate, concurrent bend block/chambers (CH880 - CH910)	7 days	9/9/22	16/9/22		803	805
805	Hard material excavation and disposal (CH850 - CH880)	2 days	16/9/22	18/9/22		804	806
806	Soil excavation, laying sheetpile and disposal (CH850 - CH880)	14 days	18/9/22	2/10/22		805	807
807	Treatment of bedding (CH850 - CH880)	3 days	2/10/22	5/10/22		806	808
808	Pipe laying D.I. (CH850 - CH880)	2 days	5/10/22	7/10/22		807	809
809	Backfilling sand/aggregate, concurrent bend block/chambers (CH850 - CH880)	14 days	7/10/22	21/10/22		808	810
810	Reinstatement	2 days	21/10/22	23/10/22		809	
811	**CH780 - CH880 (100m)**	**102 days**	**23/10/22**	**2/2/23**		**798**	**824**
812	TTA establishment	2 days	23/10/22	25/10/22			813
813	Hard material excavation and disposal (CH800 - CH850)	3 days	25/10/22	28/10/22		812	814
814	Soil excavation , laying sheetpile and disposal (CH800 - CH850)	21 days	28/10/22	18/11/22		813	815
815	Treatment of bedding (CH800 - CH850)	4 days	18/11/22	22/11/22		814	816
816	Pipe laying D.I. (CH800 - CH850)	7 days	22/11/22	29/11/22		815	817
817	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	29/11/22	13/12/22		816	818
818	Hard material excavation and disposal (CH750 - CH800)	3 days	13/12/22	16/12/22		817	819
819	Soil excavation , laying sheetpile and disposal (CH750 - CH800)	21 days	16/12/22	6/1/23		818	820
820	Treatment of bedding (CH750 - CH800)	4 days	6/1/23	10/1/23		819	821
821	Pipe laying D.I. (CH750 - CH800)	7 days	10/1/23	17/1/23		820	822
822	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	17/1/23	31/1/23		821	823
823	Reinstatement	2 days	31/1/23	2/2/23		822	
824	**CH680 - CH780 (100m)**	**82 days**	**2/2/23**	**25/4/23**		**811**	**838**
825	TTA establishment	1 day	2/2/23	3/2/23			826
826	Hard material excavation and disposal (CH700 - CH750)	2 days	3/2/23	5/2/23		825	827
827	Soil excavation , laying sheetpile and disposal (CH700 - CH750)	14 days	5/2/23	19/2/23		826	828
828	Treatment of bedding (CH700 - CH750)	2 days	19/2/23	21/2/23		827	829
829	Pipe laying D.I. (CH700 - CH750)	7 days	21/2/23	28/2/23		828	830
830	Backfilling sand/aggregate, concurrent bend block/chambers (CH700 - CH750)	14 days	28/2/23	14/3/23		829	831
831	Reinstatement (CH700 - CH750)	1 day	14/3/23	15/3/23		830	832
832	Hard material excavation and disposal (CH650 - CH700)	2 days	15/3/23	17/3/23		831	833
833	Soil excavation , laying sheetpile and disposal (CH650 - CH700)	14 days	17/3/23	31/3/23		832	834
834	Treatment of bedding (CH650 - CH700)	2 days	31/3/23	2/4/23		833	835
835	Pipe laying D.I. (CH650 - CH700)	7 days	2/4/23	9/4/23		834	836
836	Backfilling sand/aggregate, concurrent bend block/chambers (CH650 - CH700)	14 days	9/4/23	23/4/23		835	837
837	Reinstatement	2 days	23/4/23	25/4/23		836	
838	**CH580 - CH680 (100m)**	**78 days**	**25/4/23**	**12/7/23**		**824**	**852**
839	TTA establishment	1 day	25/4/23	26/4/23			840
840	Hard material excavation and disposal (CH600 - CH650)	7 days	26/4/23	3/5/23		839	841
841	Soil excavation , laying sheetpile and disposal (CH600 - CH650)	3 days	3/5/23	6/5/23		840	842
842	Treatment of bedding (CH600 - CH650)	2 days	6/5/23	8/5/23		841	843
843	Pipe laying D.I. (CH600 - CH650)	2 days	8/5/23	10/5/23		842	844
844	Backfilling sand/aggregate, concurrent bend block/chambers (CH600 - CH650)	14 days	10/5/23	24/5/23		843	845
845	Reinstatement (CH600 - CH650)	1 day	24/5/23	25/5/23		844	846
846	Hard material excavation and disposal (CH550 - CH600)	2 days	25/5/23	27/5/23		845	847
847	Soil excavation , laying sheetpile and disposal (CH550 - CH600)	14 days	27/5/23	10/6/23		846	848
848	Treatment of bedding (CH550 - CH600)	2 days	10/6/23	12/6/23		847	849
849	Pipe laying D.I. (CH550 - CH600)	14 days	12/6/23	26/6/23		848	850
850	Backfilling sand/aggregate, concurrent bend block/chambers (CH550 - CH600)	14 days	26/6/23	10/7/23		849	851
851	Reinstatement	2 days	10/7/23	12/7/23		850	
852	**CH1010 - CH1040 (30m)**	**30 days**	**12/7/23**	**11/8/23**		**838**	**860**
853	TTA establishment	1 day	12/7/23	13/7/23			854
854	Hard material excavation and disposal	1 day	13/7/23	14/7/23		853	855
855	Soil excavation , laying sheetpile and disposal	7 days	14/7/23	21/7/23		854	856
856	Treatment of bedding	2 days	21/7/23	23/7/23		855	857
857	Pipe laying D.I.	4 days	23/7/23	27/7/23		856	858
858	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	27/7/23	10/8/23		857	859
859	Reinstatement	1 day	10/8/23	11/8/23		858	
860	**CH1040 - CH1090 (50m)**	**47 days**	**11/8/23**	**27/9/23**		**852**	**868**
861	TTA establishment	1 day	11/8/23	12/8/23			862
862	Hard material excavation and disposal	2 days	12/8/23	14/8/23		861	863
863	Soil excavation , laying sheetpile and disposal	7 days	14/8/23	21/8/23		862	864
864	Treatment of bedding	7 days	21/8/23	28/8/23		863	865
865	Pipe laying D.I.	14 days	28/8/23	11/9/23		864	866
866	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	11/9/23	25/9/23		865	867
867	Reinstatement	2 days	25/9/23	27/9/23		866	
868	Pressure test, swabbing and CCTV	15 days	27/9/23	12/10/23		860	
869	Overall pressure test	15 days	12/10/23	27/10/23		673,777	870
870	Pipe connection and completion	30 days	27/10/23	26/11/23		869	
871	**RW43 : DN150 DI pipe - 1144m (XP ID: 1301130, 1301131)**	**643 days**	**7/2/22**	**11/11/23**			
872	**CH370 to CH850 (480m)**	**491 days**	**10/2/22**	**15/6/23**			**1103**
873	**Team A CH640 to CH680 (40m)**	**179.5 days**	**10/2/22**	**8/8/22**			**1091**
874	Pending for IIB of pipe fittings	99 days	10/2/22	19/5/22			875
875	TTA establishment	1 day	20/5/22	20/5/22		874	876
876	Hard material excavation and disposal	2 days	21/5/22	22/5/22		875	877
877	CE-052 _ Inclement Weather in May 2022 (under assessment)	6 days	23/5/22	28/5/22		876	878
878	Soil excavation , laying sheetpile and disposal	7 days	29/5/22	4/6/22		877	879
879	Treatment of bedding	2 days	5/6/22	6/6/22		878	880
880	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	7/6/22	13/6/22		879	881
881	Pipe laying D.I.	7 days	13/6/22	20/6/22		880	882
882	CE-054 _ Inclement Weather in July 2022 (under assessment)	4 days	20/6/22	24/6/22		881	883



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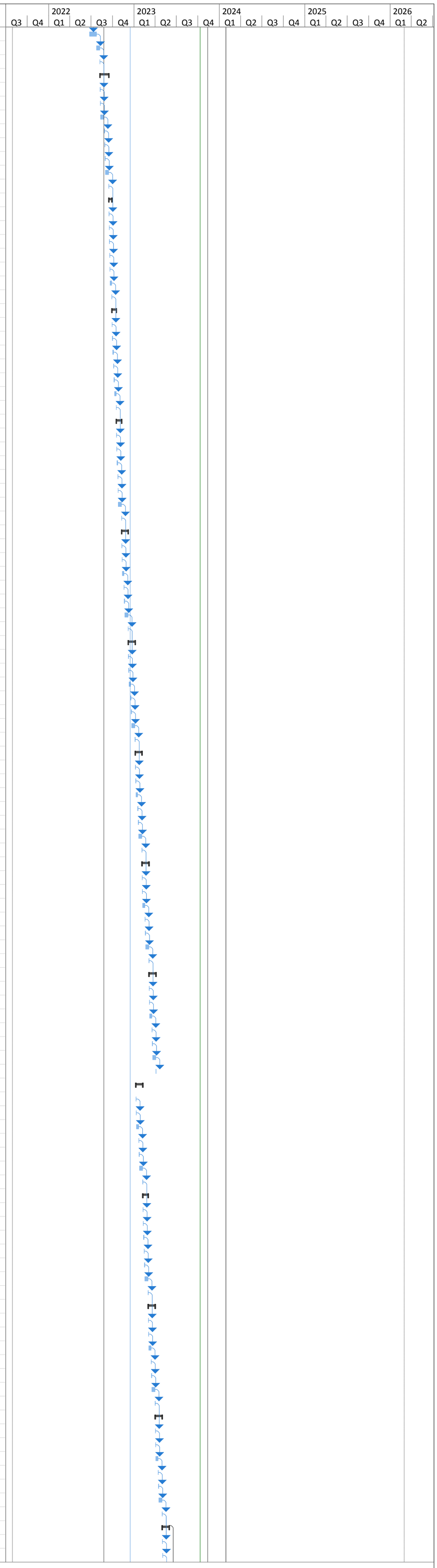
Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

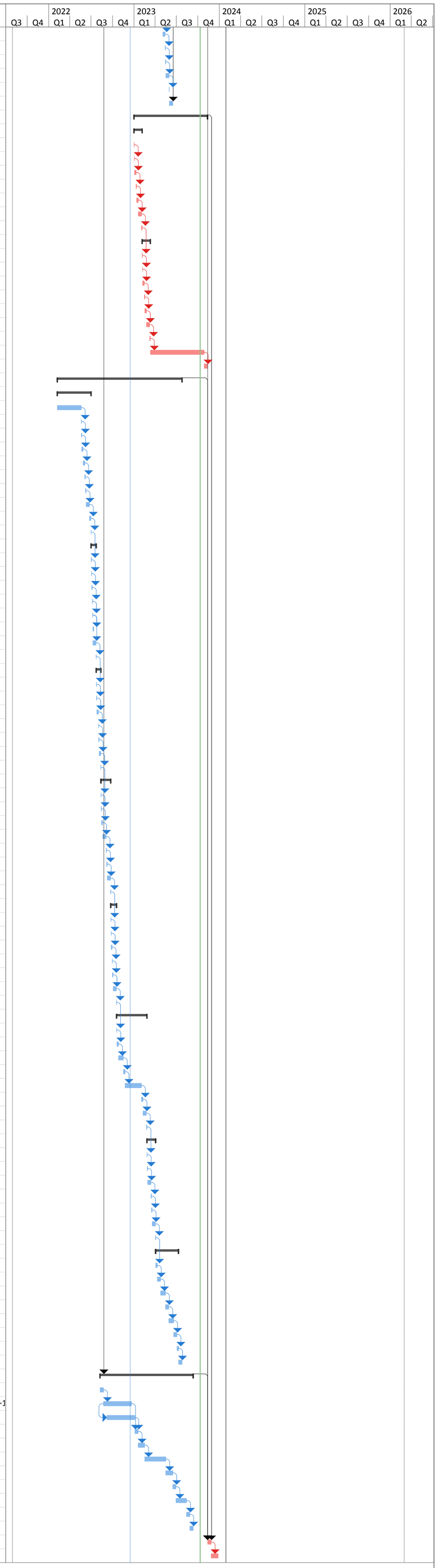
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
883	Works suspended by Sheung Shui Heung	30 days	24/6/22	24/7/22		882	884
884	Backfilling general fill and compaction	14 days	24/7/22	7/8/22		883	885
885	Reinstatement	1 day	7/8/22	8/8/22		884	887
886	**Team A CH420 to CH450 (35m)**	**38 days**	**8/8/22**	**15/9/22**			
887	TTA establishment	1 day	8/8/22	9/8/22		885	888
888	Hard material excavation and disposal	1 day	9/8/22	10/8/22		887	889
889	CE-068 _ Inclement Weather in August 2022	15 days	10/8/22	25/8/22		888	890
890	Soil excavation , laying sheetpile and disposal	3 days	25/8/22	28/8/22		889	891
891	Treatment of bedding	1 day	28/8/22	29/8/22		890	892
892	Pipe laying D.I.	2 days	29/8/22	31/8/22		891	893
893	Backfilling general fill and compaction	14 days	31/8/22	14/9/22		892	894
894	Reinstatement	1 day	14/9/22	15/9/22		893	896
895	**Team A CH410 to CH420 (10m)**	**13 days**	**15/9/22**	**28/9/22**			
896	TTA establishment	1 day	15/9/22	16/9/22		894	897
897	Hard material excavation and disposal	1 day	16/9/22	17/9/22		896	898
898	Soil excavation , laying sheetpile and disposal	1 day	17/9/22	18/9/22		897	899
899	Treatment of bedding	1 day	18/9/22	19/9/22		898	900
900	Pipe laying D.I.	1 day	19/9/22	20/9/22		899	901
901	Backfilling general fill and compaction	7 days	20/9/22	27/9/22		900	902
902	Reinstatement	1 day	27/9/22	28/9/22		901	904
903	**Team A CH450 to CH500 (50m)**	**19 days**	**28/9/22**	**17/10/22**			
904	TTA establishment	1 day	28/9/22	29/9/22		902	905
905	Hard material excavation and disposal	2 days	29/9/22	1/10/22		904	906
906	Soil excavation , laying sheetpile and disposal	4 days	1/10/22	5/10/22		905	907
907	Treatment of bedding	1 day	5/10/22	6/10/22		906	908
908	Pipe laying D.I.	3 days	6/10/22	9/10/22		907	909
909	Backfilling general fill and compaction	7 days	9/10/22	16/10/22		908	910
910	Reinstatement	1 day	16/10/22	17/10/22		909	912
911	**Team A CH400 to CH410 (10m)**	**23 days**	**17/10/22**	**9/11/22**			
912	TTA establishment	1 day	17/10/22	18/10/22		910	913
913	Hard material excavation and disposal	1 day	18/10/22	19/10/22		912	914
914	Soil excavation , laying sheetpile and disposal	4 days	19/10/22	23/10/22		913	915
915	Treatment of bedding	1 day	23/10/22	24/10/22		914	916
916	Pipe laying D.I.	1 day	24/10/22	25/10/22		915	917
917	Backfilling general fill and compaction	14 days	25/10/22	8/11/22		916	918
918	Reinstatement	1 day	8/11/22	9/11/22		917	920
919	**Team A CH370 to CH400 (30m)**	**28 days**	**9/11/22**	**7/12/22**			
920	TTA establishment	1 day	9/11/22	10/11/22		918	921
921	Hard material excavation and disposal	1 day	10/11/22	11/11/22		920	922
922	Soil excavation , laying sheetpile and disposal	7 days	11/11/22	18/11/22		921	923
923	Treatment of bedding	1 day	18/11/22	19/11/22		922	924
924	Pipe laying D.I.	3 days	19/11/22	22/11/22		923	925
925	Backfilling general fill and compaction	14 days	22/11/22	6/12/22		924	926
926	Reinstatement	1 day	6/12/22	7/12/22		925	928
927	**Team A CH500 to CH550 (50m)**	**30 days**	**7/12/22**	**6/1/23**			
928	TTA establishment	1 day	7/12/22	8/12/22		926	929
929	Hard material excavation and disposal	2 days	8/12/22	10/12/22		928	930
930	Soil excavation , laying sheetpile and disposal	7 days	10/12/22	17/12/22		929	931
931	Treatment of bedding	2 days	17/12/22	19/12/22		930	932
932	Pipe laying D.I.	2 days	19/12/22	21/12/22		931	933
933	Backfilling general fill and compaction	14 days	21/12/22	4/1/23		932	934
934	Reinstatement	2 days	4/1/23	6/1/23		933	936
935	**Team A CH550 to CH580 (30m)**	**29 days**	**6/1/23**	**4/2/23**			
936	TTA establishment	1 day	6/1/23	7/1/23		934	937
937	Hard material excavation and disposal	2 days	7/1/23	9/1/23		936	938
938	Soil excavation , laying sheetpile and disposal	7 days	9/1/23	16/1/23		937	939
939	Treatment of bedding	2 days	16/1/23	18/1/23		938	940
940	Pipe laying D.I.	2 days	18/1/23	20/1/23		939	941
941	Backfilling general fill and compaction	14 days	20/1/23	3/2/23		940	942
942	Reinstatement	1 day	3/2/23	4/2/23		941	944
943	**Team A CH580 to CH610 (30m)**	**30 days**	**4/2/23**	**6/3/23**			
944	TTA establishment	1 day	4/2/23	5/2/23		942	945
945	Hard material excavation and disposal	1 day	5/2/23	6/2/23		944	946
946	Soil excavation , laying sheetpile and disposal	10 days	6/2/23	16/2/23		945	947
947	Treatment of bedding	1 day	16/2/23	17/2/23		946	948
948	Pipe laying D.I.	2 days	17/2/23	19/2/23		947	949
949	Backfilling general fill and compaction	14 days	19/2/23	5/3/23		948	950
950	Reinstatement	1 day	5/3/23	6/3/23		949	952
951	**Team A CH610 to CH640 (30m)**	**30 days**	**6/3/23**	**5/4/23**			
952	TTA establishment	1 day	6/3/23	7/3/23		950	953
953	Hard material excavation and disposal	1 day	7/3/23	8/3/23		952	954
954	Soil excavation , laying sheetpile and disposal	10 days	8/3/23	18/3/23		953	955
955	Treatment of bedding	1 day	18/3/23	19/3/23		954	956
956	Pipe laying D.I.	2 days	19/3/23	21/3/23		955	957
957	Backfilling general fill and compaction	14 days	21/3/23	4/4/23		956	958
958	Reinstatement	1 day	4/4/23	5/4/23		957	
959	**Team A CH640 to CH680 (40m) _ re-alignmet**	**30 days**	**9/1/23**	**7/2/23**			
960	TTA establishment	1 day	9/1/23	9/1/23			961
961	Hard material excavation and disposal	1 day	10/1/23	10/1/23		960	962
962	Soil excavation , laying sheetpile and disposal	10 days	11/1/23	20/1/23		961	963
963	Treatment of bedding	1 day	21/1/23	21/1/23		962	964
964	Pipe laying D.I.	2 days	22/1/23	23/1/23		963	965
965	Backfilling general fill and compaction	14 days	24/1/23	6/2/23		964	966
966	Reinstatement	1 day	7/2/23	7/2/23		965	968
967	**Team A CH680 to CH740 (60m) _ re-alignmet**	**23 days**	**8/2/23**	**2/3/23**			
968	TTA establishment	1 day	8/2/23	8/2/23		966	969
969	Hard material excavation and disposal	1 day	9/2/23	9/2/23		968	970
970	Soil excavation , laying sheetpile and disposal	3 days	10/2/23	12/2/23		969	971
971	Treatment of bedding	1 day	13/2/23	13/2/23		970	972
972	Pipe laying D.I.	2 days	14/2/23	15/2/23		971	973
973	Backfilling general fill and compaction	14 days	16/2/23	1/3/23		972	974
974	Reinstatement	1 day	2/3/23	2/3/23		973	976
975	**Team A CH740 to CH770 (30m) _ re-alignmet**	**30 days**	**3/3/23**	**1/4/23**			
976	TTA establishment	1 day	3/3/23	3/3/23		974	977
977	Hard material excavation and disposal	1 day	4/3/23	4/3/23		976	978
978	Soil excavation , laying sheetpile and disposal	10 days	5/3/23	14/3/23		977	979
979	Treatment of bedding	1 day	15/3/23	15/3/23		978	980
980	Pipe laying D.I.	2 days	16/3/23	17/3/23		979	981
981	Backfilling general fill and compaction	14 days	18/3/23	31/3/23		980	982
982	Reinstatement	1 day	1/4/23	1/4/23		981	984
983	**Team A CH770 to CH810 (30m) _ re-alignmet**	**30 days**	**2/4/23**	**1/5/23**			
984	TTA establishment	1 day	2/4/23	2/4/23		982	985
985	Hard material excavation and disposal	1 day	3/4/23	3/4/23		984	986
986	Soil excavation , laying sheetpile and disposal	10 days	4/4/23	13/4/23		985	987
987	Treatment of bedding	1 day	14/4/23	14/4/23		986	988
988	Pipe laying D.I.	2 days	15/4/23	16/4/23		987	989
989	Backfilling general fill and compaction	14 days	17/4/23	30/4/23		988	990
990	Reinstatement	1 day	1/5/23	1/5/23		989	992
991	**Team A CH810 to CH850 (30m) _ re-alignmet**	**30 days**	**2/5/23**	**31/5/23**			**999**
992	TTA establishment	1 day	2/5/23	2/5/23		990	993
993	Hard material excavation and disposal	1 day	3/5/23	3/5/23		992	994



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

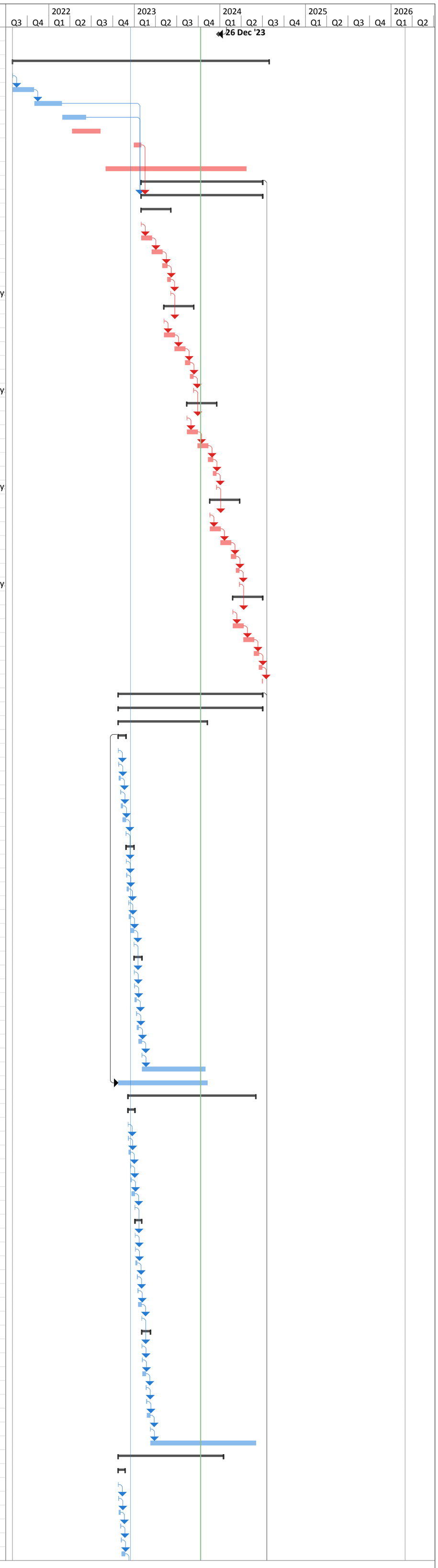
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
994	Soil excavation , laying sheetpile and disposal	10 days	4/5/23	13/5/23		993	995
995	Treatment of bedding	1 day	14/5/23	14/5/23		994	996
996	Pipe laying D.I.	2 days	15/5/23	16/5/23		995	997
997	Backfilling general fill and compaction	14 days	17/5/23	30/5/23		996	998
998	Reinstatement	1 day	31/5/23	31/5/23		997	
999	Pressure test, swabbing and CCTV	15 days	1/6/23	15/6/23		991	
1000	**CH850 to CH1130 (280m)**	**315 days**	**1/1/23**	**11/11/23**			**1103**
1001	**Team A1 CH1115 to CH1130 (15m)**	**35 days**	**1/1/23**	**4/2/23**			
1002	TTA establishment	1 day	1/1/23	1/1/23			1003
1003	Hard material excavation and disposal	1 day	2/1/23	2/1/23		1002	1004
1004	Soil excavation , laying sheetpile and disposal	7 days	3/1/23	9/1/23		1003	1005
1005	Treatment of bedding	2 days	10/1/23	11/1/23		1004	1006
1006	Pipe laying D.I.	7 days	12/1/23	18/1/23		1005	1007
1007	Backfilling general fill and compaction	14 days	19/1/23	1/2/23		1006	1008
1008	Reinstatement	3 days	2/2/23	4/2/23		1007	1010
1009	**Team A1 CH1130 to CH1145 (15m)**	**35 days**	**5/2/23**	**11/3/23**			
1010	TTA establishment	1 day	5/2/23	5/2/23		1008	1011
1011	Hard material excavation and disposal	1 day	6/2/23	6/2/23		1010	1012
1012	Soil excavation , laying sheetpile and disposal	7 days	7/2/23	13/2/23		1011	1013
1013	Treatment of bedding	2 days	14/2/23	15/2/23		1012	1014
1014	Pipe laying D.I.	7 days	16/2/23	22/2/23		1013	1015
1015	Backfilling general fill and compaction	14 days	23/2/23	8/3/23		1014	1016
1016	Reinstatement	3 days	9/3/23	11/3/23		1015	1017
1017	Team A1 CH850 to CH1115 (265m)	230 days	12/3/23	27/10/23		1016	1018
1018	Pressure test, swabbing and CCTV	15 days	28/10/23	11/11/23		1017	
1019	**CH000 to CH370 (370m)**	**533.5 days**	**7/2/22**	**25/7/23**			**1103**
1020	**Team B CH220 to CH245 (25m)**	**144.5 days**	**7/2/22**	**1/7/22**			
1021	Pending for release of TTA from other Contractor	102 days	7/2/22	19/5/22			1022
1022	TTA establishment	1 day	20/5/22	20/5/22		1021	1023
1023	Hard material excavation and disposal	1 day	21/5/22	21/5/22		1022	1024
1024	CE-052 _ Inclement Weather in May 2022 (under assessment)	6 days	22/5/22	27/5/22		1023	1025
1025	Soil excavation , laying sheetpile and disposal	7 days	28/5/22	3/6/22		1024	1026
1026	Treatment of bedding	3 days	4/6/22	6/6/22		1025	1027
1027	Pipe laying D.I.	3 days	7/6/22	9/6/22		1026	1028
1028	Backfilling general fill and compaction	14 days	10/6/22	23/6/22		1027	1029
1029	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	24/6/22	30/6/22		1028	1030
1030	Reinstatement	1 day	30/6/22	1/7/22		1029	1032
1031	**Team B CH190 to CH220 (30m)**	**22 days**	**1/7/22**	**23/7/22**			
1032	TTA establishment	1 day	1/7/22	2/7/22		1030	1033
1033	Hard material excavation and disposal	1 day	2/7/22	3/7/22		1032	1034
1034	Soil excavation , laying sheetpile and disposal	3 days	3/7/22	6/7/22		1033	1035
1035	Treatment of bedding	1 day	6/7/22	7/7/22		1034	1036
1036	Pipe laying D.I.	1 day	7/7/22	8/7/22		1035	1038,1037
1037	CE-054 _ Inclement Weather in July 2022 (under assessment)	4 days	8/7/22	12/7/22		1036	
1038	Backfilling general fill and compaction	14 days	8/7/22	22/7/22		1036	1039
1039	Reinstatement	1 day	22/7/22	23/7/22		1038	1041
1040	**Team B CH245 to CH285 (40m)**	**20 days**	**23/7/22**	**12/8/22**			
1041	TTA establishment	1 day	23/7/22	24/7/22		1039	1042
1042	Hard material excavation and disposal	1 day	24/7/22	25/7/22		1041	1043
1043	Soil excavation , laying sheetpile and disposal	7 days	25/7/22	1/8/22		1042	1044
1044	Treatment of bedding	1 day	1/8/22	2/8/22		1043	1045
1045	Pipe laying D.I.	2 days	2/8/22	4/8/22		1044	1046
1046	Backfilling general fill and compaction	7 days	4/8/22	11/8/22		1045	1047
1047	Reinstatement	1 day	11/8/22	12/8/22		1046	1049
1048	**Team B CH285 to CH315 (30m)**	**42 days**	**12/8/22**	**23/9/22**			
1049	TTA establishment	1 day	12/8/22	13/8/22		1047	1050
1050	Hard material excavation and disposal	1 day	13/8/22	14/8/22		1049	1051
1051	Soil excavation , laying sheetpile and disposal	5 days	14/8/22	19/8/22		1050	1052
1052	CE-068 _ Inclement Weather in August 2022	15 days	19/8/22	3/9/22		1051	1053
1053	Treatment of bedding	2 days	3/9/22	5/9/22		1052	1054
1054	Pipe laying D.I.	3 days	5/9/22	8/9/22		1053	1055
1055	Backfilling general fill and compaction	14 days	8/9/22	22/9/22		1054	1056
1056	Reinstatement	1 day	22/9/22	23/9/22		1055	1058
1057	**Team B CH315 to CH340 (25m)**	**25 days**	**23/9/22**	**18/10/22**			
1058	TTA establishment	1 day	23/9/22	24/9/22		1056	1059
1059	Hard material excavation and disposal	1 day	24/9/22	25/9/22		1058	1060
1060	Soil excavation , laying sheetpile and disposal	4 days	25/9/22	29/9/22		1059	1061
1061	Treatment of bedding	1 day	29/9/22	30/9/22		1060	1062
1062	Pipe laying D.I.	3 days	30/9/22	3/10/22		1061	1063
1063	Backfilling general fill and compaction	14 days	3/10/22	17/10/22		1062	1064
1064	Reinstatement	1 day	17/10/22	18/10/22		1063	1066
1065	**Team B CH0 to CH150 (150m)**	**130 days**	**18/10/22**	**25/2/23**			
1066	TTA establishment	1 day	18/10/22	19/10/22		1064	1067
1067	Hard material excavation and disposal	7 days	19/10/22	26/10/22		1066	1068
1068	Soil excavation , laying sheetpile and disposal	21 days	26/10/22	16/11/22		1067	1069
1069	Treatment of bedding	7 days	16/11/22	23/11/22		1068	1070
1070	Pending for confirmation of design alignment	70 days	23/11/22	1/2/23		1069	1071
1071	Pipe laying D.I.	7 days	1/2/23	8/2/23		1070	1072
1072	Backfilling gerneral fill and compaction	14 days	8/2/23	22/2/23		1071	1073
1073	Reinstatement	3 days	22/2/23	25/2/23		1072	1075
1074	**Team B CH150 to CH190 (40m)**	**37 days**	**25/2/23**	**3/4/23**			
1075	TTA establishment	1 day	25/2/23	26/2/23		1073	1076
1076	Hard material excavation and disposal	2 days	26/2/23	28/2/23		1075	1077
1077	Soil excavation , laying sheetpile and disposal	14 days	28/2/23	14/3/23		1076	1078
1078	Treatment of bedding	2 days	14/3/23	16/3/23		1077	1079
1079	Pipe laying D.I.	3 days	16/3/23	19/3/23		1078	1080
1080	Backfilling general fill and compaction	14 days	19/3/23	2/4/23		1079	1081
1081	Reinstatement	1 day	2/4/23	3/4/23		1080	1083
1082	**Team B CH340 to CH370 (30m)**	**98 days**	**3/4/23**	**10/7/23**			
1083	TTA establishment	7 days	3/4/23	10/4/23		1081	1084
1084	Hard material excavation and disposal	14 days	10/4/23	24/4/23		1083	1085
1085	Soil excavation , laying sheetpile and disposal	21 days	24/4/23	15/5/23		1084	1086
1086	Treatment of bedding	14 days	15/5/23	29/5/23		1085	1087
1087	Pipe laying D.I.	21 days	29/5/23	19/6/23		1086	1088
1088	Backfilling general fill and compaction	14 days	19/6/23	3/7/23		1087	1089
1089	Reinstatement	7 days	3/7/23	10/7/23		1088	1090
1090	Pressure test, swabbing and CCTV	15 days	10/7/23	25/7/23		1089	
1091	**CH710 to CH970 (260m) -within the scope of Shueng Shui Hueng**	**399 days**	**8/8/22**	**11/9/23**		**873**	**1103**
1092	CE-068 _ Inclement Weather in August 2022	15 days	8/8/22	23/8/22			1093
1093	Pending agreement of Shueng Shui Hueng villagers	120 days	23/8/22	21/12/22		1092	1095,1094SS+1
1094	XP application for alternative alignment of watermain	120 days	6/9/22	4/1/23		1093SS+14 days	1095
1095	TTA establishment	14 days	4/1/23	18/1/23		1093,1094	1096
1096	Hard material excavation and disposal	28 days	18/1/23	15/2/23		1095	1097
1097	Soil excavation , laying sheetpile and disposal	90 days	15/2/23	16/5/23		1096	1098
1098	Treatment of bedding	30 days	16/5/23	15/6/23		1097	1099
1099	Pipe laying D.I.	14 days	15/6/23	29/6/23		1098	1100
1100	Backfilling general fill and compaction	45 days	29/6/23	13/8/23		1099	1101
1101	Reinstatement	14 days	13/8/23	27/8/23		1100	1102
1102	Pressure test, swabbing and CCTV	15 days	27/8/23	11/9/23		1101	
1103	Overall pressure testing	15 days	12/11/23	26/11/23		872,1019,1091,1	1104
1104	Pipe connection and completion	30 days	27/11/23	26/12/23		1103	



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Critical
Critical Split
Progress
Manual Progress

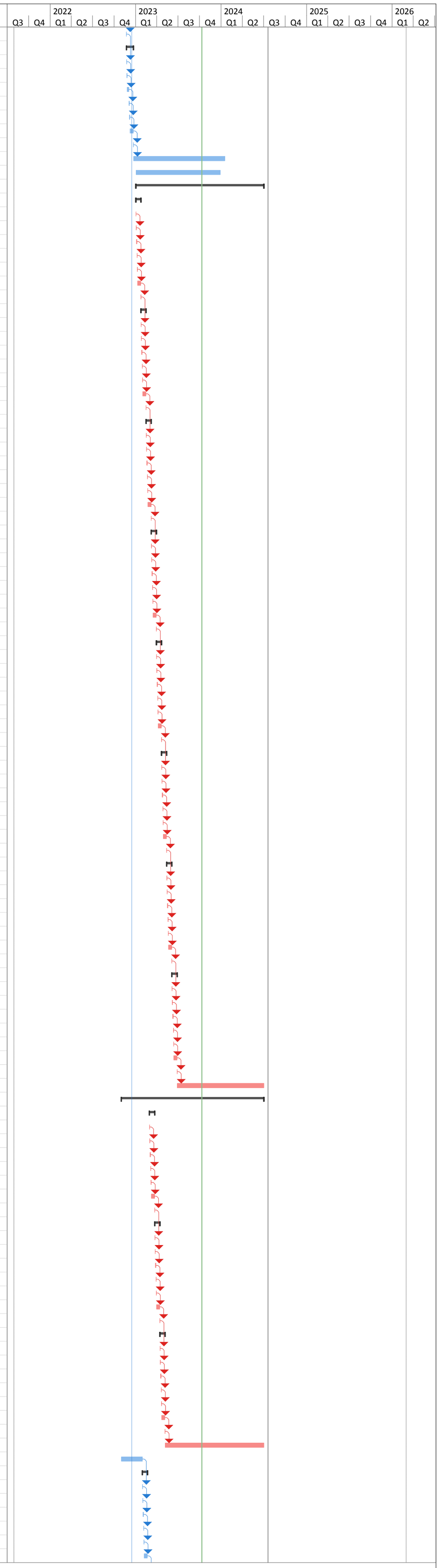
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1105	Planned completion for section 4	0 days	26/12/23	26/12/23		671FF	
1106							
1107	**Section 5 - Water main laying works in part 4 of the Site**	**1096 days**	**30/7/21**	**29/7/24**			
1108	Access Date (part 4 of the Site)	1 day	30/7/21	30/7/21			1109
1109	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1108	1110
1110	Application and approval of XP and TTA	116 days	1/11/21	24/2/22		1109	1116
1111	Procurement and Delivery of pipes, fittings and related materials	100 days	28/2/22	7/6/22			1116
1112	Submission and acceptance of method statement and material	120 days	11/4/22	8/8/22			
1113	Submission and acceptance of method statement and temp work design for trenchless works	30 days	31/12/22	29/1/23			1116
1114	Excavation of Inspection Pit	600 days	1/9/22	22/4/24			
1115	**Mainlaying by trenchless method (RW04)**	**519 days**	**30/1/23**	**1/7/24**			**1327**
1116	**RW04 : DN450 DI pipe (trenchless)**	**519 days**	**30/1/23**	**1/7/24**	**60**	**1110,1111,1113**	
1117	**Wo Tai Street (70m) - TBM Method**	**127 days**	**30/1/23**	**5/6/23**			
1118	TTA implementation	1 day	30/1/23	30/1/23			1119
1119	Contruction of jacking pit and receiving pit	45 days	31/1/23	16/3/23		1118	1120
1120	Trenchless works and pipe laying	45 days	17/3/23	30/4/23		1119	1121
1121	Manhole / Chamber construction	21 days	1/5/23	21/5/23		1120	1122
1122	Backfilling and compaction	14 days	22/5/23	4/6/23		1121	1123
1123	Reinstatement	1 day	5/6/23	5/6/23		1122	1125FS-30 day
1124	**Ma Sik Road (70m) - TBM Method**	**128 days**	**7/5/23**	**11/9/23**			
1125	TTA implementation	1 day	7/5/23	7/5/23		1123FS-30 days	1126
1126	Contruction of jacking pit and receiving pit	45 days	8/5/23	21/6/23		1125	1127
1127	Trenchless works and pipe laying	45 days	22/6/23	5/8/23		1126	1128
1128	Manhole / Chamber construction	21 days	6/8/23	26/8/23		1127	1129
1129	Backfilling and compaction	14 days	27/8/23	9/9/23		1128	1130
1130	Reinstatement	2 days	10/9/23	11/9/23		1129	1132FS-30 day
1131	**Luen Chit Street (70m) - TBM Method**	**128 days**	**13/8/23**	**18/12/23**			
1132	TTA implementation	1 day	13/8/23	13/8/23		1130FS-30 days	1133
1133	Contruction of jacking pit and receiving pit	45 days	14/8/23	27/9/23		1132	1134
1134	Trenchless works and pipe laying	45 days	28/9/23	11/11/23		1133	1135
1135	Manhole / Chamber construction	21 days	12/11/23	2/12/23		1134	1136
1136	Backfilling and compaction	14 days	3/12/23	16/12/23		1135	1137
1137	Reinstatement	2 days	17/12/23	18/12/23		1136	1139FS-30 day
1138	**Luen Sum Road (70m) - TBM Method**	**128 days**	**19/11/23**	**25/3/24**			
1139	TTA implementation	1 day	19/11/23	19/11/23		1137FS-30 days	1140
1140	Contruction of jacking pit and receiving pit	45 days	20/11/23	3/1/24		1139	1141
1141	Trenchless works and pipe laying	45 days	4/1/24	17/2/24		1140	1142
1142	Manhole / Chamber construction	21 days	18/2/24	9/3/24		1141	1143
1143	Backfilling and compaction	14 days	10/3/24	23/3/24		1142	1144
1144	Reinstatement	2 days	24/3/24	25/3/24		1143	1146FS-30 day
1145	**Fanling Lau Road (70m) - TBM Method**	**128 days**	**25/2/24**	**1/7/24**			
1146	TTA implementation	1 day	25/2/24	25/2/24		1144FS-30 days	1147
1147	Contruction of jacking pit and receiving pit	45 days	26/2/24	10/4/24		1146	1148
1148	Trenchless works and pipe laying	45 days	11/4/24	25/5/24		1147	1149
1149	Manhole / Chamber construction	21 days	26/5/24	15/6/24		1148	1150
1150	Backfilling and compaction	14 days	16/6/24	29/6/24		1149	1151
1151	Reinstatement	2 days	30/6/24	1/7/24		1150	
1152	**Mainlaying by open trench method (RW04)**	**617 days**	**24/10/22**	**1/7/24**			**1327**
1153	**RW04 : DN450 DI Pipe**	**617 days**	**24/10/22**	**1/7/24**			
1154	Ma Sik Road CH1400 to CH1700 (300m) (XP ID: 1301142, 1301146, 1301149)	381 days	24/10/22	8/11/23			
1155	CH1420 to CH1450 (30m)	34 days	24/10/22	26/11/22			1180SS
1156	TTA establishment	1 day	24/10/22	24/10/22			1157
1157	Hard material excavation and disposal	2 days	25/10/22	26/10/22		1156	1158
1158	Soil excavation , laying sheetpile and disposal	7 days	27/10/22	2/11/22		1157	1159
1159	Treatment of bedding	2 days	3/11/22	4/11/22		1158	1160
1160	Pipe laying D.I.	7 days	5/11/22	11/11/22		1159	1161
1161	Backfilling general fill and compaction	14 days	12/11/22	25/11/22		1160	1162
1162	Reinstatement	1 day	26/11/22	26/11/22		1161	1164
1163	CH1450 to CH1480 (30m)	34 days	27/11/22	30/12/22			
1164	TTA establishment	1 day	27/11/22	27/11/22		1162	1165
1165	Hard material excavation and disposal	2 days	28/11/22	29/11/22		1164	1166
1166	Soil excavation , laying sheetpile and disposal	7 days	30/11/22	6/12/22		1165	1167
1167	Treatment of bedding	2 days	7/12/22	8/12/22		1166	1168
1168	Pipe laying D.I.	7 days	9/12/22	15/12/22		1167	1169
1169	Backfilling general fill and compaction	14 days	16/12/22	29/12/22		1168	1170
1170	Reinstatement	1 day	30/12/22	30/12/22		1169	1172
1171	CH910 to CH960 (50m)	34 days	31/12/22	2/2/23			
1172	TTA establishment	1 day	31/12/22	31/12/22		1170	1173
1173	Hard material excavation and disposal	2 days	1/1/23	2/1/23		1172	1174
1174	Soil excavation , laying sheetpile and disposal	7 days	3/1/23	9/1/23		1173	1175
1175	Treatment of bedding	2 days	10/1/23	11/1/23		1174	1176
1176	Pipe laying D.I.	7 days	12/1/23	18/1/23		1175	1177
1177	Backfilling general fill and compaction	14 days	19/1/23	1/2/23		1176	1178
1178	Reinstatement	1 day	2/2/23	2/2/23		1177	1179
1179	CH1490 to 1700 (210m)	270 days	3/2/23	30/10/23	60	1178	
1180	Construction of valve chambers	381 days	24/10/22	8/11/23		1155SS	
1181	Ma Sik Road CH1700 to CH2180 (480m) (XP ID: 1301142, 1301146, 1301149)	546 days	5/12/22	2/6/24			
1182	CH1920 to CH1950 (30m)	30 days	5/12/22	3/1/23			
1183	TTA establishment	1 day	5/12/22	5/12/22			1184
1184	Hard material excavation and disposal	2 days	6/12/22	7/12/22		1183	1185
1185	Soil excavation , laying sheetpile and disposal	7 days	8/12/22	14/12/22		1184	1186
1186	Treatment of bedding	2 days	15/12/22	16/12/22		1185	1187
1187	Pipe laying D.I.	3 days	17/12/22	19/12/22		1186	1188
1188	Backfilling general fill and compaction	14 days	20/12/22	2/1/23		1187	1189
1189	Reinstatement	1 day	3/1/23	3/1/23		1188	1191
1190	CH1950 to CH1990 (40m)	29 days	4/1/23	1/2/23			
1191	TTA establishment	1 day	4/1/23	4/1/23		1189	1192
1192	Hard material excavation and disposal	1 day	5/1/23	5/1/23		1191	1193
1193	Soil excavation , laying sheetpile and disposal	7 days	6/1/23	12/1/23		1192	1194
1194	Treatment of bedding	2 days	13/1/23	14/1/23		1193	1195
1195	Pipe laying D.I.	3 days	15/1/23	17/1/23		1194	1196
1196	Backfilling general fill and compaction	14 days	18/1/23	31/1/23		1195	1197
1197	Reinstatement	1 day	1/2/23	1/2/23		1196	1199
1198	CH1990 to CH2020 (30m)	37 days	2/2/23	10/3/23			
1199	TTA establishment	1 day	2/2/23	2/2/23		1197	1200
1200	Hard material excavation and disposal	2 days	3/2/23	4/2/23		1199	1201
1201	Soil excavation , laying sheetpile and disposal	14 days	5/2/23	18/2/23		1200	1202
1202	Treatment of bedding	2 days	19/2/23	20/2/23		1201	1203
1203	Pipe laying D.I.	3 days	21/2/23	23/2/23		1202	1204
1204	Backfilling general fill and compaction	14 days	24/2/23	9/3/23		1203	1205
1205	Reinstatement	1 day	10/3/23	10/3/23		1204	1206
1206	CH1790 to 2180 (390m)	450 days	11/3/23	2/6/24	60	1205	
1207	Ma Sik Road CH2180 to CH2400 (220m) (XP ID: 1301142, 1301146, 1301149)	450 days	24/10/22	16/1/24			
1208	CH2210 to CH2240 (30m)	30 days	24/10/22	22/11/22			
1209	TTA establishment	1 day	24/10/22	24/10/22			1210
1210	Hard material excavation and disposal	2 days	25/10/22	26/10/22		1209	1211
1211	Soil excavation , laying sheetpile and disposal	7 days	27/10/22	2/11/22		1210	1212
1212	Treatment of bedding	2 days	3/11/22	4/11/22		1211	1213
1213	Pipe laying D.I.	3 days	5/11/22	7/11/22		1212	1214
1214	Backfilling general fill and compaction	14 days	8/11/22	21/11/22		1213	1215



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Critical
Critical Split
Progress
Manual Progress

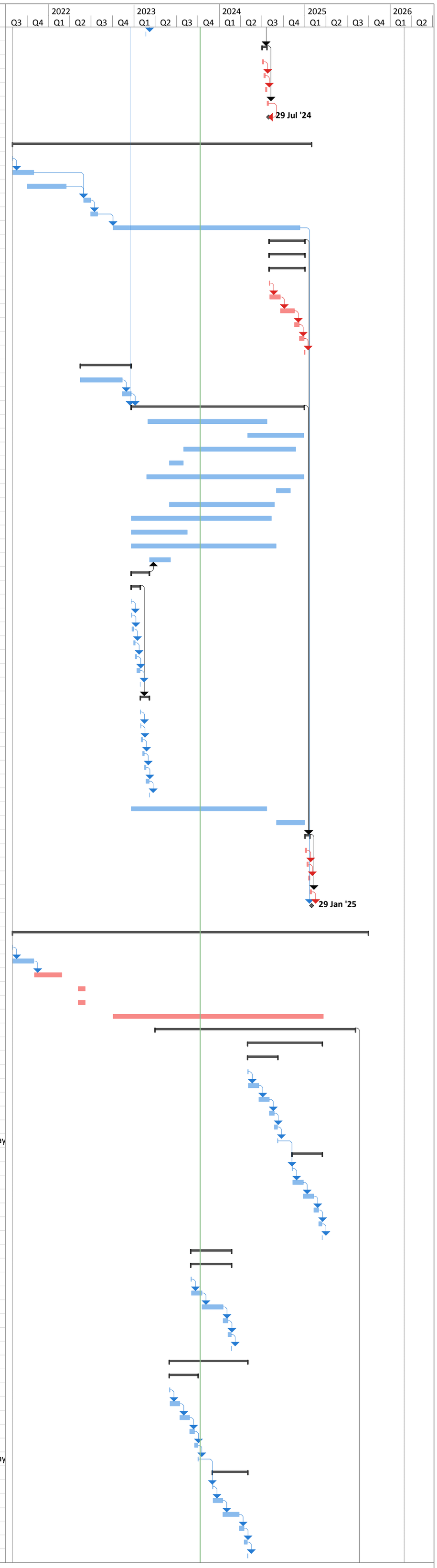
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1215	Reinstatement	1 day	22/11/22	22/11/22		1214	1217
1216	CH2240 to CH2270 (30m)	30 days	23/11/22	22/12/22			
1217	TTA establishment	1 day	23/11/22	23/11/22		1215	1218
1218	Hard material excavation and disposal	2 days	24/11/22	25/11/22		1217	1219
1219	Soil excavation , laying sheetpile and disposal	7 days	26/11/22	2/12/22		1218	1220
1220	Treatment of bedding	2 days	3/12/22	4/12/22		1219	1221
1221	Pipe laying D.I.	3 days	5/12/22	7/12/22		1220	1222
1222	Backfilling general fill and compaction	14 days	8/12/22	21/12/22		1221	1223
1223	Reinstatement	1 day	22/12/22	22/12/22		1222	1224
1224	CH2270 to CH2400 (130m)	390 days	23/12/22	16/1/24	60	1223	
1225	Ma Sik Road CH2400 to CH2600 (200m) (XP ID: 1301142, 1301146, 1301149)	360 days	3/1/23	28/12/23			
1226	Tin Ping Road (1377m) (XP ID: 1309070, 1310475)	547 days	2/1/23	1/7/24			
1227	CH450 to CH480 (30m)	22 days	2/1/23	23/1/23			
1228	TTA establishment	1 day	2/1/23	2/1/23			1229
1229	Hard material excavation and disposal	1 day	3/1/23	3/1/23		1228	1230
1230	Soil excavation , laying sheetpile and disposal	3 days	4/1/23	6/1/23		1229	1231
1231	Treatment of bedding	1 day	7/1/23	7/1/23		1230	1232
1232	Pipe laying D.I.	1 day	8/1/23	8/1/23		1231	1233
1233	Backfilling general fill and compaction	14 days	9/1/23	22/1/23		1232	1234
1234	Reinstatement	1 day	23/1/23	23/1/23		1233	1236
1235	CH480 to CH510 (30m)	22 days	24/1/23	14/2/23			
1236	TTA establishment	1 day	24/1/23	24/1/23		1234	1237
1237	Hard material excavation and disposal	1 day	25/1/23	25/1/23		1236	1238
1238	Soil excavation , laying sheetpile and disposal	3 days	26/1/23	28/1/23		1237	1239
1239	Treatment of bedding	1 day	29/1/23	29/1/23		1238	1240
1240	Pipe laying D.I.	1 day	30/1/23	30/1/23		1239	1241
1241	Backfilling general fill and compaction	14 days	31/1/23	13/2/23		1240	1242
1242	Reinstatement	1 day	14/2/23	14/2/23		1241	1244
1243	CH510 to CH540 (30m)	22 days	15/2/23	8/3/23			
1244	TTA establishment	1 day	15/2/23	15/2/23		1242	1245
1245	Hard material excavation and disposal	1 day	16/2/23	16/2/23		1244	1246
1246	Soil excavation , laying sheetpile and disposal	3 days	17/2/23	19/2/23		1245	1247
1247	Treatment of bedding	1 day	20/2/23	20/2/23		1246	1248
1248	Pipe laying D.I.	1 day	21/2/23	21/2/23		1247	1249
1249	Backfilling general fill and compaction	14 days	22/2/23	7/3/23		1248	1250
1250	Reinstatement	1 day	8/3/23	8/3/23		1249	1252
1251	CH540 to CH570 (30m)	22 days	9/3/23	30/3/23			
1252	TTA establishment	1 day	9/3/23	9/3/23		1250	1253
1253	Hard material excavation and disposal	1 day	10/3/23	10/3/23		1252	1254
1254	Soil excavation , laying sheetpile and disposal	3 days	11/3/23	13/3/23		1253	1255
1255	Treatment of bedding	1 day	14/3/23	14/3/23		1254	1256
1256	Pipe laying D.I.	1 day	15/3/23	15/3/23		1255	1257
1257	Backfilling general fill and compaction	14 days	16/3/23	29/3/23		1256	1258
1258	Reinstatement	1 day	30/3/23	30/3/23		1257	1260
1259	CH570 to CH610 (30m)	22 days	31/3/23	21/4/23			
1260	TTA establishment	1 day	31/3/23	31/3/23		1258	1261
1261	Hard material excavation and disposal	1 day	1/4/23	1/4/23		1260	1262
1262	Soil excavation , laying sheetpile and disposal	3 days	2/4/23	4/4/23		1261	1263
1263	Treatment of bedding	1 day	5/4/23	5/4/23		1262	1264
1264	Pipe laying D.I.	1 day	6/4/23	6/4/23		1263	1265
1265	Backfilling general fill and compaction	14 days	7/4/23	20/4/23		1264	1266
1266	Reinstatement	1 day	21/4/23	21/4/23		1265	1268
1267	CH610 to CH640 (30m)	22 days	22/4/23	13/5/23			
1268	TTA establishment	1 day	22/4/23	22/4/23		1266	1269
1269	Hard material excavation and disposal	1 day	23/4/23	23/4/23		1268	1270
1270	Soil excavation , laying sheetpile and disposal	3 days	24/4/23	26/4/23		1269	1271
1271	Treatment of bedding	1 day	27/4/23	27/4/23		1270	1272
1272	Pipe laying D.I.	1 day	28/4/23	28/4/23		1271	1273
1273	Backfilling general fill and compaction	14 days	29/4/23	12/5/23		1272	1274
1274	Reinstatement	1 day	13/5/23	13/5/23		1273	1276
1275	CH640 to CH670 (30m)	22 days	14/5/23	4/6/23			
1276	TTA establishment	1 day	14/5/23	14/5/23		1274	1277
1277	Hard material excavation and disposal	1 day	15/5/23	15/5/23		1276	1278
1278	Soil excavation , laying sheetpile and disposal	3 days	16/5/23	18/5/23		1277	1279
1279	Treatment of bedding	1 day	19/5/23	19/5/23		1278	1280
1280	Pipe laying D.I.	1 day	20/5/23	20/5/23		1279	1281
1281	Backfilling general fill and compaction	14 days	21/5/23	3/6/23		1280	1282
1282	Reinstatement	1 day	4/6/23	4/6/23		1281	1284
1283	CH670 to CH710 (30m)	23 days	5/6/23	27/6/23			
1284	TTA establishment	1 day	5/6/23	5/6/23		1282	1285
1285	Hard material excavation and disposal	2 days	6/6/23	7/6/23		1284	1286
1286	Soil excavation , laying sheetpile and disposal	3 days	8/6/23	10/6/23		1285	1287
1287	Treatment of bedding	1 day	11/6/23	11/6/23		1286	1288
1288	Pipe laying D.I.	1 day	12/6/23	12/6/23		1287	1289
1289	Backfilling general fill and compaction	14 days	13/6/23	26/6/23		1288	1290
1290	Reinstatement	1 day	27/6/23	27/6/23		1289	1291
1291	Remaining Section of Tin Ping Road (1287m)	370 days	28/6/23	1/7/24		1290	
1292	Sha Tau Kok Road (869m)	609 days	1/11/22	1/7/24			
1293	CH3580 to CH3550 (30m)	23 days	1/3/23	23/3/23			
1294	TTA establishment	1 day	1/3/23	1/3/23			1295
1295	Hard material excavation and disposal	1 day	2/3/23	2/3/23		1294	1296
1296	Soil excavation , laying sheetpile and disposal	3 days	3/3/23	5/3/23		1295	1297
1297	Treatment of bedding	1 day	6/3/23	6/3/23		1296	1298
1298	Pipe laying D.I.	2 days	7/3/23	8/3/23		1297	1299
1299	Backfilling general fill and compaction	14 days	9/3/23	22/3/23		1298	1300
1300	Reinstatement	1 day	23/3/23	23/3/23		1299	1302
1301	CH3550 to CH3520 (30m)	22 days	24/3/23	14/4/23			
1302	TTA establishment	1 day	24/3/23	24/3/23		1300	1303
1303	Hard material excavation and disposal	1 day	25/3/23	25/3/23		1302	1304
1304	Soil excavation , laying sheetpile and disposal	3 days	26/3/23	28/3/23		1303	1305
1305	Treatment of bedding	1 day	29/3/23	29/3/23		1304	1306
1306	Pipe laying D.I.	1 day	30/3/23	30/3/23		1305	1307
1307	Backfilling general fill and compaction	14 days	31/3/23	13/4/23		1306	1308
1308	Reinstatement	1 day	14/4/23	14/4/23		1307	1310
1309	CH3520 to CH3490 (30m)	22 days	15/4/23	6/5/23			
1310	TTA establishment	1 day	15/4/23	15/4/23		1308	1311
1311	Hard material excavation and disposal	1 day	16/4/23	16/4/23		1310	1312
1312	Soil excavation , laying sheetpile and disposal	3 days	17/4/23	19/4/23		1311	1313
1313	Treatment of bedding	1 day	20/4/23	20/4/23		1312	1314
1314	Pipe laying D.I.	1 day	21/4/23	21/4/23		1313	1315
1315	Backfilling general fill and compaction	14 days	22/4/23	5/5/23		1314	1316
1316	Reinstatement	1 day	6/5/23	6/5/23		1315	1317
1317	Remaining Section of Sha Tau Kok Road	422 days	7/5/23	1/7/24		1316	
1318	Interface coordination with Contract ND/2019/04	90 days	1/11/22	29/1/23			1320
1319	CH2600 to CH2800 (200m)	22 days	30/1/23	20/2/23			
1320	TTA establishment	1 day	30/1/23	30/1/23		1318	1321
1321	Hard material excavation and disposal	1 day	31/1/23	31/1/23		1320	1322
1322	Soil excavation , laying sheetpile and disposal	3 days	1/2/23	3/2/23		1321	1323
1323	Treatment of bedding	1 day	4/2/23	4/2/23		1322	1324
1324	Pipe laying D.I.	1 day	5/2/23	5/2/23		1323	1325
1325	Backfilling general fill and compaction	14 days	6/2/23	19/2/23		1324	1326



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

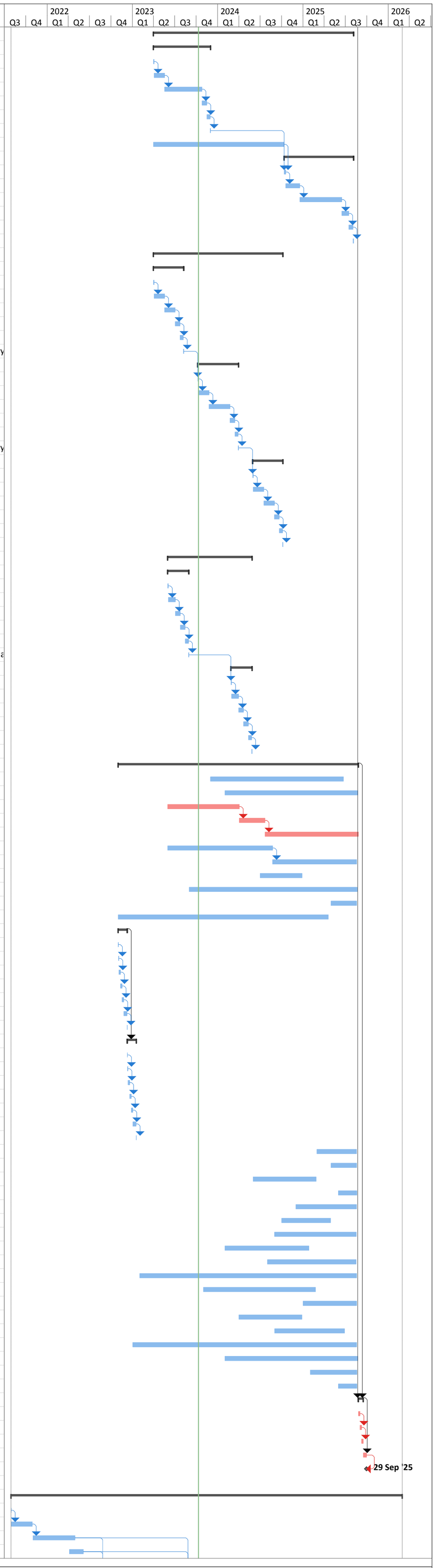
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1326	Reinstatement	1 day	20/2/23	20/2/23		1325	
1327	**Overall testing**	**21 days**	**2/7/24**	**22/7/24**		**1115,1152**	**1331**
1328	Swabbing	7 days	2/7/24	8/7/24			1329
1329	CCTV	7 days	9/7/24	15/7/24		1328	1330
1330	Hydrostatic pressure test	7 days	16/7/24	22/7/24		1329	
1331	Pipe connection and completion	7 days	23/7/24	29/7/24		1327	1332FF
1332	Planned completion for section 5	0 days	29/7/24	29/7/24		1331FF	
1333							
1334	**Section 6 - Water main laying works in part 5 of the Site**	**1280 days**	**30/7/21**	**29/1/25**			
1335	Access Date (part 5 of the Site)	1 day	30/7/21	30/7/21			1336
1336	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1335	1338
1337	Application and approval of XP and TTA	167 days	1/10/21	16/3/22			1338
1338	Procurement and Delivery of pipes, fittings and related materials	30 days	30/5/22	28/6/22		1336,1337	1339
1339	Submission and acceptance of method statement and material	30 days	29/6/22	28/7/22		1338	1340
1340	Excavation of Inspection Pit	800 days	3/10/22	10/12/24		1339	1389
1341	**Mainlaying by trenchless method**	**154 days**	**1/8/24**	**1/1/25**			**1384**
1342	**RW06 : DN300 DI pipe (trenchless)**	**154 days**	**1/8/24**	**1/1/25**			
1343	**Jocky Club Road (100m) - TBM Method**	**154 days**	**1/8/24**	**1/1/25**			
1344	TTA implementation	3 days	1/8/24	3/8/24			1345
1345	Contruction of jacking pit and receiving pit	45 days	4/8/24	17/9/24		1344	1346
1346	Trenchless works and pipe laying	60 days	18/9/24	16/11/24		1345	1347
1347	Manhole / Chamber construction	21 days	17/11/24	7/12/24		1346	1348
1348	Backfilling and compaction	21 days	8/12/24	28/12/24		1347	1349
1349	Reinstatement	4 days	29/12/24	1/1/25		1348	
1350	**Contractor's Design and Construction of distribution mains**	**218 days**	**16/5/22**	**19/12/22**			
1351	Submission and acceptance of detailed design proposal	180 days	16/5/22	11/11/22			1352
1352	Site investigation and liaison with relevant parties	38 days	12/11/22	19/12/22		1351	1353
1353	**Mainlaying by open trench method (XP ID: 1301135, 1301136)**	**741 days**	**20/12/22**	**29/12/24**		**1352,61**	**1384**
1354	RW41 (DN150) - Sheung Shui Tung Hing Road (288m)	510 days	1/3/23	22/7/24			
1355	RW42 (DN150) - No name road in Sheung Shui Heung (210m)	240 days	1/5/24	26/12/24			
1356	RW71 (DN150) - Jockey Club Road (308m)	480 days	1/8/23	22/11/24			
1357	RW44 (DN150) - Jockey Club Road (38m)	60 days	1/6/23	30/7/23			
1358	RW11 (DN150) - Fung Nam Road (480m)	673 days	24/2/23	27/12/24	30		
1359	RW46 (DN150) - Fung Nam Lane (38m)	60 days	1/9/24	30/10/24			
1360	RW06 (DN300) - Lung Sum Avenue (290m)	450 days	1/6/23	23/8/24			
1361	RW05 (DN400) - Jockey Club Road (377m)	600 days	20/12/22	10/8/24	15		
1362	RW15 (DN150) - Sun Fung Road / Sun Shing Road (390m)	240 days	20/12/22	16/8/23			
1363	RW18 (DN150) - San Hong Street (464m)	620 days	20/12/22	30/8/24			
1364	RW20 (DN150) - Sun Wing Street (52m)	90 days	8/3/23	5/6/23		1365	
1365	**RW45 (DN150) - Tsun Fu Street (82m)**	**78 days**	**20/12/22**	**7/3/23**			**1364**
1366	**CH000 - CH040**	**39 days**	**20/12/22**	**27/1/23**			**1374**
1367	TTA establishment	1 day	20/12/22	20/12/22			1368
1368	Hard material excavation and disposal	2 days	21/12/22	22/12/22		1367	1369
1369	Soil excavation , laying sheetpile and disposal	7 days	23/12/22	29/12/22		1368	1370
1370	Treatment of bedding	7 days	30/12/22	5/1/23		1369	1371
1371	Pipe laying D.I.	7 days	6/1/23	12/1/23		1370	1372
1372	Backfilling general fill and compaction	14 days	13/1/23	26/1/23		1371	1373
1373	Reinstatement	1 day	27/1/23	27/1/23		1372	
1374	**CH040 - CH082**	**39 days**	**28/1/23**	**7/3/23**		**1366**	
1375	TTA establishment	1 day	28/1/23	28/1/23			1376
1376	Hard material excavation and disposal	2 days	29/1/23	30/1/23		1375	1377
1377	Soil excavation , laying sheetpile and disposal	7 days	31/1/23	6/2/23		1376	1378
1378	Treatment of bedding	7 days	7/2/23	13/2/23		1377	1379
1379	Pipe laying D.I.	7 days	14/2/23	20/2/23		1378	1380
1380	Backfilling general fill and compaction	14 days	21/2/23	6/3/23		1379	1381
1381	Reinstatement	1 day	7/3/23	7/3/23		1380	
1382	RW14 (DN150) - Fu Hing Street (372m)	580 days	20/12/22	21/7/24			
1383	RW21 (DN150) - Sun Fat Street (105m)	120 days	1/9/24	29/12/24			
1384	Overall testing	21 days	2/1/25	22/1/25		1341,1353	1388
1385	Swabbing	7 days	2/1/25	8/1/25			1386
1386	CCTV	7 days	9/1/25	15/1/25		1385	1387
1387	Hydrostatic pressure test	7 days	16/1/25	22/1/25		1386	
1388	Pipe connection and completion	7 days	23/1/25	29/1/25		1384	1389
1389	Planned completion for section 6	0 days	29/1/25	29/1/25		1388,1340	
1390							
1391	**Section 7 - Water main laying works in part 6 of the Site**	**1523 days**	**30/7/21**	**29/9/25**			
1392	Access Date (part 6 of the Site)	1 day	30/7/21	30/7/21			1393
1393	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1392	1394
1394	Application and approval of XP and TTA	117 days	1/11/21	25/2/22		1393	
1395	Procurement and Delivery of pipes, fittings and related materials	30 days	7/5/22	5/6/22			
1396	Submission and acceptance of method statement and material	30 days	7/5/22	5/6/22			
1397	Excavation of Inspection Pit	900 days	3/10/22	20/3/25			
1398	**Mainlaying by trenchless method**	**858 days**	**1/4/23**	**5/8/25**			**1536**
1399	**RW05 : DN400 DI pipe (trenchless)**	**320 days**	**1/5/24**	**16/3/25**			
1400	**Fu Hing Street (75m) - TBM Method**	**130 days**	**1/5/24**	**7/9/24**			
1401	TTA implementation	3 days	1/5/24	3/5/24			1402
1402	Contruction of jacking pit and receiving pit	45 days	4/5/24	17/6/24		1401	1403
1403	Trenchless works and pipe laying	45 days	18/6/24	1/8/24		1402	1404
1404	Manhole / Chamber construction	21 days	2/8/24	22/8/24		1403	1405
1405	Backfilling and compaction	14 days	23/8/24	5/9/24		1404	1406
1406	Reinstatement	2 days	6/9/24	7/9/24		1405	1408FS+60 day
1407	**Luen Sum Road (70m) - TBM Method**	**130 days**	**7/11/24**	**16/3/25**			
1408	TTA implementation	3 days	7/11/24	9/11/24		1406FS+60 days	1409
1409	Contruction of jacking pit and receiving pit	45 days	10/11/24	24/12/24		1408	1410
1410	Trenchless works and pipe laying	45 days	25/12/24	7/2/25		1409	1411
1411	Manhole / Chamber construction	21 days	8/2/25	28/2/25		1410	1412
1412	Backfilling and compaction	14 days	1/3/25	14/3/25		1411	1413
1413	Reinstatement	2 days	15/3/25	16/3/25		1412	
1414	**RW05 : DN300 DI pipe (trenchless)**	**175 days**	**1/9/23**	**22/2/24**			
1415	**Ma Sik Road (180m) - TBM Method**	**175 days**	**1/9/23**	**22/2/24**			
1416	TTA implementation	3 days	1/9/23	3/9/23			1417
1417	Contruction of jacking pit and receiving pit	45 days	4/9/23	18/10/23		1416	1418
1418	Trenchless works and pipe laying	90 days	19/10/23	16/1/24		1417	1419
1419	Manhole / Chamber construction	21 days	17/1/24	6/2/24		1418	1420
1420	Backfilling and compaction	14 days	7/2/24	20/2/24		1419	1421
1421	Reinstatement	2 days	21/2/24	22/2/24		1420	
1422	**RW08 : DN400 DI pipe (trenchless)**	**336 days**	**1/6/23**	**1/5/24**			
1423	**Wo Muk Road (60m) - TBM Method**	**124 days**	**1/6/23**	**2/10/23**			
1424	TTA implementation	3 days	1/6/23	3/6/23			1425
1425	Contruction of jacking pit and receiving pit	42 days	4/6/23	15/7/23		1424	1426
1426	Trenchless works and pipe laying	42 days	16/7/23	26/8/23		1425	1427
1427	Manhole / Chamber construction	21 days	27/8/23	16/9/23		1426	1428
1428	Backfilling and compaction	14 days	17/9/23	30/9/23		1427	1429
1429	Reinstatement	2 days	1/10/23	2/10/23		1428	1431FS+60 day
1430	**Wo Tai Street (100m) - TBM Method**	**152 days**	**2/12/23**	**1/5/24**			
1431	TTA implementation	3 days	2/12/23	4/12/23		1429FS+60 days	1432
1432	Contruction of jacking pit and receiving pit	42 days	5/12/23	15/1/24		1431	1433
1433	Trenchless works and pipe laying	70 days	16/1/24	25/3/24		1432	1434
1434	Manhole / Chamber construction	21 days	26/3/24	15/4/24		1433	1435
1435	Backfilling and compaction	14 days	16/4/24	29/4/24		1434	1436
1436	Reinstatement	2 days	30/4/24	1/5/24		1435	



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

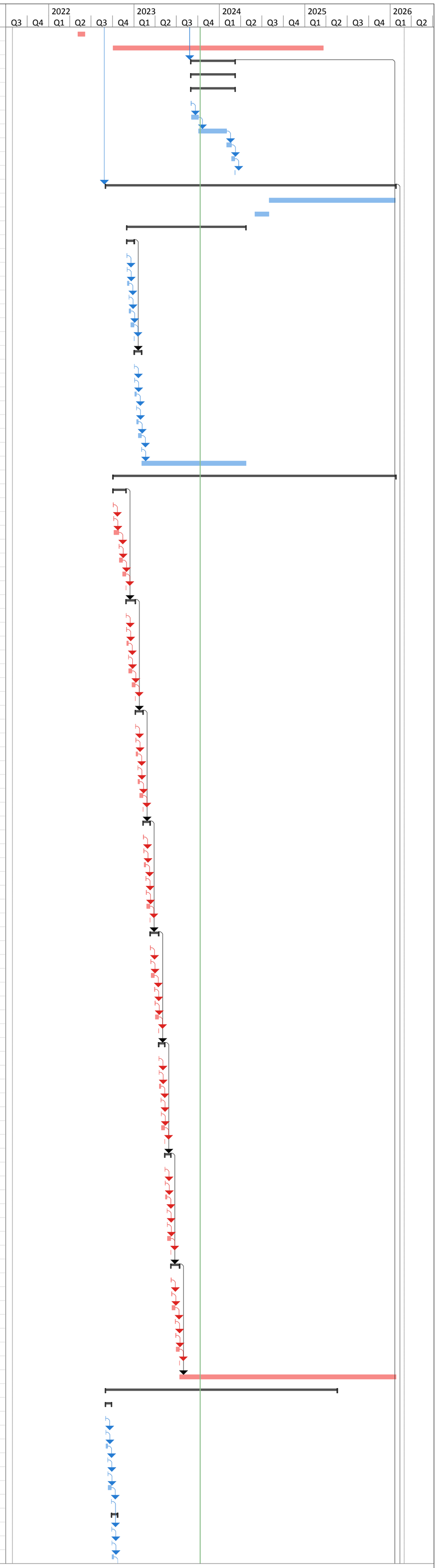
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1437	**RW09 : DN450 DI pipe (trenchless)**	**858 days**	**1/4/23**	**5/8/25**			
1438	**San Wang Road (435m) - TBM Method**	**245 days**	**1/4/23**	**1/12/23**			
1439	TTA implementation	3 days	1/4/23	3/4/23			1440
1440	Contruction of jacking pit and receiving pit	45 days	4/4/23	18/5/23		1439	1441
1441	Trenchless works and pipe laying	160 days	19/5/23	25/10/23		1440	1442
1442	Manhole / Chamber construction	21 days	26/10/23	15/11/23		1441	1443
1443	Backfilling and compaction	14 days	16/11/23	29/11/23		1442	1444
1444	Reinstatement	2 days	30/11/23	1/12/23		1443	1447
1445	Submission and acceptance of method statement by MTRC	560 days	1/4/23	11/10/24			1447
1446	**MTRC (315m) - TBM Method**	**298 days**	**12/10/24**	**5/8/25**			
1447	TTA implementation	7 days	12/10/24	18/10/24		1445,1444	1448
1448	Contruction of jacking pit and receiving pit	60 days	19/10/24	17/12/24		1447	1449
1449	Trenchless works and pipe laying	180 days	18/12/24	15/6/25		1448	1450
1450	Manhole / Chamber construction	30 days	16/6/25	15/7/25		1449	1451
1451	Backfilling and compaction	18 days	16/7/25	2/8/25		1450	1452
1452	Reinstatement	3 days	3/8/25	5/8/25		1451	
1453	**RW05 : DN300 DI pipe (trenchless)**	**555 days**	**1/4/23**	**6/10/24**			
1454	**Ling Shan Road (60m) - HDD Method**	**130 days**	**1/4/23**	**8/8/23**			
1455	TTA implementation	3 days	1/4/23	3/4/23			1456
1456	Contruction of jacking pit and receiving pit	45 days	4/4/23	18/5/23		1455	1457
1457	Trenchless works and pipe laying	45 days	19/5/23	2/7/23		1456	1458
1458	Manhole / Chamber construction	21 days	3/7/23	23/7/23		1457	1459
1459	Backfilling and compaction	14 days	24/7/23	6/8/23		1458	1460
1460	Reinstatement	2 days	7/8/23	8/8/23		1459	1462FS+60 day
1461	**San Wan Road Roundabout (130m) - HDD Method**	**175 days**	**8/10/23**	**30/3/24**			
1462	TTA implementation	3 days	8/10/23	10/10/23		1460FS+60 days	1463
1463	Contruction of jacking pit and receiving pit	45 days	11/10/23	24/11/23		1462	1464
1464	Trenchless works and pipe laying	90 days	25/11/23	22/2/24		1463	1465
1465	Manhole / Chamber construction	21 days	23/2/24	14/3/24		1464	1466
1466	Backfilling and compaction	14 days	15/3/24	28/3/24		1465	1467
1467	Reinstatement	2 days	29/3/24	30/3/24		1466	1469FS+60 day
1468	**Pak Fung Road (70m) - HDD Method**	**130 days**	**30/5/24**	**6/10/24**			
1469	TTA implementation	3 days	30/5/24	1/6/24		1467FS+60 days	1470
1470	Contruction of jacking pit and receiving pit	45 days	2/6/24	16/7/24		1469	1471
1471	Trenchless works and pipe laying	45 days	17/7/24	30/8/24		1470	1472
1472	Manhole / Chamber construction	21 days	31/8/24	20/9/24		1471	1473
1473	Backfilling and compaction	14 days	21/9/24	4/10/24		1472	1474
1474	Reinstatement	2 days	5/10/24	6/10/24		1473	
1475	**RW05 : DN300 DI pipe (trenchless)**	**362 days**	**1/6/23**	**27/5/24**			
1476	**Fanling Way (35m) - Hand Shield Method**	**91 days**	**1/6/23**	**30/8/23**			
1477	TTA implementation	3 days	1/6/23	3/6/23			1478
1478	Contruction of jacking pit and receiving pit	30 days	4/6/23	3/7/23		1477	1479
1479	Trenchless works and pipe laying	21 days	4/7/23	24/7/23		1478	1480
1480	Manhole / Chamber construction	21 days	25/7/23	14/8/23		1479	1481
1481	Backfilling and compaction	14 days	15/8/23	28/8/23		1480	1482
1482	Reinstatement	2 days	29/8/23	30/8/23		1481	1484FS+180 da
1483	**CLP Station (35m) - Hand Shield Method**	**91 days**	**27/2/24**	**27/5/24**			
1484	TTA implementation	3 days	27/2/24	29/2/24		1482FS+180 day	1485
1485	Contruction of jacking pit and receiving pit	30 days	1/3/24	30/3/24		1484	1486
1486	Trenchless works and pipe laying	21 days	31/3/24	20/4/24		1485	1487
1487	Manhole / Chamber construction	21 days	21/4/24	11/5/24		1486	1488
1488	Backfilling and compaction	14 days	12/5/24	25/5/24		1487	1489
1489	Reinstatement	2 days	26/5/24	27/5/24		1488	
1490	**Mainlaying by open trench method**	**1029 days**	**1/11/22**	**25/8/25**			**1536**
1491	RW07 (DN300) - Ma Sik Road (360m)	570 days	1/12/23	22/6/25			
1492	RW05 (DN400) - Jockey Club Road (681m) (XP ID: 1316661, 1301141)	570 days	1/2/24	23/8/25			
1493	RW05 (DN300) - Jockey Club Road (720m) (XP ID: 1316661, 1301141)	307 days	1/6/23	2/4/24			1494
1494	RW05 (DN300) - Pik Fung Road (270m)	110 days	3/4/24	21/7/24		1493	1495
1495	RW05 (DN300) - Sun Wan Road (945m)	400 days	22/7/24	25/8/25	30	1494	
1496	RW08 (DN400) - Fanling Lau Road (750m) (XP ID: 1310580, 1310468)	450 days	1/6/23	23/8/24			1497
1497	RW08 (DN400) - Lok Yip Road (616m)	360 days	24/8/24	18/8/25		1496	
1498	RW17 (DN150) - Sun Shing Road (114m)	180 days	1/7/24	27/12/24			
1499	RW16 (DN250) - Sun Fung Road / Lung Sum Avenue (741m)	720 days	1/9/23	20/8/25			
1500	RW47 (DN100) - Ben Lun Building (82m)	110 days	1/5/25	18/8/25			
1501	RW22 (DN150) - Chi Cheong Street (877m) (XP ID: 1310864)	900 days	1/11/22	18/4/25			
1502	**CH630 - CH700**	**39 days**	**1/11/22**	**9/12/22**			**1510**
1503	TTA establishment	1 day	1/11/22	1/11/22			1504
1504	Hard material excavation and disposal	2 days	2/11/22	3/11/22		1503	1505
1505	Soil excavation , laying sheetpile and disposal	7 days	4/11/22	10/11/22		1504	1506
1506	Treatment of bedding	7 days	11/11/22	17/11/22		1505	1507
1507	Pipe laying D.I.	7 days	18/11/22	24/11/22		1506	1508
1508	Backfilling general fill and compaction	14 days	25/11/22	8/12/22		1507	1509
1509	Reinstatement	1 day	9/12/22	9/12/22		1508	
1510	**CH040 - CH082**	**39 days**	**10/12/22**	**17/1/23**		**1502**	
1511	TTA establishment	1 day	10/12/22	10/12/22			1512
1512	Hard material excavation and disposal	2 days	11/12/22	12/12/22		1511	1513
1513	Soil excavation , laying sheetpile and disposal	7 days	13/12/22	19/12/22		1512	1514
1514	Treatment of bedding	7 days	20/12/22	26/12/22		1513	1515
1515	Pipe laying D.I.	7 days	27/12/22	2/1/23		1514	1516
1516	Backfilling general fill and compaction	14 days	3/1/23	16/1/23		1515	1517
1517	Reinstatement	1 day	17/1/23	17/1/23		1516	
1518	RW24 (DN150) - Chi Ming Street (120m)	170 days	1/3/25	17/8/25			
1519	RW49 (DN150) - San Wan Road (75m)	110 days	1/5/25	18/8/25			
1520	RW23 (DN150) - Lung Wan Street (171m)	270 days	1/6/24	25/2/25			
1521	RW69 (DN150) - Lung Sum Lane (60m)	80 days	1/6/25	19/8/25			
1522	RW25 (DN150) - Road to Fanling Wai (330m)	260 days	1/12/24	17/8/25			
1523	RW26 (DN150) - Ka Siu Road (133m)	210 days	1/10/24	28/4/25			
1524	RW27 (DN150) - Fanling Station Road (273m)	350 days	1/9/24	16/8/25			
1525	RW34 (DN150) - Fan Leng Lau (380m) (XP ID: 1310580, 1310468)	360 days	1/2/24	25/1/25			
1526	RW36 (DN150) - Lok Fung Street (495m)	380 days	1/8/24	15/8/25			
1527	RW13 (DN150) - Wo Tai Street (630m)	930 days	1/2/23	18/8/25			
1528	RW28 (DN150) - Wo Mun Street (312m)	480 days	1/11/23	22/2/25			
1529	RW31 (DN150) - Luen Cheong Street (185m)	230 days	1/1/25	18/8/25			
1530	RW32 (DN150) - Luen Shing Street (185m)	270 days	1/4/24	26/12/24			
1531	RW33 (DN150) - Luen Hing Street (199m)	300 days	1/9/24	27/6/25			
1532	RW30 (DN150) - Luen On Street / Luen Wo Road / Luen Fai Street (649m)	960 days	2/1/23	18/8/25			
1533	RW29 (DN150) - Wo Muk Street / Luen Hing Street (360m)	570 days	1/2/24	23/8/25			
1534	RW12 (DN150) - Luen Chit Street (120m)	200 days	1/2/25	19/8/25			
1535	RW55 (DN150) - Mount One (44m)	80 days	1/6/25	19/8/25			
1536	Overall testing	21 days	26/8/25	15/9/25		1398,1490	1540
1537	Swabbing	7 days	26/8/25	1/9/25			1538
1538	CCTV	7 days	2/9/25	8/9/25		1537	1539
1539	Hydrostatic pressure test	7 days	9/9/25	15/9/25		1538	
1540	Pipe connection and completion	14 days	16/9/25	29/9/25		1536	1541FF
1541	Planned completion for section 7	0 days	29/9/25	29/9/25		1540FF	
1542							
1543	**Section 8 - Water main laying works in part 7 of the Site**	**1676 days**	**30/7/21**	**1/3/26**			
1544	Access Date (part 7 of the Site)	1 day	30/7/21	30/7/21			1545
1545	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1544	1546
1546	Application and approval of XP and TTA	180 days	1/11/21	29/4/22		1545	1550,1559
1547	Procurement and Delivery of pipes, fittings and related materials	60 days	6/4/22	4/6/22			1550,1559



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

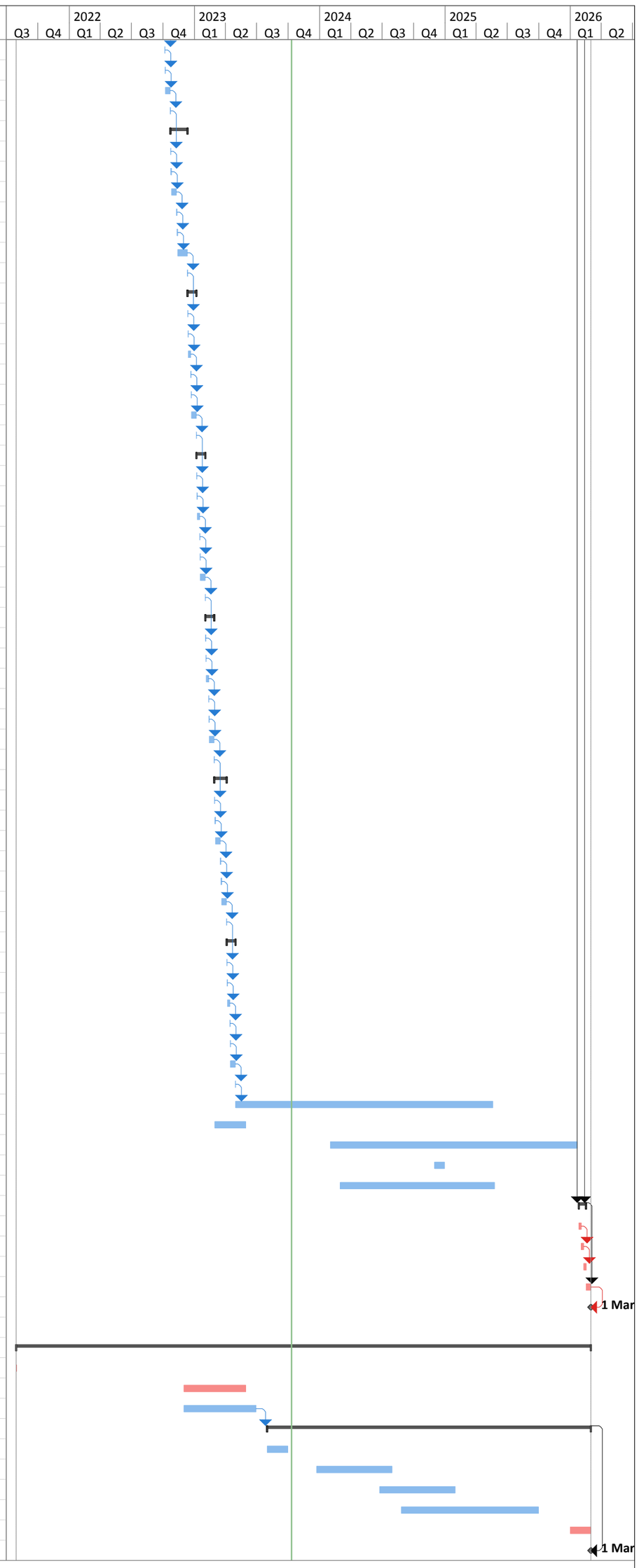
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1548	Submission and acceptance of method statement and material	30 days	6/5/22	4/6/22			
1549	Excavation of Inspection Pit	900 days	3/10/22	20/3/25			
1550	**Mainlaying by trenchless method**	**190 days**	**1/9/23**	**8/3/24**		**1547,1546**	**1716**
1551	**RW05 : DN300 DI pipe (trenchless)**	**190 days**	**1/9/23**	**8/3/24**			
1552	**Jocky Club Road (110m) - TBM Method**	**190 days**	**1/9/23**	**8/3/24**			
1553	TTA implementation	3 days	1/9/23	3/9/23			1554
1554	Contruction of jacking pit and receiving pit	30 days	4/9/23	3/10/23		1553	1555
1555	Trenchless works and pipe laying	120 days	4/10/23	31/1/24		1554	1556
1556	Manhole / Chamber construction	21 days	1/2/24	21/2/24		1555	1557
1557	Backfilling and compaction	14 days	22/2/24	6/3/24		1556	1558
1558	Reinstatement	2 days	7/3/24	8/3/24		1557	
1559	**Mainlaying by open trench method**	**1243 days**	**1/9/22**	**25/1/26**		**1547,1546**	**1716**
1560	RW38 (DN150) - Yip Cheong Street (351m)	540 days	1/8/24	22/1/26			
1561	RW39 (DN150) - Yip Cheong Street (14m)	60 days	1/6/24	30/7/24			
1562	**RW37 (DN150) - Yip Wo Street (420m) (XP ID: 1309054)**	**510 days**	**1/12/22**	**23/4/24**			
1563	CH210 to CH300 (90m)	32 days	1/12/22	1/1/23			1571
1564	TTA establishment	1 day	1/12/22	1/12/22			1565
1565	Hard material excavation and disposal	1 day	2/12/22	2/12/22		1564	1566
1566	Soil excavation , laying sheetpile and disposal	7 days	3/12/22	9/12/22		1565	1567
1567	Treatment of bedding	1 day	10/12/22	10/12/22		1566	1568
1568	Pipe laying D.I.	7 days	11/12/22	17/12/22		1567	1569
1569	Backfilling general fill and compaction	14 days	18/12/22	31/12/22		1568	1570
1570	Reinstatement	1 day	1/1/23	1/1/23		1569	
1571	CH300 to CH360 (60m)	32 days	2/1/23	2/2/23		1563	
1572	TTA establishment	1 day	2/1/23	2/1/23			1573
1573	Hard material excavation and disposal	1 day	3/1/23	3/1/23		1572	1574
1574	Soil excavation , laying sheetpile and disposal	7 days	4/1/23	10/1/23		1573	1575
1575	Treatment of bedding	1 day	11/1/23	11/1/23		1574	1576
1576	Pipe laying D.I.	7 days	12/1/23	18/1/23		1575	1577
1577	Backfilling general fill and compaction	14 days	19/1/23	1/2/23		1576	1578
1578	Reinstatement	1 day	2/2/23	2/2/23		1577	1579
1579	Remaining section of Yip Wo Street (270m)	446 days	3/2/23	23/4/24		1578	
1580	RW10 (DN300) - On Lok Mun Street (930m) (XP ID: 1301294, 1311241)	1211 days	3/10/22	25/1/26			
1581	CH930 to CH980 (50m)	56 days	3/10/22	27/11/22			1589
1582	TTA establishment	2 days	3/10/22	4/10/22			1583
1583	Hard material excavation and disposal	2 days	5/10/22	6/10/22		1582	1584
1584	Soil excavation , laying sheetpile and disposal	21 days	7/10/22	27/10/22		1583	1585
1585	Treatment of bedding	2 days	28/10/22	29/10/22		1584	1586
1586	Pipe laying D.I.	14 days	30/10/22	12/11/22		1585	1587
1587	Backfilling general fill and compaction	14 days	13/11/22	26/11/22		1586	1588
1588	Reinstatement	1 day	27/11/22	27/11/22		1587	
1589	CH840 to CH930 (90m)	40 days	28/11/22	6/1/23		1581	1597
1590	TTA establishment	1 day	28/11/22	28/11/22			1591
1591	Hard material excavation and disposal	2 days	29/11/22	30/11/22		1590	1592
1592	Soil excavation , laying sheetpile and disposal	7 days	1/12/22	7/12/22		1591	1593
1593	Treatment of bedding	1 day	8/12/22	8/12/22		1592	1594
1594	Pipe laying D.I.	14 days	9/12/22	22/12/22		1593	1595
1595	Backfilling general fill and compaction	14 days	23/12/22	5/1/23		1594	1596
1596	Reinstatement	1 day	6/1/23	6/1/23		1595	
1597	CH800 to CH840 (40m)	33 days	7/1/23	8/2/23		1589	1605
1598	TTA establishment	1 day	7/1/23	7/1/23			1599
1599	Hard material excavation and disposal	2 days	8/1/23	9/1/23		1598	1600
1600	Soil excavation , laying sheetpile and disposal	7 days	10/1/23	16/1/23		1599	1601
1601	Treatment of bedding	1 day	17/1/23	17/1/23		1600	1602
1602	Pipe laying D.I.	7 days	18/1/23	24/1/23		1601	1603
1603	Backfilling general fill and compaction	14 days	25/1/23	7/2/23		1602	1604
1604	Reinstatement	1 day	8/2/23	8/2/23		1603	
1605	CH980 to CH1000 (20m)	30 days	9/2/23	10/3/23		1597	1613
1606	TTA establishment	2 days	9/2/23	10/2/23			1607
1607	Hard material excavation and disposal	2 days	11/2/23	12/2/23		1606	1608
1608	Soil excavation , laying sheetpile and disposal	7 days	13/2/23	19/2/23		1607	1609
1609	Treatment of bedding	2 days	20/2/23	21/2/23		1608	1610
1610	Pipe laying D.I.	2 days	22/2/23	23/2/23		1609	1611
1611	Backfilling general fill and compaction	14 days	24/2/23	9/3/23		1610	1612
1612	Reinstatement	1 day	10/3/23	10/3/23		1611	
1613	CH830 to CH860 (30m)	37 days	11/3/23	16/4/23		1605	1621
1614	TTA establishment	2 days	11/3/23	12/3/23			1615
1615	Hard material excavation and disposal	2 days	13/3/23	14/3/23		1614	1616
1616	Soil excavation , laying sheetpile and disposal	14 days	15/3/23	28/3/23		1615	1617
1617	Treatment of bedding	2 days	29/3/23	30/3/23		1616	1618
1618	Pipe laying D.I.	2 days	31/3/23	1/4/23		1617	1619
1619	Backfilling general fill and compaction	14 days	2/4/23	15/4/23		1618	1620
1620	Reinstatement	1 day	16/4/23	16/4/23		1619	
1621	CH800 to CH830 (30m)	26 days	17/4/23	12/5/23		1613	1629
1622	TTA establishment	1 day	17/4/23	17/4/23			1623
1623	Hard material excavation and disposal	1 day	18/4/23	18/4/23		1622	1624
1624	Soil excavation , laying sheetpile and disposal	7 days	19/4/23	25/4/23		1623	1625
1625	Treatment of bedding	1 day	26/4/23	26/4/23		1624	1626
1626	Pipe laying D.I.	1 day	27/4/23	27/4/23		1625	1627
1627	Backfilling general fill and compaction	14 days	28/4/23	11/5/23		1626	1628
1628	Reinstatement	1 day	12/5/23	12/5/23		1627	
1629	CH110 to CH140 (30m)	26 days	13/5/23	7/6/23		1621	1637
1630	TTA establishment	1 day	13/5/23	13/5/23			1631
1631	Hard material excavation and disposal	1 day	14/5/23	14/5/23		1630	1632
1632	Soil excavation , laying sheetpile and disposal	7 days	15/5/23	21/5/23		1631	1633
1633	Treatment of bedding	1 day	22/5/23	22/5/23		1632	1634
1634	Pipe laying D.I.	1 day	23/5/23	23/5/23		1633	1635
1635	Backfilling general fill and compaction	14 days	24/5/23	6/6/23		1634	1636
1636	Reinstatement	1 day	7/6/23	7/6/23		1635	
1637	CH080 to CH110 (30m)	37 days	8/6/23	14/7/23		1629	1645
1638	TTA establishment	2 days	8/6/23	9/6/23			1639
1639	Hard material excavation and disposal	2 days	10/6/23	11/6/23		1638	1640
1640	Soil excavation , laying sheetpile and disposal	14 days	12/6/23	25/6/23		1639	1641
1641	Treatment of bedding	2 days	26/6/23	27/6/23		1640	1642
1642	Pipe laying D.I.	2 days	28/6/23	29/6/23		1641	1643
1643	Backfilling general fill and compaction	14 days	30/6/23	13/7/23		1642	1644
1644	Reinstatement	1 day	14/7/23	14/7/23		1643	
1645	Remaining Section of On Lok Mun Street (840m)	926 days	15/7/23	25/1/26		1637	
1646	RW35 (DN150) - On Chuen Street (720m) (XP ID: 1301294, 1311241)	992 days	1/9/22	19/5/25			
1647	CH590 to CH610 (30m)	26 days	1/9/22	26/9/22			
1648	TTA establishment	1 day	1/9/22	1/9/22			1649
1649	Hard material excavation and disposal	1 day	2/9/22	2/9/22		1648	1650
1650	Soil excavation , laying sheetpile and disposal	7 days	3/9/22	9/9/22		1649	1651
1651	Treatment of bedding	1 day	10/9/22	10/9/22		1650	1652
1652	Pipe laying D.I.	1 day	11/9/22	11/9/22		1651	1653
1653	Backfilling general fill and compaction	14 days	12/9/22	25/9/22		1652	1654
1654	Reinstatement	1 day	26/9/22	26/9/22		1653	1656
1655	CH560 to CH590 (30m)	26 days	27/9/22	22/10/22			
1656	TTA establishment	1 day	27/9/22	27/9/22		1654	1657
1657	Hard material excavation and disposal	1 day	28/9/22	28/9/22		1656	1658
1658	Soil excavation , laying sheetpile and disposal	7 days	29/9/22	5/10/22		1657	1659



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	

ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1659	Treatment of bedding	1 day	6/10/22	6/10/22		1658	1660
1660	Pipe laying D.I.	1 day	7/10/22	7/10/22		1659	1661
1661	Backfilling general fill and compaction	14 days	8/10/22	21/10/22		1660	1662
1662	Reinstatement	1 day	22/10/22	22/10/22		1661	1664
1663	CH530 to CH560 (30m)	50 days	23/10/22	11/12/22			
1664	TTA establishment	1 day	23/10/22	23/10/22		1662	1665
1665	Hard material excavation and disposal	2 days	24/10/22	25/10/22		1664	1666
1666	Soil excavation , laying sheetpile and disposal	14 days	26/10/22	8/11/22		1665	1667
1667	Treatment of bedding	2 days	9/11/22	10/11/22		1666	1668
1668	Pipe laying D.I.	2 days	11/11/22	12/11/22		1667	1669
1669	Backfilling general fill and compaction	28 days	13/11/22	10/12/22		1668	1670
1670	Reinstatement	1 day	11/12/22	11/12/22		1669	1672
1671	CH500 to CH530 (30m)	26 days	12/12/22	6/1/23			
1672	TTA establishment	1 day	12/12/22	12/12/22		1670	1673
1673	Hard material excavation and disposal	1 day	13/12/22	13/12/22		1672	1674
1674	Soil excavation , laying sheetpile and disposal	7 days	14/12/22	20/12/22		1673	1675
1675	Treatment of bedding	1 day	21/12/22	21/12/22		1674	1676
1676	Pipe laying D.I.	1 day	22/12/22	22/12/22		1675	1677
1677	Backfilling general fill and compaction	14 days	23/12/22	5/1/23		1676	1678
1678	Reinstatement	1 day	6/1/23	6/1/23		1677	1680
1679	CH230 to CH260 (30m)	26 days	7/1/23	1/2/23			
1680	TTA establishment	1 day	7/1/23	7/1/23		1678	1681
1681	Hard material excavation and disposal	1 day	8/1/23	8/1/23		1680	1682
1682	Soil excavation , laying sheetpile and disposal	7 days	9/1/23	15/1/23		1681	1683
1683	Treatment of bedding	1 day	16/1/23	16/1/23		1682	1684
1684	Pipe laying D.I.	1 day	17/1/23	17/1/23		1683	1685
1685	Backfilling general fill and compaction	14 days	18/1/23	31/1/23		1684	1686
1686	Reinstatement	1 day	1/2/23	1/2/23		1685	1688
1687	CH200 to CH230 (30m)	26 days	2/2/23	27/2/23			
1688	TTA establishment	1 day	2/2/23	2/2/23		1686	1689
1689	Hard material excavation and disposal	1 day	3/2/23	3/2/23		1688	1690
1690	Soil excavation , laying sheetpile and disposal	7 days	4/2/23	10/2/23		1689	1691
1691	Treatment of bedding	1 day	11/2/23	11/2/23		1690	1692
1692	Pipe laying D.I.	1 day	12/2/23	12/2/23		1691	1693
1693	Backfilling general fill and compaction	14 days	13/2/23	26/2/23		1692	1694
1694	Reinstatement	1 day	27/2/23	27/2/23		1693	1696
1695	CH170 to CH200 (30m)	36 days	28/2/23	4/4/23			
1696	TTA establishment	1 day	28/2/23	28/2/23		1694	1697
1697	Hard material excavation and disposal	2 days	1/3/23	2/3/23		1696	1698
1698	Soil excavation , laying sheetpile and disposal	14 days	3/3/23	16/3/23		1697	1699
1699	Treatment of bedding	2 days	17/3/23	18/3/23		1698	1700
1700	Pipe laying D.I.	2 days	19/3/23	20/3/23		1699	1701
1701	Backfilling general fill and compaction	14 days	21/3/23	3/4/23		1700	1702
1702	Reinstatement	1 day	4/4/23	4/4/23		1701	1704
1703	CH000 to CH060 (60m)	26 days	5/4/23	30/4/23			
1704	TTA establishment	1 day	5/4/23	5/4/23		1702	1705
1705	Hard material excavation and disposal	1 day	6/4/23	6/4/23		1704	1706
1706	Soil excavation , laying sheetpile and disposal	7 days	7/4/23	13/4/23		1705	1707
1707	Treatment of bedding	1 day	14/4/23	14/4/23		1706	1708
1708	Pipe laying D.I.	1 day	15/4/23	15/4/23		1707	1709
1709	Backfilling general fill and compaction	14 days	16/4/23	29/4/23		1708	1710
1710	Reinstatement	1 day	30/4/23	30/4/23		1709	1711
1711	Remaining Section of On Chuen Street (630m)	750 days	1/5/23	19/5/25	60	1710	
1712	Coordination with ND/2019/04	90 days	1/3/23	29/5/23			
1713	RW09 (DN450) - Wo Hing Road (436m)	720 days	1/2/24	20/1/26			
1714	RW60 (DN150) - Tee from RW09 (14m)	29 days	1/12/24	29/12/24	14		
1715	RW40 (DN200) - Tai Wo Service Road West (420m)	450 days	1/3/24	24/5/25	30		
1716	Overall testing	21 days	26/1/26	15/2/26		1559,1550	1720
1717	Swabbing	7 days	26/1/26	1/2/26			1718
1718	CCTV	7 days	2/2/26	8/2/26		1717	1719
1719	Hydrostatic pressure test	7 days	9/2/26	15/2/26		1718	
1720	Pipe connection and completion	14 days	16/2/26	1/3/26		1716	1721FF
1721	Planned completion for section 8	0 days	1/3/26	1/3/26		1720FF	
1722							
1723	**Section 9 - Conversion works to effect the supply of reclaimed water**	**1676 days**	**30/7/21**	**1/3/26**			
1724	Access Date	1 day	30/7/21	30/7/21			
1725	Initial survey by stages	180 days	1/12/22	29/5/23			
1726	Liaison, coordination and enabling work for conversion	210 days	1/12/22	28/6/23			1727
1727	**Conversion works**	**944 days**	**1/8/23**	**1/3/26**		**1726**	**1733FF**
1728	Section 4 (Part 3) - 3 nos.	60 days	1/8/23	29/9/23			
1729	Section 5 (Part 4) - 11 nos.	220 days	23/12/23	29/7/24			
1730	Section 6 (Part 5) - 11 nos.	220 days	24/6/24	29/1/25			
1731	Section 7 (Part 6) - 40 nos.	400 days	26/8/24	29/9/25			
1732	Section 8 (Part 7) - 3 nos.	60 days	1/1/26	1/3/26			
1733	Planned completion for section 9	0 days	1/3/26	1/3/26		1727FF	



Project: 3WSD20 Programme
Programme Rev. 22
(up to 30 September 2023)

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress	
Split	Inactive Milestone	Manual Summary	Deadline		
Milestone	Inactive Summary	Start-only	Critical		
Summary	Manual Task	Finish-only	Critical Split		
Project Summary	Duration-only	External Tasks	Progress		

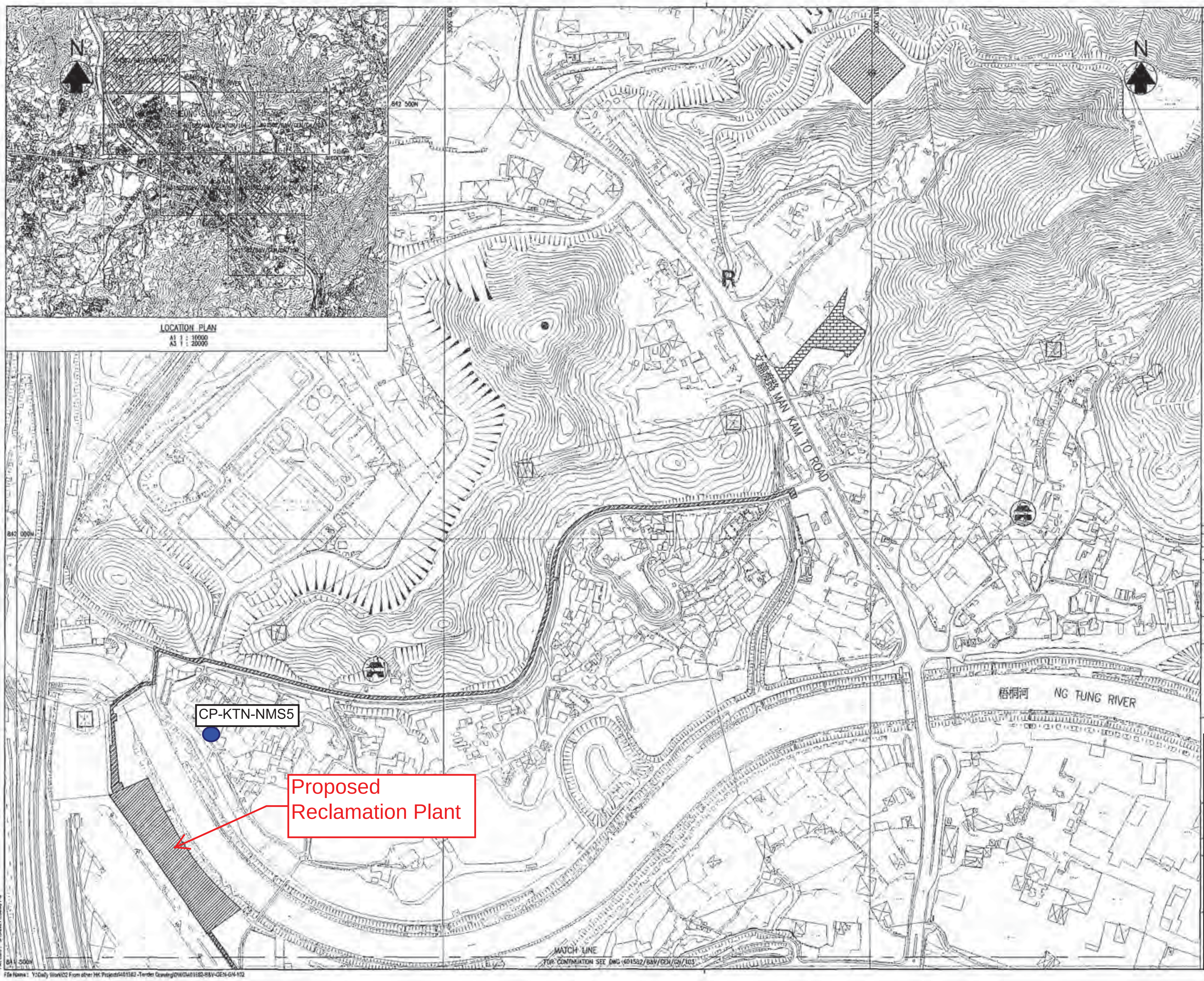
SITE OVERVIEW PHOTO IN THE REPORTING PERIOD

Main pump & associated pipe works at ReWPS Pump Hall

CLP Cable Laying work

Appendix D

Location of Designated Noise Monitoring Station CP-KTN-NMS5



NOTES:

1. ALL LEVELS ARE IN REFERENCE TO METRES ABOVE THE HONG KONG PRINCIPAL DATUM (mPD) UNLESS OTHERWISE STATED.
2. FOR GENERAL NOTES, REFER TO 401582/BAV/GEN/GN/001
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

1. THE BASE PLAN IS EXTRACTED FROM SURVEY SHEET NOS. 2-NE, 2-SE, 3NW AND 3-SW.

LEGEND:

- PART 1 OF THE SITE
- PART 2 OF THE SITE
- PART 3 OF THE SITE
- PART 4 OF THE SITE
- PART 5 OF THE SITE
- PART 6 OF THE SITE
- PART 7 OF THE SITE
- PART W1 OF THE SITE

	Designed	Checked	Drawn	Checked
Initial	CWC	WH	SZ	CC
Date	02/21	02/21	02/21	02/21

Approved

Contract No. 3/WSD/20

Contract Title

RECLAIMED WATER SUPPLY TO SHEUNG SHUI AND FANLING

Drawing Title

Noise Monitoring Station

Appendix E

Valid Calibration Certificates of Monitoring Equipment

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C226779
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-2282) Date of Receipt / 收件日期 : 8 November 2022

Description / 儀器名稱 : Sound Level Meter (EQ015)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00142581
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 19 November 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 21 November 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C226779
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C220381
CL281	Multifunction Acoustic Calibrator	AV210017

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.8	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.8 (Ref.)
				104.00		103.8
				114.00		113.7

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.8	Ref.
			Slow			93.8	± 0.3

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c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
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c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
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Certificate No. : C226779
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6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.5	-26.2 ± 1.5
					125 Hz	77.6	-16.1 ± 1.5
					250 Hz	85.1	-8.6 ± 1.4
					500 Hz	90.6	-3.2 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	95.0	+1.2 ± 1.6
					4 kHz	94.8	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					16 kHz	85.8	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	92.9	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.5
					250 Hz	93.8	0.0 ± 1.4
					500 Hz	93.8	0.0 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	93.6	-0.2 ± 1.6
					4 kHz	93.0	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					16 kHz	83.9	-8.5 (+3.5 ; -17.0)

Certificate of Calibration
校正證書

Certificate No. : C226779
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 20044

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C231627
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC23-0436) Date of Receipt / 收件日期 : 28 February 2023

Description / 儀器名稱 : Sound Calibrator (EQ089)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-75
Serial No. / 編號 : 34680623
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 21 March 2023

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed specified limits.
These limits refer to manufacturer's published tolerances as requested by the customer.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee, Engineer

Certified By 核證 : H C Chan, Engineer

Date of Issue 簽發日期 : 21 March 2023

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C231627
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C223647
CL281	Multifunction Acoustic Calibrator	AV210017
TST150A	Measuring Amplifier	C221750

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Limit (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.25	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Limit	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Appendix F

Monitoring Schedule of the Reporting Month and Coming Month

The Reporting Monitoring Schedule (September 2023)

Date		Noise Monitoring (Leq30min)	Ecology Monitoring (Water Bird) *Note*
Fri	1-Sep-23		
Sat	2-Sep-23		
Sun	3-Sep-23		
Mon	4-Sep-23		
Tue	5-Sep-23	✓	
Wed	6-Sep-23		✓ **(High Tide)**
Thu	7-Sep-23		✓ **(Low Tide)**
Fri	8-Sep-23		
Sat	9-Sep-23		
Sun	10-Sep-23		
Mon	11-Sep-23	✓	✓ **(Low Tide)**
Tue	12-Sep-23		
Wed	13-Sep-23		✓ **(High Tide)**
Thu	14-Sep-23		
Fri	15-Sep-23		
Sat	16-Sep-23		
Sun	17-Sep-23		
Mon	18-Sep-23		
Tue	19-Sep-23		
Wed	20-Sep-23		
Thu	21-Sep-23		✓ **(High Tide)**
Fri	22-Sep-23	✓	✓ **(Low Tide)**
Sat	23-Sep-23		
Sun	24-Sep-23		
Mon	25-Sep-23		✓ **(High Tide)**
Tue	26-Sep-23		✓ **(Low Tide)**
Wed	27-Sep-23	✓	
Thu	28-Sep-23		
Fri	29-Sep-23		
Sat	30-Sep-23		

✓	Monitoring Day
	Sunday or Public Holiday

The Coming Month Monitoring Schedule (October 2023)

Date		Noise Monitoring (Leq30min)	Ecology Monitoring (Water Bird) *Note*
Sun	1-Oct-23		
Mon	2-Oct-23		
Tue	3-Oct-23		
Wed	4-Oct-23		
Thu	5-Oct-23		
Fri	6-Oct-23		✓
Sat	7-Oct-23	✓	
Sun	8-Oct-23		
Mon	9-Oct-23		
Tue	10-Oct-23		
Wed	11-Oct-23		
Thu	12-Oct-23		✓
Fri	13-Oct-23	✓	
Sat	14-Oct-23		
Sun	15-Oct-23		
Mon	16-Oct-23		
Tue	17-Oct-23		✓
Wed	18-Oct-23	✓	
Thu	19-Oct-23		
Fri	20-Oct-23		
Sat	21-Oct-23		
Sun	22-Oct-23		
Mon	23-Oct-23		
Tue	24-Oct-23	✓	
Wed	25-Oct-23		✓
Thu	26-Oct-23		
Fri	27-Oct-23		
Sat	28-Oct-23		
Sun	29-Oct-23		
Mon	30-Oct-23	✓	
Tue	31-Oct-23		✓

Note:

Ecology monitoring dates are tentative and are subject to change

✓	Monitoring Day
	Sunday or Public Holiday

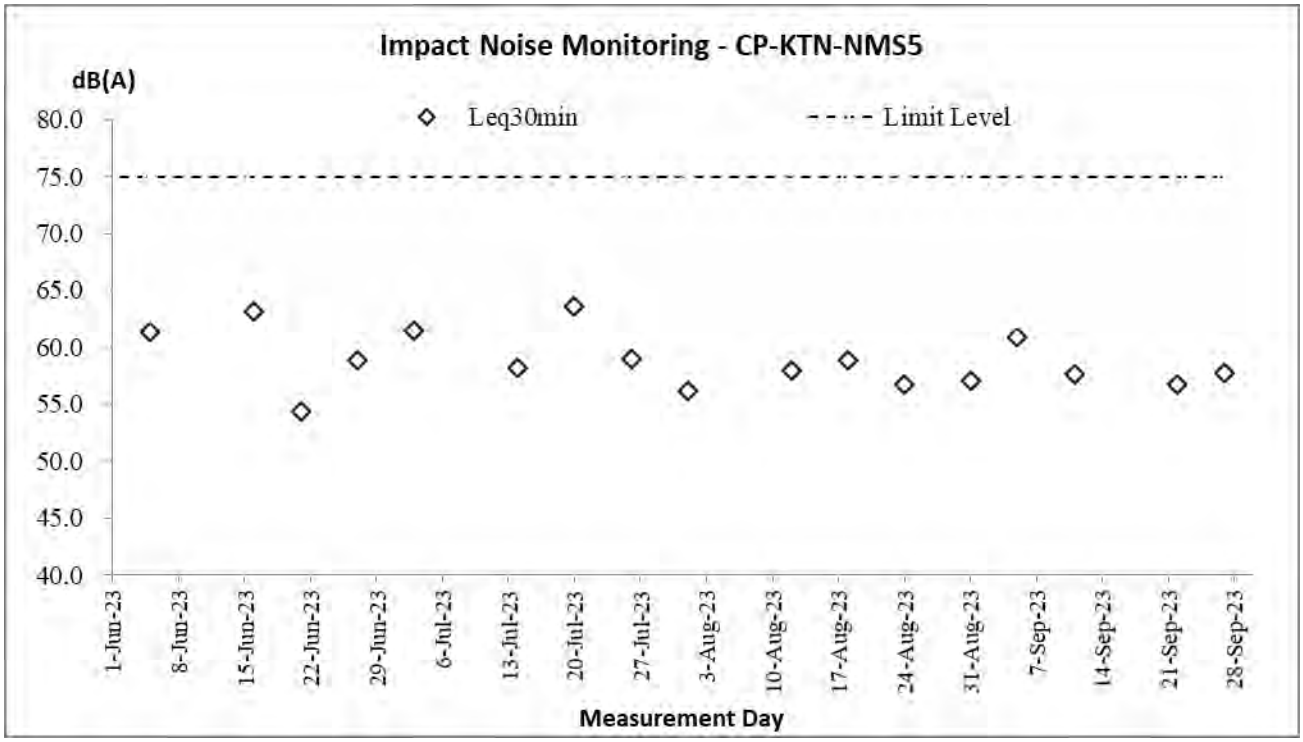
Appendix G

Database of Monitoring Result

Daytime Noise Measurement Results (dB) at CP-KTN-NMS5																				
Date	**Start Time**	**1st Leq (5min)**			**2nd Leq (5min)**			**3rd Leq (5min)**			**4th Leq (5min)**			**5th Leq (5min)**			**6th Leq (5min)**			**Leq30min, dB(A)**	**Corrected Leq30min dB(A)**
		Leq, dB(A)	**L10, dB(A)**	**L90, dB(A)**	**Leq, dB(A)**	**L10, dB(A)**	**L90, dB(A)**	**Leq, dB(A)**	**L10, dB(A)**	**L90, dB(A)**	**Leq, dB(A)**	**L10, dB(A)**	**L90, dB(A)**	**Leq, dB(A)**	**L10, dB(A)**	**L90, dB(A)**	**Leq, dB(A)**	**L10, dB(A)**	**L90, dB(A)**		
5-Sep-23	14:22	60.3	63.5	55.0	61.8	64.0	58.0	60.7	62.0	56.5	61.1	62.0	58.0	60.6	61.5	56.0	60.8	61.5	56.0	60.9	63.9
11-Sep-23	15:56	59.5	61.5	55.0	58.7	62.0	54.0	57.5	60.0	54.0	56.6	59.5	51.5	55.8	59.0	52.0	56.3	58.5	51.0	57.6	60.6
22-Sep-23	10:31	56.5	60.6	51.7	58.0	60.5	52.9	55.1	59.6	50.4	57.1	60.9	51.0	56.0	61.6	49.9	57.2	60.8	51.7	56.7	59.7
27-Sep-23	13:00	57.1	61.0	51.0	59.3	59.6	51.7	59.3	60.3	49.5	52.9	54.2	50.7	58.0	62.3	52.1	57.4	62.3	51.8	57.8	60.8

Appendix H

Graphical Plots for Monitoring Result


Impact Noise Monitoring - CP-KTN-NMS5
dB(A)
Leq30min
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
1-Jun-23
8-Jun-23
15-Jun-23
22-Jun-23
29-Jun-23
6-Jul-23
13-Jul-23
20-Jul-23
27-Jul-23
3-Aug-23
10-Aug-23
17-Aug-23
24-Aug-23
31-Aug-23
7-Sep-23
14-Sep-23
21-Sep-23
28-Sep-23
Measurement Day

Appendix I

Monthly Summary Waste Flow Table

Contract No. : 3/WSD/20
Contact Name: Reclaimed Water Supply to Sheung Shui and Fanling

Monthly Summary Waste Flow Table for 2023

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	0.119	0	0	0	0.119	0	0	0	0	0	0.003
Feb	0.317	0	0	0	0.317	0	0	0	0	0	0.019
Mar	0.157	0	0	0	0.157	0	0	0	0	0	0.024
Apr	1.002	0	0	0	1.002	0	0	0	0	0	0.019
May	0.833	0	0	0	0.833	0	0	0	0	0	0.060
June	1.148	0	0	0	1.148	0	0	0	0	0	0.011
July	1.367	0	0	0	1.367	0	0	0	0	0	0.023
Aug	1.574	0	0	0	1.574	0	0	0	0	0	0.027
Sept	0.267	0	0	0	0.267	0	0	0	0	0	0.019
Oct											
Nov											
Dec											
Total	6.517	0	0	0	6.517	0	0	0	0	0	0.183

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
25.472	5.386	0	0	25.472	0	0	0	0	0	0.3885

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 material.

(3) The quantities of C&D material indicated in the half-yearly status report should be in tonnes. If the project offices do not have information on the densities of the material for the time being, they could initially adopt the following conversion factors for reporting purpose: insitu densities of rock and soil to be 2.5 tonnes/m3 and 2.0 tonnes/m3 respectively; and densities of imported rock and soil to be 2.0 tonnes/m3 and 1.8 tonnes/m3 respectively.

(4) Boken concrete and bitumen = 2.4 tonnes/m3

(5) Conversion to 1000m3 for general refuse is weight in 1000kg multiply by 0.002

Appendix J

Implementation Schedule for Environmental Mitigation Measures (ISEMM)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
Common Mitigation Measures (Applicable to ALL Project Components, including DPs and Non-DPs)							
Construction Dust Impact							
S3.8	D1	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road is proposed to achieve dust removal efficiency of 92.1%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 to achieve the respective dust removal efficiencies.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO
S3.8	D2	The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO
S3.8	D3	Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hard cores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; and • Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.					
Noise Impact (Construction Phase)							
S4.9	N1	Implement the following good site management practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) 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, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; and • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO
S4.9	N2	Install temporary site hoarding (approx. 2.4m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
			zone of NSRs through partial screening.				
S4.9	N3	Install movable noise barriers, full enclosure and acoustic mat, screen the noisy plants including air compressor and generator.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO
S4.9	N4	Use of "Quiet" Plant and Working Methods	Reduce the noise levels of plant items	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO
S4.9	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO
Water Quality Impact (Construction Phase)							
S5.7	W1	Construction Runoff In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures should be provided and the Storm Water Pollution Control Plan is given below. **Storm Water Pollution Control Plan** • At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. • Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimize polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications	Control construction runoff	Contractor	All construction sites	Construction phase	WPCO, EIAO, TM-EIAO

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		where the influent is pumped. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/sediment trap. The silt/sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the Contractor prior to the commencement of construction. • Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • All open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		during storm events. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • Regular environmental audit on the construction site should be carried out in order to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds.					
S5.7	W2	**Sewage from Workforce** • Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. • Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures.	Handling of site sewage	Contractor	All construction sites	Construction phase	WPCO, EIAO, TM-EIAO

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
Waste Management (Construction Waste)							
S7.6	WM1	Waste Reduction Measures Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: • segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.	Reduce waste generation	Contractor	All construction sites where practicable	Prior to the commencement of construction	Waste Disposal Ordinance
S7.6	WM2	Prepare Waste Management Plan and submit to the Engineer for approval	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	Waste Disposal Ordinance
S7.6	WM3	**Good Site Practice** The following good site practices are recommended throughout the construction activities: • nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimize 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;	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	Waste Disposal Ordinance
S7.6	WM4	**Storage of Waste** The following recommendation should be implemented to minimize the impacts:	Minimize waste from storage impacts	Contractor	All construction	Construction phase	Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		• waste such as soil should be handled and stored well to ensure secure containment; • stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; • different locations should be designated to stockpile each material to enhance reuse;			sites		
S7.6	WM5	**Collection and Transportation of Waste** The following recommendation should minimize the impacts: • remove waste in timely manner; • employ the trucks with cover or enclosed containers for waste transportation; • obtain relevant waste disposal permits from the appropriate authorities; and • disposal of waste should be done at licensed waste disposal facilities.	Minimize waste from storage impacts	Contractor	All construction sites	Construction phase	Waste Disposal Ordinance
S7.6	WM6	**Excavated and C&D Material** Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public filling areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: • maintain temporary stockpiles and reuse excavated fill material for backfilling; • carry out on-site sorting; • deliver surplus artificial hard materials to Tuen Mun Area 38 recycling plant or its successor for recycling into subsequent useful products; • make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • implement a recording system for the amount of waste generated, recycled and disposed of for checking; Standard formwork should be used as far as practicable in order to minimize the arising of C&D waste. The use of more durable formwork (e.g. metal hoarding) or plastic facing should be encouraged in order to enhance the possibility of recycling. The purchasing of construction materials should be carefully planned in order to avoid over ordering and wastage. Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area.	Minimize waste impacts from excavated and C&D materials	Contractor	All construction sites	Construction phase	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005
S7.6	WM8	**Chemical Waste** • If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste Contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction phase	• Waste Disposal (Chemical Waste) General) Regulation • Code of Practice on the Packaging, Labelling and

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					Storage of Chemical Waste
S7.6	WM9	**General Waste** • General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. • Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. • A reputable waste collector should be employed to remove general refuse on a daily basis.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	• Waste Disposal Ordinance
S7.6	WM10	**Sewage** • The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. • Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts.	Minimize production of sewage impacts	Contractor	All construction sites	Construction phase	• Waste Disposal Ordinance
S7.6	WM11	**Topsoil reuse** – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. This is considered a general measure for good site practice.	Good site practice	Contractor / Project Proponent	Onsite	Construction Phase	• ETWB Technical Circular (Works) No.29/2004
Landscape and Visual (Construction)							
S.12.9 MM3	LV5	Open Space Provision - the principles adopted in the RODP planning ensure that public open space systems are incorporated. All requirements for open space areas stipulated in the planning documents for the formulation of the Preliminary Layout Plan should be adhered to.	Reprovision of open space. Enhance visual amenity of the area and improve the overall landscape character	Government Developer / Detailed Design Consultant / Contractor	Onsite as stipulated in the planning documents for the formulation of the Preliminary Layout Plan	Prior to Construction and Construction Phase	Hong Kong Planning Standards and Guidelines (HKPSG) issued by the Planning Department (As at Aug 2011); Sustainable Building Design Guidelines
S.12.9 MM4	LV6	Tree Protection & Preservation – Exiting trees to be retained within the Project Site should be carefully protected during construction. In particular OVTs will be preserved according to ETWB Technical Circular (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to	Protect and Preserve Trees	Government Developer / Detailed Design Consultant / Contractor	Onsite as stipulated in the planning documents for the formulation of	Prior to Construction and Construction Phase	ETWB Technical Circular Works (TCW) No. 29/2004 and 3/2006

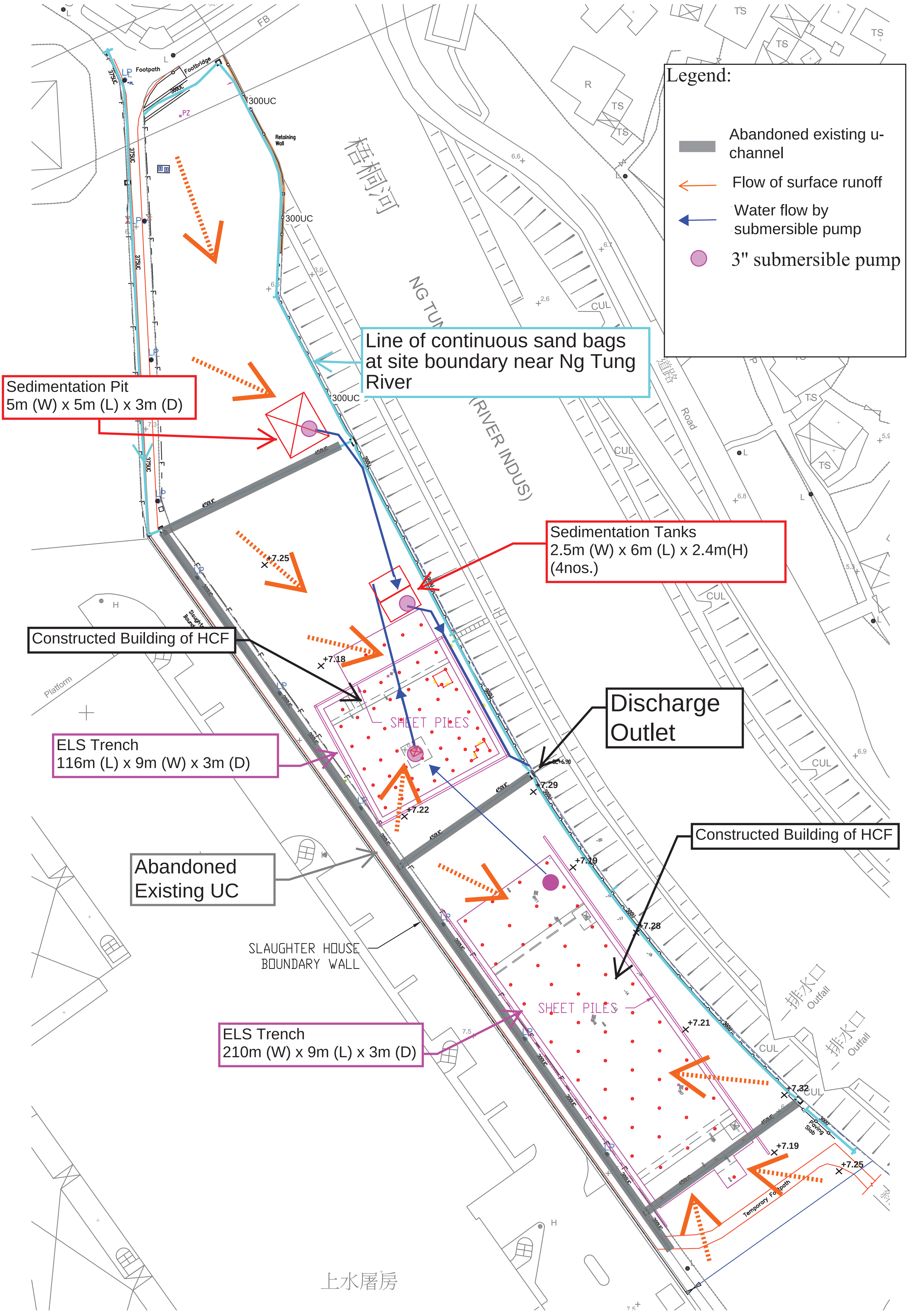
EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		undertaking any works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.			the Preliminary Layout Plan		
S.12.9 MM5	LV7	Tree Transplantation – Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC 2/2004 and 3/2006 and final locations of transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.	Transplant Trees where suitable for transplantation	Government Developer / Detailed Design Consultant / Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWB TCW 3/2006 and 2/2004 HyD HQ/GN/13 Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit
S.12.9 MM7	LV9	Compensatory Planting – Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under ETWBTC 3/2006. Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots. Compensatory planting for shrubs should be considered in suitable locations. Native species such as *Melastoma malabathricum, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma dodecandrum, Atalantia buxifolia, Rhodomyrtus tomentosa, Rhaphiolepis indica,* and *Rhododendron simsii* are suggested.	Compensate for trees and shrubs lost due to the Project.	Government Developer / Detailed Design Consultant / Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWB TCW 3/2006 and 2/2004
S.12.9 MM9	LV11	Vertical Greening – Planting of climbers to grow up vertical surfaces were appropriate (e.g. building edges, piers).	Soften hard surfaces and	Project Proponent /	On appropriate	Prior to Construction,	ETWB TCW No. 11/2004 – Cyber

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
			facilities	Detailed Design Consultant / Contractor / Maintenance Authority	structures	Construction Phase & Maintenance in Operation Phase	Manual for Greening
S.12.9 MM10	LV12	Green Roof – Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable.	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VSRs at high levels. Provide greening.	Project Proponent / Detailed Design Consultant / Contractor / Maintenance Authority	On appropriate buildings	Prior to Construction, Construction Phase & Maintenance in Operation Phase	CIBSE HK Branch, Technical Guidelines for Green Roof Systems in Hong Kong (2011); ArchSD/Urbis Study on Green Roof Application in HK (2007)
S.12.9 MM11	LV13	Screen Planting – Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Government / Developer / Detailed Design Consultant / Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the NDA Maintenance and create a pleasant Contractor structures	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWBTC 3/2006
S12.9 MM14.5	LV20	Screen Hoarding – Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment and where possible, nonreflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence. Details can refer to the ecological impact assessment (Chapter 13 of the EIA report).	To screen undesirable views of the works site.	Contractor	Throughout NDAs	Construction Phase	
S12.9	LV21	Light Control – Construction day and night time lighting should be controlled to	To minimize glare	Government /	Throughout	Construction	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
MM14.6		minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase.	impact to adjacent VSRs	Developer / Contractor	NDAs	and Operation Phases	
Ecology (Construction Phase)							
S.13.9	E13	Review design and construction methods for bridges, especially those on the Sheung Yue and tidal Ng Tung Rivers, and adopt measures which minimize impacts on rivers and disturbance and fragmentation impacts on fauna. No construction during ardeid breeding season (1 March to 31 July) along Sheung Yue River north and east of KTN area D1-5 and east of D1-9 and C2-3 and restriction of working hours on new pedestrian bridges over the Sheung Yue River and tidal Ng Tung River to 09.00 to 17.30 during the ardeid breeding season (1 March to 31 July). Provision of alternative foraging habitat along main river channels for large waterbirds.	Minimize impacts on rivers and disturbance and fragmentation impacts on fauna.	Project Proponent / Detailed Design Consultant / Contractor	Along and within the Sheung Yue, Ng Tung and Shek Sheung Rivers	Detailed design and construction phases.	TM-EIAO.
S.13.9	E16	Creation of Green Corridors along the Sheung Yue, Ng Tung and Shek Sheung Rivers, retention and provision of screen plantings where feasible; provision of Open Space areas and development areas along river corridors; Design and erection of 2m high solid dull green site barrier fence between river channel and any active works area along or adjacent to Ng Tung, Sheung Yue and Shek Sheung Rivers. Ng Tung, Sheung Yue and Shek Sheung Rivers screen planting.	Minimize disturbance to waterbirds using Ng Tung, Sheung Yue and Shek Sheung River channels.	Detailed Design Consultant / Contractor	Ng Tung, Sheung Yue and Shek Sheung Rivers	Detailed design and construction phases.	TM-EIAO.
S.13.9	E19	Use opaque, non-transparent, non-reflective noise barriers for all construction sites. Unnecessary lighting should be avoided.	Minimize mortality impacts on birds.	Contractor	All construction sites	Construction phase.	TM-EIAO.

Appendix K

As-built Drawing of Site Temporary Drainage



Legend:
Abandoned existing u-channel
Flow of surface runoff
Water flow by submersible pump
3" submersible pump
Line of continuous sand bags at site boundary near Ng Tung River
Sedimentation Pit
5m (W) x 5m (L) x 3m (D)
Sedimentation Tanks
2.5m (W) x 6m (L) x 2.4m(H)
(4nos.)
Constructed Building of HCF
Discharge Outlet
ELS Trench
116m (L) x 9m (W) x 3m (D)
Constructed Building of HCF
Abandoned Existing UC
SLAUGHTER HOUSE BOUNDARY WALL
ELS Trench
210m (W) x 9m (L) x 3m (D)
SHEET PILES
SHEET PILES
梧桐河
NG TUNG
(RIVER INDUS)
Road
上水屠房
排水口 Outfall
排水口 Outfall
Footpath
Footbridge
Retaining Wall
300UC
Platform
Temporary Footpath
+7.25
+7.18
+7.22
+7.29
+7.19
+7.28
+7.21
+7.32
+7.19
+7.25

Appendix L

Waterbirds Survey Report for the Reporting Month

ecology
biodiversity
landscape

aec

WSD Contract No. 3/WSD/20 - Reclaimed Water Supply to Sheung Shui and Fanling - Provision of EM&A (Ecological) Monitoring

Monthly Report for September 2023
(Issue 1)

Job Ref.: 21/2063/582 AUES-SWHTSE
Date: 5th October 2023

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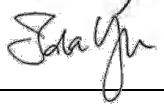
WSD Contract No. 3/WSD/20 - Reclaimed Water Supply to Sheung Shui and Fanling - Provision of EM&A (Ecological) Monitoring

Monthly Report for September 2023

(Issue 1)

October 2023

	Name	Signature
Prepared by:	**Nicholas Tam**	
Reviewed by:	**Ida Yu**	
Date:	**5th October 2023**	

Job Ref.: 21/2063/582 AUES-SWHTSE

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1 INTRODUCTION

1.1 According to Section 12.3.2.5 of "Updated EM&A Manual for Advance And First Stage Works of Kwu Tung North and Fanling North New Development Areas", monitor of measures to minimise disturbance to waterbirds on Ng Tung, Sheung Tue and Shek Sheung Rivers is required.

1.2 aec Ltd. has been appointed by Action-United Environmental Services & Consulting (AUES) to conduct weekly transect bird surveys at high and low tides along Ng Tung River, Sheung Yue River and Shek Sheung River; and identify sources of actual and potential disturbances to birds due to construction activities of WSD Contract No. 3/WSD/20 – Reclaimed Water Supply to Sheung Shui and Fanling. As instructed by the Contractor, the commencement date of the survey was in the week of 10th January 2022. This monthly report summarises the monitoring findings in September 2023.

2 MONITORING METHODOLOGY

2.1 The survey methodology references the methodology stated in approved Baseline Monitoring Report (Ecology) (Version 1) (prepared by Cinotech Consultants Limited (2019)) under "*Contract No. SPW 08/2019 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1*". Three transects and seven point count locations were selected within the 500m boundary of Ng Tung, Sheung Yue and Shek Sheung River. These locations are shown in **Figure 1** and summarized in **Table 1**.

Table 1 Ecological Monitoring Stations

Monitoring Stations	Descriptions	Influenced by Tidal Action
Transect T1	Along Ng Tung River	No
Transect T2		
Point Count Location P1		
Point Count Location P2		
Point Count Location P3		
Point Count Location P4		
Point Count Location P5	At Shek Sheung River (Low-flow Channel)	No
Transect T3	Along Shek Sheung River & Sheung Yue River	Yes
Point Count Location P6	At Shek Sheung River	Yes
Point Count Location P7	At Intersection between Sheung Yue and Shek Sheung River	Yes

2.2 Surveys were conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal level are below 1.5m at Tsim Bei Tsui Station).

2.3 All avifauna species that were seen or heard were identified and quantified along transects and at point count locations. Survey data would be recorded continuously by the surveyor as they walk along the transects, while survey data of each point count location would be collected for 5-minutes after surveyor reaches the designated point count location. During the surveys, the utilisation of Ng Tung River, Sheung Yue River and Shek Shui River and their immediate environs/habitats by waterbirds will be focused. For comparison and data analysis, the transect routes and point count locations followed Figure 1 of the approved Baseline Monitoring Report (Ecology) (Version 1). Locations of T1, T2, and P1 to P4 were adjusted to the opposite side of Ng Tung River as the original transects were inaccessible due to various construction projects.

2.4 Noticeable behaviours such as breeding, nesting, roosting, feeding and presence of recently fledged juveniles were recorded and reported. In the case which such behaviours were observed for species of conservation importance, the Resident Engineer (RE), the Contractor and the Independent Environmental Checker (IEC) would be immediately notified after the survey such that the Contractor could review the current construction programme and minimize disturbances due to construction activities.

2.5 Weather conditions, tidal information, time of the survey and other noticeable activities occurring within the vicinity of the survey area were recorded.

3 ANALYTICAL METHODOLOGY

3.1 Total numbers of waterbirds and six representative waterbird species (listed in **Table 2**) are used as an indicator of the level disturbance to waterbirds at each of the survey location. Species listed as wetland-dependant according to Carey *et al*. (2001) are defined as waterbirds. A significant decline in the abundance of all or representative waterbirds would indicate a high level of disturbance.

Table 2 Representative Waterbirds

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

Survey data from each month is compared to the baseline monitoring data. Baseline monitoring data was downloaded and extracted from the Baseline Monitoring Report retrieved from the following hyperlink (the extracted summer dataset of the baseline monitoring data is shown in **Appendix D**): https://www.epd.gov.hk/eia/register/english/permit/fep1792018/documents/blmrev1/pdf/blmrev1.pdf. When a decline in the total number of Waterbirds or the number of the representative Waterbird species is recorded the survey data would be compared to the baseline data (from Shek Wu Hui Effluent Polishing Plant Baseline Monitoring Report (Ecology) by Cinotech Consultants Limited, 2019) using a two-sample one-tailed Student's t-test assuming unequal variance to analyse whether the decline is significant.

3.2 If the collected data for the reporting month shows a significant difference at the 95% confidence level, the action level will be triggered. If the collected data for the reporting month shows a significant difference at the 99% confidence level, the limit level is triggered and corresponding suggestions would be given to minimize the disturbances according to **Table 3**.

Table 3 Action and Limit Levels and Responses to Evidence of Disturbance to Waterbirds using Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase

Action Level	Response	Limit Level	Response
Decline in numbers of all waterbird species relative to numbers during Baseline	Investigate cause(s) and if cause(s) identified as related to NDAs project instigate remedial action	Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the	Investigate cause(s) and if cause(s) identified as related to the NDAs project instigate remedial action.

Action Level	Response	Limit Level	Response
Monitoring such that the Action Level response is triggered.	to remove or reduce source of disturbance.	Limit Level response is triggered.	Review and adjust project's Long Valley Nature Park (LVNP) management measures to improve conditions for affected species.
Decline in numbers of any one Waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause(s) and if cause(s) identified as related to NDAs project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of any one Waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause(s) and if cause(s) identified as related to the NDAs project instigate remedial action. Review and adjust project's LVNP management measures to improve conditions for affected species.

Note: Whether numbers are significant depend on species and season after collection and evaluation of baseline survey data.

3.3 In order to increase the sample size and reduce the random error on each survey day, survey data would be collectively analysed on a monthly basis. The collective data of each month is also compared to the baseline data of the respective month and season instead of the entire data set, to account for the seasonal variation in the abundance of waterbirds. In this study, the winter season is defined as October to March, while the summer season is defined as April to September.

4 RESULTS

4.1 The weather conditions and tide levels on the survey dates are listed in the table below.

Table 4 Weather Conditions and Tidal Information of Survey Dates in the Reporting Month

High Tide				Low Tide			
Date	**Time**	**Tide (m)**	**Weather**	**Date**	**Time**	**Tide (m)**	**Weather**
6-Sep-23	16:00	1.65	Cloudy	7-Sep-23	9:00	0.99	Rainy
13-Sep-23	9:30	2.50	Cloudy	11-Sep-23	15:30	0.44	Rainy
21-Sep-23	15:45	1.66	Sunny	22-Sep-23	9:30	0.71	Sunny
25-Sep-23	8:00	2.17	Sunny	26-Sep-23	16:00	0.40	Sunny

4.2 Abundance and diversity of total bird species and key species are summarized in **Tables 5** and **6** respectively**.** Detailed list of avifauna recorded is provided in **Appendix A**.

Table 5 Total Bird Species and Abundance at Point Count Locations in the Reporting Month

Category	Number of Species	Abundance
All Avifauna	32	500
Waterbirds	14	302

Table 6 Abundance of Representative Waterbirds at Point Count Locations in the Reporting Month

Common Name	Species Name	Chinese Name	Abundance
Chinese Pond Heron	*Ardeola bacchus*	池鷺	28
Eastern Cattle Egret	*Bubulcus coromandus*	牛背鷺	63
Grey Heron	*Ardea cinerea*	蒼鷺	12
Great Egret	*Ardea alba*	大白鷺	46
Little Egret	*Egretta garzetta*	小白鷺	113
Great Cormorant	*Phalacrocorax carbo*	普通鸕鷀	0

5 ANALYSIS

5.1 The results of Student's t-test for all waterbirds and representative waterbirds are compiled in **Table 7** respectively. Further details are provided in **Appendices B** and **C**.

Table 7 T-test Result for Waterbirds in the Reporting Month

Category	Monthly					Seasonal				
	T-value	*df*	*p*	Action Level	Limit Level	T-value	*df*	*p*	Action Level	Limit Level
All Waterbirds	No decline					No decline				
Chinese Pond Heron	-1.797	6	0.0612			-3.713	4	0.010	*	
Eastern Cattle Egret	No decline					No decline				
Grey Heron	-1.192	6	0.139			No decline				
Great Egret	No decline					No decline				
Little Egret	No decline					No decline				
Great Cormorant	No decline					No decline				

* = level triggered

5.2 Except Chinese Pond Heron and Grey Heron, the abundances of Eastern Cattle Egret, Great Egret and Little Egret were higher than the monthly baseline record in September. The winter visitor Great Cormorant was not yet recorded in September. In this reporting month, only decline in abundance of Chinese Pond Heron has triggered the action level when compared to the Seasonal data.

5.3 As discussed in previous months, the decline of individual waterbird species should not be the result of increased disturbances from the Project or its surrounding on-going projects, as increased disturbance would discourage multiple waterbird species from foraging near the transect and point count locations instead. Thus it is suggested that construction of the current project did not directly cause the decline in these two bird species.

5.4 However, other construction and anthropogenic activities around the survey transects have still been active during the reporting month and the following activities were noted.

5.5 Cabling works of the current project (under a non-EP section) was observed to have extended beyond the site hoarding, the pavement outside the northern site entrance was seen to be excavated since the survey on 8th June 2023 (as seen in Photo 2 of **Appendix E**) and have not been backfilled during the reporting month. Abundance of waterbirds at P4 had always been low and there was no indication that these additional works had caused increased disturbance to waterbirds.

5.6 A playback device for bird calls was seen to be installed by AECOM near the pond in T1 since the survey on 3rd April 2023. This may directly lower the number of waterbirds and representative waterbirds visiting P1 and P2 as the birds would be incentivized to forage away from these two points and in the pond instead, the playback device was switched on during the survey on 6th September.

5.7 Road enhancement (Photo 3 of **Appendix E**) and sewerage system upgrade works by DSD were also observed to remain active along T2 near P3.

5.8 An extension of this sewerage system upgrade was observed to be in operation at the Eastern bank of Shek Sheung River near P5, since the survey on 23rd August 2023. Piling works, other machinery and stockpiles were observed within its construction area, which may be a potential source of disturbance that discourages birds from foraging near P5.

5.9 The construction by Civil Engineering and Development Department (CEDD) near P7 was observed active throughout the entire reporting month. Piling works of the same construction was also observed at T3, roughly midway between P6 and P7, and since the survey on 11th September, excavators were seen to be used (Photo 4 of **Appendix E**) on the opposite bank to the survey transect as well.

5.10 It was also noted that following heavy rain occurring across Hong Kong on the 8th of September, water at Sheung Yue River was observed to be reddish brown in colour and heavy in sediment during the survey on 11th of September (Photo 5 of **Appendix E**), indicating a potential deterioration in water quality. However, the condition of water in Sheung Yue River was observed to return to its normal state during the survey on 21st of September.

5.11 Monitoring work will be continued next month to evaluate any construction impact on waterbirds. The construction site should continue keeping the best site practice in noise control to minimize disturbance caused to waterbirds. No further action is advised at the moment.

6 OBSERVATIONS

6.1 The types of Waterbird behavior observed during ecological monitoring are listed below:

- Flying
- Resting
- Foraging

6.2 The anthropogenic activities observed during ecological monitoring are listed in **Table 8.**

Table 8 Observations of the anthropogenic activities during the Ecological Monitoring in the Reporting Month

Location	Observations	
	Project Related	**Non-project Related**
T1 (PC1, PC2)	/	Fishing, playback of bird calls at nearby pond (AECOM)
T2 (PC3, PC4)	Use of crane, scaffolding, excavation and cabling works	Sewerage system upgrade and road enhancement (DSD)
PC5	/	Piling and placement of construction materials on river bank (part of the sewerage system upgrade by DSD)
T3 (PC6, PC7)	/	Fishing, piling works at P7 and along T3 , use of excavator near long valley (CEDD)

7 REFERENCES

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Cinotech Consultants Limited. 2019. Contract No. SPW 08/2019 Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 Baseline Monitoring Report (Ecology) (Version 1). Accessed from https://shekwuhui.cinotech.hk/?page_id=24 in Jan 2022.

Appendix A Recorded Bird Species and their Abundance in the Reporting Month

Common Name	Chinese Name	Scientific Name	Waterbird	Point Count Abundance	Transect Abundance
Black-crowned Night Heron	夜鷺	*Nycticorax nycticorax*	Y		+
Chinese Pond Heron	池鷺	*Ardeola bacchus*	Y	28	++
Eastern Cattle Egret	牛背鷺	*Bubulcus coromandus*	Y	63	++
Grey Heron	蒼鷺	*Ardea cinerea*	Y	12	+
Great Egret	大白鷺	*Ardea alba*	Y	46	+
Little Egret	小白鷺	*Egretta garzetta*	Y	113	+++++
Black Kite	黑鳶	*Milvus migrans*	N	1	+
Black-winged Stilt	黑翅長腳鷸	*Himantopus himantopus*	Y	6	++
Little ringed Plover	金眶鴴	*Charadrius dubius*	Y	2	
Common Sandpiper	磯鷸	*Actitis hypoleucos*	Y	10	+
Green Sandpiper	白腰草鷸	*Tringa ochropus*	Y	3	+
Common Redshank	紅腳鷸	*Tringa totanus*	Y	1	+
Wood Sandpiper	林鷸	*Tringa glareola*	Y		+
Common Greenshank	青腳鷸	*Tringa nebularia*	Y	13	++
Spotted Dove	珠頸斑鳩	*Spilopelia chinensis*	N	20	+++
Asian Koel	噪鵑	*Eudynamys scolopaceus*	N		+
House swift	小白腰雨燕	*Apus nipalensis*	N	1	+
White-throated Kingfisher	白胸翡翠	*Halcyon smyrnensis*	Y	2	+
Common Kingfisher	普通翠鳥	*Alcedo atthis*	Y	1	+
Alexandrine Parakeet	亞歷山大鸚鵡	*Psittacula eupatria*	N	4	+
Black Drongo	黑卷尾	*Dicrurus macrocercus*	N		+
Red-billed Blue Magpie	紅嘴藍鵲	*Urocissa erythroryncha*	N		+
Oriental Magpie	喜鵲	*Pica serica*	N		+
Collared Crow	白頸鴉	*Corvus torquatus*	Y	2	+
Cinereous Tit	蒼背山雀	*Parus cinereus*	N	6	+
Red-whiskered Bulbul	紅耳鵯	*Pycnonotus jocosus*	N	4	+
Chinese Bulbul	白頭鵯	*Pycnonotus sinensis*	N		+
Barn Swallow	家燕	*Hirundo rustica*	N	2	+
Yellow-browed Warbler	黃眉柳鶯	*Phylloscopus inornatus*	N	1	+
Pallas's leaf Warbler	黃腰柳鶯	*Phylloscopus proregulus*	N	1	
Yellow-bellied Prinia	黃腹鷦鶯	*Prinia flaviventris*	N	2	+
Common Tailorbird	長尾縫葉鶯	*Orthotomus sutorius*	N	1	+
Masked Laughingthrush	黑臉噪鶥	*Pterorhinus perspicillatus*	N	8	++
Swinhoe's white-eye	暗綠繡眼鳥	*Zosterops simplex*	N	5	++++
Crested Myna	八哥	*Acridotheres cristatellus*	N	108	+++++
Black-collared Starling	黑領椋鳥	*Gracupica nigricollis*	N	20	+++++
Oriental Magpie Robin	鵲鴝	*Copsychus saularis*	N		+
Stejneger's Stonechat	黑喉石(即鳥)	*Saxicola stejnegeri*	N		+
Eurasian Tree Sparrow	樹麻雀	*Passer montanus*	N	1	+
White Wagtail	白鶺鴒	*Motacilla alba*	N	11	++
Olive-backed Pipit	樹鷚	*Anthus hodgsoni*	N	2	

Common Name	Chinese Name	Scientific Name	Waterbird	Point Count Abundance	Transect Abundance
		Total Point Count Abundance		500	
		Total Waterbirds		302	

For transect abundance, +: 1-10, ++: 11-20, +++: 21-30, ++++: 31-40, +++++: >40

Appendix B Total Waterbird Abundance from Point Count

Survey Information				Number of Waterbirds	
Week	**Date**	**Time**	**Tide Level**	**Individuals Recorded**	**Total**
1	6-Sep-23	16:00	High	14	55
	7-Sep-23	9:00	Low	41	
2	11-Sep-23	15:30	Low	40	68
	13-Sep-23	9:30	High	28	
3	21-Sep-23	15:45	High	23	76
	22-Sep-23	9:30	Low	53	
4	25-Sep-23	8:00	High	2	103
	26-Sep-23	16:00	Low	101	
			Survey Average		75.5
			Baseline	Sep Average	43.75
				Summer Average	45.34

Appendix C Abundance of Representative Waterbirds from Point Count

Representative Species		Recorded Abundance (September 2023)						Baseline	
Common Name	**Species Name**	**Week 1**	**Week 2**	**Week 3**	**Week 4**		**Average**	**Sep Average**	**Summer Average**
Chinese Pond Heron	*Ardeola bacchus*	11	11	3	3		7	13.5	16.18
Eastern Cattle Egret	*Bubulcus coromandus*	7	2	13	41		15.75	0.25	3.32
Grey Heron	*Ardea cinerea*	4	1	1	6		3	5.25	0.55
Great Egret	*Ardea alba*	7	5	11	23		11.5	5	2.61
Little Egret	*Egretta garzetta*	15	33	39	26		28.25	15.5	20.53
Great Cormorant	*Phalacrocorax carbo*	0	0	0	0		0	0	0

Appendix D Baseline Survey Data Summer

** Only include data from "All Waterbirds" and the six representative waterbird species for data analysis*

Representative Species		Recorded Abundance (Summer Baseline)							
Common Name	**Species Name**	**06-04-18**	**13-04-18**	**19-04-18**	**27-04-18**	**04-05-18**	**11-05-18**	**17-05-18**	**25-05-18**
All Waterbirds		37	71	78	52	59	47	48	50
Chinese Pond Heron	*Ardeola bacchus*	9	27	21	10	17	16	14	19
Eastern Cattle Egret	*Bubulcus coromandus*	5	9	24	15	13	0	2	1
Grey Heron	*Ardea cinerea*	0	0	0	0	0	0	0	0
Great Egret	*Ardea alba*	2	6	2	5	6	5	1	2
Little Egret	*Egretta garzetta*	16	24	30	22	18	18	29	28
Great Cormorant	*Phalacrocorax carbo*	0	0	0	0	0	0	0	0
Representative Species		**Recorded Abundance (Summer Baseline)**							
Common Name	**Species Name**	**01-06-18**	**04-06-18**	**15-06-18**	**20-06-18**	**26-06-18**	**01-07-18**	**13-07-18**	**16-07-18**
All Waterbirds		68	63	55	51	50	59	40	43
Chinese Pond Heron	*Ardeola bacchus*	26	25	23	18	20	24	13	18
Eastern Cattle Egret	*Bubulcus coromandus*	8	8	5	5	3	2	2	3
Grey Heron	*Ardea cinerea*	0	0	0	0	0	0	0	0
Great Egret	*Ardea alba*	3	4	2	5	4	3	2	2
Little Egret	*Egretta garzetta*	29	26	25	23	21	29	23	20
Great Cormorant	*Phalacrocorax carbo*	0	0	0	0	0	0	0	0
Representative Species		**Recorded Abundance (Summer Baseline)**							
Common Name	**Species Name**	**27-07-18**	**10-08-18**	**13-08-18**	**24-08-18**	**27-08-18**	**07-09-18**	**10-09-18**	**21-09-18**
All Waterbirds		47	39	41	33	35	25	48	54
Chinese Pond Heron	*Ardeola bacchus*	17	14	19	10	14	6	16	13
Eastern Cattle Egret	*Bubulcus coromandus*	0	0	1	1	0	0	0	1
Grey Heron	*Ardea cinerea*	0	0	0	0	0	3	3	9
Great Egret	*Ardea alba*	3	2	3	0	3	3	6	4
Little Egret	*Egretta garzetta*	27	21	18	18	15	9	21	18
Great Cormorant	*Phalacrocorax carbo*	0	0	0	0	0	0	0	0
Representative Species		**Recorded Abundance (Summer Baseline)**							
Common Name	**Species Name**	**26-09-18**	**04-04-19**	**10-04-19**	**18-04-10**	**22-04-19**	**03-05-19**	**08-05-19**	**17-05-19**
All Waterbirds		48	30	30	48	39	34	28	23
Chinese Pond Heron	*Ardeola bacchus*	19	11	12	11	13	16	10	4
Eastern Cattle Egret	*Bubulcus coromandus*	0	3	0	0	3	3	0	0
Grey Heron	*Ardea cinerea*	6	0	0	0	0	0	0	0
Great Egret	*Ardea alba*	7	1	2	2	0	0	1	0
Little Egret	*Egretta garzetta*	14	14	15	25	23	14	16	18
Great Cormorant	*Phalacrocorax carbo*	0	0	0	0	0	0	0	0
Representative Species		**Recorded Abundance (Summer Baseline)**							
Common Name	**Species Name**	**20-05-19**	**31-05-19**	**05-06-19**	**14-06-19**	**18-06-19**			
All Waterbirds		45	39	33	40	57			
Chinese Pond Heron	*Ardeola bacchus*	23	16	15	18	23			
Eastern Cattle Egret	*Bubulcus coromandus*	2	0	0	0	7			
Grey Heron	*Ardea cinerea*	0	0	0	0	0			
Great Egret	*Ardea alba*	0	0	2	3	2			
Little Egret	*Egretta garzetta*	19	20	16	17	22			
Great Cormorant	*Phalacrocorax carbo*	0	0	0	0	0			

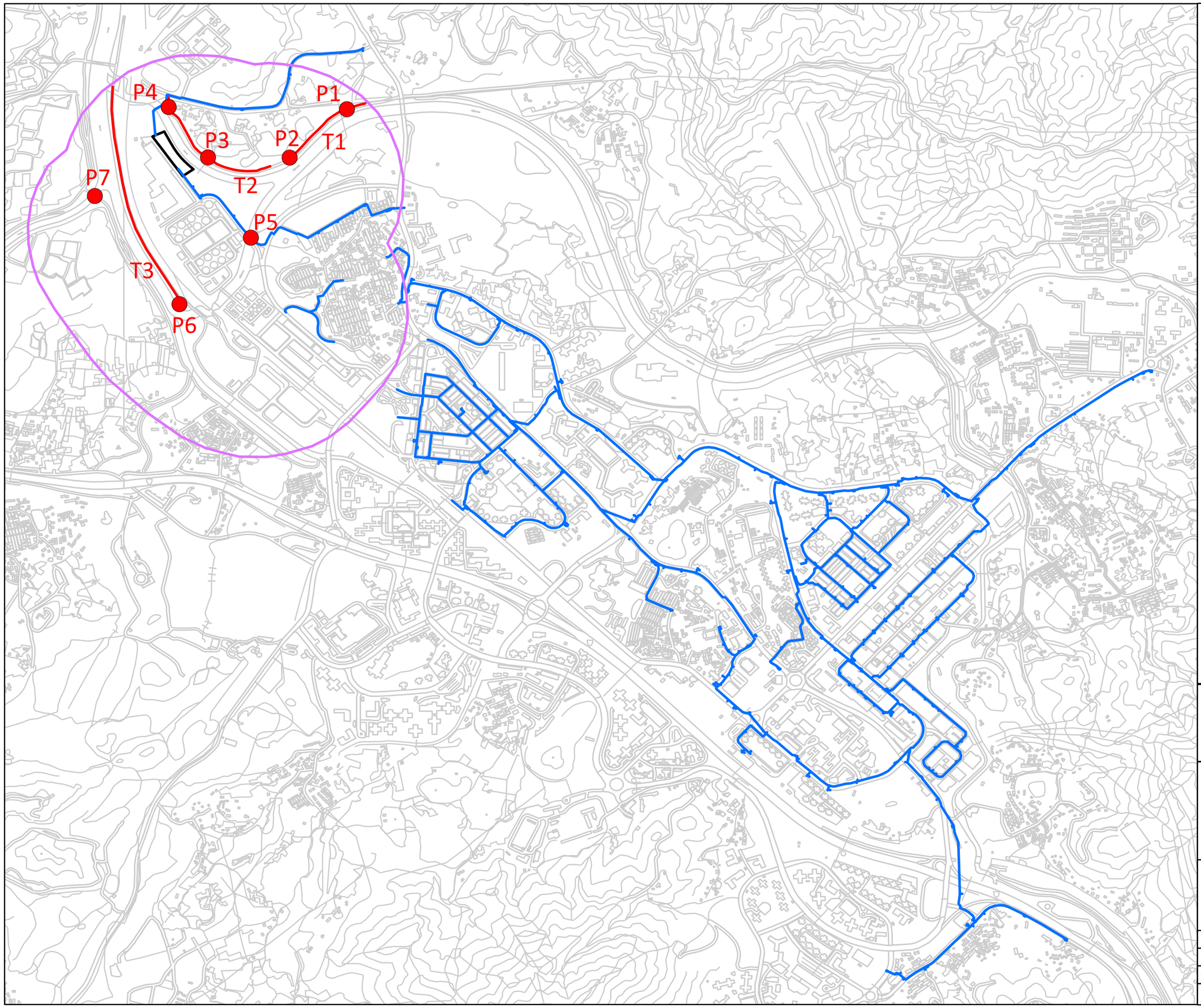
Appendix E Survey Photos

Photo 1 Works on current project at P4 (6/9/2023)	**Photo 2** Extension of cabling works under non-EP part of current project at P4 (21/9/2023)
	
Photo 3 Road enhancement works by CEDD at T2 (21/9/2023)	**Photo 4** Use of excavators at T3 (11/9/2023)
	
Photo 5 Water condition of Sheung Yue River (11/9/2023)	**Photo 6** Water condition of Sheung Yue River (21/9/2023)
	

Photo 7 A significant group of Eastern Cattle Egrets at P6 (26/9/2023)	**Photo 8** Grey Heron at T2 (7/9/2023)
	

Figure 1

Transect and Point Count Location



Proposed Shek Wu Hui Water Reclamation Plant

500m Survey Boundary

Proposed Retained Water Mains

Walk Transects

Point Count Locations

ecology biodiversity landscape aec

Project Title:

WSD Contract No. 3/WSD/20 -
Reclaimed Water Supply to Sheung Shui and Fanling -
Provision of EM&A (Ecological) Monitoring

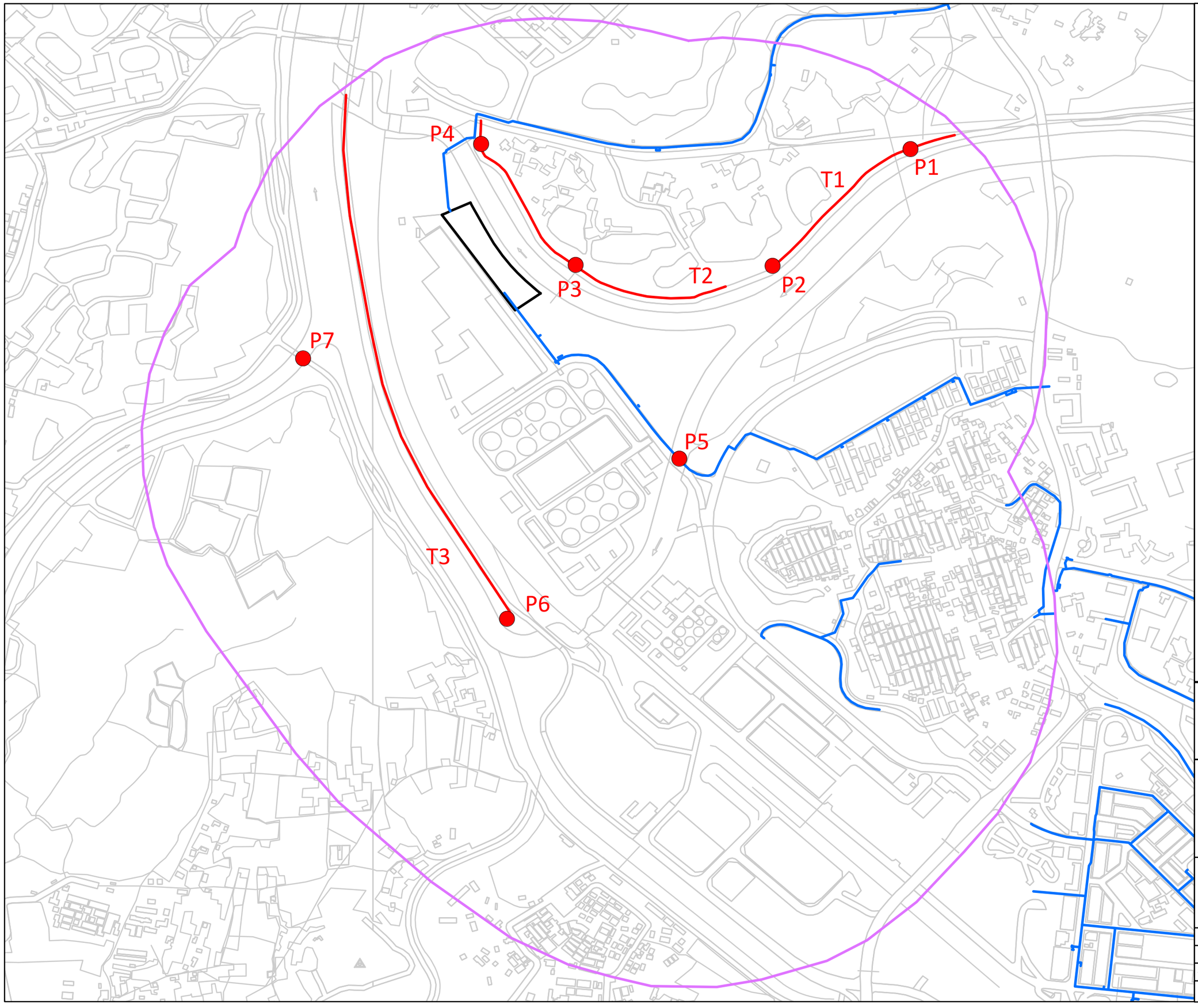
Figure Title:

Transect and Point Count Locations

Drawn by:	NT	Scale:	1:14,500 on A3
Checked By:	NT	Date:	5 July 2022
Approved by:	IY		
Figure Number:	Figure 1	Revision:	2

Figure 1a

Transect and Point Count Location (Zoomed In)



Proposed Shek Wu Hui Water Reclamation Plant

500m Survey Boundary

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Reclaimed Water Supply to Sheung Shui and Fanling -
Provision of EM&A (Ecological) Monitoring

Figure Title:

Transect and Point Count Locations (zoomed in)

Drawn by:	NT	Scale: 1:6,000	on A3
Checked By:	NT	Date: 5 July 2022	
Approved by:	IY		
Figure Number:	Figure 1a		Revision: 2