JOB NO.: TCS01216/21

WSD Contract No.: 3/WSD/20 -

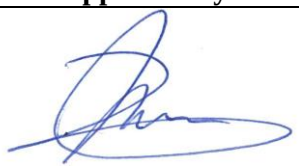
Reclaimed Water Supply to Sheung Shui and Fanling

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT (NO.19) – JUNE 2023

PREPARED FOR

WATER SUPPLIES DEPARTMENT

Quality Index

Date	Reference No.	Prepared By	Approved By
12 July 2023	TCS01216/21/600/R0080v1	 Martin Li Environmental Consultant	 TW Tam Environmental Team Leader

Version	Date	Description
1	12 July 2023	First Submission

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Date: 13th July 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 June 2023

We refer to the monthly EM&A Report for June 2023 for WSD Contract No.: 3/WSD/20 – Reclaimed Water Supply to Sheung Shui and Fanling certified by the Environmental Team Leader on 12th July 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 6113 2368.

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 **19th** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1** to **30 June 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	**5**

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 June 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 June 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 June 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 ***1, 8, 16, 21*** and ***29 June 2023***. No non-compliance was noted during the site inspection.

ES.13 IEC inspection was conducted on ***16 June 2023***.

FUTURE KEY ISSUES

ES.14 ABWF & E&M works at ReWPS & HCF, and construction of fence wall at SWHWRP will be the major construction work in the coming month. Noise mitigation measures such as erect barrier for steel bar cutting machines were recommended to reduce noise impact generated from rebar fixing work. In addition, the Contractor should pay attention to potential water quality impact from concreting works and waste impact from ABWF 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.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

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 **19th** monthly EM&A report to presenting the monitoring results and inspection findings from ***1*** to ***30 June 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***.
- ABWF Works at ReWPS (Basement Floor) – Application of waterproofing material and BS works at wall & ceiling
- ABWF Works at ReWPS (Ground Floor) – Erection of bamboo scaffolding, BS works at soffit & wall, Fitting out works
- Lifting appliances installation works
- ABWF Works at HCF – Plastering Works, installation of storage tanks
- Electrical conduits installation work and fire services conduits installation work at HCF
- Water pipes installation works
- Fence Wall at SWHWRP – Concreting work and CLP cable laying

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

Item	Description	Licence/Permit Status		
		Ref. no.	Effective Date	Expiry Date
2	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	Account No.: 7041397	8 Aug 2021	Till the Contract ends
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-RN0336-23	27 Apr 2023	26 Aug 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 – 73

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-Jun-23	13:32	64
16-Jun-23	9:23	66
21-Jun-23	13:00	57
27-Jun-23	9:15	62
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	27	344
Waterbirds	8	144

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	34
Eastern Cattle Egret	Bubulcus coromandus	牛背鷺	0
Grey Heron	Ardea cinerea	蒼鷺	5
Great Egret	Ardea alba	大白鷺	7
Little Egret	Egretta garzetta	小白鷺	90
Great Cormorant	Phalacrocorax carbo	普通鸕鷀	0

5.2.3 The result was compared with the baseline data (both June average and Summer average) and decline in abundance of Chinese Pond Heron and Eastern Cattle Egret 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 Chinese Pond Heron and Eastern Cattle Egret 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 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 welding works was observed on the bridge where P4 was situated. 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 Maintenance work of the inflatable dam work was observed across Ng Tung River at P2 and P3 by other Project since November 2022. It was observed at the end of May 2023 during the survey that the maintenance work was completed and part of the temporary concrete dam was being removed. Further to the above observations, the concrete blocks were observed to be removed from the river during the surveys conducted in June 2023 and the water level of at P1 and P2 was reduced. Although, this did not seem to lead to a significant increase in number of waterbirds foraging in the area.

5.2.8 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.

5.2.9 Road improvement works by other Project was also observed along T2 near P3, and large vehicles producing noise were seen to enter and leave the site. This may be a potential source of disturbance that discourages waterbirds from foraging at P3. In addition, the construction work by other Project near P7 was observed active throughout the entire reporting month.

5.2.10 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)	1.100	-
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)	1.100	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)	0.010	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 ***1, 8, 16, 21*** and ***29 June 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
1 June 2023	• No adverse environmental issue was observed.	NA
8 June 2023	• The Contractor wad advised to clear stagnant water at the pit regularly.	The stagnant water was removed.
16 June 2023	• No adverse environmental issue was observed.	NA
21 June 2023	• No adverse environmental issue was observed.	NA
29 June 2023	• The Contractor was advised to dispose cumulated construction waste within site area regularly. • The Contractor was advised to display EP properly at site entrance.	Cumulated construction waste was disposed regularly. EP was properly displayed at site entrance.

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 June 2023	0	0	NA

Table 8-1-2 Statistical Summary of Environmental Summons

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

Table 8-1-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 June 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:

- ABWF Works at ReWPS (Basement Floor) – Construction of dividing R.C. Wall, dismantling of scaffolding, pump installation
- ABWF Works at ReWPS (Ground Floor) – Dismantling of scaffolding, floor screeding, installation of Motors and handrail
- Lifting appliances installation works
- ABWF Works at HCF – E&M works, steelworks, installation of MS pipe and handrail, fitting-out works
- Electrical conduits installation work and fire services conduits installation work at HCF
- R.C. Fence wall and CLP cable laying at SWHWRP

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:

ABWF Work at ReWPS and HCF

- Proper management and storage of chemicals used for the ABWF Work to avoid land contamination.
- Chemical label for chemical container should be regularly checked and provided.
- Sufficient secondary containment for chemical containers should be provided at work area.

Fence Wall at SWHWRP (Rebar fixing and concreting work)

- Collect spilt cement/concrete washings during concreting works to avoid water quality impact
- Erect barrier for steel bar cutting machine to reduce noise impact;
- 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

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 CONCLUSIONS

10.1.1 This is **19th** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1** to **30 June 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 ***1, 8, 16, 21*** and ***29 June 2023***. The mitigation measures implemented was considered satisfactory. No non-compliance observed during the site inspection.

10.2 RECOMMENDATIONS

10.2.1 ABWF & E&M works at ReWPS & HCF, and construction of fence wall at SWHWRP will be the major construction work in the coming month. Noise mitigation measures such as erect barrier for steel bar cutting machines were recommended to reduce noise impact generated from rebar fixing work. In addition, the Contractor should pay attention to potential water quality impact from concreting works and waste impact from ABWF 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

Outfall

CUL

FP

TS

Road

Sheung Shui Slaughter House

PLAN
SCALE 1 : 400

N

830300 E

SHEUNG YUE RIVER 石上河

FU TEI AU ROAD 導管

CHUK WAN STREET

污水處理廠
Sewage Treatment Works

SHEK SHEUNG

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

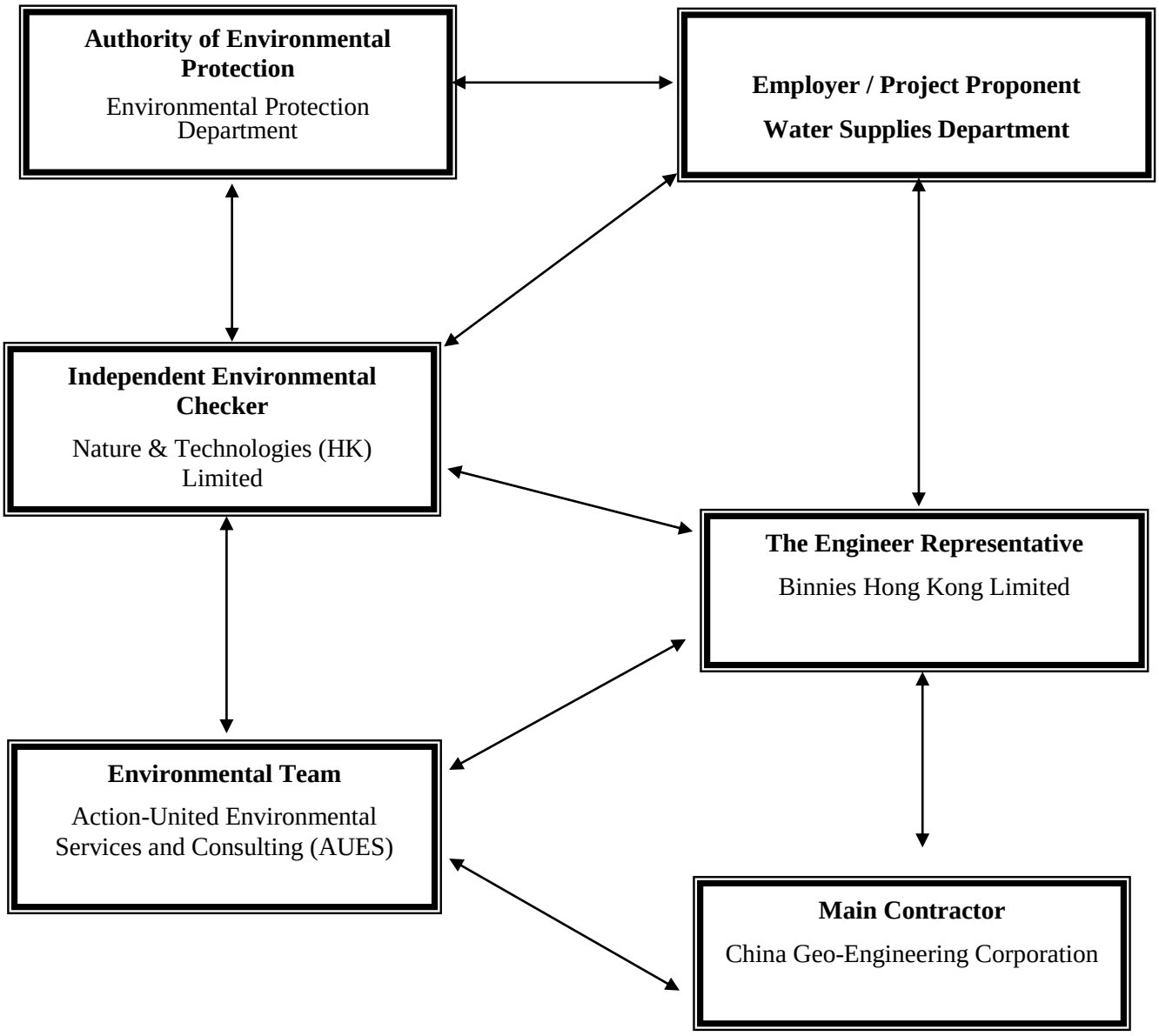
Plot Date: 3/15/2021 11:20:19 AM

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	Leo Wong	9337 2420	3wsd20.so1@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:

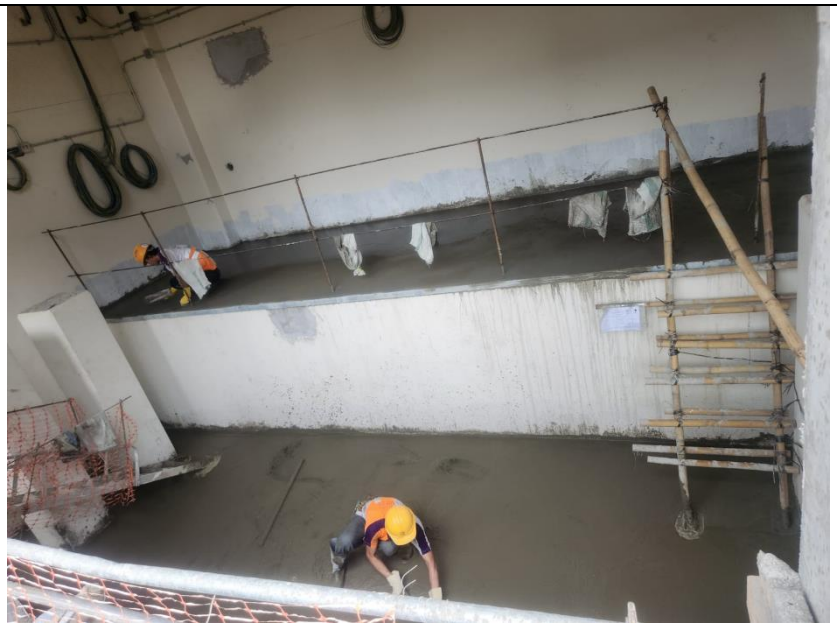
WSD (Employer) – Water Supplies Department
Binnies (Engineer Representative) – Binnies Hong Kong Limited
CGC (Main Contractor) –China Geo-Engineering Corporation
N&T (IEC) –Nature & Technologies (HK) Limited
AUES (ET) – Action-United Environmental Services and Consulting (AUES)

Appendix C

Master Construction Program and Site Overview Photo in the Reporting Period

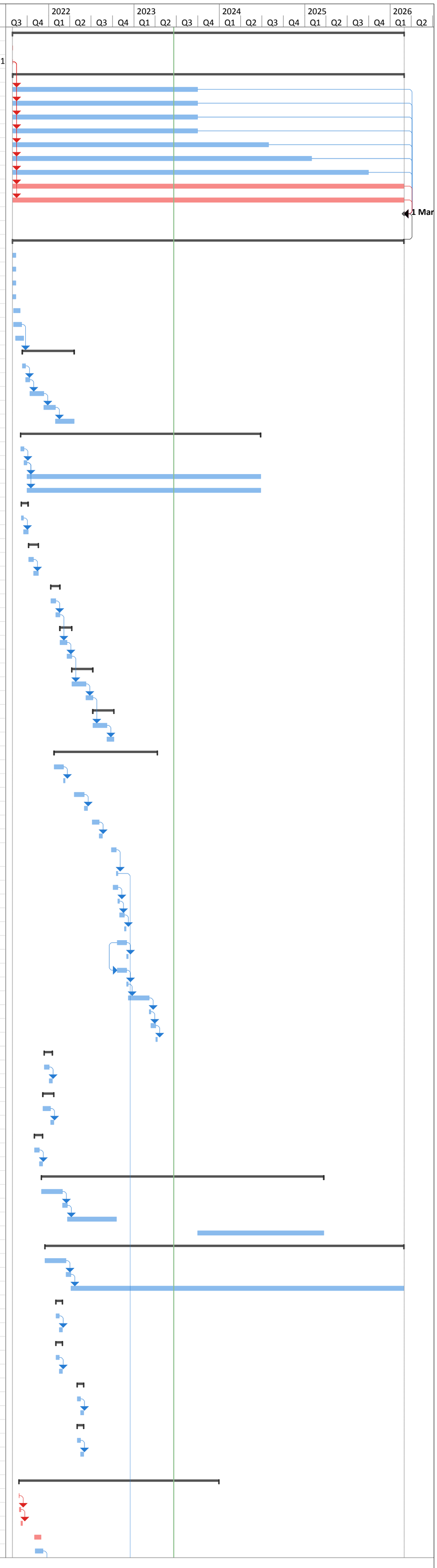
SITE OVERVIEW PHOTO IN THE REPORTING PERIOD

ABWF Works – ReWPS Ground Floor



ABWF Works – HCF

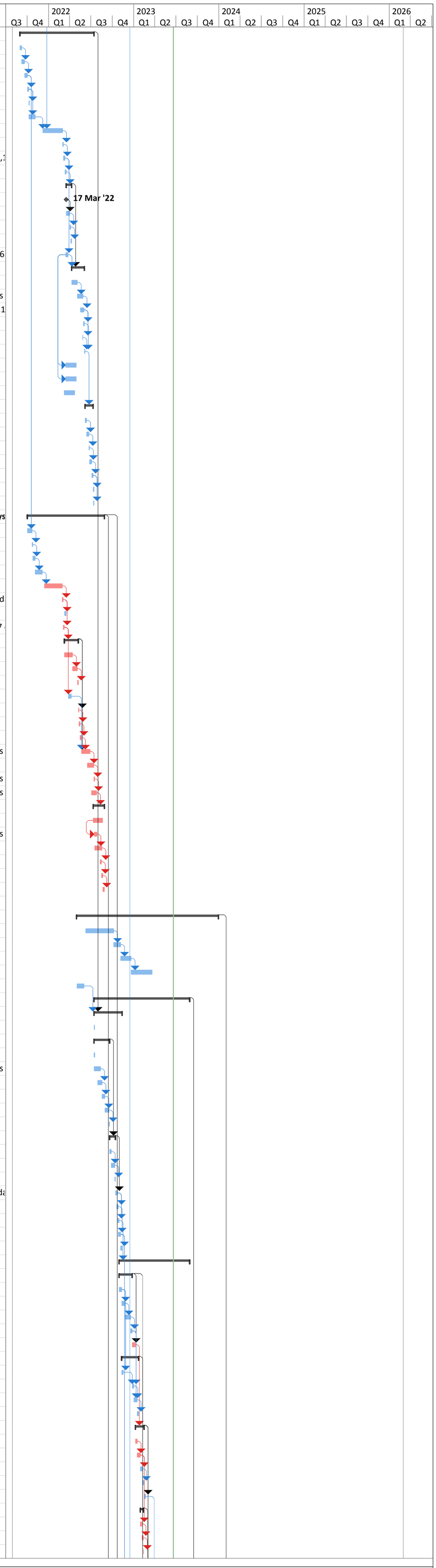
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1	**Key Dates**	**1676 days**	**30/7/21**	**1/3/26**			
2	Contract Date	1 day	30/7/21	30/7/21			
3	Starting Date	1 day	30/7/21	30/7/21			5,6,7,8,9,10,11
4	**Contract Period**	**1675 days**	**31/7/21**	**1/3/26**			
5	Section 1 - Shek Wu Hui 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	1277
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**	**855.5 days**	**27/8/21**	**30/12/23**			
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. 18
(up to 31 May 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	

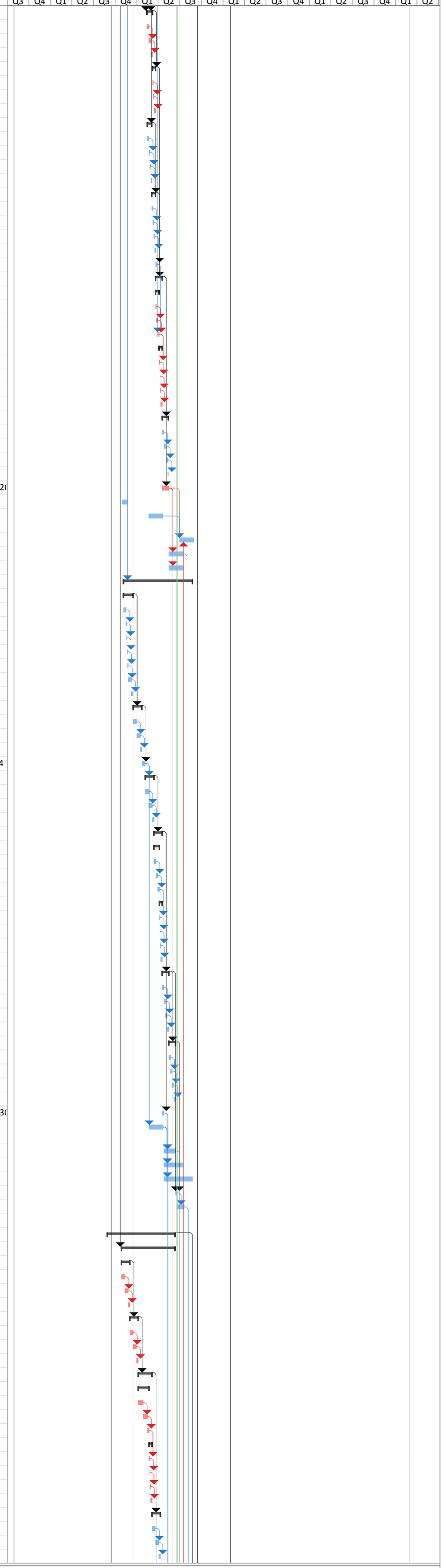
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
111	**Foundation Works - ReWPS**	**318 days**	**31/8/21**	**14/7/22**			**182**
112	Submission and approval of subletting package for pre-drilling works	7 days	31/8/21	6/9/21			113
113	Selection of pre-drilling subcontractor	13 days	7/9/21	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**			**309FS+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**	**608.5 days**	**1/5/22**	**30/12/23**			**572FF**
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**	**410.5 days**	**15/7/22**	**29/8/23**			**435**
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	262,199
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**	**303 days**	**30/10/22**	**29/8/23**		**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	217,230
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	245
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	



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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	

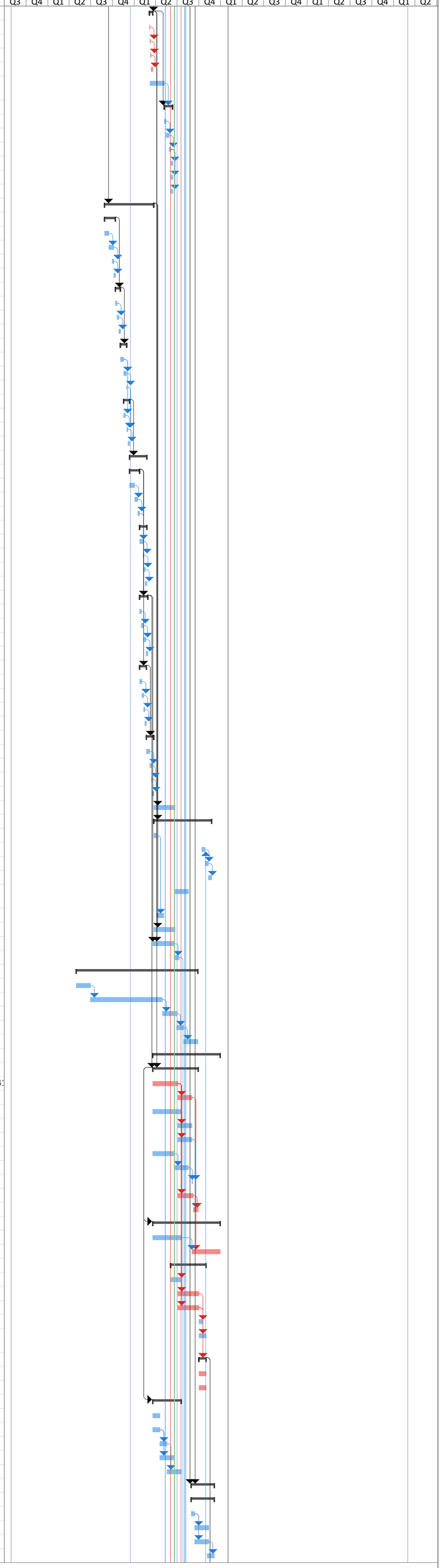
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
222	Construction of Walls and Columns (+7.2mPD/+9.1mPD to +12.2mPD)	24 days	12/2/23	8/3/23		207,218,201	226
223	Scaffolding erection and Formwork erection	8 days	12/2/23	20/2/23			224
224	Rebar fixing and Formwork erection	9 days	20/2/23	1/3/23		223	225
225	Concreting	7 days	1/3/23	8/3/23		224	
226	Construction of Walls and Columns (+12.2mPD to +15.2mPD)	13 days	8/3/23	21/3/23		222	241
227	Scaffolding erection and Formwork erection	3 days	8/3/23	11/3/23			228
228	Rebar fixing and Formwork erection	3 days	11/3/23	14/3/23		227	229
229	Concreting	7 days	14/3/23	21/3/23		228	
230	Construction of Staircase ST1, ST2 (+0mPD to +3.6mPD)	19 days	14/2/23	5/3/23		212	235
231	Scaffolding and falsework erection	7 days	14/2/23	21/2/23			232
232	Formwork erection	4 days	21/2/23	25/2/23		231	233
233	Rebar fixing	4 days	25/2/23	1/3/23		232	234
234	Concreting	4 days	1/3/23	5/3/23		233	
235	Construction of Staircase ST1, ST2 (+3.6mPD to +7.2mPD)	16 days	5/3/23	21/3/23		230	240
236	Scaffolding and falsework erection	4 days	5/3/23	9/3/23			237
237	Formwork erection	4 days	9/3/23	13/3/23		236	238
238	Rebar fixing	4 days	13/3/23	17/3/23		237	239
239	Concreting	4 days	17/3/23	21/3/23		238	
240	Re-instatement of falsework at Staircase below +7.2mPD	4 days	21/3/23	25/3/23		235	245
241	Construction of Beams and Slabs at +15.2mPD	28 days	21/3/23	18/4/23		226	251,256
242	Construction of Beams	15 days	21/3/23	5/4/23			
243	Falsework and formwork erection for beam	3 days	21/3/23	24/3/23			244
244	Rebar fixing for beam	5 days	24/3/23	29/3/23		243	245
245	Concreting and curing of concrete for beam	7 days	29/3/23	5/4/23		244,240,217	247
246	Construction of Slabs	13 days	5/4/23	18/4/23			
247	Installation of precast segments (65 nos.)	3 days	5/4/23	8/4/23		245	248
248	Formwork erection for half slab	1 day	8/4/23	9/4/23		247	249
249	Rebar fixing for half slab	2 days	9/4/23	11/4/23		248	250
250	Concreting for half slab and curing of concrete	7 days	11/4/23	18/4/23		249	
251	Construction of Parapet Walls (+15.2mPD to +16.6mPD)	26 days	18/4/23	14/5/23		241	
252	Scaffolding erection	7 days	18/4/23	25/4/23			253
253	Rebar fixing	10 days	25/4/23	5/5/23		252	254
254	Formwork erection	7 days	5/5/23	12/5/23		253	255
255	Concreting	2 days	12/5/23	14/5/23		254	
256	Removal of formwork and falsework below +15.2mPD	28 days	18/4/23	16/5/23		241	259,526,530,26
257	Watertightness test (G.L. 2-3, below +9.1mPD)	21 days	30/10/22	20/11/22			
258	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	20/2/23	20/4/23			259
259	Fitting out Works for Motor Hall & Maintenance Room	60 days	30/6/23	29/8/23		256,258,530	
260	Waterproofing & Fitting out Works for Pump Hall	60 days	16/5/23	15/7/23		256	531
261	Fitting out Works for Other Rooms	60 days	16/5/23	15/7/23		256	
262	**Construction of Superstructure (above ground) - Grid Line 4-6**	**292 days**	**5/11/22**	**24/8/23**		**198**	
263	Construction of base slab (+4.45mPD to +5.95mPD & +5.6mPD to +7.1mPD)	41 days	5/11/22	16/12/22			271
264	Open-cut excavation to formation level	10 days	5/11/22	15/11/22			265
265	Welding of pile head capping plate (11 nos.)	3 days	15/11/22	18/11/22		264	266
266	Laying of blinding layer	2 days	18/11/22	20/11/22		265	267
267	Installation of water proofing system and testing	2 days	20/11/22	22/11/22		266	268
268	Formwork erection	3 days	22/11/22	25/11/22		267	269
269	Rebar fixing	14 days	25/11/22	9/12/22		268	270
270	Concreting	7 days	9/12/22	16/12/22		269	
271	Construction of Bearing walls and Slabs (+5.95mPD to +7.2mPD)	37 days	16/12/22	22/1/23		263	275
272	Formwork erection and Rebar fixing	15 days	16/12/22	31/12/22			273
273	Formwork erection	15 days	31/12/22	15/1/23		272	274
274	Concreting	7 days	15/1/23	22/1/23		273	
275	Backfilling of pile cap edge	14 days	22/1/23	5/2/23		271	276,301FS+14
276	Construction of Columns, Walls, Beams & Slabs (+7.2mPD to +11.8mPD)	37 days	5/2/23	14/3/23		275	280
277	Scaffolding erection and formwork erection	15 days	5/2/23	20/2/23			278
278	Rebar fixing and formwork erection	15 days	20/2/23	7/3/23		277	279
279	Concreting	7 days	7/3/23	14/3/23		278	
280	Construction of Columns, Walls, Beams & Slabs (+11.8mPD to +13.25mPD)	35 days	14/3/23	18/4/23		276	290,300
281	Construction of Columns, Walls and Beams (+11.8mPD to +13.05mPD)	23 days	14/3/23	6/4/23			
282	Falsework and formwork erection	8 days	14/3/23	22/3/23			283
283	Rebar fixing	8 days	22/3/23	30/3/23		282	284
284	Concreting and curing of concrete	7 days	30/3/23	6/4/23		283	286
285	Construction of Slabs at +13.25mPD	12 days	6/4/23	18/4/23			
286	Installation of precast segments (22 nos.)	2 days	6/4/23	8/4/23		284	287
287	Formwork erection for half slab	1 day	8/4/23	9/4/23		286	288
288	Rebar fixing for half slab	2 days	9/4/23	11/4/23		287	289
289	Concreting for half slab	7 days	11/4/23	18/4/23		288	
290	Construction of Parapet Walls (+13.25mPD to +14.65mPD)	28 days	18/4/23	16/5/23		280	305,295
291	Scaffolding erection	7 days	18/4/23	25/4/23			292
292	Rebar fixing	7 days	25/4/23	2/5/23		291	293
293	Formwork erection	7 days	2/5/23	9/5/23		292	294
294	Concreting	7 days	9/5/23	16/5/23		293	
295	Construction of Staircase ST3 (+7.1mPD to +15.45mPD)	28 days	16/5/23	13/6/23		290	305
296	Scaffolding and falsework erection	7 days	16/5/23	23/5/23			297
297	Formwork erection	7 days	23/5/23	30/5/23		296	298
298	Rebar fixing	7 days	30/5/23	6/6/23		297	299
299	Concreting	7 days	6/6/23	13/6/23		298	
300	Removal of formwork and falsework below +11.8mPD & +13.25mPD	7 days	18/4/23	25/4/23		280	302,526,303,30
301	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	21/2/23	21/4/23		275FS+14 days	302,303,304
302	Fitting out & BS Works for CLP Transformer Rooms	50 days	25/4/23	14/6/23		300,301	547
303	Fitting out & BS Works for LV/SB Room	80 days	25/4/23	14/7/23		300,301	
304	Fitting out Works for Other Rooms	121 days	25/4/23	24/8/23		300,301	
305	Construction of water proofing system at roof slab of ReWPS	7 days	13/6/23	20/6/23		290,295	306
306	Water tightness test for roof slab of ReWPS	30 days	20/6/23	20/7/23		305	446
307							
308	**Construction of RC structure of HCF**	**287.5 days**	**28/8/22**	**11/6/23**			**435**
309	**Construction of Superstructure (above ground) - Grid Line 1-3**	**227.5 days**	**27/10/22**	**11/6/23**		**146FS+60 days**	
310	Construction of Columns and Walls (+5.55mPD to +10.2mPD)	36 days	27/10/22	2/12/22			314
311	Scaffolding erection and formwork erection	15 days	27/10/22	11/11/22			312
312	Rebar fixing and formwork erection	14 days	11/11/22	25/11/22		311	313
313	Concreting	7 days	25/11/22	2/12/22		312	
314	Construction of Columns and Walls (+10.2mPD to +13.00mPD)	35 days	2/12/22	6/1/23		310	318
315	Scaffolding erection and formwork erection	14 days	2/12/22	16/12/22			316
316	Rebar fixing and formwork erection	14 days	16/12/22	30/12/22		315	317
317	Concreting	7 days	30/12/22	6/1/23		316	
318	Construction of Beams and Slabs at +13.00mPD	59 days	6/1/23	6/3/23		314	328,332
319	Construction of Beams	46 days	6/1/23	21/2/23			
320	Falsework and formwork erection for beam	21 days	6/1/23	27/1/23			321
321	Rebar fixing for beam	18 days	27/1/23	14/2/23		320	322
322	Concreting and curing of concrete for beam	7 days	14/2/23	21/2/23		321	324
323	Construction of Slabs	13 days	21/2/23	6/3/23			
324	Installation of precast segments (32 nos.)	3 days	21/2/23	24/2/23		322	325
325	Formwork erection for half slab	1 day	24/2/23	25/2/23		324	326
326	Rebar fixing for half slab	2 days	25/2/23	27/2/23		325	327
327	Concreting for half slab	7 days	27/2/23	6/3/23		326	
328	Construction of Bearing walls and Slabs (+5.55mPD to +7.1mPD)	35 days	6/3/23	10/4/23		318	
329	Formwork erection	14 days	6/3/23	20/3/23			330
330	Rebar fixing and formwork erection	14 days	20/3/23	3/4/23		329	331
331	Concreting	7 days	3/4/23	10/4/23		330	



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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

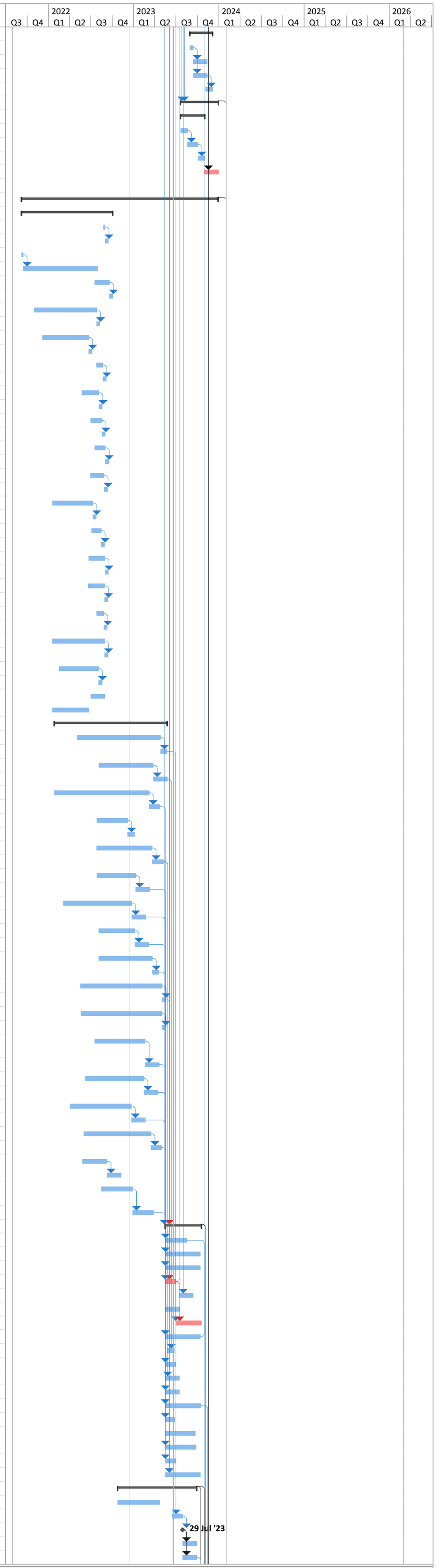
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
332	Construction of Parapet Walls (+13.00mPD to +15.1mPD)	14 days	6/3/23	20/3/23		318	397,338,406
333	Scaffolding erection	2 days	6/3/23	8/3/23			334
334	Rebar fixing	2 days	8/3/23	10/3/23		333	335
335	Formwork erection	3 days	10/3/23	13/3/23		334	336
336	Concreting	7 days	13/3/23	20/3/23		335	
337	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	9/3/23	7/5/23			338
338	Installation of internal finishing works for Grid Line 1-3	35 days	8/5/23	11/6/23		337,332	
339	Waterproofing system at slabs	7 days	8/5/23	14/5/23			340
340	Plaster and paint at wall and soffit	14 days	15/5/23	28/5/23		339	341
341	Epoxy painting on floor finish	7 days	29/5/23	4/6/23		340	342,343,344
342	Chequer plate system at cable trench and aerator room	7 days	5/6/23	11/6/23		341	
343	Steel grating floor system at chemical storage rooms	7 days	5/6/23	11/6/23		341	
344	SS door and aluminum louver	7 days	5/6/23	11/6/23		341	
345	**Construction of Superstructure (above ground) - Grid Line 3-7**	**208 days**	**28/8/22**	**24/3/23**		**146**	**389,388,396**
346	Construction of Walls W2, W3, W5, W6 and columns within G.L. 3-5	46 days	28/8/22	13/10/22			351
347	Scaffolding erection and Formwork erection	18 days	28/8/22	15/9/22			348
348	Rebar fixing and Formwork erection	21 days	15/9/22	6/10/22		347	349FS-7 days
349	Concreting of walls W2, W3 and Columns	7 days	29/9/22	6/10/22		348FS-7 days	350
350	Concreting of walls W5, W6 and Columns	7 days	6/10/22	13/10/22		349	
351	Construction of remaining walls and columns within G.L. 3-5	21 days	13/10/22	3/11/22		346	355
352	Scaffolding erection and Formwork erection	7 days	13/10/22	20/10/22			353
353	Rebar fixing and Formwork erection	7 days	20/10/22	27/10/22		352	354
354	Concreting	7 days	27/10/22	3/11/22		353	
355	Construction of walls and columns within G.L. 5-7 (+4.55mPD to +9.2mPD)	27 days	3/11/22	30/11/22		351	
356	Scaffolding erection and Formwork erection	14 days	3/11/22	17/11/22			357,360
357	Rebar fixing and Formwork erection	12 days	17/11/22	29/11/22		356	358
358	Concreting	1 day	29/11/22	30/11/22		357	361
359	Construction of walls and columns within G.L. 5-7 (+9.2mPD to +10.8mPD)	**25 days**	**17/11/22**	**12/12/22**			**363**
360	Scaffolding erection and Formwork erection	7 days	17/11/22	24/11/22		356	361
361	Rebar fixing and Formwork erection	5 days	30/11/22	5/12/22		358,360	362
362	Concreting	7 days	5/12/22	12/12/22		361	
363	Construction of Beams and Slabs at +10.4mPD and +10.8mPD	73 days	12/12/22	23/2/23		359	
364	Construction of Beams	42 days	12/12/22	23/1/23			378,373
365	Falsework and formwork erection for beam	21 days	12/12/22	2/1/23			366
366	Rebar fixing for beam	14 days	2/1/23	16/1/23		365	367
367	Concreting and curing of concrete	7 days	16/1/23	23/1/23		366	369
368	Construction of Slabs	31 days	23/1/23	23/2/23			
369	Installation of precast segments (156 nos.)	15 days	23/1/23	7/2/23		367	370
370	Formwork erection for half slab	3 days	7/2/23	10/2/23		369	371
371	Rebar fixing for half slab	6 days	10/2/23	16/2/23		370	372
372	Concreting for half slab	7 days	16/2/23	23/2/23		371	
373	Construction of Parapet Walls (+10.4mPD/+10.8mPD to +12.5mPD)	35 days	23/1/23	27/2/23		364	406,397
374	Scaffolding erection	7 days	23/1/23	30/1/23			375
375	Rebar fixing	10 days	30/1/23	9/2/23		374	376
376	Formwork erection	10 days	9/2/23	19/2/23		375	377
377	Concreting	8 days	19/2/23	27/2/23		376	
378	Construction of Staircase ST01 (+7.1mPD to +11.35mPD)	29 days	23/1/23	21/2/23		364	383
379	Scaffolding and falsework erection	10 days	23/1/23	2/2/23			380
380	Rebar fixing	7 days	2/2/23	9/2/23		379	381
381	Formwork erection	5 days	9/2/23	14/2/23		380	382
382	Concreting	7 days	14/2/23	21/2/23		381	
383	Construction of Staircase ST02 (+10.4mPD to +13.95mPD)	31 days	21/2/23	24/3/23		378	
384	Scaffolding and falsework erection	14 days	21/2/23	7/3/23			385
385	Rebar fixing	7 days	7/3/23	14/3/23		384	386
386	Formwork erection	3 days	14/3/23	17/3/23		385	387
387	Concreting	7 days	17/3/23	24/3/23		386	
388	Backfilling of general fill material up to +7.2mPD, and removal of ELS	90 days	24/3/23	22/6/23		345	
389	**Watertightness test in stages**	**245 days**	**24/3/23**	**24/11/23**		**345**	
390	Overall water retaining structure at HCF	12 days	24/3/23	5/4/23			395
391	Inlet Channel and Outlet Channel	14 days	13/10/23	27/10/23		534	392
392	On duty contact tank	14 days	27/10/23	10/11/23		391	393
393	Standby contact tank	14 days	10/11/23	24/11/23		392	
394	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	19/6/23	17/8/23			
395	Installation of Waterproofing for Grid Line 3-7	30 days	5/4/23	5/5/23		390	
396	Fitting out & BS Installations for Rooms	90 days	24/3/23	22/6/23		345	
397	Construction of water proofing system at roof slab of HCF	90 days	20/3/23	18/6/23		332,373	398
398	Water tightness test for roof slab of HCF	21 days	18/6/23	9/7/23		397	446
399	**Provisional of Fire Service, Flushing and Fresh Water Supply by WSD**	**514 days**	**1/5/22**	**26/9/23**			
400	WWO542 design submission for Fire Service, Flushing and Fresh Water Supply	60 days	1/5/22	29/6/22			401
401	Withhold Acceptance of WWO542 submission by WSD due to EVA Issue	304 days	30/6/22	29/4/23		400	402
402	Re-Submission of WWO542	60 days	30/4/23	28/6/23		401	403
403	Acceptance of WWO542 by WSD	30 days	29/6/23	28/7/23		402	404
404	Provision of water supply to Part 1 by WSD	60 days	29/7/23	26/9/23		403	
405	**Construction of roadworks**	**285 days**	**20/3/23**	**30/12/23**			
406	**Construction of fence wall**	**192 days**	**20/3/23**	**28/9/23**		**373,332**	**429SS,417SS**
407	Type-2 & Type-3 fence wall at West side (198m)	105 days	20/3/23	3/7/23			408,415,410,41
408	Type-1 fence wall at East side (189m)	60 days	3/7/23	1/9/23		407	419
409	Type-3 fence wall at North side (44m)	120 days	20/3/23	18/7/23			
410	Type-4 fence wall at middle (28m)	60 days	3/7/23	1/9/23		407	
411	Type-2 & Type-3 fence wall at South side (37m)	60 days	3/7/23	1/9/23		407	414,416
412	Detailed design of Entrance Logo Feature	90 days	20/3/23	18/6/23			413
413	Fabrication of Entrance Gates and Logo Feature	60 days	18/6/23	17/8/23		412	414
414	Installation of Gate 1 and Gate 2	3 days	1/9/23	4/9/23		411,413	
415	Fabrication of steelworks	66 days	3/7/23	7/9/23		407	416
416	Installation of wall finishes and steelworks	21 days	7/9/23	28/9/23		415,411	
417	**Construction of River Promenade**	**285 days**	**20/3/23**	**30/12/23**		**406SS**	
418	Detailed design of River Promenade	120 days	20/3/23	18/7/23			419
419	Construction of River Promenade	120 days	1/9/23	30/12/23		408,418	
420	**Construction of underground utilities**	**150 days**	**3/6/23**	**31/10/23**			
421	Construction of CLP Drawpits and Ducts	42 days	3/6/23	15/7/23		407FS-30 days	
422	Laying of pipe work system outside ReWPS and HCF	90 days	3/7/23	1/10/23		407	426
423	Construction of chambers and water refilling station	90 days	3/7/23	1/10/23		407	424,425,426
424	Installation of surge vessels	15 days	1/10/23	16/10/23		423	
425	Construction of underground utilities (Drainage, Telecom ducts, CLP cable ducts & drawpits, Fire Service, Flushing & Fresh Watermain, etc.)	30 days	1/10/23	31/10/23		423	
426	**Construction of EVA road pavement**	**30 days**	**1/10/23**	**31/10/23**		**422,423**	**555,451**
427	Construction of road pavement near ReWPS	30 days	1/10/23	31/10/23			
428	Construction of road pavement near HCF	30 days	1/10/23	31/10/23			
429	**Design submission and fabrication of steelwork system for the aluminum fin**	**120 days**	**20/3/23**	**18/7/23**		**406SS**	
430	Detailed Design for External Façade Treatment and Vertical Green Wall	30 days	20/3/23	19/4/23			
431	Design submission of steelwork system for vertical aluminum fin at ReWPS	30 days	20/3/23	19/4/23			432,433
432	Design submission of steelwork system for horizontal aluminum fin at HCF	30 days	19/4/23	19/5/23		431	434
433	Fabrication of vertical aluminum fin for ReWPS	60 days	19/4/23	18/6/23		431	
434	Fabrication of horizontal aluminum fin for HCF	60 days	19/5/23	18/7/23		432	
435	**Installation of architectural works**	**98 days**	**29/8/23**	**5/12/23**		**181,308**	
436	**Installation of architectural works near ReWPS**	**98 days**	**29/8/23**	**5/12/23**			
437	Erection of working platform	15 days	29/8/23	13/9/23			438,439
438	Laying of artificial granite tile at external wall	60 days	13/9/23	12/11/23		437	
439	Installation of steelworks	60 days	13/9/23	12/11/23		437	440FS-7 days
440	Installation of cladding	30 days	5/11/23	5/12/23		439FS-7 days	



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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		

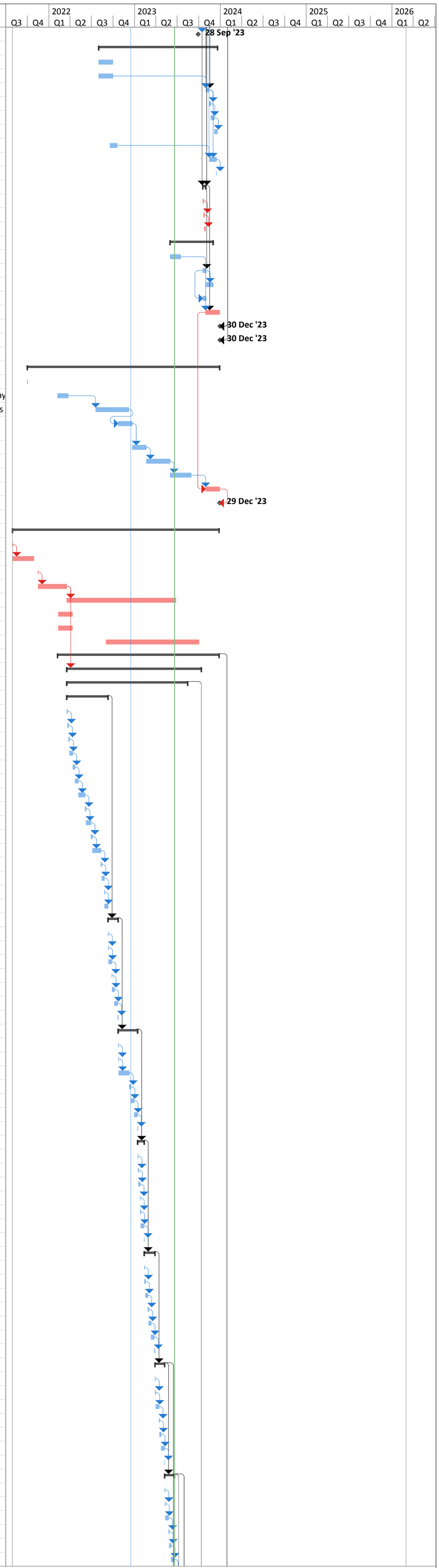
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
441	**Installation of architectural works near HCF**	**98 days**	**29/8/23**	**5/12/23**			
442	Erection of working platform	15 days	29/8/23	13/9/23			443,444
443	Laying of artificial granite tile at external wall	60 days	13/9/23	12/11/23		442	
444	Installation of steelworks	60 days	13/9/23	12/11/23		442	445FS-7 days
445	Installation of cladding	30 days	5/11/23	5/12/23		444FS-7 days	
446	**Landscape works**	**163 days**	**20/7/23**	**30/12/23**		**306,398**	**573FF**
447	**Landscape works at roof top**	**105 days**	**20/7/23**	**2/11/23**			
448	Installation of composite timber decking with pedestal	30 days	20/7/23	19/8/23			449
449	Laying of artificial granite floor tile / paver block	45 days	19/8/23	3/10/23		448	450
450	Construciton of roof drainage system	30 days	3/10/23	2/11/23		449	
451	Landscape works within SWHWRP	60 days	31/10/23	30/12/23		426	
452							
453	**E&M Works of SWHWRP**	**843.5 days**	**7/9/21**	**29/12/23**			**572FF**
454	**Design and Submission Stage**	**391 days**	**7/9/21**	**2/10/22**			
455	Submission of Surge Analysis Report	7 days	24/8/22	30/8/22			456
456	Acceptance of Surge Analysis Report	14 days	31/8/22	13/9/22		455	
457	Submission and review of Reclaimed Water Main Pumps	7 days	7/9/21	13/9/21			458
458	Acceptance of Reclaimed Water Main Pumps	319 days	14/9/21	29/7/22		457	
459	Submission and review of Surge Vessels and Air Compressors	63 days	18/7/22	18/9/22			460
460	Acceptance of Surge Vessels and Air Compressors	14 days	19/9/22	2/10/22		459	
461	Submission and review of Penstock & Stoplog	267 days	1/11/21	25/7/22			462
462	Acceptance of Penstock & Stoplog	14 days	26/7/22	8/8/22		461	
463	Submission and review of Chemical Dosing System & Static In-line Mixer	198 days	6/12/21	21/6/22			464
464	Acceptance of Chemical Dosing System & Static In-line Mixer	14 days	22/6/22	5/7/22		463	
465	Submission and review of Air Blower and Air Diffuser	28 days	25/7/22	21/8/22			466
466	Acceptance of Air Blower and Air Diffuser	14 days	22/8/22	4/9/22		465	
467	Submission and review of Lifting Appliances	73 days	24/5/22	4/8/22			468
468	Acceptance of Lifting Appliances	14 days	5/8/22	18/8/22		467	
469	Submission and review of Minor Mechanical Equipment	49 days	30/6/22	17/8/22			470
470	Acceptance of Minor Mechanical Equipment	14 days	18/8/22	31/8/22		469	
471	Submission and review of LV switchboard	45 days	18/7/22	31/8/22			472
472	Acceptance of LV switchboard	14 days	1/9/22	14/9/22		471	
473	Submission and review of DCS	58 days	30/6/22	26/8/22			474
474	Acceptance of DCS	14 days	27/8/22	9/9/22		473	
475	Submission and review of Instrumenation & Water Monitoring Equipment	174 days	17/1/22	9/7/22			476
476	Acceptance of Instrumenation & Water Monitoring Equipment	14 days	10/7/22	23/7/22		475	
477	Submission and review of Misc. Electrical Items	42 days	4/7/22	14/8/22			478
478	Acceptance of Misc. Electrical Items	14 days	15/8/22	28/8/22		477	
479	Submission and review of Fire Services Equipment	70 days	22/6/22	30/8/22			480
480	Acceptance of Fire Services Equipment	14 days	31/8/22	13/9/22		479	
481	Submission and review of MVAC Equipment	70 days	20/6/22	28/8/22			482
482	Acceptance of MVAC Equipment	14 days	29/8/22	11/9/22		481	
483	Submission and review of Plumbing & Drainage Equipment	31 days	26/7/22	25/8/22			484
484	Acceptance of Plumbing & Drainage Equipment	14 days	26/8/22	8/9/22		483	
485	Submission and review of General Arrangement Drawing	224 days	17/1/22	28/8/22			486
486	Acceptance of General Arrangement Drawing	14 days	29/8/22	11/9/22		485	
487	Submission and review of Civil Requirement Drawing	169 days	15/2/22	2/8/22			488
488	Acceptance of Civil Requirement Drawing	16 days	3/8/22	18/8/22		487	
489	Submission and acceptance of method statement for E&M installation works	60 days	1/7/22	29/8/22			
490	CSD, CBWD coordination	157 days	17/1/22	22/6/22			
491	**Procurement and Delivery of Equipment**	**484 days**	**26/1/22**	**24/5/23**			
492	Procerement and manufacturing of Reclaimed Water Main Pumps (6 nos.)	358 days	3/5/22	25/4/23			493
493	Delivery of Reclaimed Water Main Pumps (6 nos.)	28 days	26/4/23	23/5/23		492	533
494	Procerement and manufacturing of Surge Vessels and Air Compressors	233 days	5/8/22	25/3/23			495
495	Delivery of Surge Vessels and Air Compressors	60 days	26/3/23	24/5/23		494	535
496	Procerement and manufacturing of Penstock & Stoplog	407 days	26/1/22	8/3/23			497
497	Delivery of Penstock & Stoplog	45 days	9/3/23	22/4/23		496	534
498	Procerement and manufacturing of Chemical Dosing System	132 days	27/7/22	5/12/22			499
499	Delivery of Chemical Dosing System	30 days	6/12/22	4/1/23		498	
500	Procerement and manufacturing of Static In-line Mixer	238 days	26/7/22	20/3/23			501
501	Delivery of Static In-line Mixer	50 days	21/3/23	9/5/23		500	537
502	Procerement and manufacturing of Air Blower and Air Diffuser	167 days	27/7/22	9/1/23			503
503	Delivery of Air Blower and Air Diffuser	60 days	10/1/23	10/3/23		502	536
504	Procerement and manufacturing of Lifting Appliances	294 days	5/3/22	23/12/22			505
505	Delivery of Lifting Appliances	60 days	24/12/22	21/2/23		504	530
506	Procerement and manufacturing of Sump Pumps	155 days	4/8/22	5/1/23			507
507	Delivery of Sump Pumps	60 days	6/1/23	6/3/23		506	542
508	Procerement and manufacturing of Pipework and Valves	230 days	4/8/22	21/3/23			509
509	Delivery of Pipework and Valves	28 days	22/3/23	18/4/23		508	538
510	Procerement and manufacturing of LV switchboard	350 days	18/5/22	2/5/23			511
511	Delivery of LV switchboard	14 days	3/5/23	16/5/23		510	544
512	Procerement and manufacturing of DCS	347 days	20/5/22	1/5/23			513
513	Delivery of DCS	14 days	2/5/23	15/5/23		512	
514	Procerement and manufacturing of Instrumenation and Water Monitoring Equipment	216 days	18/7/22	18/2/23			515
515	Delivery of Instrumenation and Water Monitoring Equipment	60 days	19/2/23	19/4/23		514	540
516	Procerement and manufacturing of Misc. Electrical Items (PV Panel, Earthing, etc)	252 days	7/6/22	13/2/23			517
517	Delivery of Misc. Electrical Items (PV Panel, Earthing, etc)	60 days	14/2/23	14/4/23		516	529,543
518	Procerement and manufacturing of Fire Services Equipment	262 days	4/4/22	21/12/22			519
519	Delivery of Fire Services Equipment	60 days	22/12/22	19/2/23		518	527
520	Procerement and manufacturing of MVAC Equipment	288 days	1/6/22	15/3/23			521
521	Delivery of MVAC Equipment	45 days	16/3/23	29/4/23		520	528
522	Procerement and manufacturing of Plumbing & Drainage Equipment	106 days	26/5/22	8/9/22			523
523	Delivery of Plumbing & Drainage Equipment	60 days	9/9/22	7/11/22		522	
524	Procerement and manufacturing of Misc. Electrical Items (Cables, Cable Containment, Lightings)	134 days	15/8/22	26/12/22			525
525	Delivery of Misc. Electrical Items (Cables, Cable Containment, Lightings)	90 days	27/12/22	26/3/23		524	539
526	**Installation Works**	**155 days**	**16/5/23**	**18/10/23**		**256,300**	**562,568**
527	Installation FS Equipment	92 days	16/5/23	16/8/23		519	555
528	Installation of MVAC Equipment	150 days	16/5/23	13/10/23		521	
529	Installation of BS/lighting Equipment	150 days	16/5/23	13/10/23		517	
530	Installation of Lifting Appliance at Motor Hall & Maintenance Room of RWPS	45 days	16/5/23	30/6/23		505,256	533,259
531	Installation of Lifting Appliance at Pump Hall of RWPS	60 days	15/7/23	13/9/23		260	
532	Installation of Lifting Appliance at Pipe Gallery of HCF	60 days	16/5/23	15/7/23			
533	Installation of Reclaimed Water Pumps (6 Nos.)	110 days	30/6/23	18/10/23		493,530	
534	Installation of penstocks (10 nos.) & Stoplogs (2 nos.)	150 days	16/5/23	13/10/23		497	391
535	Installation of Surge Vessel (4 Nos.) & Air Compressor (4 Nos.)	30 days	25/5/23	23/6/23		495	
536	Installation of Air Blower (2 Nos.) & Air Diffuser (1 set)	45 days	16/5/23	30/6/23		503	
537	Installation of tanks (14 nos.) & Chemical Pumps (12 nos.)	60 days	16/5/23	15/7/23		501	
538	Installation of Pipeworks (DI, Chemical pipe, Air pipe)	60 days	16/5/23	15/7/23		509	
539	Installation of Cabling, MCC & DCS	153 days	16/5/23	16/10/23		525	560
540	Installation of Instrumentation and Monitoring Stations	40 days	16/5/23	25/6/23		515	
541	Installation of ELV System (CCTV & Access Control)	129 days	16/5/23	22/9/23			
542	Installation of Plumbing & Drainage Equipment	132 days	16/5/23	25/9/23		507	
543	Installation of PV Panels	45 days	16/5/23	30/6/23		517	
544	Installation of LV Switchborad / MCC	150 days	17/5/23	13/10/23		511	
545	**Power Energization Related Items**	**339.5 days**	**24/10/22**	**28/9/23**			**562,555**
546	CLP meter application	180 days	24/10/22	21/4/23			
547	CLP Room & Drawpits Handover Inspections	45 days	14/6/23	29/7/23		302	548
548	Handover of Transformer Room to CLP	0 days	29/7/23	29/7/23		547	549,550
549	Cabling by CLP	61 days	29/7/23	28/9/23		548	
550	Installation of Transformers by CLP	61 days	29/7/23	28/9/23		548	551



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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		

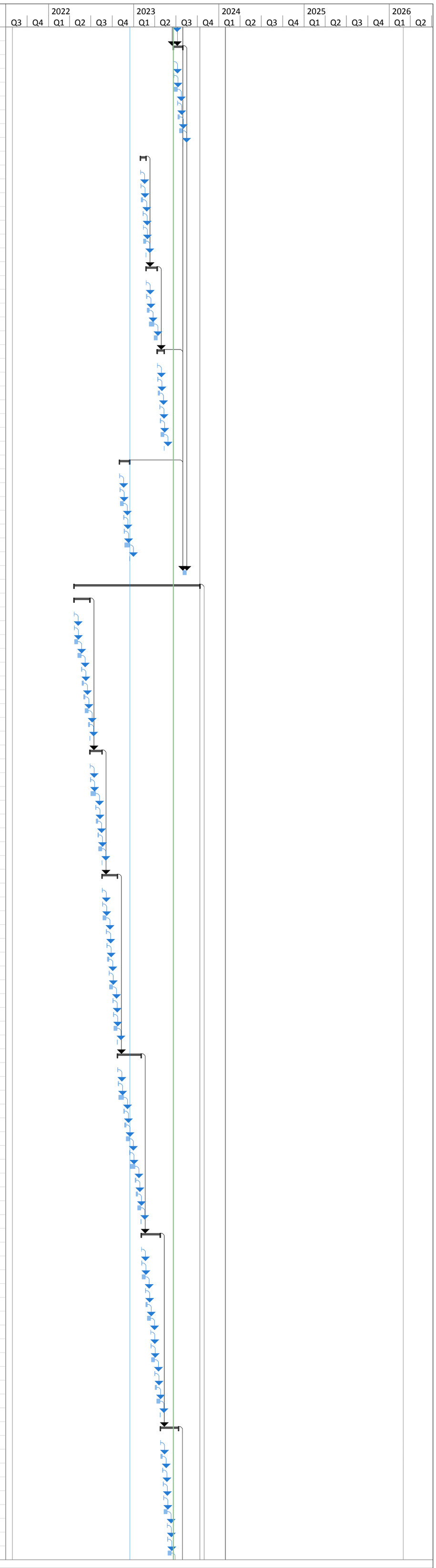
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
551	Power Energization	0 days	28/9/23	28/9/23		550	
552	**FS / DG Inspection Related Items**	**506.5 days**	**1/8/22**	**20/12/23**			
553	VAC Desgin Submission to FSD	60 days	1/8/22	29/9/22			
554	FS related statutory submission to FSD	60 days	1/8/22	29/9/22			555
555	T&C of FS Related Installation (Integrated Test & Rehearsal)	14 days	31/10/23	14/11/23		426,527,545,55	556,560
556	Submission of FSI 314 & 501	7 days	14/11/23	21/11/23		555	557
557	Target FS Inpsection	15 days	21/11/23	6/12/23		556	558
558	Obtain FSD approval letter (Form FS172 Fire Certificate)	14 days	6/12/23	20/12/23		557	
559	DG Design Submission to FSD	30 days	18/9/22	17/10/22			560
560	DG Inspection	30 days	14/11/23	14/12/23		539,555,559	561
561	Obtain DG License	1 day	14/12/23	15/12/23		560	
562	**Preliminary Test of Equipment**	**12 days**	**18/10/23**	**30/10/23**		**526,545**	**571**
563	Inspection of Equipment/System with SOR	3 days	18/10/23	21/10/23			564
564	Trial Run of Equipment/System	4 days	21/10/23	25/10/23		563	565
565	Site Acceptance Test (SAT) of Equipment/Systems with SOR	5 days	25/10/23	30/10/23		564	
566	**Submission**	**183.5 days**	**1/6/23**	**1/12/23**			
567	Submission of Testing Procedures & Commissioning Plan	45 days	1/6/23	15/7/23			571
568	Submission of As Fitted Drawings	14 days	18/10/23	1/11/23		526	569,570SS
569	Submission of Manual	30 days	1/11/23	1/12/23		568	
570	Submission of Training Material	14 days	18/10/23	1/11/23		568SS	
571	**System Commissioning Test**	**60 days**	**30/10/23**	**29/12/23**		**562,567**	**583SS**
572	Planned completion for section 1	0 days	30/12/23	30/12/23		175FF,453FF	
573	Planned completion for section 2	0 days	30/12/23	30/12/23		446FF	
574							
575	**Section 3 - Modification of Table Hill Reclaimed Water Service Reservoir**	**819.5 days**	**1/10/21**	**29/12/23**			
576	Access Date (part 2 of the Site)	1 day	1/10/21	1/10/21			
577	Initial survey and condition survey	45 days	7/2/22	23/3/22			578FS+117 day
578	Design submission and acceptance of the supplementary dosing and dyeing system (E&M)	141 days	19/7/22	6/12/22		577FS+117 days	579FS-45 days
579	Submission and acceptance of method statement for supplementary dosing and dyeing system	60 days	23/10/22	21/12/22		578FS-45 days	580
580	Selection of sub-contractor	60 days	22/12/22	19/2/23		579	581
581	Construction of chemical room	101 days	20/2/23	31/5/23		580	582
582	Installation of supplementary dosing and dyeing system	90 days	1/6/23	29/8/23		581	583
583	T&C of E&M equipment	60 days	30/10/23	29/12/23		582,571SS	584FF
584	Planned completion for section 3	0 days	29/12/23	29/12/23		583FF	
585							
586	**Section 4 - Water main laying works in part 3 of the Site**	**880 days**	**30/7/21**	**26/12/23**			
587	Access Date (part 3 of the Site)	1 day	30/7/21	30/7/21			588
588	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		587	
589	1st TMLG meeting	1 day	15/11/21	15/11/21			590
590	Application and approval of XP and TTA, including local consultation	122 days	16/11/21	17/3/22		589	591,596
591	Implementation of TTA by stages	465 days	18/3/22	25/6/23		590	
592	Procurement and Delivery of pipes, fittings and related materials	60 days	10/2/22	10/4/22			
593	Submission and acceptance of method statement and material	60 days	10/2/22	10/4/22			
594	Excavation of Inspection Pit	396 days	1/9/22	1/10/23			
595	**Mainlaying by open trench method (RW03 & RW43)**	**688 days**	**7/2/22**	**26/12/23**			**1029FF**
596	**RW03 : DN600 DI pipe - 1092m (XP ID: 1301128, 1301129)**	**573.5 days**	**18/3/22**	**12/10/23**		**590**	
597	**Team A : CH000 - CH550**	**515 days**	**18/3/22**	**14/8/23**			**793**
598	**CH450 - CH550 (100m)**	**176 days**	**18/3/22**	**9/9/22**			**614**
599	TTA establishment	3 days	18/3/22	20/3/22			600
600	CE-041 _ Inclement Weather in March 2022	4.5 days	21/3/22	25/3/22		599	601
601	Hard material excavation and disposal	4 days	25/3/22	29/3/22		600	602
602	Soil excavation , laying sheetpile and disposal	14 days	29/3/22	12/4/22		601	603
603	Obstruction of uncharted 900mm pipe	10 days	12/4/22	22/4/22		602	604
604	Pending for setting out of DSD	14 days	22/4/22	6/5/22		603	605
605	Amendment of ELS	28 days	6/5/22	3/6/22		604	606
606	CE-052 _ Inclement Weather in May 2022	4.5 days	3/6/22	7/6/22		605	607
607	Treatment of bedding	21 days	8/6/22	28/6/22		606	608
608	CE-053 _ Inclement Weather in June 2022	6.5 days	29/6/22	5/7/22		607	609
609	Pipe laying D.I. & PE (DSD's pipe)	36 days	5/7/22	10/8/22		608	610
610	CE-054 _ Inclement Weather in July 2022	3.5 days	10/8/22	13/8/22		609	611
611	Backfilling sand/aggregate, concurrent bend block/chambers	11 days	14/8/22	24/8/22		610	612
612	Reinstatement	1 day	25/8/22	25/8/22		611	613
613	CE-068 _ Inclement Weather in August 2022	15 days	26/8/22	9/9/22		612	
614	**CH420 - CH450 (30m)**	**43 days**	**10/9/22**	**22/10/22**		**598**	**622**
615	TTA establishment	1 day	10/9/22	10/9/22			616
616	Hard material excavation and disposal	1 day	11/9/22	11/9/22		615	617
617	Soil excavation , laying sheetpile and disposal	14 days	12/9/22	25/9/22		616	618
618	Treatment of bedding	1 day	26/9/22	26/9/22		617	619
619	Pipe laying D.I.	10 days	27/9/22	6/10/22		618	620
620	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	7/10/22	20/10/22		619	621
621	Reinstatement	2 days	21/10/22	22/10/22		620	
622	**CH390 - CH420 (30m)**	**83 days**	**23/10/22**	**13/1/23**		**614**	**630**
623	TTA establishment	1 day	23/10/22	23/10/22			624
624	Hard material excavation and disposal	1 day	24/10/22	24/10/22		623	625
625	Soil excavation , laying sheetpile and disposal	45 days	25/10/22	8/12/22		624	626
626	Treatment of bedding	7 days	9/12/22	15/12/22		625	627
627	Pipe laying D.I.	14 days	16/12/22	29/12/22		626	628
628	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	30/12/22	12/1/23		627	629
629	Reinstatement	1 day	13/1/23	13/1/23		628	
630	**CH360 - CH390 (30m)**	**28 days**	**14/1/23**	**10/2/23**		**622**	**638**
631	TTA establishment	1 day	14/1/23	14/1/23			632
632	Hard material excavation and disposal	2 days	15/1/23	16/1/23		631	633
633	Soil excavation , laying sheetpile and disposal	7 days	17/1/23	23/1/23		632	634
634	Treatment of bedding	1 day	24/1/23	24/1/23		633	635
635	Pipe laying D.I.	2 days	25/1/23	26/1/23		634	636
636	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	27/1/23	9/2/23		635	637
637	Reinstatement	1 day	10/2/23	10/2/23		636	
638	**CH300 - CH360 (60m)**	**46 days**	**11/2/23**	**28/3/23**		**630**	**646**
639	TTA establishment	1 day	11/2/23	11/2/23			640
640	Hard material excavation and disposal	4 days	12/2/23	15/2/23		639	641
641	Soil excavation , laying sheetpile and disposal	10 days	16/2/23	25/2/23		640	642
642	Treatment of bedding	4 days	26/2/23	1/3/23		641	643
643	Pipe laying D.I.	10 days	2/3/23	11/3/23		642	644
644	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	12/3/23	25/3/23		643	645
645	Reinstatement	3 days	26/3/23	28/3/23		644	
646	**CH270 - CH300 (30m)**	**41 days**	**29/3/23**	**8/5/23**		**638**	**654,662**
647	TTA establishment	1 day	29/3/23	29/3/23			648
648	Hard material excavation and disposal	2 days	30/3/23	31/3/23		647	649
649	Soil excavation , laying sheetpile and disposal	14 days	1/4/23	14/4/23		648	650
650	Treatment of bedding	2 days	15/4/23	16/4/23		649	651
651	Pipe laying D.I.	7 days	17/4/23	23/4/23		650	652
652	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	24/4/23	7/5/23		651	653
653	Reinstatement	1 day	8/5/23	8/5/23		652	
654	**CH190 - CH240 (50m)**	**42 days**	**9/5/23**	**19/6/23**		**646**	**700,662**
655	TTA establishment	1 day	9/5/23	9/5/23			656
656	Hard material excavation and disposal	2 days	10/5/23	11/5/23		655	657
657	Soil excavation , laying sheetpile and disposal	14 days	12/5/23	25/5/23		656	658
658	Treatment of bedding	2 days	26/5/23	27/5/23		657	659
659	Pipe laying D.I.	8 days	28/5/23	4/6/23		658	660
660	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	5/6/23	18/6/23		659	661



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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

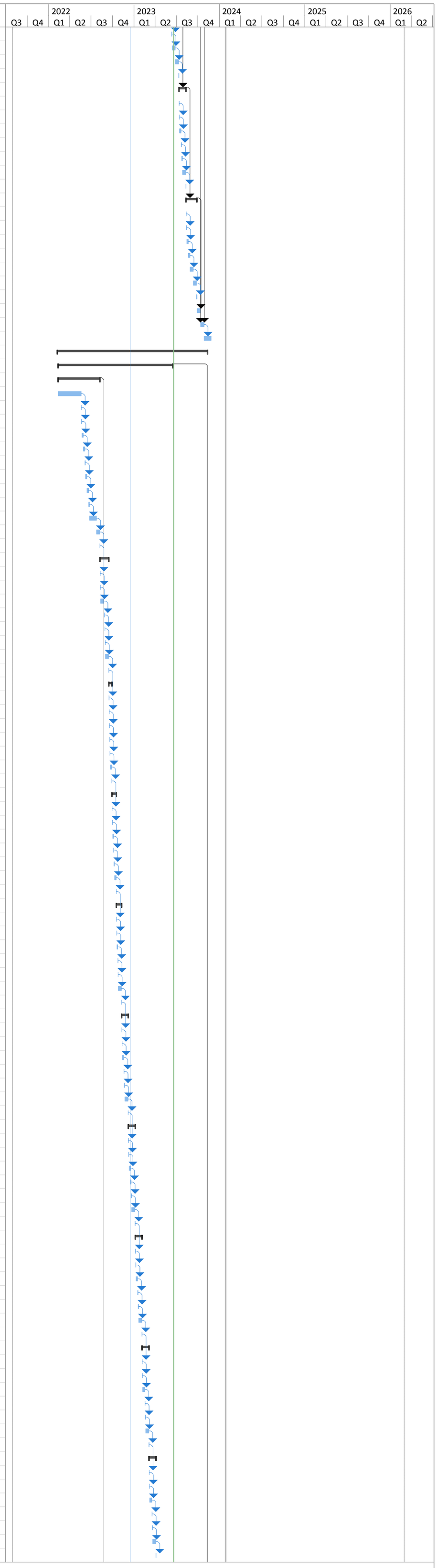
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
661	Reinstatement	1 day	19/6/23	19/6/23		660	
662	**CH240 - CH270 (65m, Re-alignment)**	**41 days**	**20/6/23**	**30/7/23**		**646,654**	**700**
663	TTA establishment	1 day	20/6/23	20/6/23			664
664	Hard material excavation and disposal	2 days	21/6/23	22/6/23		663	665
665	Soil excavation , laying sheetpile and disposal	14 days	23/6/23	6/7/23		664	666
666	Treatment of bedding	2 days	7/7/23	8/7/23		665	667
667	Pipe laying D.I.	7 days	9/7/23	15/7/23		666	668
668	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	16/7/23	29/7/23		667	669
669	Reinstatement	1 day	30/7/23	30/7/23		668	
670	**CH170 - CH190 (20m)**	**24 days**	**30/1/23**	**22/2/23**			**678**
671	TTA establishment	1 day	30/1/23	30/1/23			672
672	Hard material excavation and disposal	2 days	31/1/23	1/2/23		671	673
673	Soil excavation , laying sheetpile and disposal	7 days	2/2/23	8/2/23		672	674
674	Treatment of bedding	2 days	9/2/23	10/2/23		673	675
675	Pipe laying D.I.	1 day	11/2/23	11/2/23		674	676
676	Backfilling sand/aggregate, concurrent bend block/chambers	10 days	12/2/23	21/2/23		675	677
677	Reinstatement	1 day	22/2/23	22/2/23		676	
678	**CH120 - CH170 (50m)**	**48 days**	**23/2/23**	**11/4/23**		**670**	**684**
679	TTA establishment	1 day	23/2/23	23/2/23			680
680	Removal of existing railing	3 days	24/2/23	26/2/23		679	681
681	Installation of mild steel pipe	9 days	27/2/23	7/3/23		680	682
682	Construction of thrust block	21 days	8/3/23	28/3/23		681	683
683	Reinstatement of railing	14 days	29/3/23	11/4/23		682	
684	**CH080 - CH120 (40m)**	**30 days**	**12/4/23**	**11/5/23**		**678**	**700**
685	TTA establishment	1 day	12/4/23	12/4/23			686
686	Hard material excavation and disposal	2 days	13/4/23	14/4/23		685	687
687	Soil excavation , laying sheetpile and disposal	7 days	15/4/23	21/4/23		686	688
688	Treatment of bedding	2 days	22/4/23	23/4/23		687	689
689	Pipe laying D.I.	3 days	24/4/23	26/4/23		688	690
690	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	27/4/23	10/5/23		689	691
691	Reinstatement	1 day	11/5/23	11/5/23		690	
692	**CH020 - CH080 (60m)**	**44 days**	**1/11/22**	**14/12/22**			**700**
693	TTA establishment	1 day	1/11/22	1/11/22			694
694	Hard material excavation and disposal	2 days	2/11/22	3/11/22		693	695
695	Soil excavation , laying sheetpile and disposal	14 days	4/11/22	17/11/22		694	696
696	Treatment of bedding	2 days	18/11/22	19/11/22		695	697
697	Pipe laying D.I.	3 days	20/11/22	22/11/22		696	698
698	Backfilling sand/aggregate, concurrent bend block/chambers	21 days	23/11/22	13/12/22		697	699
699	Reinstatement	1 day	14/12/22	14/12/22		698	
700	Pressure test, swabbing and CCTV	15 days	31/7/23	14/8/23		684,654,692,66	
701	**Team B : CH550 - CH1090 (540m)**	**540.5 days**	**20/4/22**	**12/10/23**			**793**
702	**CH970 - CH1010 (40m)**	**68.5 days**	**20/4/22**	**27/6/22**			**713**
703	TTA establishment	1 day	20/4/22	20/4/22			704
704	Hard material excavation and disposal	1 day	21/4/22	21/4/22		703	705
705	Soil excavation , laying sheetpile and disposal	14 days	22/4/22	5/5/22		704	706
706	CE-068 _ Inclement Weather in August 2022	15 days	6/5/22	20/5/22		705	707
707	Treatment of bedding	3 days	21/5/22	23/5/22		706	708
708	Pipe laying D.I.	7 days	24/5/22	30/5/22		707	709
709	CE-052 _ Inclement Weather in May 2022 (under assessment)	6 days	31/5/22	5/6/22		708	710
710	Backfilling sand/aggregate	14 days	6/6/22	19/6/22		709	711
711	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	20/6/22	26/6/22		710	712
712	Reinstatement	1 day	26/6/22	27/6/22		711	
713	**CH930 - CH970 (40m)**	**52 days**	**27/6/22**	**18/8/22**		**702**	**722**
714	TTA establishment	1 day	27/6/22	28/6/22			715
715	Hard material excavation and disposal	2 days	28/6/22	30/6/22		714	716
716	Soil excavation , laying sheetpile and disposal	21 days	30/6/22	21/7/22		715	717
717	Treatment of bedding	2 days	21/7/22	23/7/22		716	718
718	Pipe laying D.I.	7 days	23/7/22	30/7/22		717	719
719	CE-054 _ Inclement Weather in July 2022 (under assessment)	4 days	30/7/22	3/8/22		718	720
720	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	3/8/22	17/8/22		719	721
721	Reinstatement	1 day	17/8/22	18/8/22		720	
722	**CH880 - CH930 (50m)**	**66 days**	**18/8/22**	**23/10/22**		**713**	**735**
723	TTA establishment	1 day	18/8/22	19/8/22			724
724	Hard material excavation and disposal (CH880 - CH910)	2 days	19/8/22	21/8/22		723	725
725	Soil excavation, laying sheetpile and disposal (CH880 - CH910)	14 days	21/8/22	4/9/22		724	726
726	Treatment of bedding (CH880 - CH910)	3 days	4/9/22	7/9/22		725	727
727	Pipe laying D.I. (CH880 - CH910)	2 days	7/9/22	9/9/22		726	728
728	Backfilling sand/aggregate, concurrent bend block/chambers (CH880 - CH910)	7 days	9/9/22	16/9/22		727	729
729	Hard material excavation and disposal (CH850 - CH880)	2 days	16/9/22	18/9/22		728	730
730	Soil excavation, laying sheetpile and disposal (CH850 - CH880)	14 days	18/9/22	2/10/22		729	731
731	Treatment of bedding (CH850 - CH880)	3 days	2/10/22	5/10/22		730	732
732	Pipe laying D.I. (CH850 - CH880)	2 days	5/10/22	7/10/22		731	733
733	Backfilling sand/aggregate, concurrent bend block/chambers (CH850 - CH880)	14 days	7/10/22	21/10/22		732	734
734	Reinstatement	2 days	21/10/22	23/10/22		733	
735	**CH780 - CH880 (100m)**	**102 days**	**23/10/22**	**2/2/23**		**722**	**748**
736	TTA establishment	2 days	23/10/22	25/10/22			737
737	Hard material excavation and disposal (CH800 - CH850)	3 days	25/10/22	28/10/22		736	738
738	Soil excavation , laying sheetpile and disposal (CH800 - CH850)	21 days	28/10/22	18/11/22		737	739
739	Treatment of bedding (CH800 - CH850)	4 days	18/11/22	22/11/22		738	740
740	Pipe laying D.I. (CH800 - CH850)	7 days	22/11/22	29/11/22		739	741
741	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	29/11/22	13/12/22		740	742
742	Hard material excavation and disposal (CH750 - CH800)	3 days	13/12/22	16/12/22		741	743
743	Soil excavation , laying sheetpile and disposal (CH750 - CH800)	21 days	16/12/22	6/1/23		742	744
744	Treatment of bedding (CH750 - CH800)	4 days	6/1/23	10/1/23		743	745
745	Pipe laying D.I. (CH750 - CH800)	7 days	10/1/23	17/1/23		744	746
746	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	17/1/23	31/1/23		745	747
747	Reinstatement	2 days	31/1/23	2/2/23		746	
748	**CH680 - CH780 (100m)**	**82 days**	**2/2/23**	**25/4/23**		**735**	**762**
749	TTA establishment	1 day	2/2/23	3/2/23			750
750	Hard material excavation and disposal (CH700 - CH750)	2 days	3/2/23	5/2/23		749	751
751	Soil excavation , laying sheetpile and disposal (CH700 - CH750)	14 days	5/2/23	19/2/23		750	752
752	Treatment of bedding (CH700 - CH750)	2 days	19/2/23	21/2/23		751	753
753	Pipe laying D.I. (CH700 - CH750)	7 days	21/2/23	28/2/23		752	754
754	Backfilling sand/aggregate, concurrent bend block/chambers (CH700 - CH750)	14 days	28/2/23	14/3/23		753	755
755	Reinstatement (CH700 - CH750)	1 day	14/3/23	15/3/23		754	756
756	Hard material excavation and disposal (CH650 - CH700)	2 days	15/3/23	17/3/23		755	757
757	Soil excavation , laying sheetpile and disposal (CH650 - CH700)	14 days	17/3/23	31/3/23		756	758
758	Treatment of bedding (CH650 - CH700)	2 days	31/3/23	2/4/23		757	759
759	Pipe laying D.I. (CH650 - CH700)	7 days	2/4/23	9/4/23		758	760
760	Backfilling sand/aggregate, concurrent bend block/chambers (CH650 - CH700)	14 days	9/4/23	23/4/23		759	761
761	Reinstatement	2 days	23/4/23	25/4/23		760	
762	**CH580 - CH680 (100m)**	**78 days**	**25/4/23**	**12/7/23**		**748**	**776**
763	TTA establishment	1 day	25/4/23	26/4/23			764
764	Hard material excavation and disposal (CH600 - CH650)	7 days	26/4/23	3/5/23		763	765
765	Soil excavation , laying sheetpile and disposal (CH600 - CH650)	3 days	3/5/23	6/5/23		764	766
766	Treatment of bedding (CH600 - CH650)	2 days	6/5/23	8/5/23		765	767
767	Pipe laying D.I. (CH600 - CH650)	2 days	8/5/23	10/5/23		766	768
768	Backfilling sand/aggregate, concurrent bend block/chambers (CH600 - CH650)	14 days	10/5/23	24/5/23		767	769
769	Reinstatement (CH600 - CH650)	1 day	24/5/23	25/5/23		768	770
770	Hard material excavation and disposal (CH550 - CH600)	2 days	25/5/23	27/5/23		769	771
771	Soil excavation , laying sheetpile and disposal (CH550 - CH600)	14 days	27/5/23	10/6/23		770	772



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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	

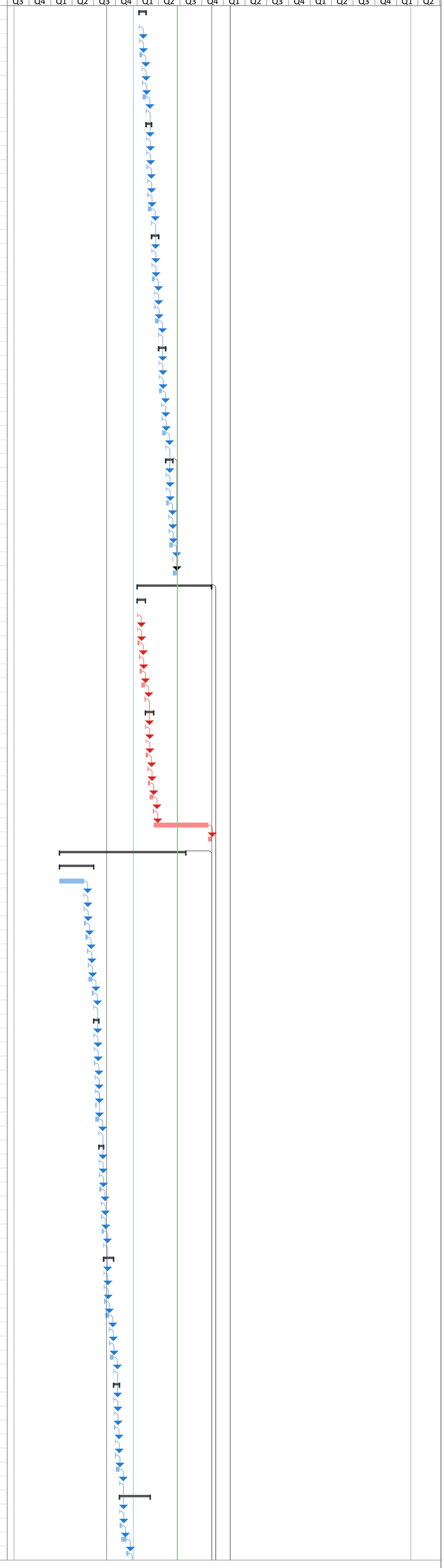
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
772	Treatment of bedding (CH550 - CH600)	2 days	10/6/23	12/6/23		771	773
773	Pipe laying D.I. (CH550 - CH600)	14 days	12/6/23	26/6/23		772	774
774	Backfilling sand/aggregate, concurrent bend block/chambers (CH550 - CH600)	14 days	26/6/23	10/7/23		773	775
775	Reinstatement	2 days	10/7/23	12/7/23		774	
776	**CH1010 - CH1040 (30m)**	**30 days**	**12/7/23**	**11/8/23**		**762**	**784**
777	TTA establishment	1 day	12/7/23	13/7/23			778
778	Hard material excavation and disposal	1 day	13/7/23	14/7/23		777	779
779	Soil excavation , laying sheetpile and disposal	7 days	14/7/23	21/7/23		778	780
780	Treatment of bedding	2 days	21/7/23	23/7/23		779	781
781	Pipe laying D.I.	4 days	23/7/23	27/7/23		780	782
782	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	27/7/23	10/8/23		781	783
783	Reinstatement	1 day	10/8/23	11/8/23		782	
784	**CH1040 - CH1090 (50m)**	**47 days**	**11/8/23**	**27/9/23**		**776**	**792**
785	TTA establishment	1 day	11/8/23	12/8/23			786
786	Hard material excavation and disposal	2 days	12/8/23	14/8/23		785	787
787	Soil excavation , laying sheetpile and disposal	7 days	14/8/23	21/8/23		786	788
788	Treatment of bedding	7 days	21/8/23	28/8/23		787	789
789	Pipe laying D.I.	14 days	28/8/23	11/9/23		788	790
790	Backfilling sand/aggregate, concurrent bend block/chambers	14 days	11/9/23	25/9/23		789	791
791	Reinstatement	2 days	25/9/23	27/9/23		790	
792	Pressure test, swabbing and CCTV	15 days	27/9/23	12/10/23		784	
793	Overall pressure test	15 days	12/10/23	27/10/23		597,701	794
794	Pipe connection and completion	30 days	27/10/23	26/11/23		793	
795	**RW43 : DN150 DI pipe - 1144m (XP ID: 1301130, 1301131)**	**643 days**	**7/2/22**	**11/11/23**			
796	**CH370 to CH850 (480m)**	**491 days**	**10/2/22**	**15/6/23**			**1027**
797	**Team A CH640 to CH680 (40m)**	**179.5 days**	**10/2/22**	**8/8/22**			**1015**
798	Pending for IIB of pipe fittings	99 days	10/2/22	19/5/22			799
799	TTA establishment	1 day	20/5/22	20/5/22		798	800
800	Hard material excavation and disposal	2 days	21/5/22	22/5/22		799	801
801	CE-052 _ Inclement Weather in May 2022 (under assessment)	6 days	23/5/22	28/5/22		800	802
802	Soil excavation , laying sheetpile and disposal	7 days	29/5/22	4/6/22		801	803
803	Treatment of bedding	2 days	5/6/22	6/6/22		802	804
804	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	7/6/22	13/6/22		803	805
805	Pipe laying D.I.	7 days	13/6/22	20/6/22		804	806
806	CE-054 _ Inclement Weather in July 2022 (under assessment)	4 days	20/6/22	24/6/22		805	807
807	Works suspended by Sheung Shui Heung	30 days	24/6/22	24/7/22		806	808
808	Backfilling general fill and compaction	14 days	24/7/22	7/8/22		807	809
809	Reinstatement	1 day	7/8/22	8/8/22		808	811
810	**Team A CH420 to CH450 (35m)**	**38 days**	**8/8/22**	**15/9/22**			
811	TTA establishment	1 day	8/8/22	9/8/22		809	812
812	Hard material excavation and disposal	1 day	9/8/22	10/8/22		811	813
813	CE-068 _ Inclement Weather in August 2022	15 days	10/8/22	25/8/22		812	814
814	Soil excavation , laying sheetpile and disposal	3 days	25/8/22	28/8/22		813	815
815	Treatment of bedding	1 day	28/8/22	29/8/22		814	816
816	Pipe laying D.I.	2 days	29/8/22	31/8/22		815	817
817	Backfilling general fill and compaction	14 days	31/8/22	14/9/22		816	818
818	Reinstatement	1 day	14/9/22	15/9/22		817	820
819	**Team A CH410 to CH420 (10m)**	**13 days**	**15/9/22**	**28/9/22**			
820	TTA establishment	1 day	15/9/22	16/9/22		818	821
821	Hard material excavation and disposal	1 day	16/9/22	17/9/22		820	822
822	Soil excavation , laying sheetpile and disposal	1 day	17/9/22	18/9/22		821	823
823	Treatment of bedding	1 day	18/9/22	19/9/22		822	824
824	Pipe laying D.I.	1 day	19/9/22	20/9/22		823	825
825	Backfilling general fill and compaction	7 days	20/9/22	27/9/22		824	826
826	Reinstatement	1 day	27/9/22	28/9/22		825	828
827	**Team A CH450 to CH500 (50m)**	**19 days**	**28/9/22**	**17/10/22**			
828	TTA establishment	1 day	28/9/22	29/9/22		826	829
829	Hard material excavation and disposal	2 days	29/9/22	1/10/22		828	830
830	Soil excavation , laying sheetpile and disposal	4 days	1/10/22	5/10/22		829	831
831	Treatment of bedding	1 day	5/10/22	6/10/22		830	832
832	Pipe laying D.I.	3 days	6/10/22	9/10/22		831	833
833	Backfilling general fill and compaction	7 days	9/10/22	16/10/22		832	834
834	Reinstatement	1 day	16/10/22	17/10/22		833	836
835	**Team A CH400 to CH410 (10m)**	**23 days**	**17/10/22**	**9/11/22**			
836	TTA establishment	1 day	17/10/22	18/10/22		834	837
837	Hard material excavation and disposal	1 day	18/10/22	19/10/22		836	838
838	Soil excavation , laying sheetpile and disposal	4 days	19/10/22	23/10/22		837	839
839	Treatment of bedding	1 day	23/10/22	24/10/22		838	840
840	Pipe laying D.I.	1 day	24/10/22	25/10/22		839	841
841	Backfilling general fill and compaction	14 days	25/10/22	8/11/22		840	842
842	Reinstatement	1 day	8/11/22	9/11/22		841	844
843	**Team A CH370 to CH400 (30m)**	**28 days**	**9/11/22**	**7/12/22**			
844	TTA establishment	1 day	9/11/22	10/11/22		842	845
845	Hard material excavation and disposal	1 day	10/11/22	11/11/22		844	846
846	Soil excavation , laying sheetpile and disposal	7 days	11/11/22	18/11/22		845	847
847	Treatment of bedding	1 day	18/11/22	19/11/22		846	848
848	Pipe laying D.I.	3 days	19/11/22	22/11/22		847	849
849	Backfilling general fill and compaction	14 days	22/11/22	6/12/22		848	850
850	Reinstatement	1 day	6/12/22	7/12/22		849	852
851	**Team A CH500 to CH550 (50m)**	**30 days**	**7/12/22**	**6/1/23**			
852	TTA establishment	1 day	7/12/22	8/12/22		850	853
853	Hard material excavation and disposal	2 days	8/12/22	10/12/22		852	854
854	Soil excavation , laying sheetpile and disposal	7 days	10/12/22	17/12/22		853	855
855	Treatment of bedding	2 days	17/12/22	19/12/22		854	856
856	Pipe laying D.I.	2 days	19/12/22	21/12/22		855	857
857	Backfilling general fill and compaction	14 days	21/12/22	4/1/23		856	858
858	Reinstatement	2 days	4/1/23	6/1/23		857	860
859	**Team A CH550 to CH580 (30m)**	**29 days**	**6/1/23**	**4/2/23**			
860	TTA establishment	1 day	6/1/23	7/1/23		858	861
861	Hard material excavation and disposal	2 days	7/1/23	9/1/23		860	862
862	Soil excavation , laying sheetpile and disposal	7 days	9/1/23	16/1/23		861	863
863	Treatment of bedding	2 days	16/1/23	18/1/23		862	864
864	Pipe laying D.I.	2 days	18/1/23	20/1/23		863	865
865	Backfilling general fill and compaction	14 days	20/1/23	3/2/23		864	866
866	Reinstatement	1 day	3/2/23	4/2/23		865	868
867	**Team A CH580 to CH610 (30m)**	**30 days**	**4/2/23**	**6/3/23**			
868	TTA establishment	1 day	4/2/23	5/2/23		866	869
869	Hard material excavation and disposal	1 day	5/2/23	6/2/23		868	870
870	Soil excavation , laying sheetpile and disposal	10 days	6/2/23	16/2/23		869	871
871	Treatment of bedding	1 day	16/2/23	17/2/23		870	872
872	Pipe laying D.I.	2 days	17/2/23	19/2/23		871	873
873	Backfilling general fill and compaction	14 days	19/2/23	5/3/23		872	874
874	Reinstatement	1 day	5/3/23	6/3/23		873	876
875	**Team A CH610 to CH640 (30m)**	**30 days**	**6/3/23**	**5/4/23**			
876	TTA establishment	1 day	6/3/23	7/3/23		874	877
877	Hard material excavation and disposal	1 day	7/3/23	8/3/23		876	878
878	Soil excavation , laying sheetpile and disposal	10 days	8/3/23	18/3/23		877	879
879	Treatment of bedding	1 day	18/3/23	19/3/23		878	880
880	Pipe laying D.I.	2 days	19/3/23	21/3/23		879	881
881	Backfilling general fill and compaction	14 days	21/3/23	4/4/23		880	882
882	Reinstatement	1 day	4/4/23	5/4/23		881	



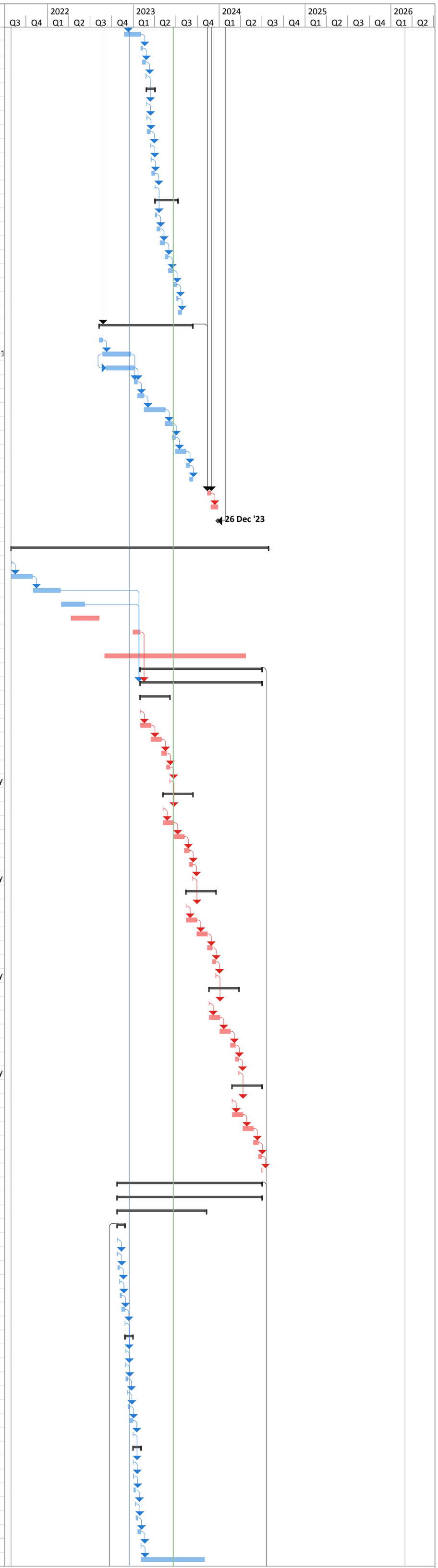
Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 2023)

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
883	**Team A CH640 to CH680 (40m) _ re-alignmet**	**30 days**	**9/1/23**	**7/2/23**			
884	TTA establishment	1 day	9/1/23	9/1/23			885
885	Hard material excavation and disposal	1 day	10/1/23	10/1/23		884	886
886	Soil excavation , laying sheetpile and disposal	10 days	11/1/23	20/1/23		885	887
887	Treatment of bedding	1 day	21/1/23	21/1/23		886	888
888	Pipe laying D.I.	2 days	22/1/23	23/1/23		887	889
889	Backfilling general fill and compaction	14 days	24/1/23	6/2/23		888	890
890	Reinstatement	1 day	7/2/23	7/2/23		889	892
891	**Team A CH680 to CH740 (60m) _ re-alignmet**	**23 days**	**8/2/23**	**2/3/23**			
892	TTA establishment	1 day	8/2/23	8/2/23		890	893
893	Hard material excavation and disposal	1 day	9/2/23	9/2/23		892	894
894	Soil excavation , laying sheetpile and disposal	3 days	10/2/23	12/2/23		893	895
895	Treatment of bedding	1 day	13/2/23	13/2/23		894	896
896	Pipe laying D.I.	2 days	14/2/23	15/2/23		895	897
897	Backfilling general fill and compaction	14 days	16/2/23	1/3/23		896	898
898	Reinstatement	1 day	2/3/23	2/3/23		897	900
899	**Team A CH740 to CH770 (30m) _ re-alignmet**	**30 days**	**3/3/23**	**1/4/23**			
900	TTA establishment	1 day	3/3/23	3/3/23		898	901
901	Hard material excavation and disposal	1 day	4/3/23	4/3/23		900	902
902	Soil excavation , laying sheetpile and disposal	10 days	5/3/23	14/3/23		901	903
903	Treatment of bedding	1 day	15/3/23	15/3/23		902	904
904	Pipe laying D.I.	2 days	16/3/23	17/3/23		903	905
905	Backfilling general fill and compaction	14 days	18/3/23	31/3/23		904	906
906	Reinstatement	1 day	1/4/23	1/4/23		905	908
907	**Team A CH770 to CH810 (30m) _ re-alignmet**	**30 days**	**2/4/23**	**1/5/23**			
908	TTA establishment	1 day	2/4/23	2/4/23		906	909
909	Hard material excavation and disposal	1 day	3/4/23	3/4/23		908	910
910	Soil excavation , laying sheetpile and disposal	10 days	4/4/23	13/4/23		909	911
911	Treatment of bedding	1 day	14/4/23	14/4/23		910	912
912	Pipe laying D.I.	2 days	15/4/23	16/4/23		911	913
913	Backfilling general fill and compaction	14 days	17/4/23	30/4/23		912	914
914	Reinstatement	1 day	1/5/23	1/5/23		913	916
915	**Team A CH810 to CH850 (30m) _ re-alignmet**	**30 days**	**2/5/23**	**31/5/23**			**923**
916	TTA establishment	1 day	2/5/23	2/5/23		914	917
917	Hard material excavation and disposal	1 day	3/5/23	3/5/23		916	918
918	Soil excavation , laying sheetpile and disposal	10 days	4/5/23	13/5/23		917	919
919	Treatment of bedding	1 day	14/5/23	14/5/23		918	920
920	Pipe laying D.I.	2 days	15/5/23	16/5/23		919	921
921	Backfilling general fill and compaction	14 days	17/5/23	30/5/23		920	922
922	Reinstatement	1 day	31/5/23	31/5/23		921	
923	Pressure test, swabbing and CCTV	15 days	1/6/23	15/6/23		915	
924	**CH850 to CH1130 (280m)**	**315 days**	**1/1/23**	**11/11/23**			**1027**
925	**Team A1 CH1115 to CH1130 (15m)**	**35 days**	**1/1/23**	**4/2/23**			
926	TTA establishment	1 day	1/1/23	1/1/23			927
927	Hard material excavation and disposal	1 day	2/1/23	2/1/23		926	928
928	Soil excavation , laying sheetpile and disposal	7 days	3/1/23	9/1/23		927	929
929	Treatment of bedding	2 days	10/1/23	11/1/23		928	930
930	Pipe laying D.I.	7 days	12/1/23	18/1/23		929	931
931	Backfilling general fill and compaction	14 days	19/1/23	1/2/23		930	932
932	Reinstatement	3 days	2/2/23	4/2/23		931	934
933	**Team A1 CH1130 to CH1145 (15m)**	**35 days**	**5/2/23**	**11/3/23**			
934	TTA establishment	1 day	5/2/23	5/2/23		932	935
935	Hard material excavation and disposal	1 day	6/2/23	6/2/23		934	936
936	Soil excavation , laying sheetpile and disposal	7 days	7/2/23	13/2/23		935	937
937	Treatment of bedding	2 days	14/2/23	15/2/23		936	938
938	Pipe laying D.I.	7 days	16/2/23	22/2/23		937	939
939	Backfilling general fill and compaction	14 days	23/2/23	8/3/23		938	940
940	Reinstatement	3 days	9/3/23	11/3/23		939	941
941	Team A1 CH850 to CH1115 (265m)	230 days	12/3/23	27/10/23		940	942
942	Pressure test, swabbing and CCTV	15 days	28/10/23	11/11/23		941	
943	**CH000 to CH370 (370m)**	**533.5 days**	**7/2/22**	**25/7/23**			**1027**
944	**Team B CH220 to CH245 (25m)**	**144.5 days**	**7/2/22**	**1/7/22**			
945	Pending for release of TTA from other Contractor	102 days	7/2/22	19/5/22			946
946	TTA establishment	1 day	20/5/22	20/5/22		945	947
947	Hard material excavation and disposal	1 day	21/5/22	21/5/22		946	948
948	CE-052 _ Inclement Weather in May 2022 (under assessment)	6 days	22/5/22	27/5/22		947	949
949	Soil excavation , laying sheetpile and disposal	7 days	28/5/22	3/6/22		948	950
950	Treatment of bedding	3 days	4/6/22	6/6/22		949	951
951	Pipe laying D.I.	3 days	7/6/22	9/6/22		950	952
952	Backfilling general fill and compaction	14 days	10/6/22	23/6/22		951	953
953	CE-053 _ Inclement Weather in June 2022 (under assessment)	6.5 days	24/6/22	30/6/22		952	954
954	Reinstatement	1 day	30/6/22	1/7/22		953	956
955	**Team B CH190 to CH220 (30m)**	**22 days**	**1/7/22**	**23/7/22**			
956	TTA establishment	1 day	1/7/22	2/7/22		954	957
957	Hard material excavation and disposal	1 day	2/7/22	3/7/22		956	958
958	Soil excavation , laying sheetpile and disposal	3 days	3/7/22	6/7/22		957	959
959	Treatment of bedding	1 day	6/7/22	7/7/22		958	960
960	Pipe laying D.I.	1 day	7/7/22	8/7/22		959	962,961
961	CE-054 _ Inclement Weather in July 2022 (under assessment)	4 days	8/7/22	12/7/22		960	
962	Backfilling general fill and compaction	14 days	8/7/22	22/7/22		960	963
963	Reinstatement	1 day	22/7/22	23/7/22		962	965
964	**Team B CH245 to CH285 (40m)**	**20 days**	**23/7/22**	**12/8/22**			
965	TTA establishment	1 day	23/7/22	24/7/22		963	966
966	Hard material excavation and disposal	1 day	24/7/22	25/7/22		965	967
967	Soil excavation , laying sheetpile and disposal	7 days	25/7/22	1/8/22		966	968
968	Treatment of bedding	1 day	1/8/22	2/8/22		967	969
969	Pipe laying D.I.	2 days	2/8/22	4/8/22		968	970
970	Backfilling general fill and compaction	7 days	4/8/22	11/8/22		969	971
971	Reinstatement	1 day	11/8/22	12/8/22		970	973
972	**Team B CH285 to CH315 (30m)**	**42 days**	**12/8/22**	**23/9/22**			
973	TTA establishment	1 day	12/8/22	13/8/22		971	974
974	Hard material excavation and disposal	1 day	13/8/22	14/8/22		973	975
975	Soil excavation , laying sheetpile and disposal	5 days	14/8/22	19/8/22		974	976
976	CE-068 _ Inclement Weather in August 2022	15 days	19/8/22	3/9/22		975	977
977	Treatment of bedding	2 days	3/9/22	5/9/22		976	978
978	Pipe laying D.I.	3 days	5/9/22	8/9/22		977	979
979	Backfilling general fill and compaction	14 days	8/9/22	22/9/22		978	980
980	Reinstatement	1 day	22/9/22	23/9/22		979	982
981	**Team B CH315 to CH340 (25m)**	**25 days**	**23/9/22**	**18/10/22**			
982	TTA establishment	1 day	23/9/22	24/9/22		980	983
983	Hard material excavation and disposal	1 day	24/9/22	25/9/22		982	984
984	Soil excavation , laying sheetpile and disposal	4 days	25/9/22	29/9/22		983	985
985	Treatment of bedding	1 day	29/9/22	30/9/22		984	986
986	Pipe laying D.I.	3 days	30/9/22	3/10/22		985	987
987	Backfilling general fill and compaction	14 days	3/10/22	17/10/22		986	988
988	Reinstatement	1 day	17/10/22	18/10/22		987	990
989	**Team B CH0 to CH150 (150m)**	**130 days**	**18/10/22**	**25/2/23**			
990	TTA establishment	1 day	18/10/22	19/10/22		988	991
991	Hard material excavation and disposal	7 days	19/10/22	26/10/22		990	992
992	Soil excavation , laying sheetpile and disposal	21 days	26/10/22	16/11/22		991	993
993	Treatment of bedding	7 days	16/11/22	23/11/22		992	994



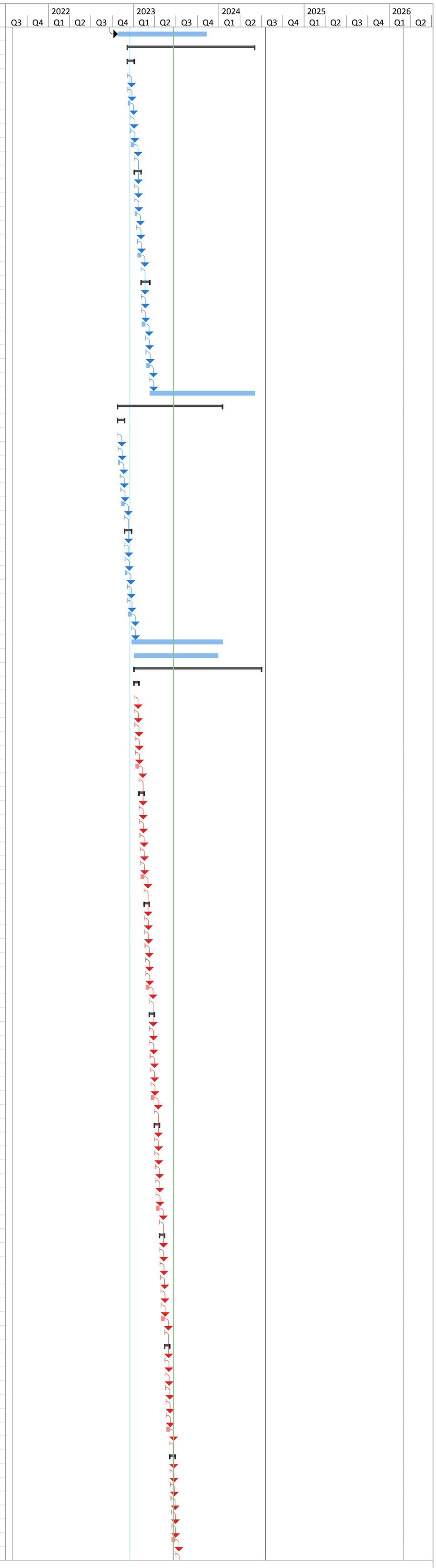
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
994	Pending for confirmation of design alignment	70 days	23/11/22	1/2/23		993	995
995	Pipe laying D.I.	7 days	1/2/23	8/2/23		994	996
996	Backfilling gerneral fill and compaction	14 days	8/2/23	22/2/23		995	997
997	Reinstatement	3 days	22/2/23	25/2/23		996	999
998	**Team B CH150 to CH190 (40m)**	**37 days**	**25/2/23**	**3/4/23**			
999	TTA establishment	1 day	25/2/23	26/2/23		997	1000
1000	Hard material excavation and disposal	2 days	26/2/23	28/2/23		999	1001
1001	Soil excavation , laying sheetpile and disposal	14 days	28/2/23	14/3/23		1000	1002
1002	Treatment of bedding	2 days	14/3/23	16/3/23		1001	1003
1003	Pipe laying D.I.	3 days	16/3/23	19/3/23		1002	1004
1004	Backfilling general fill and compaction	14 days	19/3/23	2/4/23		1003	1005
1005	Reinstatement	1 day	2/4/23	3/4/23		1004	1007
1006	**Team B CH340 to CH370 (30m)**	**98 days**	**3/4/23**	**10/7/23**			
1007	TTA establishment	7 days	3/4/23	10/4/23		1005	1008
1008	Hard material excavation and disposal	14 days	10/4/23	24/4/23		1007	1009
1009	Soil excavation , laying sheetpile and disposal	21 days	24/4/23	15/5/23		1008	1010
1010	Treatment of bedding	14 days	15/5/23	29/5/23		1009	1011
1011	Pipe laying D.I.	21 days	29/5/23	19/6/23		1010	1012
1012	Backfilling general fill and compaction	14 days	19/6/23	3/7/23		1011	1013
1013	Reinstatement	7 days	3/7/23	10/7/23		1012	1014
1014	Pressure test, swabbing and CCTV	15 days	10/7/23	25/7/23		1013	
1015	**CH710 to CH970 (260m) -within the scope of Shueng Shui Hueng**	**399 days**	**8/8/22**	**11/9/23**		**797**	**1027**
1016	CE-068 _ Inclement Weather in August 2022	15 days	8/8/22	23/8/22			1017
1017	Pending agreement of Shueng Shui Hueng villagers	120 days	23/8/22	21/12/22		1016	1019,1018SS+1
1018	XP application for alternative alignment of watermain	120 days	6/9/22	4/1/23		1017SS+14 days	1019
1019	TTA establishment	14 days	4/1/23	18/1/23		1017,1018	1020
1020	Hard material excavation and disposal	28 days	18/1/23	15/2/23		1019	1021
1021	Soil excavation , laying sheetpile and disposal	90 days	15/2/23	16/5/23		1020	1022
1022	Treatment of bedding	30 days	16/5/23	15/6/23		1021	1023
1023	Pipe laying D.I.	14 days	15/6/23	29/6/23		1022	1024
1024	Backfilling general fill and compaction	45 days	29/6/23	13/8/23		1023	1025
1025	Reinstatement	14 days	13/8/23	27/8/23		1024	1026
1026	Pressure test, swabbing and CCTV	15 days	27/8/23	11/9/23		1025	
1027	Overall pressure testing	15 days	12/11/23	26/11/23		796,943,1015,9	1028
1028	Pipe connection and completion	30 days	27/11/23	26/12/23		1027	
1029	Planned completion for section 4	0 days	26/12/23	26/12/23		595FF	
1030							
1031	**Section 5 - Water main laying works in part 4 of the Site**	**1096 days**	**30/7/21**	**29/7/24**			
1032	Access Date (part 4 of the Site)	1 day	30/7/21	30/7/21			1033
1033	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1032	1034
1034	Application and approval of XP and TTA	116 days	1/11/21	24/2/22		1033	1040
1035	Procurement and Delivery of pipes, fittings and related materials	100 days	28/2/22	7/6/22			1040
1036	Submission and acceptance of method statement and material	120 days	11/4/22	8/8/22			
1037	Submission and acceptance of method statement and temp work design for trenchless works	30 days	31/12/22	29/1/23			1040
1038	Excavation of Inspection Pit	600 days	1/9/22	22/4/24			
1039	**Mainlaying by trenchless method (RW04)**	**519 days**	**30/1/23**	**1/7/24**			**1251**
1040	**RW04 : DN450 DI pipe (trenchless)**	**519 days**	**30/1/23**	**1/7/24**	**60**	**1034,1035,1037**	
1041	**Wo Tai Street (70m) - TBM Method**	**127 days**	**30/1/23**	**5/6/23**			
1042	TTA implementation	1 day	30/1/23	30/1/23			1043
1043	Contruction of jacking pit and receiving pit	45 days	31/1/23	16/3/23		1042	1044
1044	Trenchless works and pipe laying	45 days	17/3/23	30/4/23		1043	1045
1045	Manhole / Chamber construction	21 days	1/5/23	21/5/23		1044	1046
1046	Backfilling and compaction	14 days	22/5/23	4/6/23		1045	1047
1047	Reinstatement	1 day	5/6/23	5/6/23		1046	1049FS-30 day
1048	**Ma Sik Road (70m) - TBM Method**	**128 days**	**7/5/23**	**11/9/23**			
1049	TTA implementation	1 day	7/5/23	7/5/23		1047FS-30 days	1050
1050	Contruction of jacking pit and receiving pit	45 days	8/5/23	21/6/23		1049	1051
1051	Trenchless works and pipe laying	45 days	22/6/23	5/8/23		1050	1052
1052	Manhole / Chamber construction	21 days	6/8/23	26/8/23		1051	1053
1053	Backfilling and compaction	14 days	27/8/23	9/9/23		1052	1054
1054	Reinstatement	2 days	10/9/23	11/9/23		1053	1056FS-30 day
1055	**Luen Chit Street (70m) - TBM Method**	**128 days**	**13/8/23**	**18/12/23**			
1056	TTA implementation	1 day	13/8/23	13/8/23		1054FS-30 days	1057
1057	Contruction of jacking pit and receiving pit	45 days	14/8/23	27/9/23		1056	1058
1058	Trenchless works and pipe laying	45 days	28/9/23	11/11/23		1057	1059
1059	Manhole / Chamber construction	21 days	12/11/23	2/12/23		1058	1060
1060	Backfilling and compaction	14 days	3/12/23	16/12/23		1059	1061
1061	Reinstatement	2 days	17/12/23	18/12/23		1060	1063FS-30 day
1062	**Luen Sum Road (70m) - TBM Method**	**128 days**	**19/11/23**	**25/3/24**			
1063	TTA implementation	1 day	19/11/23	19/11/23		1061FS-30 days	1064
1064	Contruction of jacking pit and receiving pit	45 days	20/11/23	3/1/24		1063	1065
1065	Trenchless works and pipe laying	45 days	4/1/24	17/2/24		1064	1066
1066	Manhole / Chamber construction	21 days	18/2/24	9/3/24		1065	1067
1067	Backfilling and compaction	14 days	10/3/24	23/3/24		1066	1068
1068	Reinstatement	2 days	24/3/24	25/3/24		1067	1070FS-30 day
1069	**Fanling Lau Road (70m) - TBM Method**	**128 days**	**25/2/24**	**1/7/24**			
1070	TTA implementation	1 day	25/2/24	25/2/24		1068FS-30 days	1071
1071	Contruction of jacking pit and receiving pit	45 days	26/2/24	10/4/24		1070	1072
1072	Trenchless works and pipe laying	45 days	11/4/24	25/5/24		1071	1073
1073	Manhole / Chamber construction	21 days	26/5/24	15/6/24		1072	1074
1074	Backfilling and compaction	14 days	16/6/24	29/6/24		1073	1075
1075	Reinstatement	2 days	30/6/24	1/7/24		1074	
1076	**Mainlaying by open trench method (RW04)**	**617 days**	**24/10/22**	**1/7/24**			**1251**
1077	**RW04 : DN450 DI Pipe**	**617 days**	**24/10/22**	**1/7/24**			
1078	Ma Sik Road CH1400 to CH1700 (300m) (XP ID: 1301142, 1301146, 1301149)	381 days	24/10/22	8/11/23			
1079	CH1420 to CH1450 (30m)	34 days	24/10/22	26/11/22			1104SS
1080	TTA establishment	1 day	24/10/22	24/10/22			1081
1081	Hard material excavation and disposal	2 days	25/10/22	26/10/22		1080	1082
1082	Soil excavation , laying sheetpile and disposal	7 days	27/10/22	2/11/22		1081	1083
1083	Treatment of bedding	2 days	3/11/22	4/11/22		1082	1084
1084	Pipe laying D.I.	7 days	5/11/22	11/11/22		1083	1085
1085	Backfilling general fill and compaction	14 days	12/11/22	25/11/22		1084	1086
1086	Reinstatement	1 day	26/11/22	26/11/22		1085	1088
1087	CH1450 to CH1480 (30m)	34 days	27/11/22	30/12/22			
1088	TTA establishment	1 day	27/11/22	27/11/22		1086	1089
1089	Hard material excavation and disposal	2 days	28/11/22	29/11/22		1088	1090
1090	Soil excavation , laying sheetpile and disposal	7 days	30/11/22	6/12/22		1089	1091
1091	Treatment of bedding	2 days	7/12/22	8/12/22		1090	1092
1092	Pipe laying D.I.	7 days	9/12/22	15/12/22		1091	1093
1093	Backfilling general fill and compaction	14 days	16/12/22	29/12/22		1092	1094
1094	Reinstatement	1 day	30/12/22	30/12/22		1093	1096
1095	CH910 to CH960 (50m)	34 days	31/12/22	2/2/23			
1096	TTA establishment	1 day	31/12/22	31/12/22		1094	1097
1097	Hard material excavation and disposal	2 days	1/1/23	2/1/23		1096	1098
1098	Soil excavation , laying sheetpile and disposal	7 days	3/1/23	9/1/23		1097	1099
1099	Treatment of bedding	2 days	10/1/23	11/1/23		1098	1100
1100	Pipe laying D.I.	7 days	12/1/23	18/1/23		1099	1101
1101	Backfilling general fill and compaction	14 days	19/1/23	1/2/23		1100	1102
1102	Reinstatement	1 day	2/2/23	2/2/23		1101	1103
1103	CH1490 to 1700 (210m)	270 days	3/2/23	30/10/23	60	1102	



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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

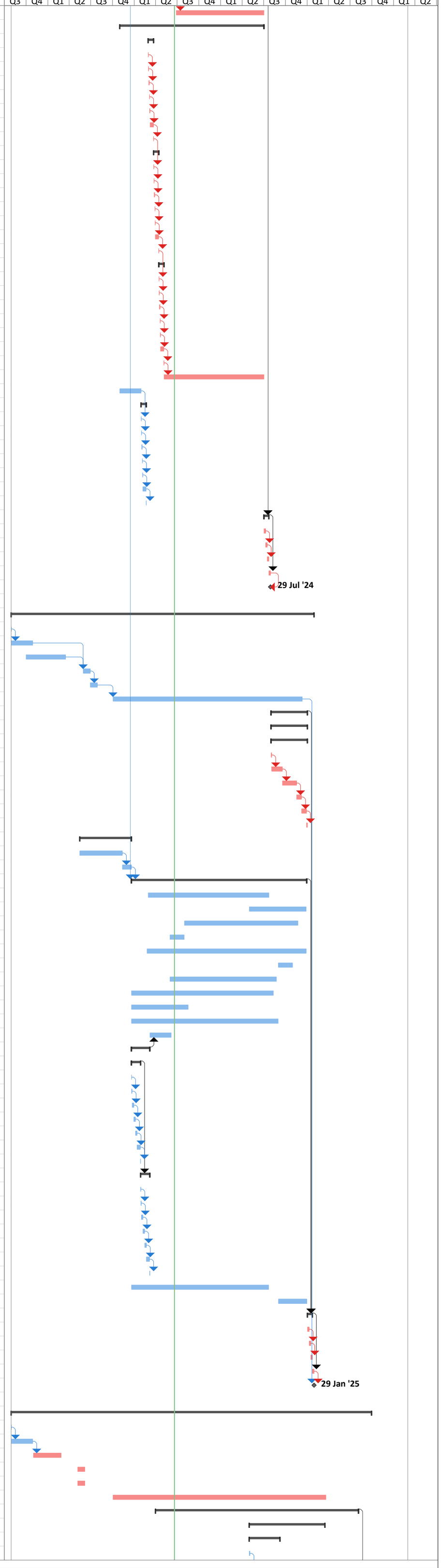
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1104	Construction of valve chambers	381 days	24/10/22	8/11/23		1079SS	
1105	Ma Sik Road CH1700 to CH2180 (480m) (XP ID: 1301142, 1301146, 1301149)	546 days	5/12/22	2/6/24			
1106	CH1920 to CH1950 (30m)	30 days	5/12/22	3/1/23			
1107	TTA establishment	1 day	5/12/22	5/12/22			1108
1108	Hard material excavation and disposal	2 days	6/12/22	7/12/22		1107	1109
1109	Soil excavation , laying sheetpile and disposal	7 days	8/12/22	14/12/22		1108	1110
1110	Treatment of bedding	2 days	15/12/22	16/12/22		1109	1111
1111	Pipe laying D.I.	3 days	17/12/22	19/12/22		1110	1112
1112	Backfilling general fill and compaction	14 days	20/12/22	2/1/23		1111	1113
1113	Reinstatement	1 day	3/1/23	3/1/23		1112	1115
1114	CH1950 to CH1990 (40m)	29 days	4/1/23	1/2/23			
1115	TTA establishment	1 day	4/1/23	4/1/23		1113	1116
1116	Hard material excavation and disposal	1 day	5/1/23	5/1/23		1115	1117
1117	Soil excavation , laying sheetpile and disposal	7 days	6/1/23	12/1/23		1116	1118
1118	Treatment of bedding	2 days	13/1/23	14/1/23		1117	1119
1119	Pipe laying D.I.	3 days	15/1/23	17/1/23		1118	1120
1120	Backfilling general fill and compaction	14 days	18/1/23	31/1/23		1119	1121
1121	Reinstatement	1 day	1/2/23	1/2/23		1120	1123
1122	CH1990 to CH2020 (30m)	37 days	2/2/23	10/3/23			
1123	TTA establishment	1 day	2/2/23	2/2/23		1121	1124
1124	Hard material excavation and disposal	2 days	3/2/23	4/2/23		1123	1125
1125	Soil excavation , laying sheetpile and disposal	14 days	5/2/23	18/2/23		1124	1126
1126	Treatment of bedding	2 days	19/2/23	20/2/23		1125	1127
1127	Pipe laying D.I.	3 days	21/2/23	23/2/23		1126	1128
1128	Backfilling general fill and compaction	14 days	24/2/23	9/3/23		1127	1129
1129	Reinstatement	1 day	10/3/23	10/3/23		1128	1130
1130	CH1790 to 2180 (390m)	450 days	11/3/23	2/6/24	60	1129	
1131	Ma Sik Road CH2180 to CH2400 (220m) (XP ID: 1301142, 1301146, 1301149)	450 days	24/10/22	16/1/24			
1132	CH2210 to CH2240 (30m)	30 days	24/10/22	22/11/22			
1133	TTA establishment	1 day	24/10/22	24/10/22			1134
1134	Hard material excavation and disposal	2 days	25/10/22	26/10/22		1133	1135
1135	Soil excavation , laying sheetpile and disposal	7 days	27/10/22	2/11/22		1134	1136
1136	Treatment of bedding	2 days	3/11/22	4/11/22		1135	1137
1137	Pipe laying D.I.	3 days	5/11/22	7/11/22		1136	1138
1138	Backfilling general fill and compaction	14 days	8/11/22	21/11/22		1137	1139
1139	Reinstatement	1 day	22/11/22	22/11/22		1138	1141
1140	CH2240 to CH2270 (30m)	30 days	23/11/22	22/12/22			
1141	TTA establishment	1 day	23/11/22	23/11/22		1139	1142
1142	Hard material excavation and disposal	2 days	24/11/22	25/11/22		1141	1143
1143	Soil excavation , laying sheetpile and disposal	7 days	26/11/22	2/12/22		1142	1144
1144	Treatment of bedding	2 days	3/12/22	4/12/22		1143	1145
1145	Pipe laying D.I.	3 days	5/12/22	7/12/22		1144	1146
1146	Backfilling general fill and compaction	14 days	8/12/22	21/12/22		1145	1147
1147	Reinstatement	1 day	22/12/22	22/12/22		1146	1148
1148	CH2270 to CH2400 (130m)	390 days	23/12/22	16/1/24	60	1147	
1149	Ma Sik Road CH2400 to CH2600 (200m) (XP ID: 1301142, 1301146, 1301149)	360 days	3/1/23	28/12/23			
1150	Tin Ping Road (1377m) (XP ID: 1309070, 1310475)	547 days	2/1/23	1/7/24			
1151	CH450 to CH480 (30m)	22 days	2/1/23	23/1/23			
1152	TTA establishment	1 day	2/1/23	2/1/23			1153
1153	Hard material excavation and disposal	1 day	3/1/23	3/1/23		1152	1154
1154	Soil excavation , laying sheetpile and disposal	3 days	4/1/23	6/1/23		1153	1155
1155	Treatment of bedding	1 day	7/1/23	7/1/23		1154	1156
1156	Pipe laying D.I.	1 day	8/1/23	8/1/23		1155	1157
1157	Backfilling general fill and compaction	14 days	9/1/23	22/1/23		1156	1158
1158	Reinstatement	1 day	23/1/23	23/1/23		1157	1160
1159	CH480 to CH510 (30m)	22 days	24/1/23	14/2/23			
1160	TTA establishment	1 day	24/1/23	24/1/23		1158	1161
1161	Hard material excavation and disposal	1 day	25/1/23	25/1/23		1160	1162
1162	Soil excavation , laying sheetpile and disposal	3 days	26/1/23	28/1/23		1161	1163
1163	Treatment of bedding	1 day	29/1/23	29/1/23		1162	1164
1164	Pipe laying D.I.	1 day	30/1/23	30/1/23		1163	1165
1165	Backfilling general fill and compaction	14 days	31/1/23	13/2/23		1164	1166
1166	Reinstatement	1 day	14/2/23	14/2/23		1165	1168
1167	CH510 to CH540 (30m)	22 days	15/2/23	8/3/23			
1168	TTA establishment	1 day	15/2/23	15/2/23		1166	1169
1169	Hard material excavation and disposal	1 day	16/2/23	16/2/23		1168	1170
1170	Soil excavation , laying sheetpile and disposal	3 days	17/2/23	19/2/23		1169	1171
1171	Treatment of bedding	1 day	20/2/23	20/2/23		1170	1172
1172	Pipe laying D.I.	1 day	21/2/23	21/2/23		1171	1173
1173	Backfilling general fill and compaction	14 days	22/2/23	7/3/23		1172	1174
1174	Reinstatement	1 day	8/3/23	8/3/23		1173	1176
1175	CH540 to CH570 (30m)	22 days	9/3/23	30/3/23			
1176	TTA establishment	1 day	9/3/23	9/3/23		1174	1177
1177	Hard material excavation and disposal	1 day	10/3/23	10/3/23		1176	1178
1178	Soil excavation , laying sheetpile and disposal	3 days	11/3/23	13/3/23		1177	1179
1179	Treatment of bedding	1 day	14/3/23	14/3/23		1178	1180
1180	Pipe laying D.I.	1 day	15/3/23	15/3/23		1179	1181
1181	Backfilling general fill and compaction	14 days	16/3/23	29/3/23		1180	1182
1182	Reinstatement	1 day	30/3/23	30/3/23		1181	1184
1183	CH570 to CH610 (30m)	22 days	31/3/23	21/4/23			
1184	TTA establishment	1 day	31/3/23	31/3/23		1182	1185
1185	Hard material excavation and disposal	1 day	1/4/23	1/4/23		1184	1186
1186	Soil excavation , laying sheetpile and disposal	3 days	2/4/23	4/4/23		1185	1187
1187	Treatment of bedding	1 day	5/4/23	5/4/23		1186	1188
1188	Pipe laying D.I.	1 day	6/4/23	6/4/23		1187	1189
1189	Backfilling general fill and compaction	14 days	7/4/23	20/4/23		1188	1190
1190	Reinstatement	1 day	21/4/23	21/4/23		1189	1192
1191	CH610 to CH640 (30m)	22 days	22/4/23	13/5/23			
1192	TTA establishment	1 day	22/4/23	22/4/23		1190	1193
1193	Hard material excavation and disposal	1 day	23/4/23	23/4/23		1192	1194
1194	Soil excavation , laying sheetpile and disposal	3 days	24/4/23	26/4/23		1193	1195
1195	Treatment of bedding	1 day	27/4/23	27/4/23		1194	1196
1196	Pipe laying D.I.	1 day	28/4/23	28/4/23		1195	1197
1197	Backfilling general fill and compaction	14 days	29/4/23	12/5/23		1196	1198
1198	Reinstatement	1 day	13/5/23	13/5/23		1197	1200
1199	CH640 to CH670 (30m)	22 days	14/5/23	4/6/23			
1200	TTA establishment	1 day	14/5/23	14/5/23		1198	1201
1201	Hard material excavation and disposal	1 day	15/5/23	15/5/23		1200	1202
1202	Soil excavation , laying sheetpile and disposal	3 days	16/5/23	18/5/23		1201	1203
1203	Treatment of bedding	1 day	19/5/23	19/5/23		1202	1204
1204	Pipe laying D.I.	1 day	20/5/23	20/5/23		1203	1205
1205	Backfilling general fill and compaction	14 days	21/5/23	3/6/23		1204	1206
1206	Reinstatement	1 day	4/6/23	4/6/23		1205	1208
1207	CH670 to CH710 (30m)	23 days	5/6/23	27/6/23			
1208	TTA establishment	1 day	5/6/23	5/6/23		1206	1209
1209	Hard material excavation and disposal	2 days	6/6/23	7/6/23		1208	1210
1210	Soil excavation , laying sheetpile and disposal	3 days	8/6/23	10/6/23		1209	1211
1211	Treatment of bedding	1 day	11/6/23	11/6/23		1210	1212
1212	Pipe laying D.I.	1 day	12/6/23	12/6/23		1211	1213
1213	Backfilling general fill and compaction	14 days	13/6/23	26/6/23		1212	1214
1214	Reinstatement	1 day	27/6/23	27/6/23		1213	1215



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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		

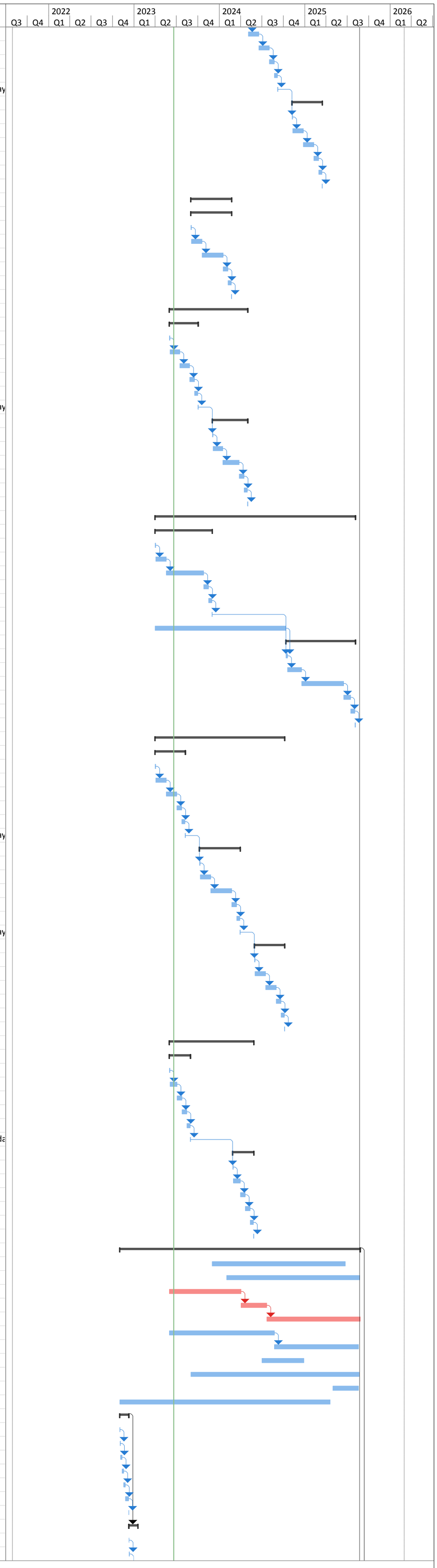
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1215	Remaining Section of Tin Ping Road (1287m)	370 days	28/6/23	1/7/24		1214	
1216	Sha Tau Kok Road (869m)	609 days	1/11/22	1/7/24			
1217	CH3580 to CH3550 (30m)	23 days	1/3/23	23/3/23			
1218	TTA establishment	1 day	1/3/23	1/3/23			1219
1219	Hard material excavation and disposal	1 day	2/3/23	2/3/23		1218	1220
1220	Soil excavation , laying sheetpile and disposal	3 days	3/3/23	5/3/23		1219	1221
1221	Treatment of bedding	1 day	6/3/23	6/3/23		1220	1222
1222	Pipe laying D.I.	2 days	7/3/23	8/3/23		1221	1223
1223	Backfilling general fill and compaction	14 days	9/3/23	22/3/23		1222	1224
1224	Reinstatement	1 day	23/3/23	23/3/23		1223	1226
1225	CH3550 to CH3520 (30m)	22 days	24/3/23	14/4/23			
1226	TTA establishment	1 day	24/3/23	24/3/23		1224	1227
1227	Hard material excavation and disposal	1 day	25/3/23	25/3/23		1226	1228
1228	Soil excavation , laying sheetpile and disposal	3 days	26/3/23	28/3/23		1227	1229
1229	Treatment of bedding	1 day	29/3/23	29/3/23		1228	1230
1230	Pipe laying D.I.	1 day	30/3/23	30/3/23		1229	1231
1231	Backfilling general fill and compaction	14 days	31/3/23	13/4/23		1230	1232
1232	Reinstatement	1 day	14/4/23	14/4/23		1231	1234
1233	CH3520 to CH3490 (30m)	22 days	15/4/23	6/5/23			
1234	TTA establishment	1 day	15/4/23	15/4/23		1232	1235
1235	Hard material excavation and disposal	1 day	16/4/23	16/4/23		1234	1236
1236	Soil excavation , laying sheetpile and disposal	3 days	17/4/23	19/4/23		1235	1237
1237	Treatment of bedding	1 day	20/4/23	20/4/23		1236	1238
1238	Pipe laying D.I.	1 day	21/4/23	21/4/23		1237	1239
1239	Backfilling general fill and compaction	14 days	22/4/23	5/5/23		1238	1240
1240	Reinstatement	1 day	6/5/23	6/5/23		1239	1241
1241	Remaining Section of Sha Tau Kok Road	422 days	7/5/23	1/7/24		1240	
1242	Interface coordination with Contract ND/2019/04	90 days	1/11/22	29/1/23			1244
1243	CH2600 to CH2800 (200m)	22 days	30/1/23	20/2/23			
1244	TTA establishment	1 day	30/1/23	30/1/23		1242	1245
1245	Hard material excavation and disposal	1 day	31/1/23	31/1/23		1244	1246
1246	Soil excavation , laying sheetpile and disposal	3 days	1/2/23	3/2/23		1245	1247
1247	Treatment of bedding	1 day	4/2/23	4/2/23		1246	1248
1248	Pipe laying D.I.	1 day	5/2/23	5/2/23		1247	1249
1249	Backfilling general fill and compaction	14 days	6/2/23	19/2/23		1248	1250
1250	Reinstatement	1 day	20/2/23	20/2/23		1249	
1251	**Overall testing**	**21 days**	**2/7/24**	**22/7/24**		**1039,1076**	**1255**
1252	Swabbing	7 days	2/7/24	8/7/24			1253
1253	CCTV	7 days	9/7/24	15/7/24		1252	1254
1254	Hydrostatic pressure test	7 days	16/7/24	22/7/24		1253	
1255	Pipe connection and completion	7 days	23/7/24	29/7/24		1251	1256FF
1256	Planned completion for section 5	0 days	29/7/24	29/7/24		1255FF	
1257							
1258	**Section 6 - Water main laying works in part 5 of the Site**	**1280 days**	**30/7/21**	**29/1/25**			
1259	Access Date (part 5 of the Site)	1 day	30/7/21	30/7/21			1260
1260	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1259	1262
1261	Application and approval of XP and TTA	167 days	1/10/21	16/3/22			1262
1262	Procurement and Delivery of pipes, fittings and related materials	30 days	30/5/22	28/6/22		1260,1261	1263
1263	Submission and acceptance of method statement and material	30 days	29/6/22	28/7/22		1262	1264
1264	Excavation of Inspection Pit	800 days	3/10/22	10/12/24		1263	1313
1265	**Mainlaying by trenchless method**	**154 days**	**1/8/24**	**1/1/25**			**1308**
1266	**RW06 : DN300 DI pipe (trenchless)**	**154 days**	**1/8/24**	**1/1/25**			
1267	**Jocky Club Road (100m) - TBM Method**	**154 days**	**1/8/24**	**1/1/25**			
1268	TTA implementation	3 days	1/8/24	3/8/24			1269
1269	Contruction of jacking pit and receiving pit	45 days	4/8/24	17/9/24		1268	1270
1270	Trenchless works and pipe laying	60 days	18/9/24	16/11/24		1269	1271
1271	Manhole / Chamber construction	21 days	17/11/24	7/12/24		1270	1272
1272	Backfilling and compaction	21 days	8/12/24	28/12/24		1271	1273
1273	Reinstatement	4 days	29/12/24	1/1/25		1272	
1274	**Contractor's Design and Construction of distribution mains**	**218 days**	**16/5/22**	**19/12/22**			
1275	Submission and acceptance of detailed design proposal	180 days	16/5/22	11/11/22			1276
1276	Site investigation and liaison with relevant parties	38 days	12/11/22	19/12/22		1275	1277
1277	**Mainlaying by open trench method (XP ID: 1301135, 1301136)**	**741 days**	**20/12/22**	**29/12/24**		**1276,61**	**1308**
1278	RW41 (DN150) - Sheung Shui Tung Hing Road (288m)	510 days	1/3/23	22/7/24			
1279	RW42 (DN150) - No name road in Sheung Shui Heung (210m)	240 days	1/5/24	26/12/24			
1280	RW71 (DN150) - Jockey Club Road (308m)	480 days	1/8/23	22/11/24			
1281	RW44 (DN150) - Jockey Club Road (38m)	60 days	1/6/23	30/7/23			
1282	RW11 (DN150) - Fung Nam Road (480m)	673 days	24/2/23	27/12/24	30		
1283	RW46 (DN150) - Fung Nam Lane (38m)	60 days	1/9/24	30/10/24			
1284	RW06 (DN300) - Lung Sum Avenue (290m)	450 days	1/6/23	23/8/24			
1285	RW05 (DN400) - Jockey Club Road (377m)	600 days	20/12/22	10/8/24	15		
1286	RW15 (DN150) - Sun Fung Road / Sun Shing Road (390m)	240 days	20/12/22	16/8/23			
1287	RW18 (DN150) - San Hong Street (464m)	620 days	20/12/22	30/8/24			
1288	RW20 (DN150) - Sun Wing Street (52m)	90 days	8/3/23	5/6/23		1289	
1289	**RW45 (DN150) - Tsun Fu Street (82m)**	**78 days**	**20/12/22**	**7/3/23**			**1288**
1290	**CH000 - CH040**	**39 days**	**20/12/22**	**27/1/23**			**1298**
1291	TTA establishment	1 day	20/12/22	20/12/22			1292
1292	Hard material excavation and disposal	2 days	21/12/22	22/12/22		1291	1293
1293	Soil excavation , laying sheetpile and disposal	7 days	23/12/22	29/12/22		1292	1294
1294	Treatment of bedding	7 days	30/12/22	5/1/23		1293	1295
1295	Pipe laying D.I.	7 days	6/1/23	12/1/23		1294	1296
1296	Backfilling general fill and compaction	14 days	13/1/23	26/1/23		1295	1297
1297	Reinstatement	1 day	27/1/23	27/1/23		1296	
1298	**CH040 - CH082**	**39 days**	**28/1/23**	**7/3/23**		**1290**	
1299	TTA establishment	1 day	28/1/23	28/1/23			1300
1300	Hard material excavation and disposal	2 days	29/1/23	30/1/23		1299	1301
1301	Soil excavation , laying sheetpile and disposal	7 days	31/1/23	6/2/23		1300	1302
1302	Treatment of bedding	7 days	7/2/23	13/2/23		1301	1303
1303	Pipe laying D.I.	7 days	14/2/23	20/2/23		1302	1304
1304	Backfilling general fill and compaction	14 days	21/2/23	6/3/23		1303	1305
1305	Reinstatement	1 day	7/3/23	7/3/23		1304	
1306	RW14 (DN150) - Fu Hing Street (372m)	580 days	20/12/22	21/7/24			
1307	RW21 (DN150) - Sun Fat Street (105m)	120 days	1/9/24	29/12/24			
1308	Overall testing	21 days	2/1/25	22/1/25		1265,1277	1312
1309	Swabbing	7 days	2/1/25	8/1/25			1310
1310	CCTV	7 days	9/1/25	15/1/25		1309	1311
1311	Hydrostatic pressure test	7 days	16/1/25	22/1/25		1310	
1312	Pipe connection and completion	7 days	23/1/25	29/1/25		1308	1313
1313	Planned completion for section 6	0 days	29/1/25	29/1/25		1312,1264	
1314							
1315	**Section 7 - Water main laying works in part 6 of the Site**	**1523 days**	**30/7/21**	**29/9/25**			
1316	Access Date (part 6 of the Site)	1 day	30/7/21	30/7/21			1317
1317	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1316	1318
1318	Application and approval of XP and TTA	117 days	1/11/21	25/2/22		1317	
1319	Procurement and Delivery of pipes, fittings and related materials	30 days	7/5/22	5/6/22			
1320	Submission and acceptance of method statement and material	30 days	7/5/22	5/6/22			
1321	Excavation of Inspection Pit	900 days	3/10/22	20/3/25			
1322	**Mainlaying by trenchless method**	**858 days**	**1/4/23**	**5/8/25**			**1460**
1323	**RW05 : DN400 DI pipe (trenchless)**	**320 days**	**1/5/24**	**16/3/25**			
1324	**Fu Hing Street (75m) - TBM Method**	**130 days**	**1/5/24**	**7/9/24**			
1325	TTA implementation	3 days	1/5/24	3/5/24			1326



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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		

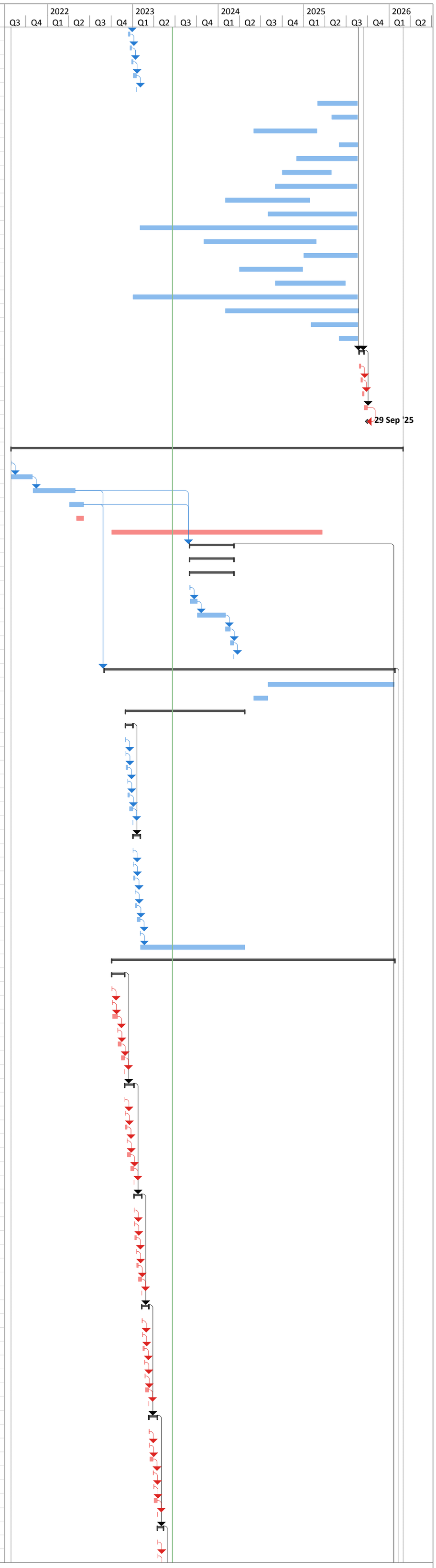
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1326	Contruction of jacking pit and receiving pit	45 days	4/5/24	17/6/24		1325	1327
1327	Trenchless works and pipe laying	45 days	18/6/24	1/8/24		1326	1328
1328	Manhole / Chamber construction	21 days	2/8/24	22/8/24		1327	1329
1329	Backfilling and compaction	14 days	23/8/24	5/9/24		1328	1330
1330	Reinstatement	2 days	6/9/24	7/9/24		1329	1332FS+60 day
1331	**Luen Sum Road (70m) - TBM Method**	**130 days**	**7/11/24**	**16/3/25**			
1332	TTA implementation	3 days	7/11/24	9/11/24		1330FS+60 days	1333
1333	Contruction of jacking pit and receiving pit	45 days	10/11/24	24/12/24		1332	1334
1334	Trenchless works and pipe laying	45 days	25/12/24	7/2/25		1333	1335
1335	Manhole / Chamber construction	21 days	8/2/25	28/2/25		1334	1336
1336	Backfilling and compaction	14 days	1/3/25	14/3/25		1335	1337
1337	Reinstatement	2 days	15/3/25	16/3/25		1336	
1338	**RW05 : DN300 DI pipe (trenchless)**	**175 days**	**1/9/23**	**22/2/24**			
1339	**Ma Sik Road (180m) - TBM Method**	**175 days**	**1/9/23**	**22/2/24**			
1340	TTA implementation	3 days	1/9/23	3/9/23			1341
1341	Contruction of jacking pit and receiving pit	45 days	4/9/23	18/10/23		1340	1342
1342	Trenchless works and pipe laying	90 days	19/10/23	16/1/24		1341	1343
1343	Manhole / Chamber construction	21 days	17/1/24	6/2/24		1342	1344
1344	Backfilling and compaction	14 days	7/2/24	20/2/24		1343	1345
1345	Reinstatement	2 days	21/2/24	22/2/24		1344	
1346	**RW08 : DN400 DI pipe (trenchless)**	**336 days**	**1/6/23**	**1/5/24**			
1347	**Wo Muk Road (60m) - TBM Method**	**124 days**	**1/6/23**	**2/10/23**			
1348	TTA implementation	3 days	1/6/23	3/6/23			1349
1349	Contruction of jacking pit and receiving pit	42 days	4/6/23	15/7/23		1348	1350
1350	Trenchless works and pipe laying	42 days	16/7/23	26/8/23		1349	1351
1351	Manhole / Chamber construction	21 days	27/8/23	16/9/23		1350	1352
1352	Backfilling and compaction	14 days	17/9/23	30/9/23		1351	1353
1353	Reinstatement	2 days	1/10/23	2/10/23		1352	1355FS+60 day
1354	**Wo Tai Street (100m) - TBM Method**	**152 days**	**2/12/23**	**1/5/24**			
1355	TTA implementation	3 days	2/12/23	4/12/23		1353FS+60 days	1356
1356	Contruction of jacking pit and receiving pit	42 days	5/12/23	15/1/24		1355	1357
1357	Trenchless works and pipe laying	70 days	16/1/24	25/3/24		1356	1358
1358	Manhole / Chamber construction	21 days	26/3/24	15/4/24		1357	1359
1359	Backfilling and compaction	14 days	16/4/24	29/4/24		1358	1360
1360	Reinstatement	2 days	30/4/24	1/5/24		1359	
1361	**RW09 : DN450 DI pipe (trenchless)**	**858 days**	**1/4/23**	**5/8/25**			
1362	**San Wang Road (435m) - TBM Method**	**245 days**	**1/4/23**	**1/12/23**			
1363	TTA implementation	3 days	1/4/23	3/4/23			1364
1364	Contruction of jacking pit and receiving pit	45 days	4/4/23	18/5/23		1363	1365
1365	Trenchless works and pipe laying	160 days	19/5/23	25/10/23		1364	1366
1366	Manhole / Chamber construction	21 days	26/10/23	15/11/23		1365	1367
1367	Backfilling and compaction	14 days	16/11/23	29/11/23		1366	1368
1368	Reinstatement	2 days	30/11/23	1/12/23		1367	1371
1369	Submission and acceptance of method statement by MTRC	560 days	1/4/23	11/10/24			1371
1370	**MTRC (315m) - TBM Method**	**298 days**	**12/10/24**	**5/8/25**			
1371	TTA implementation	7 days	12/10/24	18/10/24		1369,1368	1372
1372	Contruction of jacking pit and receiving pit	60 days	19/10/24	17/12/24		1371	1373
1373	Trenchless works and pipe laying	180 days	18/12/24	15/6/25		1372	1374
1374	Manhole / Chamber construction	30 days	16/6/25	15/7/25		1373	1375
1375	Backfilling and compaction	18 days	16/7/25	2/8/25		1374	1376
1376	Reinstatement	3 days	3/8/25	5/8/25		1375	
1377	**RW05 : DN300 DI pipe (trenchless)**	**555 days**	**1/4/23**	**6/10/24**			
1378	**Ling Shan Road (60m) - HDD Method**	**130 days**	**1/4/23**	**8/8/23**			
1379	TTA implementation	3 days	1/4/23	3/4/23			1380
1380	Contruction of jacking pit and receiving pit	45 days	4/4/23	18/5/23		1379	1381
1381	Trenchless works and pipe laying	45 days	19/5/23	2/7/23		1380	1382
1382	Manhole / Chamber construction	21 days	3/7/23	23/7/23		1381	1383
1383	Backfilling and compaction	14 days	24/7/23	6/8/23		1382	1384
1384	Reinstatement	2 days	7/8/23	8/8/23		1383	1386FS+60 day
1385	**San Wan Road Roundabout (130m) - HDD Method**	**175 days**	**8/10/23**	**30/3/24**			
1386	TTA implementation	3 days	8/10/23	10/10/23		1384FS+60 days	1387
1387	Contruction of jacking pit and receiving pit	45 days	11/10/23	24/11/23		1386	1388
1388	Trenchless works and pipe laying	90 days	25/11/23	22/2/24		1387	1389
1389	Manhole / Chamber construction	21 days	23/2/24	14/3/24		1388	1390
1390	Backfilling and compaction	14 days	15/3/24	28/3/24		1389	1391
1391	Reinstatement	2 days	29/3/24	30/3/24		1390	1393FS+60 day
1392	**Pak Fung Road (70m) - HDD Method**	**130 days**	**30/5/24**	**6/10/24**			
1393	TTA implementation	3 days	30/5/24	1/6/24		1391FS+60 days	1394
1394	Contruction of jacking pit and receiving pit	45 days	2/6/24	16/7/24		1393	1395
1395	Trenchless works and pipe laying	45 days	17/7/24	30/8/24		1394	1396
1396	Manhole / Chamber construction	21 days	31/8/24	20/9/24		1395	1397
1397	Backfilling and compaction	14 days	21/9/24	4/10/24		1396	1398
1398	Reinstatement	2 days	5/10/24	6/10/24		1397	
1399	**RW05 : DN300 DI pipe (trenchless)**	**362 days**	**1/6/23**	**27/5/24**			
1400	**Fanling Way (35m) - Hand Shield Method**	**91 days**	**1/6/23**	**30/8/23**			
1401	TTA implementation	3 days	1/6/23	3/6/23			1402
1402	Contruction of jacking pit and receiving pit	30 days	4/6/23	3/7/23		1401	1403
1403	Trenchless works and pipe laying	21 days	4/7/23	24/7/23		1402	1404
1404	Manhole / Chamber construction	21 days	25/7/23	14/8/23		1403	1405
1405	Backfilling and compaction	14 days	15/8/23	28/8/23		1404	1406
1406	Reinstatement	2 days	29/8/23	30/8/23		1405	1408FS+180 da
1407	**CLP Station (35m) - Hand Shield Method**	**91 days**	**27/2/24**	**27/5/24**			
1408	TTA implementation	3 days	27/2/24	29/2/24		1406FS+180 day	1409
1409	Contruction of jacking pit and receiving pit	30 days	1/3/24	30/3/24		1408	1410
1410	Trenchless works and pipe laying	21 days	31/3/24	20/4/24		1409	1411
1411	Manhole / Chamber construction	21 days	21/4/24	11/5/24		1410	1412
1412	Backfilling and compaction	14 days	12/5/24	25/5/24		1411	1413
1413	Reinstatement	2 days	26/5/24	27/5/24		1412	
1414	**Mainlaying by open trench method**	**1029 days**	**1/11/22**	**25/8/25**			**1460**
1415	RW07 (DN300) - Ma Sik Road (360m)	570 days	1/12/23	22/6/25			
1416	RW05 (DN400) - Jockey Club Road (681m) (XP ID: 1316661, 1301141)	570 days	1/2/24	23/8/25			
1417	RW05 (DN300) - Jockey Club Road (720m) (XP ID: 1316661, 1301141)	307 days	1/6/23	2/4/24			1418
1418	RW05 (DN300) - Pik Fung Road (270m)	110 days	3/4/24	21/7/24		1417	1419
1419	RW05 (DN300) - Sun Wan Road (945m)	400 days	22/7/24	25/8/25	30	1418	
1420	RW08 (DN400) - Fanling Lau Road (750m) (XP ID: 1310580, 1310468)	450 days	1/6/23	23/8/24			1421
1421	RW08 (DN400) - Lok Yip Road (616m)	360 days	24/8/24	18/8/25		1420	
1422	RW17 (DN150) - Sun Shing Road (114m)	180 days	1/7/24	27/12/24			
1423	RW16 (DN250) - Sun Fung Road / Lung Sum Avenue (741m)	720 days	1/9/23	20/8/25			
1424	RW47 (DN100) - Ben Lun Building (82m)	110 days	1/5/25	18/8/25			
1425	RW22 (DN150) - Chi Cheong Street (877m) (XP ID: 1310864)	900 days	1/11/22	18/4/25			
1426	**CH630 - CH700**	**39 days**	**1/11/22**	**9/12/22**			**1434**
1427	TTA establishment	1 day	1/11/22	1/11/22			1428
1428	Hard material excavation and disposal	2 days	2/11/22	3/11/22		1427	1429
1429	Soil excavation , laying sheetpile and disposal	7 days	4/11/22	10/11/22		1428	1430
1430	Treatment of bedding	7 days	11/11/22	17/11/22		1429	1431
1431	Pipe laying D.I.	7 days	18/11/22	24/11/22		1430	1432
1432	Backfilling general fill and compaction	14 days	25/11/22	8/12/22		1431	1433
1433	Reinstatement	1 day	9/12/22	9/12/22		1432	
1434	**CH040 - CH082**	**39 days**	**10/12/22**	**17/1/23**		**1426**	
1435	TTA establishment	1 day	10/12/22	10/12/22			1436
1436	Hard material excavation and disposal	2 days	11/12/22	12/12/22		1435	1437



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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	

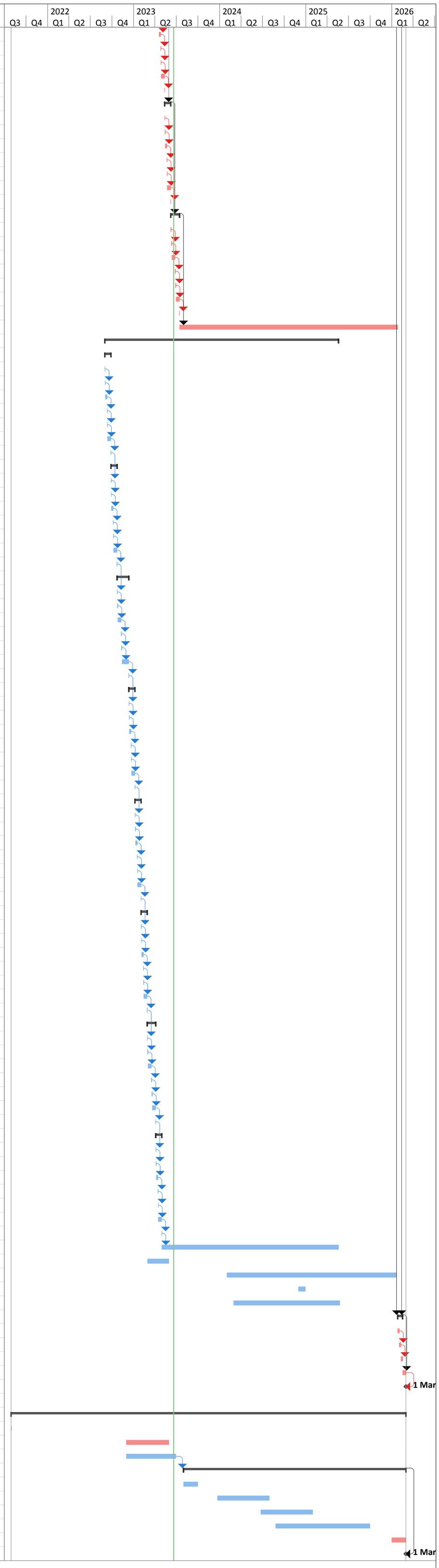
ID	Task Name	Duration	Start	Finish	TRA	Predecessors	Successors
1437	Soil excavation , laying sheetpile and disposal	7 days	13/12/22	19/12/22		1436	1438
1438	Treatment of bedding	7 days	20/12/22	26/12/22		1437	1439
1439	Pipe laying D.I.	7 days	27/12/22	2/1/23		1438	1440
1440	Backfilling general fill and compaction	14 days	3/1/23	16/1/23		1439	1441
1441	Reinstatement	1 day	17/1/23	17/1/23		1440	
1442	RW24 (DN150) - Chi Ming Street (120m)	170 days	1/3/25	17/8/25			
1443	RW49 (DN150) - San Wan Road (75m)	110 days	1/5/25	18/8/25			
1444	RW23 (DN150) - Lung Wan Street (171m)	270 days	1/6/24	25/2/25			
1445	RW69 (DN150) - Lung Sum Lane (60m)	80 days	1/6/25	19/8/25			
1446	RW25 (DN150) - Road to Fanling Wai (330m)	260 days	1/12/24	17/8/25			
1447	RW26 (DN150) - Ka Siu Road (133m)	210 days	1/10/24	28/4/25			
1448	RW27 (DN150) - Fanling Station Road (273m)	350 days	1/9/24	16/8/25			
1449	RW34 (DN150) - Fan Leng Lau (380m) (XP ID: 1310580, 1310468)	360 days	1/2/24	25/1/25			
1450	RW36 (DN150) - Lok Fung Street (495m)	380 days	1/8/24	15/8/25			
1451	RW13 (DN150) - Wo Tai Street (630m)	930 days	1/2/23	18/8/25			
1452	RW28 (DN150) - Wo Mun Street (312m)	480 days	1/11/23	22/2/25			
1453	RW31 (DN150) - Luen Cheong Street (185m)	230 days	1/1/25	18/8/25			
1454	RW32 (DN150) - Luen Shing Street (185m)	270 days	1/4/24	26/12/24			
1455	RW33 (DN150) - Luen Hing Street (199m)	300 days	1/9/24	27/6/25			
1456	RW30 (DN150) - Luen On Street / Luen Wo Road / Luen Fai Street (649m)	960 days	2/1/23	18/8/25			
1457	RW29 (DN150) - Wo Muk Street / Luen Hing Street (360m)	570 days	1/2/24	23/8/25			
1458	RW12 (DN150) - Luen Chit Street (120m)	200 days	1/2/25	19/8/25			
1459	RW55 (DN150) - Mount One (44m)	80 days	1/6/25	19/8/25			
1460	Overall testing	21 days	26/8/25	15/9/25		1322,1414	1464
1461	Swabbing	7 days	26/8/25	1/9/25			1462
1462	CCTV	7 days	2/9/25	8/9/25		1461	1463
1463	Hydrostatic pressure test	7 days	9/9/25	15/9/25		1462	
1464	Pipe connection and completion	14 days	16/9/25	29/9/25		1460	1465FF
1465	Planned completion for section 7	0 days	29/9/25	29/9/25		1464FF	
1466							
1467	**Section 8 - Water main laying works in part 7 of the Site**	**1676 days**	**30/7/21**	**1/3/26**			
1468	Access Date (part 7 of the Site)	1 day	30/7/21	30/7/21			1469
1469	Initial survey (utility survey, condition survey, initial photo)	90 days	31/7/21	28/10/21		1468	1470
1470	Application and approval of XP and TTA	180 days	1/11/21	29/4/22		1469	1474,1483
1471	Procurement and Delivery of pipes, fittings and related materials	60 days	6/4/22	4/6/22			1474,1483
1472	Submission and acceptance of method statement and material	30 days	6/5/22	4/6/22			
1473	Excavation of Inspection Pit	900 days	3/10/22	20/3/25			
1474	**Mainlaying by trenchless method**	**190 days**	**1/9/23**	**8/3/24**		**1471,1470**	**1640**
1475	**RW05 : DN300 DI pipe (trenchless)**	**190 days**	**1/9/23**	**8/3/24**			
1476	**Jocky Club Road (110m) - TBM Method**	**190 days**	**1/9/23**	**8/3/24**			
1477	TTA implementation	3 days	1/9/23	3/9/23			1478
1478	Contruction of jacking pit and receiving pit	30 days	4/9/23	3/10/23		1477	1479
1479	Trenchless works and pipe laying	120 days	4/10/23	31/1/24		1478	1480
1480	Manhole / Chamber construction	21 days	1/2/24	21/2/24		1479	1481
1481	Backfilling and compaction	14 days	22/2/24	6/3/24		1480	1482
1482	Reinstatement	2 days	7/3/24	8/3/24		1481	
1483	**Mainlaying by open trench method**	**1243 days**	**1/9/22**	**25/1/26**		**1471,1470**	**1640**
1484	RW38 (DN150) - Yip Cheong Street (351m)	540 days	1/8/24	22/1/26			
1485	RW39 (DN150) - Yip Cheong Street (14m)	60 days	1/6/24	30/7/24			
1486	**RW37 (DN150) - Yip Wo Street (420m) (XP ID: 1309054)**	**510 days**	**1/12/22**	**23/4/24**			
1487	CH210 to CH300 (90m)	32 days	1/12/22	1/1/23			1495
1488	TTA establishment	1 day	1/12/22	1/12/22			1489
1489	Hard material excavation and disposal	1 day	2/12/22	2/12/22		1488	1490
1490	Soil excavation , laying sheetpile and disposal	7 days	3/12/22	9/12/22		1489	1491
1491	Treatment of bedding	1 day	10/12/22	10/12/22		1490	1492
1492	Pipe laying D.I.	7 days	11/12/22	17/12/22		1491	1493
1493	Backfilling general fill and compaction	14 days	18/12/22	31/12/22		1492	1494
1494	Reinstatement	1 day	1/1/23	1/1/23		1493	
1495	CH300 to CH360 (60m)	32 days	2/1/23	2/2/23		1487	
1496	TTA establishment	1 day	2/1/23	2/1/23			1497
1497	Hard material excavation and disposal	1 day	3/1/23	3/1/23		1496	1498
1498	Soil excavation , laying sheetpile and disposal	7 days	4/1/23	10/1/23		1497	1499
1499	Treatment of bedding	1 day	11/1/23	11/1/23		1498	1500
1500	Pipe laying D.I.	7 days	12/1/23	18/1/23		1499	1501
1501	Backfilling general fill and compaction	14 days	19/1/23	1/2/23		1500	1502
1502	Reinstatement	1 day	2/2/23	2/2/23		1501	1503
1503	Remaining section of Yip Wo Street (270m)	446 days	3/2/23	23/4/24		1502	
1504	RW10 (DN300) - On Lok Mun Street (930m) (XP ID: 1301294, 1311241)	1211 days	3/10/22	25/1/26			
1505	CH930 to CH980 (50m)	56 days	3/10/22	27/11/22			1513
1506	TTA establishment	2 days	3/10/22	4/10/22			1507
1507	Hard material excavation and disposal	2 days	5/10/22	6/10/22		1506	1508
1508	Soil excavation , laying sheetpile and disposal	21 days	7/10/22	27/10/22		1507	1509
1509	Treatment of bedding	2 days	28/10/22	29/10/22		1508	1510
1510	Pipe laying D.I.	14 days	30/10/22	12/11/22		1509	1511
1511	Backfilling general fill and compaction	14 days	13/11/22	26/11/22		1510	1512
1512	Reinstatement	1 day	27/11/22	27/11/22		1511	
1513	CH840 to CH930 (90m)	40 days	28/11/22	6/1/23		1505	1521
1514	TTA establishment	1 day	28/11/22	28/11/22			1515
1515	Hard material excavation and disposal	2 days	29/11/22	30/11/22		1514	1516
1516	Soil excavation , laying sheetpile and disposal	7 days	1/12/22	7/12/22		1515	1517
1517	Treatment of bedding	1 day	8/12/22	8/12/22		1516	1518
1518	Pipe laying D.I.	14 days	9/12/22	22/12/22		1517	1519
1519	Backfilling general fill and compaction	14 days	23/12/22	5/1/23		1518	1520
1520	Reinstatement	1 day	6/1/23	6/1/23		1519	
1521	CH800 to CH840 (40m)	33 days	7/1/23	8/2/23		1513	1529
1522	TTA establishment	1 day	7/1/23	7/1/23			1523
1523	Hard material excavation and disposal	2 days	8/1/23	9/1/23		1522	1524
1524	Soil excavation , laying sheetpile and disposal	7 days	10/1/23	16/1/23		1523	1525
1525	Treatment of bedding	1 day	17/1/23	17/1/23		1524	1526
1526	Pipe laying D.I.	7 days	18/1/23	24/1/23		1525	1527
1527	Backfilling general fill and compaction	14 days	25/1/23	7/2/23		1526	1528
1528	Reinstatement	1 day	8/2/23	8/2/23		1527	
1529	CH980 to CH1000 (20m)	30 days	9/2/23	10/3/23		1521	1537
1530	TTA establishment	2 days	9/2/23	10/2/23			1531
1531	Hard material excavation and disposal	2 days	11/2/23	12/2/23		1530	1532
1532	Soil excavation , laying sheetpile and disposal	7 days	13/2/23	19/2/23		1531	1533
1533	Treatment of bedding	2 days	20/2/23	21/2/23		1532	1534
1534	Pipe laying D.I.	2 days	22/2/23	23/2/23		1533	1535
1535	Backfilling general fill and compaction	14 days	24/2/23	9/3/23		1534	1536
1536	Reinstatement	1 day	10/3/23	10/3/23		1535	
1537	CH830 to CH860 (30m)	37 days	11/3/23	16/4/23		1529	1545
1538	TTA establishment	2 days	11/3/23	12/3/23			1539
1539	Hard material excavation and disposal	2 days	13/3/23	14/3/23		1538	1540
1540	Soil excavation , laying sheetpile and disposal	14 days	15/3/23	28/3/23		1539	1541
1541	Treatment of bedding	2 days	29/3/23	30/3/23		1540	1542
1542	Pipe laying D.I.	2 days	31/3/23	1/4/23		1541	1543
1543	Backfilling general fill and compaction	14 days	2/4/23	15/4/23		1542	1544
1544	Reinstatement	1 day	16/4/23	16/4/23		1543	
1545	CH800 to CH830 (30m)	26 days	17/4/23	12/5/23		1537	1553
1546	TTA establishment	1 day	17/4/23	17/4/23			1547
1547	Hard material excavation and disposal	1 day	18/4/23	18/4/23		1546	1548



Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 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	Soil excavation , laying sheetpile and disposal	7 days	19/4/23	25/4/23		1547	1549
1549	Treatment of bedding	1 day	26/4/23	26/4/23		1548	1550
1550	Pipe laying D.I.	1 day	27/4/23	27/4/23		1549	1551
1551	Backfilling general fill and compaction	14 days	28/4/23	11/5/23		1550	1552
1552	Reinstatement	1 day	12/5/23	12/5/23		1551	
1553	CH110 to CH140 (30m)	26 days	13/5/23	7/6/23		1545	1561
1554	TTA establishment	1 day	13/5/23	13/5/23			1555
1555	Hard material excavation and disposal	1 day	14/5/23	14/5/23		1554	1556
1556	Soil excavation , laying sheetpile and disposal	7 days	15/5/23	21/5/23		1555	1557
1557	Treatment of bedding	1 day	22/5/23	22/5/23		1556	1558
1558	Pipe laying D.I.	1 day	23/5/23	23/5/23		1557	1559
1559	Backfilling general fill and compaction	14 days	24/5/23	6/6/23		1558	1560
1560	Reinstatement	1 day	7/6/23	7/6/23		1559	
1561	CH080 to CH110 (30m)	37 days	8/6/23	14/7/23		1553	1569
1562	TTA establishment	2 days	8/6/23	9/6/23			1563
1563	Hard material excavation and disposal	2 days	10/6/23	11/6/23		1562	1564
1564	Soil excavation , laying sheetpile and disposal	14 days	12/6/23	25/6/23		1563	1565
1565	Treatment of bedding	2 days	26/6/23	27/6/23		1564	1566
1566	Pipe laying D.I.	2 days	28/6/23	29/6/23		1565	1567
1567	Backfilling general fill and compaction	14 days	30/6/23	13/7/23		1566	1568
1568	Reinstatement	1 day	14/7/23	14/7/23		1567	
1569	Remaining Section of On Lok Mun Street (840m)	926 days	15/7/23	25/1/26		1561	
1570	RW35 (DN150) - On Chuen Street (720m) (XP ID: 1301294, 1311241)	992 days	1/9/22	19/5/25			
1571	CH590 to CH610 (30m)	26 days	1/9/22	26/9/22			
1572	TTA establishment	1 day	1/9/22	1/9/22			1573
1573	Hard material excavation and disposal	1 day	2/9/22	2/9/22		1572	1574
1574	Soil excavation , laying sheetpile and disposal	7 days	3/9/22	9/9/22		1573	1575
1575	Treatment of bedding	1 day	10/9/22	10/9/22		1574	1576
1576	Pipe laying D.I.	1 day	11/9/22	11/9/22		1575	1577
1577	Backfilling general fill and compaction	14 days	12/9/22	25/9/22		1576	1578
1578	Reinstatement	1 day	26/9/22	26/9/22		1577	1580
1579	CH560 to CH590 (30m)	26 days	27/9/22	22/10/22			
1580	TTA establishment	1 day	27/9/22	27/9/22		1578	1581
1581	Hard material excavation and disposal	1 day	28/9/22	28/9/22		1580	1582
1582	Soil excavation , laying sheetpile and disposal	7 days	29/9/22	5/10/22		1581	1583
1583	Treatment of bedding	1 day	6/10/22	6/10/22		1582	1584
1584	Pipe laying D.I.	1 day	7/10/22	7/10/22		1583	1585
1585	Backfilling general fill and compaction	14 days	8/10/22	21/10/22		1584	1586
1586	Reinstatement	1 day	22/10/22	22/10/22		1585	1588
1587	CH530 to CH560 (30m)	50 days	23/10/22	11/12/22			
1588	TTA establishment	1 day	23/10/22	23/10/22		1586	1589
1589	Hard material excavation and disposal	2 days	24/10/22	25/10/22		1588	1590
1590	Soil excavation , laying sheetpile and disposal	14 days	26/10/22	8/11/22		1589	1591
1591	Treatment of bedding	2 days	9/11/22	10/11/22		1590	1592
1592	Pipe laying D.I.	2 days	11/11/22	12/11/22		1591	1593
1593	Backfilling general fill and compaction	28 days	13/11/22	10/12/22		1592	1594
1594	Reinstatement	1 day	11/12/22	11/12/22		1593	1596
1595	CH500 to CH530 (30m)	26 days	12/12/22	6/1/23			
1596	TTA establishment	1 day	12/12/22	12/12/22		1594	1597
1597	Hard material excavation and disposal	1 day	13/12/22	13/12/22		1596	1598
1598	Soil excavation , laying sheetpile and disposal	7 days	14/12/22	20/12/22		1597	1599
1599	Treatment of bedding	1 day	21/12/22	21/12/22		1598	1600
1600	Pipe laying D.I.	1 day	22/12/22	22/12/22		1599	1601
1601	Backfilling general fill and compaction	14 days	23/12/22	5/1/23		1600	1602
1602	Reinstatement	1 day	6/1/23	6/1/23		1601	1604
1603	CH230 to CH260 (30m)	26 days	7/1/23	1/2/23			
1604	TTA establishment	1 day	7/1/23	7/1/23		1602	1605
1605	Hard material excavation and disposal	1 day	8/1/23	8/1/23		1604	1606
1606	Soil excavation , laying sheetpile and disposal	7 days	9/1/23	15/1/23		1605	1607
1607	Treatment of bedding	1 day	16/1/23	16/1/23		1606	1608
1608	Pipe laying D.I.	1 day	17/1/23	17/1/23		1607	1609
1609	Backfilling general fill and compaction	14 days	18/1/23	31/1/23		1608	1610
1610	Reinstatement	1 day	1/2/23	1/2/23		1609	1612
1611	CH200 to CH230 (30m)	26 days	2/2/23	27/2/23			
1612	TTA establishment	1 day	2/2/23	2/2/23		1610	1613
1613	Hard material excavation and disposal	1 day	3/2/23	3/2/23		1612	1614
1614	Soil excavation , laying sheetpile and disposal	7 days	4/2/23	10/2/23		1613	1615
1615	Treatment of bedding	1 day	11/2/23	11/2/23		1614	1616
1616	Pipe laying D.I.	1 day	12/2/23	12/2/23		1615	1617
1617	Backfilling general fill and compaction	14 days	13/2/23	26/2/23		1616	1618
1618	Reinstatement	1 day	27/2/23	27/2/23		1617	1620
1619	CH170 to CH200 (30m)	36 days	28/2/23	4/4/23			
1620	TTA establishment	1 day	28/2/23	28/2/23		1618	1621
1621	Hard material excavation and disposal	2 days	1/3/23	2/3/23		1620	1622
1622	Soil excavation , laying sheetpile and disposal	14 days	3/3/23	16/3/23		1621	1623
1623	Treatment of bedding	2 days	17/3/23	18/3/23		1622	1624
1624	Pipe laying D.I.	2 days	19/3/23	20/3/23		1623	1625
1625	Backfilling general fill and compaction	14 days	21/3/23	3/4/23		1624	1626
1626	Reinstatement	1 day	4/4/23	4/4/23		1625	1628
1627	CH000 to CH060 (60m)	26 days	5/4/23	30/4/23			
1628	TTA establishment	1 day	5/4/23	5/4/23		1626	1629
1629	Hard material excavation and disposal	1 day	6/4/23	6/4/23		1628	1630
1630	Soil excavation , laying sheetpile and disposal	7 days	7/4/23	13/4/23		1629	1631
1631	Treatment of bedding	1 day	14/4/23	14/4/23		1630	1632
1632	Pipe laying D.I.	1 day	15/4/23	15/4/23		1631	1633
1633	Backfilling general fill and compaction	14 days	16/4/23	29/4/23		1632	1634
1634	Reinstatement	1 day	30/4/23	30/4/23		1633	1635
1635	Remaining Section of On Chuen Street (630m)	750 days	1/5/23	19/5/25	60	1634	
1636	Coordination with ND/2019/04	90 days	1/3/23	29/5/23			
1637	RW09 (DN450) - Wo Hing Road (436m)	720 days	1/2/24	20/1/26			
1638	RW60 (DN150) - Tee from RW09 (14m)	29 days	1/12/24	29/12/24	14		
1639	RW40 (DN200) - Tai Wo Service Road West (420m)	450 days	1/3/24	24/5/25	30		
1640	Overall testing	21 days	26/1/26	15/2/26		1483,1474	1644
1641	Swabbing	7 days	26/1/26	1/2/26			1642
1642	CCTV	7 days	2/2/26	8/2/26		1641	1643
1643	Hydrostatic pressure test	7 days	9/2/26	15/2/26		1642	
1644	Pipe connection and completion	14 days	16/2/26	1/3/26		1640	1645FF
1645	Planned completion for section 8	0 days	1/3/26	1/3/26		1644FF	
1646							
1647	**Section 9 - Conversion works to effect the supply of reclaimed water**	**1676 days**	**30/7/21**	**1/3/26**			
1648	Access Date	1 day	30/7/21	30/7/21			
1649	Initial survey by stages	180 days	1/12/22	29/5/23			
1650	Liaison, coordination and enabling work for conversion	210 days	1/12/22	28/6/23			1651
1651	**Conversion works**	**944 days**	**1/8/23**	**1/3/26**		**1650**	**1657FF**
1652	Section 4 (Part 3) - 3 nos.	60 days	1/8/23	29/9/23			
1653	Section 5 (Part 4) - 11 nos.	220 days	23/12/23	29/7/24			
1654	Section 6 (Part 5) - 11 nos.	220 days	24/6/24	29/1/25			
1655	Section 7 (Part 6) - 40 nos.	400 days	26/8/24	29/9/25			
1656	Section 8 (Part 7) - 3 nos.	60 days	1/1/26	1/3/26			
1657	Planned completion for section 9	0 days	1/3/26	1/3/26		1651FF	

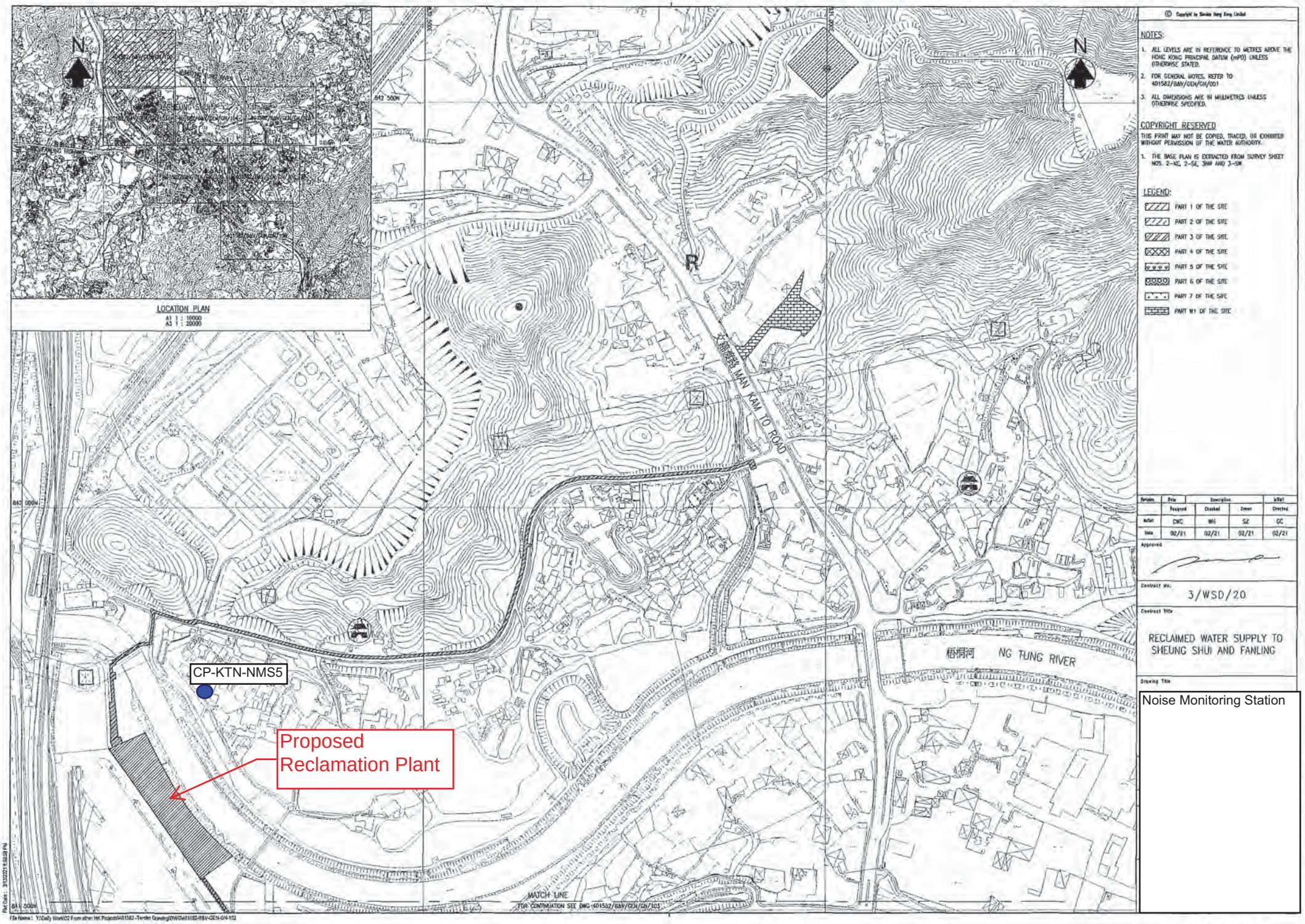


Project: 3WSD20 Programme
Programme Rev. 18
(up to 31 May 2023)

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	

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/GAN/GEN/GN/001
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

1. THE BASE PLAN IS EXTRACTED FROM SURVEY SHEET NOS. 2-NG, 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

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked
Initial	CWC	WH	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
Noise Monitoring Station

Plot Date: 3/03/2021 8:03:28 PM
File Name: Y:\Daily Work\CC From other HK Projects\401582-Tender Drawing\DWG\401582-BSV-GEN-GN-102

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. : C224779
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1539) Date of Receipt / 收件日期 : 4 August 2022

Description / 儀器名稱 : Sound Level Calibrator (EQ085)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10655561
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 : 20 August 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 & user's specified acceptance criteria.
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 : 23 August 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

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

Certificate of Calibration
校正證書

Certificate No. : C224779
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 Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	User's Spec.	Uncertainty of Measured Value (Hz)
1	0.953	1 kHz ± 6 %	± 1

Remarks : - The user's specified acceptance criteria (user's spec.) is a customer pre-defined operating tolerance of the UUT, suitable for one's own intended use.

- 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

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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
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Certificate of Calibration
校正證書

Certificate No. : C226779
證書編號

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)

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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
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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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Appendix F

Monitoring Schedule of the Reporting Month and Coming Month

The Reporting Monitoring Schedule (June 2023)

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

✓	Monitoring Day
	Sunday or Public Holiday

The Coming Month Monitoring Schedule (July 2023)

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

Note:

Ecology monitoring dates are tentative and are subject to change

✓	Monitoring Day
	Sunday or Public Holiday

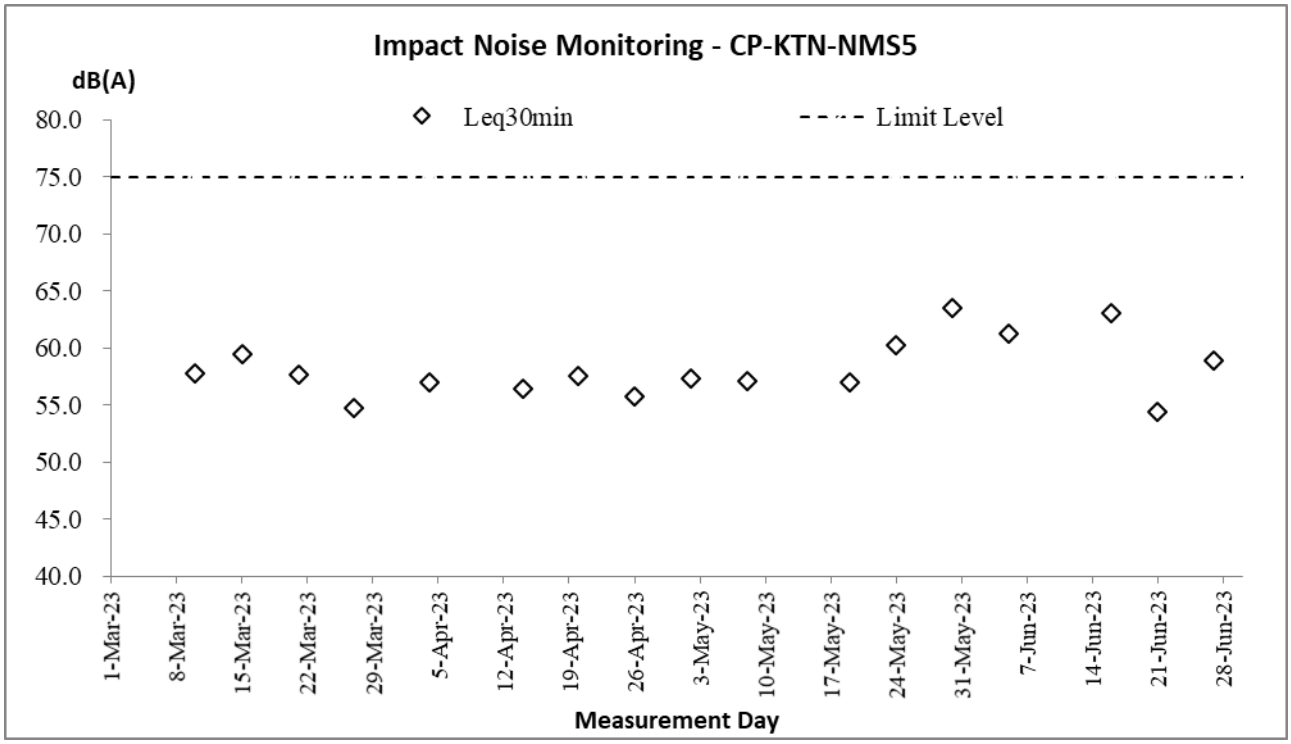
Appendix G

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-Jun-23	13:32	60.5	63.0	58.0	61.2	63.5	59.5	61.6	63.5	59.0	62.1	64.0	60.0	60.8	62.0	59.0	61.4	63.5	59.5	61.3	64.3
16-Jun-23	9:23	61.8	63.0	60.0	63.2	65.0	61.5	62.6	64.5	60.5	63.8	65.5	61.5	64.0	66.0	62.5	62.8	63.5	62.0	63.1	66.1
21-Jun-23	13:00	54.4	56.6	51.4	53.9	55.1	51.2	52.2	53.9	50.6	54.8	56.9	50.0	53.7	55.4	51.5	56.2	59.8	52.7	54.4	57.4
27-Jun-23	9:15	56.8	58.3	55.6	58.4	60.5	54.3	55.4	57.1	53.7	55.2	57.8	50.7	64.0	69.5	51.2	54.2	55.9	50.2	58.9	61.9

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-Mar-23
8-Mar-23
15-Mar-23
22-Mar-23
29-Mar-23
5-Apr-23
12-Apr-23
19-Apr-23
26-Apr-23
3-May-23
10-May-23
17-May-23
24-May-23
31-May-23
7-Jun-23
14-Jun-23
21-Jun-23
28-Jun-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	1.100	0	0	0	1.100	0	0	0	0	0	0.010
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	3.528	0	0	0	3.528	0	0	0	0	0	0.135

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

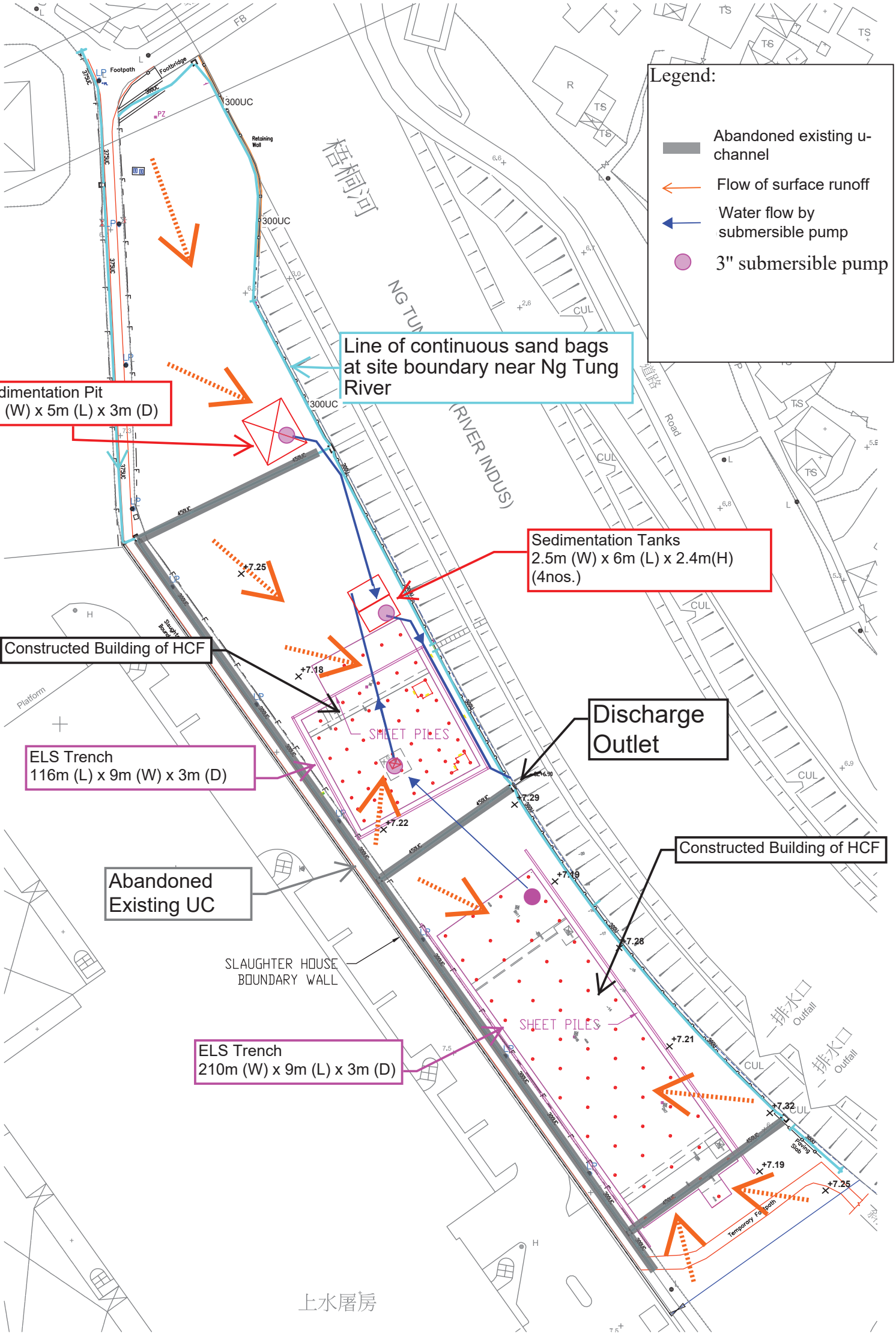
EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?
		undertaking any works adjacent 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)
Abandoned Existing UC
Constructed Building of HCF
SLAUGHTER HOUSE BOUNDARY WALL
ELS Trench
210m (W) x 9m (L) x 3m (D)
SHEET PILES
SHEET PILES
上水屠房
Footpath
Footbridge
Retaining Wall
Platform
Road
Temporary Footpath
Roofing Slab
Outfall
Outfall
300UC
375UC
450UC
CUL
TS
FB
PZ
LP
+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 May 2023
(Issue 1)

Job Ref.: 21/2063/582 AUES-SWHTSE
Date: 6th Jun 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 May 2023

(Issue 1)

June 2023

	Name	Signature
Prepared by:	**Nicholas Tam**	
Reviewed by:	**Ida Yu**	
Date:	**6th Jun 2023**	

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

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CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF FIGURES

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 May 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**
4-May-23	11:00	1.8	Sunny	5-May-23	14:00	1.3	Sunny
12-May-23	16:10	2.34	Cloudy	9-May-23	7:00	1.16	Cloudy
16-May-23	10:00	1.98	Sunny	18-May-23	16:00	0.37	Sunny
24-May-23	9:30	1.89	Sunny	23-May-23	16:30	1.39	Cloudy
31-May-23	9:00	1.96	Sunny	1-Jun-23	15:30	0.63	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	35	466
Waterbirds	12	158

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	41
Eastern Cattle Egret	*Bubulcus coromandus*	牛背鷺	2
Grey Heron	*Ardea cinerea*	蒼鷺	1
Great Egret	*Ardea alba*	大白鷺	13
Little Egret	*Egretta garzetta*	小白鷺	90
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	-1.690	10	0.061			-2.829	6	0.015	*	
Chinese Pond Heron	-2.778	11	0.009	*	*	-4.253	7	0.001	*	*
Eastern Cattle Egret	-1.375	8	0.103			-3.399	41	0.001	*	*
Grey Heron	No decline					-0.987	27	0.166		
Great Egret	No decline					-0.007	5	0.498		
Little Egret	-0.530	6	0.307			-0.730	4	0.253		
Great Cormorant	No decline					No decline				

* = level triggered

5.2 Decline in abundance in all waterbirds has triggered the action level compared to the Summer data. Decline in abundance of Chinese Pond Heron has triggered the limit level compared to previous data in April and Summer. Finally, decline in abundance of Eastern Cattle Egret has triggered the limit level when compared to the Summer average.

5.3 Abundance of all waterbirds was expected to decrease in general as migratory birds leave Hong Kong in the Summer, as the abundance in waterbirds of the reporting month does not trigger the action level when compared to the monthly data, it is suggested that decline in waterbird abundance is in line with seasonal fluctuations.

5.4 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 cause the decline in Chinese Pond Heron and Eastern Egret.

5.5 However, constructions and anthropogenic activities around the survey transects are still active during the reporting month and the following activities were noted:

5.6 Since the survey dated on 4th November 2022, surveyors have recorded inspection and maintenance works of the inflatable dam at P2, these works were determined to be as part of the North East New Territories Sewerage System Upgrade led by Drainage Services Department (DSD). It was observed during the survey on 31st May 2023 (as seen in Photo 2 of **Appendix E**) that the maintenance was

completed and the temporary concrete dam was being removed. The water level of Ng Tung River along T1 (P1 and P2 included) is still higher than the baseline survey during the reporting month due to the concrete blocks damming the flow of water, and may have reduced the foraging area at P1 and/or P2 and attract less waterbirds to forage at these two points.

5.7 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, and the device was seen to be in operation throughout the reporting month. 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. However, the playback device was observed to be turned off on all other surveys in the Reporting Month.

5.8 Remote control boat racing by a group of hobbyists were also seen multiple times at T1 near P2 during surveys in this reporting month (Photo 3 of **Appendix E**), the noise produced by the activity and high speed movements of the boat across the surface of Ng Tung River may discourage waterbirds from foraging along the river bank at P2.

5.9 Road improvement works by DSD (Photo 4 of **Appendix E**) was also observed to remain active along T2 near P3, and large vehicles producing noise were seen to enter and leave the site. This may be a potential source of disturbance that discourages waterbirds from foraging at P3.

5.10 The construction by Civil Engineering and Development Department (CEDD) near P7 was observed active throughout the entire reporting month (Photo 5 of **Appendix E**).

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)	/	Inflatable dam inspection and maintenance at P2 (DSD), playback device at nearby pond (AECOM), remote control boat racing
T2 (PC3, PC4)	Use of crane, scaffolding	Fishing, laying of concrete blocks at P3 (DSD), road enhancement (DSD)
T3 (PC6, PC7)	/	Fishing, piling works at P7 (CEDD)

7 REFERENCES

Carey, G.J., Chalmers, M.L., Diskin, D.A., Kennerley, P.R., Leader, P.J., Leven, M.R., Lewthwaite, R.W., Melville, D.S., Turnbull, M., and Young, L. 2001. The Avifauna of Hong Kong. Hong Kong Bird Watching Society, Hong Kong.

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	41	+++
Eastern Cattle Egret	牛背鷺	*Bubulcus coromandus*	Y	2	
Grey Heron	蒼鷺	*Ardea cinerea*	Y	1	+
Great Egret	大白鷺	*Ardea alba*	Y	13	+
Little Egret	小白鷺	*Egretta garzetta*	Y	90	+++++
Black Kite	黑鳶	*Milvus migrans*	N	5	+
White-breasted Waterhen	白胸苦惡鳥	*Amaurornis phoenicurus*	Y	1	
Black-winged Stilt	黑翅長腳鷸	*Himantopus himantopus*	Y	1	+
Common Sandpiper	磯鷸	*Actitis hypoleucos*	Y	2	
Green Sandpiper	白腰草鷸	*Tringa ochropus*	Y	4	
Wood Sandpiper	林鷸	*Tringa glareola*	Y	1	
Spotted Dove	珠頸斑鳩	*Spilopelia chinensis*	N	31	+++
Greater Coucal	褐翅鴉鵑	*Centropus sinensis*	N		+
Asian Koel	噪鵑	*Eudynamys scolopaceus*	N	16	++
Large Hawk-cuckoo	大鷹鵑	*Hierococcyx sparverioides*	N	3	++
House swift	小白腰雨燕	*Apus nipalensis*	N	1	+
White-throated Kingfisher	白胸翡翠	*Halcyon smyrnensis*	Y	1	
Pied Kingfisher	斑魚狗	*Ceryle rudis*	Y	1	+
Alexandrine Parakeet	亞歷山大鸚鵡	*Psittacula eupatria*	N		+
Hair-crested Drongo	髮冠卷尾	*Dicrurus hottentottus*	N		+
Red-billed Blue Magpie	紅嘴藍鵲	*Urocissa erythroryncha*	N	1	+
Oriental Magpie	喜鵲	*Pica serica*	N	2	+
Large-billed Crow	大嘴烏鴉	*Corvus macrorhynchos*	N	1	+
Cinereous Tit	蒼背山雀	*Parus cinereus*	N	3	+
Red-whiskered Bulbul	紅耳鵯	*Pycnonotus jocosus*	N	33	+++
Chinese Bulbul	白頭鵯	*Pycnonotus sinensis*	N	11	+
Barn Swallow	家燕	*Hirundo rustica*	N	13	++
Yellow-browed Warbler	黃眉柳鶯	*Phylloscopus inornatus*	N	2	+
Yellow-bellied Prinia	黃腹鷦鶯	*Prinia flaviventris*	N		+
Plain Prinia	純色鷦鶯	*Prinia inornata*	N	1	+
Common Tailorbird	長尾縫葉鶯	*Orthotomus sutorius*	N	12	++
Masked Laughingthrush	黑臉噪鶥	*Pterorhinus perspicillatus*	N	22	++++
Swinhoe's white-eye	暗綠繡眼鳥	*Zosterops simplex*	N	10	++
Crested Myna	八哥	*Acridotheres cristatellus*	N	106	+++++
Common Myna	家八哥	*Acridotheres tristis*	N		+
Black-collared Starling	黑領椋鳥	*Gracupica nigricollis*	N	21	+++
Oriental Magpie Robin	鵲鴝	*Copsychus saularis*	N	1	+
Eurasian Tree Sparrow	樹麻雀	*Passer montanus*	N	3	+
Scaly-Breasted Munia	斑文鳥	*Lonchura punctulata*	N	2	
White Wagtail	白鶺鴒	*Motacilla alba*	N	8	+

Common Name	Chinese Name	Scientific Name	Waterbird	Point Count Abundance	Transect Abundance
		Total Point Count Abundance		466	
		Total Waterbirds		158	

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	5/4/23	11:00	High	12	28
	5/5/23	14:00	Low	16	
2	5/9/23	7:00	Low	13	21
	5/12/23	16:10	High	8	
3	5/16/23	10:00	High	5	25
	5/18/23	16:00	Low	20	
4	5/23/23	16:30	Low	29	41
	5/24/23	9:30	High	12	
5	5/31/23	9:00	High	6	43
	6/1/23	15:30	Low	37	
			Survey Average		31.6
			Baseline	May Average	41.44
				Summer Average	45.34

Appendix C Abundance of Representative Waterbirds from Point Count

Representative Species		Recorded Abundance (May 2023)						Baseline	
Common Name	**Species Name**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Average**	**May Average**	**Summer Average**
Chinese Pond Heron	*Ardeola bacchus*	8	5	5	14	9	8.2	15	16.18
Eastern Cattle Egret	*Bubulcus coromandus*	1	0	0	0	1	0.4	2.33	3.32
Grey Heron	*Ardea cinerea*	0	0	0	1	0	0.2	0	0.55
Great Egret	*Ardea alba*	0	2	4	3	4	2.6	1.67	2.61
Little Egret	*Egretta garzetta*	11	12	16	22	29	18	20	20.53
Great Cormorant	*Phalacrocorax carbo*	0	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 (12/5/2023)	**Photo 2** Inflatable dam maintenance and the repair by DSD at P2 progress on 31/5/2023
	
Photo 3 Remote control boat racing at P2 (1/6/2023)	**Photo 4** Road enhancement works by DSD at T2 (5/5/2023)
	
Photo 5 Piling at P7 by CEDD (1/6/2023)	**Photo 6** Great Egret at T2 (23/5/2023)
	

Figure 1

Transect and Point Count Location

P4
P1
P3
P2
T1
T2
P7
P5
T3
P6

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

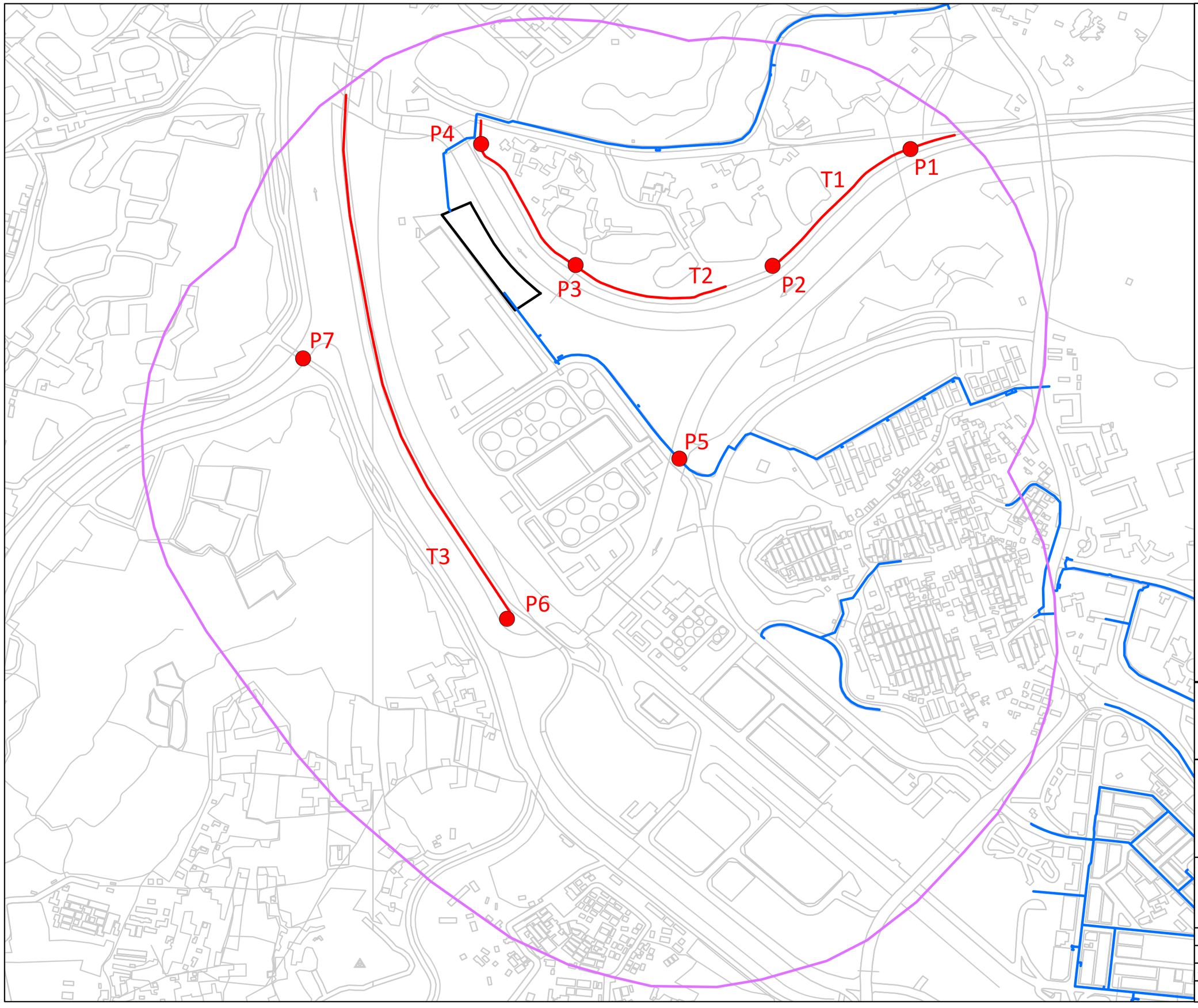
Figure Title:

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

Proposed Retained Water Mains

Walk Transect

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 (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