CONTRACT NO. STW 01/2021

ENVIRONMENTAL TEAM FOR RELOCATION OF SHA TIN SEWAGE TREATMENT WORKS TO CAVERNS – SITE PREPARATION AND ACCESS TUNNEL CONSTRUCTION

UNDER ENVIRONMENTAL PERMIT NO. EP-533/2017

QUARTERLY ENVIRONMENTAL MONITORING & AUDIT SUMMARY REPORT

- SEPTEMBER 2021 TO NOVEMBER 2021 -

CLIENTS:

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Date: 14 January 2022
Your Ref.:
Our Ref.: PL-202201030

AECOM Asia Limited
c/o Site Office
21 Hang Tai Road,
Ma On Shan, N.T.

Attn: Mr. Simon Leung, CRE

Dear Mr. Leung,

Contract No. DC/2018/05
Relocation of Sha Tin Sewage Treatment Works to Cavern – Site Preparation and Access Tunnel Construction
Verification of Quarterly EM&A Report (September to November 2021)

Reference is made to the Quarterly EM&A Report (September to November 2021) provided by the Environmental Team on 13 January 2022.

Please be informed that we have no adverse comments on the captioned submission. We hereby verify the report in accordance with Condition 1.9 of the Environmental Permit No. EP-533/2017.

Thank you for your attention.

Yours sincerely,
For and on behalf of
Acuity Sustainability Consulting Limited

Dr. C.F. Ng
Independent Environmental Checker

cc.	Drainage Services Department	Attn.: Mr. Stanley Hung	By e-mail
	Lam Environmental Services Limited	Attn.: Mr. Derek Lo	By e-mail
	China State Joint Venture	Attn.: Mr. F. M. Chung	By e-mail

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EXECUTIVE SUMMARY

i. This is the Quarterly Environmental Monitoring and Audit (EM&A) Summary Report – September 2021 to November 2021 of Relocation of Sha Tin Sewage Treatment Works to Caverns – Site Preparation and Access Tunnel Construction under Environmental Permit no. EP-533/2017 (Hereafter as "the Project"). The report presenting the environmental monitoring findings and information recorded during the period of 1 September 2021 to 30 November 2021.

Construction activities for the reporting period

During this reporting period, the principal work activities are included as follow:

Contract no. DC/2018/05 - Relocation of Sha Tin Sewage Treatment Works to Caverns – Site Preparation and Access Tunnel Construction

September 2021	October 2021	November 2021
• Retaining wall construction • Road construction • Drainage works • Watermain installation • Tunnelling works • Slope stabilization works • Landscape works	• Retaining wall construction • Road construction • Drainage works • Watermain installation • Tunnelling works • Slope stabilization works • Landscape works • Demolition of noise barrier	• Retaining wall construction • Road construction • Drainage works • Watermain installation • Tunnelling works • Slope stabilization works • Landscape works • Demolition of noise barrier

Contract no. DC/2020/05 - Relocation of Sha Tin Sewage Treatment Works to Caverns – Main Caverns Construction

The contact was commenced on 5 July 2021

September 2021	October 2021	November 2021
• Boulder survey	• Boulder survey • Hoarding erection • Asbestos removal works • Tree transplant and felling works	• Boulder survey • Hoarding erection • Asbestos removal works • Tree transplant and felling works • Demolition of DSD staff quarter • Condition survey for THEES Tunnel

Air Quality Monitoring

ii. 1-hour Total Suspended Particulates (TSP) monitoring would be conducted at five monitoring stations. The sampling frequency is 3 times in every 6 days.

iii. Air quality monitoring for the stations AM1 and AM2 were commenced on 12 April 2019 while station AM5 was commenced on 18 April 2019. Air quality monitoring for the station AM4 was commenced on 3 May 2019. The proposal for proposed fine adjustment for air and noise monitoring station at Kowloon City Baptist Church Hay Nien Primary School was agreed by EPD on 17 December 2020, therefore, air quality monitoring for the station AM3(B) was commenced on 18 December 2020. Air quality monitoring for the station AM6 was commenced on 2 November 2021 since the demolition of DSD staff quarter.

iv. No action or limit level exceedance was determined in the reporting period for the stations of AM1, AM2, AM4, AM5 and AM6.

Noise Monitoring

v. Noise monitoring would be conducted at five noise monitoring stations once per week.

vi. Noise monitoring for stations CM4 and CM5 were commenced on 13 April 2019 and 18 April

vii. 2019 respectively. Noise monitoring for stations CM1 and CM3 were commenced on 2 May 2019. The proposal for proposed fine adjustment for air and noise monitoring station at Kowloon City Baptist Church Hay Nien Primary School was agreed by EPD on 17 December 2020, therefore, noise monitoring for station CM2(B) was commenced on 18 December 2020. Noise monitoring for stations DM1, DM2 and DM3 were commenced on 2 November 2021 since the demolition of DSD staff quarter.

viii. Additional weekly noise monitoring from 19:00 to 23:00 was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

ix. Additional weekly night time noise monitoring from 23:00 to 07:00 on next day was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

x. No action or limit level exceedance was determined in the reporting period for the stations of CM1, CM3, CM4, CM5, DM1, DM2 and DM3.

Water Quality Monitoring

xi. Inspection of THEES tunnel was conducted from 30 November 2021 to 1 December 2021, during the inspection of the THEES tunnel, temporary suspension of the normal THEES operation with effluent bypass into the Tolo Harbour to provide a safe and dry zone within the THEES tunnel for the necessary inspection / maintenance works. Marine water quality monitoring programme is recommended for the THEES tunnel suspension of this Project to confirm the water quality impact of the THEES maintenance discharge.

xii. Total 13 monitoring stations within the Tolo Harbour as listed in Table 2.1 below. 12 impact stations are set up at the WSD flushing water intakes at Sha Tin (W1) and Tai Po (W2), cooling water intake at Chinese University of Hong Kong (CUHK) Marine Science Laboratory (C1), Yim Tin Tsai Fish Culture Zone (FCZ) (F1), Yim Tin Tsai East) FCZ (F2), Yung Shue Au FCZ and Important Nursery Area for Commercial Fisheries Resources at Three Fathoms Cove (F3), Lo Fu Wat FCZ (F4), Subzone of Yim Tin Tsai FCZ (G1), corals at Tai Po Industrial Estate (CR1), Science Park (CR15), Sha Tin Hoi North (CR16) and Sha Tin Hoi South (CR17) respectively as shown in Figure 1 to represent the marine water sensitive receivers, which are likely affected by the Project during the THEES maintenance or emergency discharge.

Site Inspection and Audit

xiii. Within this reporting period, weekly environmental site audits, bi-weekly landscape site audits and monthly ecology site audits were conducted by Environmental Team, ER and the Contractor, IEC attended the joint site inspection on 27 September 2021, 28 October 2021, and 25 November 2021.

Complaints, Notifications of Summons and Successful Prosecutions

xiv. No environmental complaint was received in the reporting period

xv. No notification of summons and successful prosecutions was received in the reporting period.

1 Introduction

1.1 Scope of the Report

1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) under Environmental Permit (EP) no. EP-533/2017 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Relocation of Sha Tin Sewage Treatment Works to Caverns – Site Preparation and Access Tunnel Construction (Register No.: AEIAR-202/2016).

1.1.2. This report documents the finding of EM&A works for this project and during the period of 1 September 2021 to 30 November 2021.

1.1.3. In accordance with Section 13.5 of the Project EM&A Manual, the Quarterly EM&A Summary Report should be prepared and submitted to the IEC, the ER and EPD.

1.2 Structure of the Report

Section 1 ***Introduction*** – details the scope and structure of the report.

Section 2 ***Project Background*** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 4 ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.

Section 5 ***Compliance Audit*** – summarizes the auditing of monitoring results, all exceedances environmental parameters.

Section 6 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 7 ***Conclusion***

2 Project Background

2.1 Background

2.1.1. The Relocation of Sha Tin Sewage Treatment Works (STSTW) to Caverns (the Project) is implemented so as to release the existing site, of a size about 28 hectares, for other uses.

2.1.2. In May 2012, Drainage Services Department (DSD), the Project Proponent commenced a detailed feasibility study on "Relocation of Sha Tin Sewage Treatment Works to Caverns" (the Feasibility Study). The findings of Feasibility Study affirmed that relocating the STSTW to caverns to be constructed at Nui Po Shan of A Kung Kok is technically feasible and financially viable.

2.1.3. The Project is a Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO). An application for an Environmental Impact Assessment (EIA) Study Brief under section 5(1)(a) of the EIAO was submitted on 12 May 2014 with a Project Profile (No. PP-508/2014) for the Project. An EIA Study Brief (No. ESB-273/2014) was issued in September 2014. An EIA for the Project was then undertaken, as part of the Assignment, in accordance with this EIA Study Brief and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The location of the Project is shown ***Figure 2.1.***

2.2 Scope of the Project and Site Description

2.2.1. The Project covers the following DP elements as specified in Schedule 2 of the EIAO (Cap.499), ***Table 2.1*** summarises the DPs under this Project.

Table 2.1 Schedule 2 Designated Projects under this Project

Item	Designated Project	EIAO Reference
DP1	Sewage treatment works with an installed capacity of more than 15,000 m3 per day under Item F.1	Schedule 2, Part I,
DP2	Sewage treatment works under Item F.2 • With an installed capacity of more than 5,000 m3 per day; and • A boundary of which is less than 200m from the nearest boundary of an existing or planned residential area, educational institution and health care institution.	Schedule 2 Part I
DP3	An activity for the reuse of treated sewage effluent from a treatment plant under Item F.4	Schedule 2 Part I

DP4	Underground rock caverns under Item Q.2	Schedule 2 Part I
DP5	An explosives depot in a stand-alone, purpose built building under Item K.10	Schedule 2 Part I;
DP6	Decommissioning of an explosives depot under Item 11	Schedule 2 Part II

2.3 Project Organization and Contact Personnel

2.3.1 Drainage Services Department is the overall project controllers for the Project. For the construction phase of the Project, Project Engineer, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.3.2 The proposed project organization and lines of communication with respect to environmental protection works are shown in ***Figure 2.2***. Key personnel and contact particulars are summarized in ***Table 2.2***:

Table 2.2 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer's Representative	Chief Resident Engineer	Mr .Leung Chi Man, Simon	6393 8645	3914 5888
China State Joint Venture (DC/2018/05)	Contractor	Site Agent	Mr. Kenny Poon	9589 8156	3914 5951
		Environmental Officer	Ms. Yeung Ka Ching, Tiffany	6761 8726	
		Environmental Supervisor	TSANG Chiu Fat	9137 8733	
			CHAN Chin Ming	9128 9993	
			IP Tat Hing	9600 8900	
China State – Alchmex Joint Venture (DC/2020/05)	Contractor	Site Agent	Mr. KONG Ming, Elvis	9186 2081	2672 2501
		Environmental Officer	Mr. LAM Moon Lin	9489 4641	
		Environmental Supervisor	TSANG Chiu Fat	9137 8733	

Acuity Sustainability Consulting Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Dr. Chung Fai Ng	2698 6833	2698 9383
Lam Environmental Services Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Derek Lo	2882 3939	2882 3331
Hotline telephone number for the public to make enquiries:				3142 2256	

2.4 Construction Activities

2.4.1 In the reporting period, the principal work activities conducted are as follow.

Contract no. DC/2018/05 - Relocation of Sha Tin Sewage Treatment Works to Caverns – Site Preparation and Access Tunnel Construction

September 2021	October 2021	November 2021
• Retaining wall construction • Road construction • Drainage works • Watermain installation • Tunnelling works • Slope stabilization works • Landscape works	• Retaining wall construction • Road construction • Drainage works • Watermain installation • Tunnelling works • Slope stabilization works • Landscape works • Demolition of noise barrier	• Retaining wall construction • Road construction • Drainage works • Watermain installation • Tunnelling works • Slope stabilization works • Landscape works • Demolition of noise barrier

Contract no. DC/2020/05 - Relocation of Sha Tin Sewage Treatment Works to Caverns – Main Caverns Construction

The contact was commenced on 5 July 2021

September 2021	October 2021	November 2021
• Boulder survey	• Boulder survey • Hoarding erection • Asbestos removal works • Tree transplant and felling works	• Boulder survey • Hoarding erection • Asbestos removal works • Tree transplant and felling works • Demolition of DSD staff quarter • Condition survey for THEES Tunnel

2.4.2 Mitigation measures according to the environmental mitigation implementation schedule and the EIA were generally implemented by the Contractor in this reporting period. The Environmental Mitigation Implementation Schedule (EMIS) such as air quality, construction noise, water quality, Ecological, Landscape & Visual Impact and wastes management is presented in ***Appendix 2.1***

3 Monitoring Requirements

3.1 Air Monitoring

AIR QUALITY MONITORING STATIONS

3.1.1. Air monitoring stations AM1 and AM2 were setup and commencement of monitoring on 12 April 2019 while AM5 was setup and commencement of monitoring on 18 April 2019. Air quality monitoring for the station AM4 was commenced on 3 May 2019. The proposal for proposed fine adjustment for air and noise monitoring station at Kowloon City Baptist Church Hay Nien Primary School was agreed by EPD on 17 December 2020, therefore, air quality monitoring for the station AM3(B) was commenced on 18 December 2020.

3.1.2. A change of the monitoring location in subsequent impact monitoring for AM3(A) - Kowloon City Baptist Church Hay Nien Primary School was identified necessary as access was not granted for setting up the onsite monitoring station. The new monitoring location AM3(B) – ground level of outside A Kung Kok Street Garden for impact air quality monitoring station was proposed based on the criteria as stated in section 2.2.4.2 and 2.2.4.3 of EM&A Manual by ET and approved by ER and verified by IEC and submitted to EPD for agreement on 5 September 2019. The proposal was agreed by EPD on 17 December 2020.

3.1.3. Air quality monitoring station AM6 was setup and commencement of monitoring on 2 November 2021 since the demolition of DSD staff quarter. The proposal was verified by IEC and approved by EPD on 9 May 2019.

3.1.4. The air monitoring stations for the Project are listed and shown in ***Table 3.1*** and ***Figure 3.1***.

Table 3.1 Air Monitoring Station

Monitoring Station ID	Monitoring Location	Level (in terms of no. of floor)
AM1	Ah Kung Kok Fishermen Village	G/F
AM2	Block H, Kam Tai Court	Roof
AM3(B)	Outside A Kung Kok Street Garden	G/F
AM4	Wellborn Kindergarten	G/F
AM5	The Neighbourhood Advice-Action Council Harmony Manor	Roof
AM6	Seaview Villa	G/F

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

3.1.5. One-hour TSP levels should be measured to indicate the impacts of construction dust on air quality.

3.1.6. The sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs.

3.2 Noise Monitoring

NOISE MONITORING STATIONS

3.2.1. Noise monitoring stations CM4 and CM5 were setup and commencement of monitoring on 13 April 2019 and 18 April 2019 respectively. Noise monitoring for stations CM1 and CM3 were commenced on 2 May 2019. The proposal for proposed fine adjustment for air and noise monitoring station at Kowloon City Baptist Church Hay Nien Primary School was agreed by EPD on 17 December 2020, therefore, noise monitoring for station CM2(B) was commenced on 18 December 2020. Noise monitoring for stations DM1, DM2 and DM3 were commenced on 2 November 2021.

3.2.2. A change of the monitoring location in subsequent impact monitoring for CM2(A) - Kowloon City Baptist Church Hay Nien Primary School was identified necessary as access was not granted for setting up the onsite monitoring station. The new monitoring location CM2(B) – ground level of outside A Kung Kok Street Garden for impact air quality monitoring station was proposed based on the criteria as stated in section 2.2.4.2 and 2.2.4.3 of EM&A Manual by ET and approved by ER and verified by IEC and submitted to EPD for agreement on 5 September 2019. The proposal was agreed by EPD on 17 December 2020.

3.2.3. The noise monitoring stations for the Project are listed and shown in ***Table 3.2*** and ***Figure 3.1.***

Table 3.2 Noise Monitoring Station

Monitoring Station ID	Monitoring Location	Measurement Type	Level (in terms of no. of floor)
CM1	Wellborn Kindergarten	Free field	G/F
CM2(B)	Outside A Kung Kok Street Garden	Free field	G/F
CM3	S.K.H. Ma On Shan Holy Spirit Primary School	Façade	Roof
CM4	Ah Kung Kok Fishermen Village	Free field	G/F
CM5	The Neighbourhood Advice-Action Council Harmony Manor	Façade	Roof
DM1	Seaview Villa	Free field	G/F
DM2	Racecourse Gardens	Free field	G/F
DM3	S.K.H. Ma On Shan Holy Spirit Primary School	Façade	Roof

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

3.2.4. Noise monitoring shall be carried out at all the designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:

- One set of measurements between 0700-1900 hours on normal weekdays;
- One set of measurements between 1900-2300 hours;
- One set of measurements between 2300-0700 hours of next day; and
- One set of measurements between 0700-2300 hours on holidays (three consecutive Leq/5min readings).

3.2.5. If construction works are extended to include works during the hours of 1900-0700, additional weekly impact monitoring shall be carried out during evening and night-time works for the latter 3 sets of measurements specified in Section 3.2.3 above, one set of measurements shall at least include 3 consecutive Leq (5min) results.

3.2.6. Additional weekly noise monitoring from 19:00 to 23:00 was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

3.2.7. Additional weekly night time noise monitoring from 23:00 to 07:00 on next day was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

3.2.8. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.

3.2.9. If a school exists near the construction activity, noise monitoring shall be carried out at the monitoring stations for the schools during the examination periods. The ET leader shall liaise with the school's personnel and the examination authority to ascertain the exact dates and times of all examination periods during the course of the contract.

3.3 Marine Water Quality Monitoring

MARINE WATER MONITORING STATIONS

3.3.1 Under THEES maintenance or emergency discharge events, effluent would be discharged into the Tolo Harbour from the existing emergency outfalls of STSTW and TPSTW.

3.3.2 THEES tunnel was suspended on 30 November 2021 and resumed on 1 December 2021. A marine water quality monitoring programme is recommended for the THEES tunnel maintenance during both construction and operational phases of this Project to confirm the water quality impact of the THEES maintenance discharge.

3.3.3 It is recommended to set up 13 monitoring stations within the Tolo Harbour as listed in Table 3.3 below. 12 impact stations are set up at the WSD flushing water intakes at Sha Tin (W1) and Tai Po (W2), cooling water intake at Chinese University of Hong Kong (CUHK) Marine Science Laboratory (C1), Yim Tin Tsai Fish Culture Zone (FCZ) (F1), Yim Tin Tsai East) FCZ (F2), Yung Shue Au FCZ and Important Nursery Area for Commercial Fisheries Resources at Three Fathoms Cove (F3), Lo Fu Wat FCZ (F4), Subzone of Yim Tin Tsai FCZ (G1), corals at Tai Po Industrial Estate (CR1), Science Park (CR15), Sha Tin Hoi North (CR16) and Sha Tin Hoi South (CR17) respectively as shown in Figure 4.3 to represent the marine water sensitive receivers, which are likely affected by the Project during the THEES maintenance or emergency discharge.

3.3.4 Station G1 (Subzone of Yim Tin Tsai Fish Culture Zone) is also proposed as a gradient station to assist in the identification of the source of any impact at monitoring station F1. Station CR9 is far away from the Project discharge points and would unlikely be affected by the Project and will therefore serve as a control station.

3.3.5 The coordinates of the proposed monitoring stations are listed in ***Table 3.3*** and ***Figure 3.1***.

Table 3.3 Proposed Marine Water Quality Monitoring Stations

No.	Station	Description	Easting	Northing
1	W1	WSD Seawater Intake at Sha Tin	840238	830127
2	W2	WSD Seawater Intake at Tai Po	837753	834606
3	C1	Cooling Water Intake at CUHK Marine Science Laboratory	840142	831908
4	F1	Yim Tin Tsai Fish Culture Zone	839387	834907
5	F2	Yim Tin Tsai (East) Fish Culture Zone	840885	835077
6	F3	Yung Shue Au Fish Culture Zone / Important Nursery Area for Commercial Fisheries Resources at Three Fathoms Cove	846778	832054
7	F4	Lo Fu Wat Fish Culture Zone	846364	836709
8	CR1	Corals at Tai Po Industrial Estate	837888	834489
9	CR15	Corals at Science Park	839193	832710
10	CR16	Corals at Sha Tin Hoi North	840310	831665
11	CR17	Corals at Sha Tin Hoi South	840224	830692
12	G1	Potential Subzone of Yim Tin Tsai Fish Culture Zone / Gradient Station	840521	833311
13	CR9	Gruff Head Corals (Control Station)	850995	838008

MARINE WATER QUALITY MONITORING PARAMETERS, FREQUENCY AND DURATION

3.3.6 ***Table 3.4*** summarizes the monitoring parameters of the water quality monitoring.

Table 3.4 Water Quality Monitoring Parameters

In-situ Measurement	Laboratory Measurement
Dissolved Oxygen	Suspended Solids (SS)

pH	5-day Biochemical Oxygen Demand (BOD5)
Temperature	Total Inorganic Nitrogen (TIN)
Salinity	Ammonia Nitrogen (NH3-N)
Turbidity	Nitrate-nitrogen (NO3-N)
	Nitrite-nitrogen (NO2-N)
	Unionized Ammonia (UIA)
	Chlorophyll-a
	E. coli

3.3.7 For THEES maintenance, marine water quality data shall be collected throughout the whole discharge period at a frequency of 3 times per week until the baseline water quality is restored or at least 4 weeks after the end of maintenance period. During each monitoring event, water samples shall be collected at both mid-flood and mid-ebb tides and the interval between 2 monitoring events should not be less than 36 hours.

3.3.8 In view of marine safety concern due to limited visibility for safe navigation during night-time, the monitoring time at the mid-flood and mid-ebb will be shifted to the available flood/ebb tide during daytime.

4. Monitoring Results

4.0.1 The environmental monitoring will be implemented based on the division of works areas of each designed projects. Overall layout showing work areas and monitoring stations is shown in ***Figure 2.1*** and ***Figure 3.1*** respectively**.**

4.1 Air Monitoring Results

4.1.1 1-hour TSP monitoring was conducted at AM1, AM2, AM3(B), AM4, AM5 and AM6 in the reporting period.

4.1.1 No action or limit level exceedance was determined in the reporting period at stations of AM1, AM2, AM3(B), AM4, AM5 and AM6.

4.1.2 Air quality monitoring results measured in this reporting period for AM1, AM2, AM3(B), AM4, AM5 and AM6 are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in ***Appendix 4.1***.

4.2 Noise Monitoring Results

4.2.1 Noise monitoring was conducted at CM1, CM2(B), CM3, CM4, CM5, DM1, DM2 and DM3 in the reporting period.

4.2.2 Additional weekly noise monitoring from 19:00 to 23:00 was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

4.2.3 Additional weekly night time noise monitoring from 23:00 to 07:00 on next day was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

4.2.4 No action or limit level exceedance was determined in the reporting period at stations of CM1, CM2(B), CM3, CM4 CM5, DM1, DM2 and DM3.

4.2.5 Noise monitoring results measured in this reporting period for CM1, CM2(B), CM3, CM4, CM5, DM1, DM2 and DM3 are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in ***Appendix 4.2***.

4.3 Water Quality Monitoring Results

4.3.1 Water quality monitoring result would be provided in next quarterly EM&A report.

4.4 Waste Management

4.4.1 The quantities of waste for disposal in the Reporting Period are summarized in ***Table 4.1***. The updated Monthly Summary waste Flow Table is shown in ***Appendix 4.3***. Whenever possible, materials were reused on-site as far as practicable.

Table 4.1 Details of Waste Disposal for Contract no. DC/2018/05

Waste Type	**Quantity this report period**	**Cumulative Quantity-to-Date**	**Disposal / Dumping Grounds**
Inert C&D materials disposed**, m^3**	2.299	11,842	Fill Bank at Tuen Mun Area 38
	12,804	209,975	Tailor Recycled Aggregated Ltd. & Lam Tei Quarry (Alternative Disposal Ground)
Inert C&D materials recycled**, m^3**	228	1,768	Fill Bank at Tuen Mun Area 38 (Broken concrete)
Non-inert C&D materials disposed**, tonne**	111.63	1334.56	NENT
Non-inert C&D materials recycled**, kg**	350	1,891	Golden Sino Management Limited (Waste paper)
	0	14	Golden Sino Management Limited (Plactic)
	45	19,803	Golden Sino Management Limited (Metals)
Chemical waste disposed, **L**	300	840	Collected by licensed chemical waste collector_ Ecospace Limited
Asbestos waste disposed, **Kg**	300	300	WENT

Table 4.2 Details of Waste Disposal for Contract no. DC/2020/05

Waste Type	**Quantity this month**	**Cumulative Quantity-to-Date**	**Disposal / Dumping Grounds**
Inert C&D materials disposed**, m^3**	593	593	Fill Bank at Tuen Mun Area 38
Inert C&D materials recycled**, m^3**	164	164	Fill Bank at Tuen Mun Area 38 (Broken concrete)
Non-inert C&D materials disposed**, tonne**	1192	1192	SENT
Non-inert C&D materials recycled**, kg**	0	0	Golden Sino Management Limited (Waste Paper)
	0	0	Golden Sino Management Limited (Plastic)
	75270	75270	Golden Sino Management Limited (Metals)
Chemical waste disposed, **L**	0	0	Collected by licensed chemical collector: Ecospace

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
			Limited (Spent Lube Oil)
Asbestos waste disposed, **Kg**	560	560	WENT

5 Land Contamination

5.1 Land decontamination work for the DSD staff quarter at existing STSTW started on 16 June 2021, the Remediation Report was submitted to EPD for approval on 9 September 2021. The Remediation Report was accepted by EPD on 8 November 2021.

6 Compliance Audit

6.0.1 The Event Action Plan for construction noise, air quality are presented in ***Appendix 6.1***.

6.1 Air Monitoring

6.1.1 No action or limit level exceedance was determined in the reporting period at stations of AM1, AM2, AM3(B), AM4, AM5 and AM6.

6.2 Noise Monitoring

6.2.1 Additional weekly noise monitoring from 19:00 to 23:00 was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

6.2.2 Additional weekly night time noise monitoring from 23:00 to 07:00 on next day was carried out at CM4 with respect to the restricted hour works under CNP GW-RN0510-21, GW-RN0535-21, GW-RN0802-21 and GW-RN0824-21. All the results are within the baseline level range after baseline correction.

6.2.3 No action or limit level exceedance was determined in the reporting period at stations of CM1, CM2(B), CM3, CM4, CM5, DM1, DM2 and DM3.

6.3 Marine Water Quality Monitoring

6.3.1 Water quality monitoring result would be provided in next quarterly EM&A report.

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

6.4.1 No environmental non-compliance was recorded in the reporting period.

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

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

7 Complaints, Notification of Summons and Prosecution

7.0.1 No environmental complaint was received in the reporting period.

7.0.2 No notification of summons and successful prosecutions was received in the reporting period.

7.0.3 The details of cumulative complaint log and updated summary of complaints are presented in ***Appendix 7.1***.

7.0.4 Cumulative statistic on complaints and successful prosecutions are summarized in ***Table 7.1*** and ***Table 7.2*** respectively.

Table 7.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
September 2021 to November 2021	0
Total	**3**

Table 7.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions in this reporting period (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Waste	-	0	0
Total	**-**	**0**	**0**

8 Conclusion

8.0.1 The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.

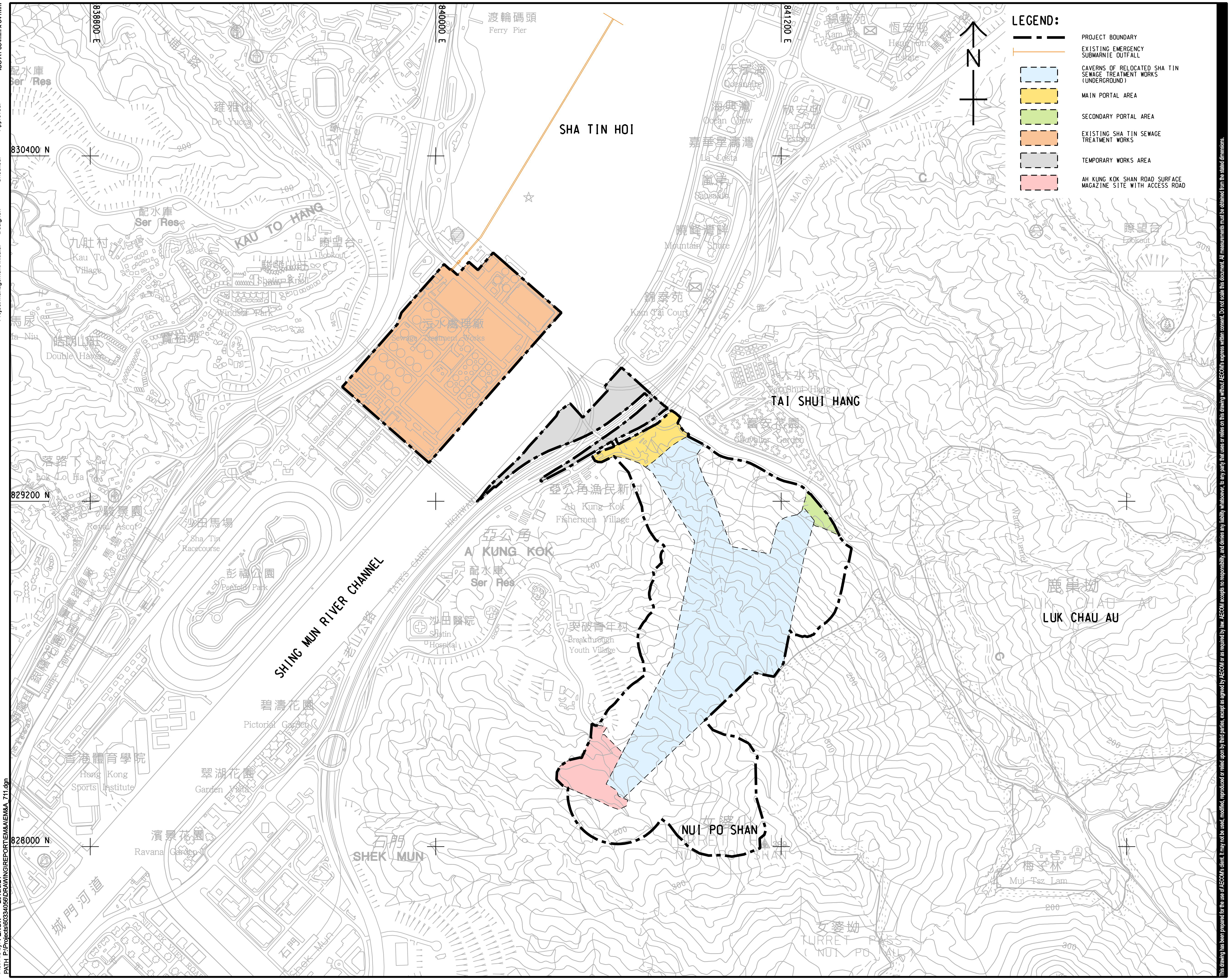
8.0.2 No non-compliances were noted and no prosecutions were received during the reporting period.

8.0.3 Mitigation measures according to the environmental mitigation implementation schedule and the EIA were generally implemented by the Contractor in this reporting period. Weekly environmental site audits, bi-weekly landscape site audits and monthly ecology site audits were conducted by Environmental Team, ER and the Contractor and no cumulative environmental impact was identified in the reporting period. Hence, the EM&A programme was considered effective and shall be maintained.

8.0.4 The construction programmes of individual contracts are provided in ***Appendix 8.1***

Figure 2.1

Project Layout



AECOM

PROJECT 項目

RELOCATION OF SHA TIN SEWAGE TREATMENT WORKS TO CAVERNS: CAVERNS AND SEWAGE TREATMENT WORKS - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT 業主

渠務署 Drainage Services Department

CONSULTANT 工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS 階段

SCALE 比例: A3 1 : 12000

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖 A3 1 : 500000

PROJECT NO. 項目編號: 60334056

CONTRACT NO. 合約編號: CE 30/2014 (DS)

SHEET TITLE 圖紙名稱

LOCATION PLAN OF THE PROJECT

SHEET NUMBER 圖紙編號

60334056/EM&A/1.01

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
Plot File by: PENGW 2016/5/24
PATH: P:\Projects\60334056\DRAWING\REPORT\EM&A\EM&A_711.dgn

Figure 2.2

Project Organization Chart

Project Organization Chart

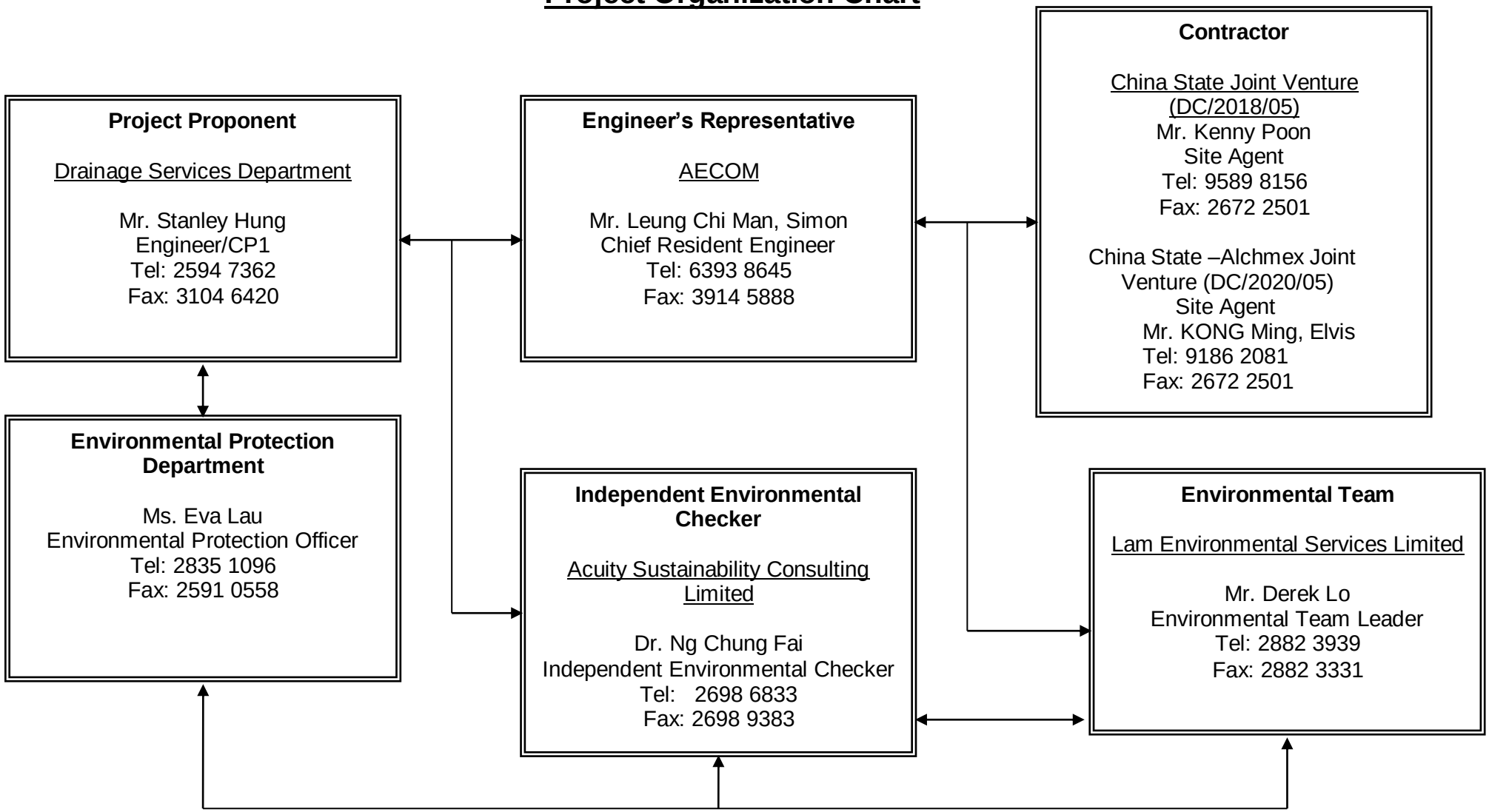


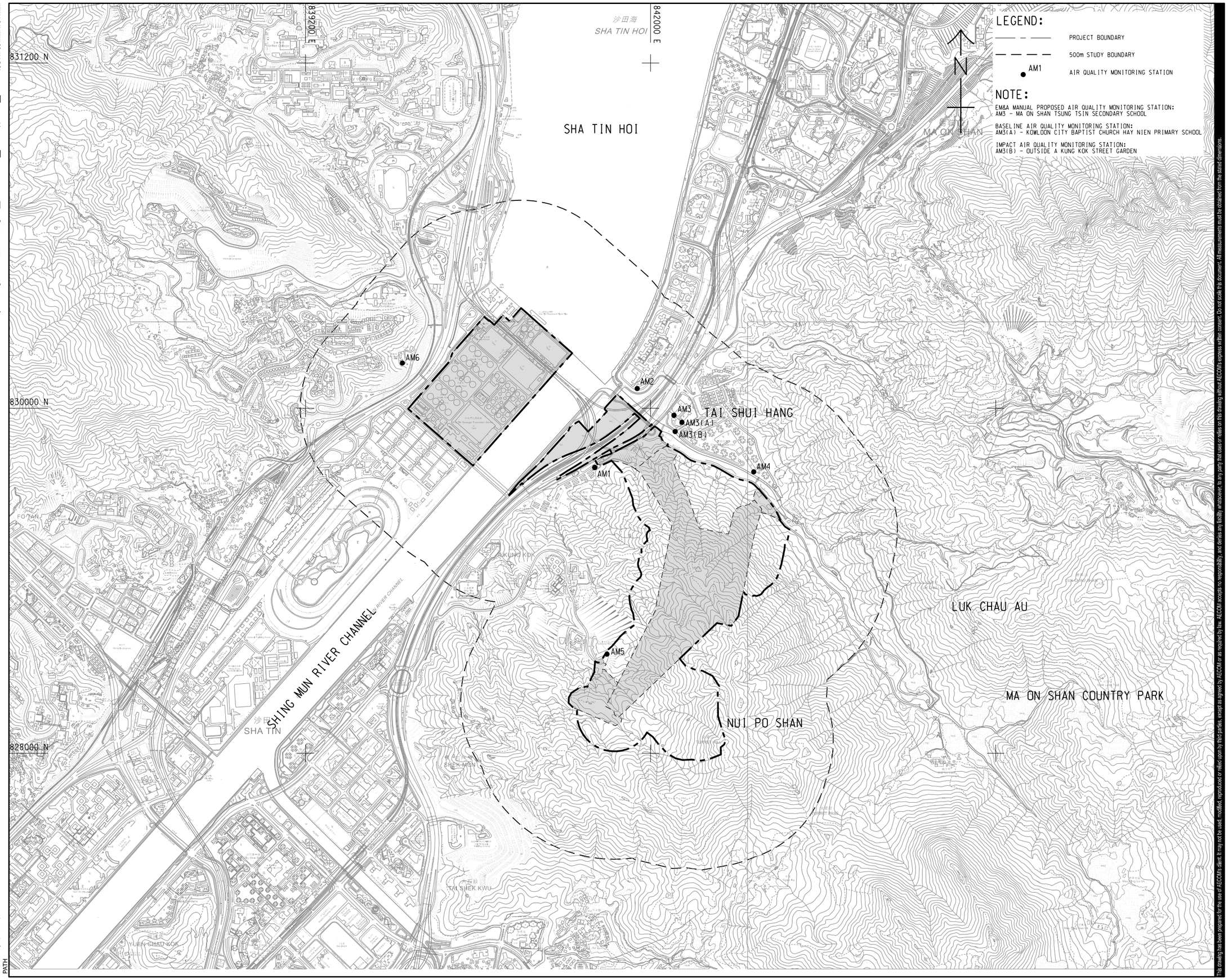
Figure 2.2

Figure 3.1

Locations of Environmental Monitoring Station

ISO A1 594mm x 841mm

Project Management Initials: Designer:__ Checked:__ Approved:__



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9/2/2020

AECOM

PROJECT
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RELOCATION OF SHA TIN SEWAGE TREATMENT WORKS TO CAVERNS: CAVERNS AND SEWAGE TREATMENT WORKS - INVESTIGATION, DESIGN AND CONSTRUCTION

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STATUS
階段

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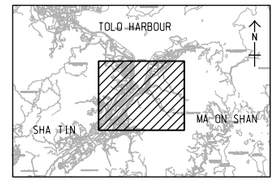
DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖 A3 1 : 400000



PROJECT NO. 項目編號
60334056

CONTRACT NO. 合約編號
CE 30/2014 (DS)

SHEET TITLE 圖紙名稱

LOCATION OF AIR QUALITY MONITORING STATION DURING CONSTRUCTION PHASE

SHEET NUMBER 圖紙編號

60334056/EM&A/2.01

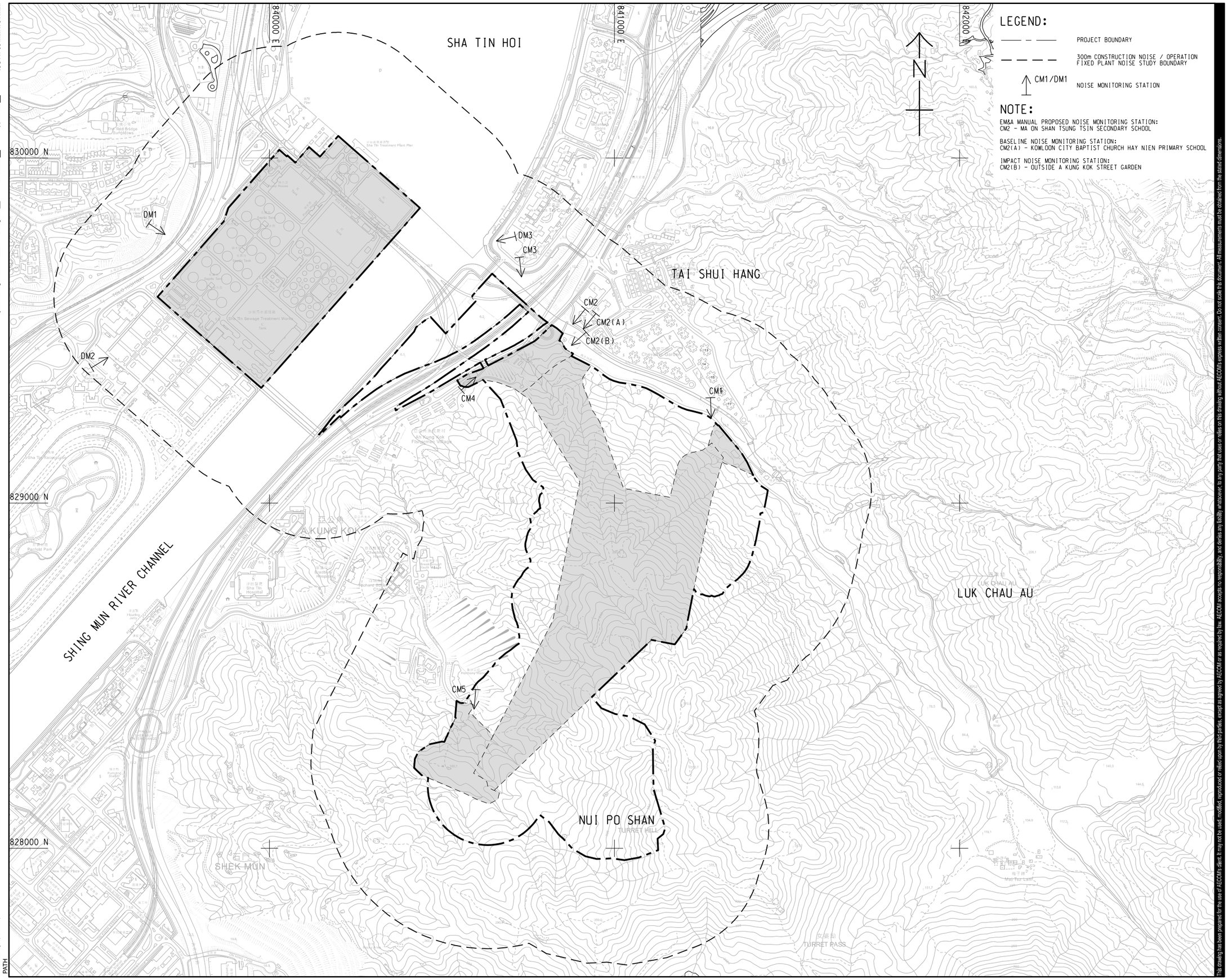
ISO A1 594mm x 841mm

Approved:__

Checked:__

Designer:__

Project Management Initials:



9/2/2020

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PROJECT
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RELOCATION OF SHA TIN SEWAGE TREATMENT WORKS TO CAVERNS: CAVERNS AND SEWAGE TREATMENT WORKS - INVESTIGATION, DESIGN AND CONSTRUCTION

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I/R 修訂	DATE 日期	DESCRIPTION 內容簡報	CHK. 核准

STATUS
狀況

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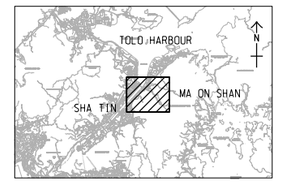
DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖 A3 1 : 500000



PROJECT NO. 項目編號
60334056

CONTRACT NO. 合約編號
CE 30/2014 (DS)

SHEET TITLE
圖紙名稱

LOCATION OF CONSTRUCTION PHASE TRAFFIC NOISE MONITORING STATION

SHEET NUMBER
圖紙編號

60334056/EM&A/3.01

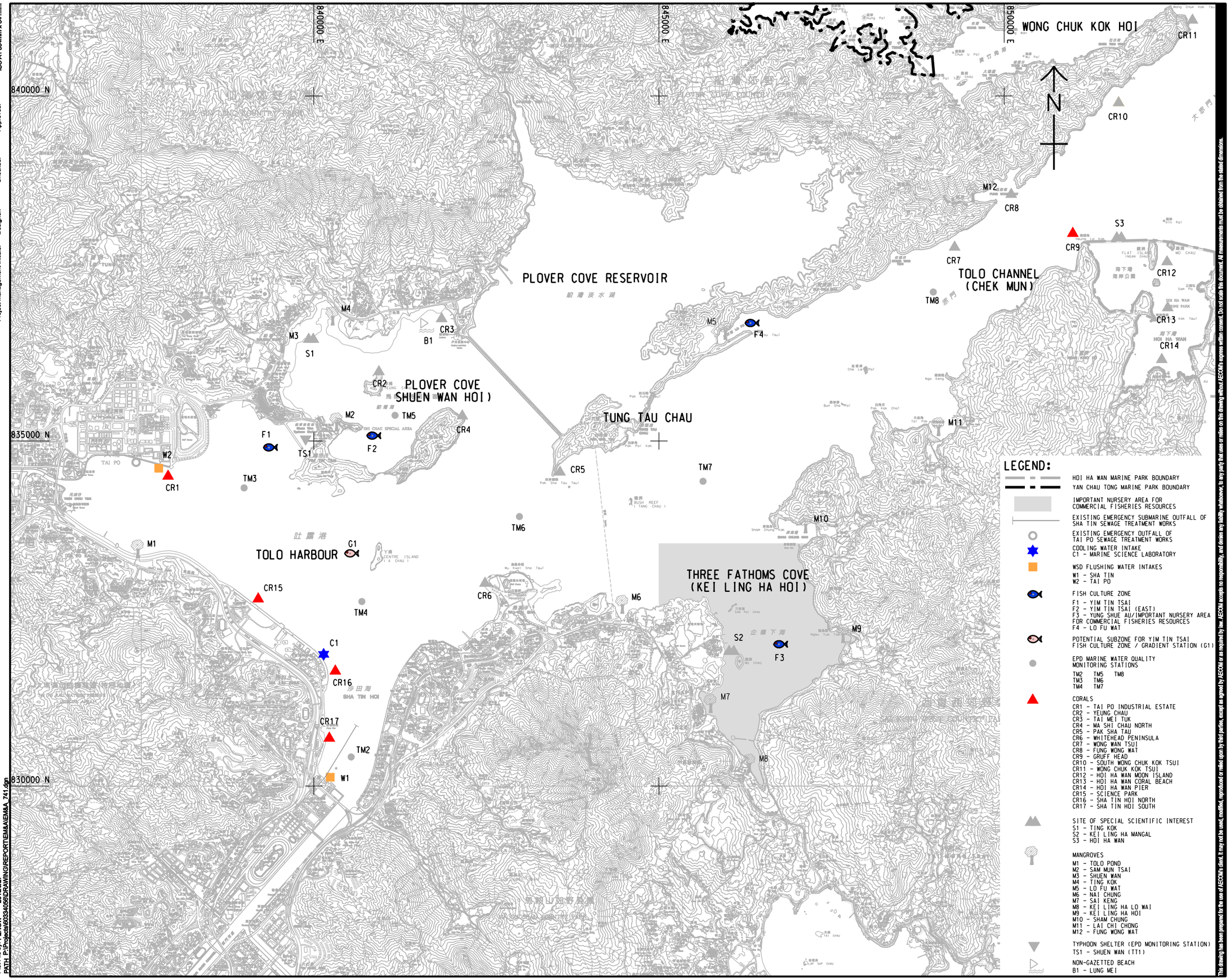
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



LEGEND:

- HOI HA WAN MARINE PARK BOUNDARY
- YAN CHAU TONG MARINE PARK BOUNDARY
- IMPORTANT NURSERY AREA FOR COMMERCIAL FISHERIES RESOURCES
- EXISTING EMERGENCY SUBMARINE OUTFALL OF SHA TIN SEWAGE TREATMENT WORKS
- EXISTING EMERGENCY OUTFALL OF TAI PO SEWAGE TREATMENT WORKS
- COOLING WATER INTAKE
  C1 - MARINE SCIENCE LABORATORY
- WSD FLUSHING WATER INTAKES
  W1 - SHA TIN
  W2 - TAI PO
- FISH CULTURE ZONE
  F1 - YIM TIN TSAI
  F2 - YIM TIN TSAI (EAST)
  F3 - YUNG SHUE AU/IMPORTANT NURSERY AREA FOR COMMERCIAL FISHERIES RESOURCES
  F4 - LO FU WAT
- POTENTIAL SUBZONE FOR YIM TIN TSAI FISH CULTURE ZONE / GRADIENT STATION (G1)
- EPD MARINE WATER QUALITY MONITORING STATIONS
  TM2 TM5 TM8
  TM3 TM6
  TM4 TM7
- CORALS
  CR1 - TAI PO INDUSTRIAL ESTATE
  CR2 - YEUNG CHAU
  CR3 - TAI MEI TUK
  CR4 - MA SHI CHAU NORTH
  CR5 - PAK SHA TAU
  CR6 - WHITEHEAD PENINSULA
  CR7 - WONG WAN TSUI
  CR8 - FUNG WONG WAT
  CR9 - GRUFF HEAD
  CR10 - SOUTH WONG CHUK KOK TSUI
  CR11 - WONG CHUK KOK TSUI
  CR12 - HOI HA WAN MOON ISLAND
  CR13 - HOI HA WAN CORAL BEACH
  CR14 - HOI HA WAN PIER
  CR15 - SCIENCE PARK
  CR16 - SHA TIN HOI NORTH
  CR17 - SHA TIN HOI SOUTH
- SITE OF SPECIAL SCIENTIFIC INTEREST
  S1 - TING KOK
  S2 - KEI LING HA MANGAL
  S3 - HOI HA WAN
- MANGROVES
  M1 - TOLO POND
  M2 - SAM MUN TSAI
  M3 - SHUEN WAN
  M4 - TING KOK
  M5 - LO FU WAT
  M6 - NAI CHUNG
  M7 - SAI KENG
  M8 - KEI LING HA LO WAI
  M9 - KEI LING HA HOI
  M10 - SHAM CHUNG
  M11 - LAI CHI CHONG
  M12 - FUNG WONG WAT
- TYPHOON SHELTER (EPD MONITORING STATION)
  TS1 - SHUEN WAN (TT1)
- NON-GAZETTED BEACH
  B1 - LUNG MEI

Plot File by: PENGW 2016/5/27
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PROJECT
項目

RELOCATION OF SHA TIN SEWAGE TREATMENT WORKS TO CAVERNS: CAVERNS AND SEWAGE TREATMENT WORKS - INVESTIGATION, DESIGN AND CONSTRUCTION

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業主

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Drainage Services Department

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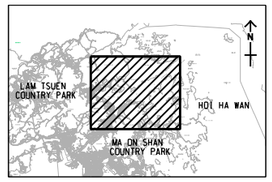
STATUS
階段

SCALE 比例
A3 1 : 50000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖 A3 1 : 1200000



PROJECT NO. 項目編號
60334056

CONTRACT NO. 合約編號
CE 30/2014 (DS)

SHEET TITLE 圖紙名稱

LOCATIONS OF MARINE WATER QUALITY MONITORING STATIONS

SHEET NUMBER 圖紙編號

60334056/EM&A/4.01

Appendix 2.1

Environmental Mitigation Implementation Schedule

APPENDIX C IMPLEMENTATION SCHEDULE OF RECOMMENDED MITIGATION MEASURES

C.1 Introduction

C.1.1 This section presents the implementation schedule of mitigation measures for the Project. **Table C.1** summarises the details of the recommended mitigation measures for all works areas. For each recommended mitigation measures, both the location and timing for the measure have clearly been identified as well as the parties responsible for implementing the measure and for maintenance (where applicable).

Table C.1 Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
	Air Quality Impact								
	Construction Phase								
Table 3.5	2.4.1	The rock crushing plant is configured as an enclosed system. Dust collector with dust removal efficiency of 99% will be provided at the exhaust of the rock crusher during rock crushing. Watering will be provided to maintain material in wet condition. Vehicles would be required to pass through the wheel washing facilities provided at site exit.	Rock Crushing Plant / Construction Phase	Contractor	√	√		√	Air Pollution Control Ordinance (APCO)
3.8.1	2.4.1	Watering eight times a day on active works areas, exposed areas and unpaved haul roads to reduce dust emission by 87.5%.	All active works areas, exposed areas and unpaved haul roads	Contractor		√		√	APCO

[1] Des = Design; C = Construction; O = Operation; Dec = Decommissioning

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
3.8.1	2.4.1	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area	Construction Sites	Contractor		√		√	APCO and Air Pollution Control (Construction Dust) Regulation

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry PFA should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.							

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
	Operation Phase								
3.5.2	-	Sludge tanks with totally enclosed design proven by DSD should be deployed for transporting sludge. With thorough cleaning practice and regular condition test of the sludge tanks, odour emission and leachate leakage during storage and transportation are not anticipated.	Cavern Sewage Treatment Works (CSTW) / Operation Phase	Project Proponent / Operator	√		√		-
3.6.2, 3.7.2	2.4.2	All treatment units with potential odour emission will be covered and the exhausted air will be conveyed to the deodouriser (with 80 – 97% odour removal efficiency) for treatment before discharge to the environment.	CSTW / Operation Phase	Design team / Project Proponent / Operator	√		√		-
3.7.2	2.4.2	The following appropriate odour control measures would be implemented. (i) Adopting the advantage of caverns as natural barriers for odour control; (ii) Covering up of odour sources; (iii) Preventing odour leakage through the access tunnels by applying negative pressure inside caverns; (iv) Installing deodourizing units to clean up the collected foul air; (v) Discharging exhausted air at height to further enhance the dilution effect; and (vi) Enhancing the odour management of the sludge transportation.	CSTW / Operation Phase	Design team / Project Proponent / Operator	√		√		-

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
3.10.2	2.3.1	Odour monitoring at the inlet and outlet of the deodourizing units is proposed to be conducted for first three years of the operation of CSTW, quarterly in the first year, and once every 6 months in the second and third years if monitoring results remain below the limit levels.	CSTW / Operation Phase	Project Proponent / Operator	√		√		-
3.10.2	2.3.2	An Odour Complaint Registration System is also proposed in the EM&A programme to check whether the deodorizing units can fulfill the recommended odour removal performance.	CSTW / Operation Phase	Operator			√		-
3.10.2	-	Any unexpected leakage from tanks could be observed with monitoring equipment. Monitoring equipment would be installed in the CSTW to monitor the concentration of H_2S, CO and CO_2 and methane. Investigation and repair works would be carried out immediately if abrupt increase of these concentrations are reported. Emergency Plan would be established for these upset conditions.	CSTW / Operation Phase	Project Proponent / Operator	√		√		-
	Noise Impact								
	Construction Phase								
4.5.1.6	-	Re-provision of 220m length noise barrier with 10mPD on temporary access haul road to replace the existing 150m length noise barrier with 9.2mPD to 10mPD on Ma On Sha Road. The	Proposed temporary access / Construction Phase	Contractor		√			Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM), Noise Control Ordinance (NCO)

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		location of the relocated noise barrier is shown in **Figure No. 60334056/EIA/4.02** and **Appendix 4.07**. Once the construction work for the CSTW is completed, the temporary access roads would be demolished and the relevant section of Ma On Shan Road and associated noise barrier would be recovered as before.							
4.8.1	3.8.1	The use of quiet plant associated with the construction works is prescribed in British Standard "Code of practice for noise and vibration control on construction and open sites, BS5228" which contains the SWLs for specific quiet PME.	All Construction Work Sites	Contractor		√		√	EIAO-TM, NCO
4.8.1	3.8.1	To alleviate the construction noise impact on the affected NSRs, movable noise barrier for Air Compressor, Bar Bender and Cutter, Breaker, Chisel, Saw, Compactor, Mixers, Pump, Crane, Desander, Drilling Rig, Dump Truck, Excavator, Generator, Grab, Lorry, Paver, Poker and Roller are proposed.	All Construction Work Sites	Contractor		√		√	EIAO-TM, NCO
4.8.1	3.8.1	Provision of noise barrier/acoustic mats for Drilling Jumbo so as to have screening effecting with 10 dB(A) noise attenuation	Drilling Jumbo operate outside the portal and within 20m inside the portal	Contractor		√			EIAO-TM, NCO
4.8.1	3.8.1	To further alleviate the construction noise impact on the Neighbourhood Advice-Action Council Harmony	Construction Site for access road for	Contractor		√		√	EIAO-TM, NCO

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		Manor, it is proposed to limit the number of on-time operating PMEs within 120m of this NSR during construction of access road.	magazine at A Kung Kok Road						
4.9.1	3.8.1	In addition to the above-mentioned mitigation measures, good site practices listed below shall be adopted by all the contractors to further ameliorate the noise impacts. • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	All Construction Work Sites	Contractor		√		√	EIAO-TM, NCO

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		• Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.							
	Operation Phase								
4.7.4	3.8.2	The maximum allowable sound power levels for the ventilation shaft, ventilation buildings at main portal and emergency portal, ventilation fan for chiller plant room and cooling tower at the administration building as presented in Table 4.16 of the EIA Report should be achieved such that the nearest affected NSRs can be in compliance with the noise criteria	Ventilation Shaft, Administration Building and Ventilation Buildings/ Operation Phase	Project Proponent	√		√		EIAO-TM, NCO
4.11.2	3.8.2	Prior to the operational phase of the Project, a commissioning test for the ventilation buildings, the ventilation shaft, ventilation fan for chiller plant room at administration building and cooling tower at the administration building would be conducted to ensure compliance with the relevant allowable maximum sound power levels.	Ventilation Shaft, Administration Building and Ventilation Buildings/ Operation Phase	Contractor			√		EIAO-TM, NCO

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
	Water Quality Impact								
	Construction Phase								
5.7.2	4.10	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Construction Sites / Construction Phase	Contractor		√			Water Pollution Control Ordinance (WPCO), EIAO-TM
5.7.2	4.10	All vehicles and plant should be cleaned before they leave a construction site to minimise the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Construction Sites / Construction Phase	Contractor		√			Professional Persons Environmental Consultative Committee (ProPECC) Practice Note (PN) 1/94, WPCO, Waste Disposal Ordinance (WDO)
5.7.2	4.10	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
5.7.2	4.10	The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed where applicable to minimise surface run-off and the chance of erosion.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, ProPECC PN 1/94
5.7.2	4.10	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS). The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of RO of EPD.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, (TM-DSS)
5.7.2	4.10	Contractor must register as a chemical waste producer if chemical wastes would be produced from the	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, WDO

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		construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes.							
5.7.2	4.10	Any service shop and maintenance facilities should be located on hard standings within a bonded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM
5.7.2	4.10	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be followed to avoid leakage or spillage of chemicals.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, WDO
5.7.2	4.10	Sufficient chemical toilets should be provided in the works areas. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM

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5.7.2	4.10	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM
5.7.2	4.10	The practices outlined in ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" should also be adopted where applicable to minimise the water quality impacts upon any natural streams or surface water systems.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, ETWB TC (Works) No. 5/2005
5.7.2	4.10	Appropriate measures during the construction of the cavern construction should be implemented to minimise the groundwater infiltration.	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM
5.7.2	4.10	No directly discharge of groundwater from contaminated areas should be adopted. Prior to any excavation works within the potentially contaminated areas at the existing STSTW site, the baseline groundwater quality in these areas should be reviewed based on the relevant SI data and any additional groundwater quality measurements to be performed with reference to *Guidance Note for Contaminated Land Assessment and Remediation* and the review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, Guidance Note for Contaminated Land Assessment and Remediation

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		works would be contaminated, this contaminated groundwater should be either properly treated or properly recharged into the ground in compliance with the requirements of the TM-DSS. If wastewater treatment is to be deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and should be either discharged into the foul sewers or tankered away for proper disposal.							
5.7.2	4.10	If deployment of wastewater treatment is not feasible for handling the contaminated groundwater, groundwater recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in section 2.3 of the TM-DSS. The baseline groundwater quality should be determined prior to the selection of the recharge wells, and submit a working plan to EPD for agreement. Pollution	Construction Sites / Construction Phase	Contractor		√			WPCO, EIAO-TM, TM-DSS

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		levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Groundwater monitoring wells should be installed near the recharge points to monitor the effectiveness of the recharge wells and to ensure that no likelihood of increase of groundwater level and transfer of pollutants beyond the site boundary. Prior to recharge, free products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater							
5.7.2	4.10	THEES connection works should be synchronized with the THEES maintenance, for a duration not longer than 4 weeks each outside the algae blooming season (January to May) and frequency of THEES maintenance shall be no more than once per year during the construction phase of the Project.	Tolo Harbour / Construction Phase	Project Proponent / Contractor	√	√			EIAO-TM
	Construction and Operation Phases								
5.10.2	4.10	Shutdown of the THEES for maintenance should be shortened as far as possible. It is recommended that the maintenance of the THEES tunnel should be avoided during the algae blooming season (January to May).	Tolo Harbour / Construction and Operation Phase	Project Proponent		√	√		WPCO, EIAO-TM

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5.10.2	4.10	Relevant government departments including EPD, WSD, AFCD as well as the key stakeholders for mariculture and fisheries in Tolo Harbour should be informed of the maintenance event prior to any discharge.	Tolo Harbour / Construction and Operation Phase	Project Proponent		√	√		WPCO, EIAO-TM
5.10.3	4.2-4.5	An event and action plan and a water quality monitoring programme (as presented in the EM&A Manual) should be implemented for the THEES maintenance discharge	Tolo Harbour / Construction and Operation Phase	Project Proponent		√	√		WPCO, EIAO-TM
5.10.1	4.10	Silt screen may be installed at the flushing water intakes during the THEES maintenance discharge should it appear necessary. Close communication between DSD and WSD should be maintained to minimize any impact on the flushing water intakes due to THEES maintenance discharge.	WSD flushing water intakes / Construction and Operation Phase	WSD / Project Proponent		√	√		WPCO, EIAO-TM
	Design and Operation Phases								
5.8.3	4.6	In case adverse impact on KTN is identified based on the result of the three-month monitoring programme after commissioning of the project, the operation conditions of the treatment and THEES system should be investigated, and corrective and remedial action should be implemented to improve the effluent discharge from the CSTW. Furthermore, DSD should extend the water quality monitoring	Project site / Design and Operation Phases	Project Proponent			√		WPCO, EIAO-TM

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		programme for at least three months or as agreed by the Director of Environmental Protection.							
5.11.2	4.10	Dual power supply or ring main supply from CLP Power Hong Kong Ltd. CLP should be provided for the CSTW to prevent the occurrence of power failure. In addition, standby facilities for the main treatment units and standby equipment parts / accessories should also be provided in order to minimise the chance of emergency discharge. CLP should be consulted in order to ascertain the power supply for normal plant operation within the caverns. It is recommended that government departments including EPD, WSD and AFCD as well as the key stakeholders for mariculture and fisheries in Tolo Harbour should be informed as soon as possible in case of any emergency discharge so that appropriate actions can be taken.	Project site / Design and Operation Phases	Project Proponent	√		√		WPCO, EIAO-TM
5.11.2	4.10	In case of emergency discharge, the plant operators of CSTW should carry out necessary follow-up actions according to the procedures of the current contingency plan formulated for the existing STSTW to minimise the water quality impact.	Project site / Operation Phase	Project Proponent			√		WPCO, EIAO-TM
5.11.2	4.10	WSD may also consider, should it appear necessary, to shut down the Sha Tin seawater pumping station for a short period of time in case of	Sha Tin seawater pumping station / Operation Phase	WSD / Project Proponent			√		WPCO, EIAO-TM

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		emergency discharge in order to minimize any adverse impacts.							
5.13.2	4.10	Best Management Practices to reduce storm water and non-point source pollution are also proposed as follows: <u>Design Measures</u> • Exposed surface shall be avoided within the road and portal sites to minimise soil erosion. The access road and the portal areas shall be either hard paved or covered by landscaping area where appropriate. • Streams near the Project site will be retained to maintain the original flow path. The drainage system will be designed to avoid flooding. • Green areas / planting etc. should be introduced alongside the access road and within the portal areas, as far as possible, to minimise runoff pollution. <u>Devices/ Facilities to Control Pollution</u> • Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system. • Road gullies with standard design and silt traps should be provided to	Project site / Design and Operation Phase	Project Proponent	√		√		WPCO, ProPECC PN 5/93

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		remove particles present in stormwater runoff, where appropriate. <u>Administrative Measures</u> • Good management measures such as regular cleaning and sweeping of road surface/ open areas are suggested. The road surface/ open area cleaning should also be carried out prior to occurrence rainstorm. • Manholes, as well as stormwater gullies, ditches provided at the Project site should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall.							
	Land Contamination								
6.7.1	-	Further site walkover and/or detailed land contamination assessment will be required for sites that are inaccessible or currently in operation / yet to be constructed (i.e. existing STSTW, David Camp and part of existing Sha Tin VDC, and proposed A Kung Kok Shan Road surface magazine site within the Project boundary). The site walkover, detailed land contamination assessment and if necessary, remediation works should be carried out after decommissioning of the sites	Existing STSTW, David Camp and VDC / Construction Phase	Project Proponent / Contractor		√		√ (for existing STSTW)	Guidance Note for Contaminated Land Assessment and Remediation, Practice Guide for Investigation and Remediation of Contaminated Land, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
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		but prior to re-development and should include the following: • Prior to the commencement of the SI works, review the CAP to confirm whether the proposed SI works (e.g. sampling locations, testing parameters etc.) are still valid and to confirm the appropriate RBRGs land use scenario for the development; • Submit supplementary CAP(s), presenting the findings of the above review for EPD endorsement. If land contamination issues were identified within David Camp or part of existing VDC / proposed A Kung Kok Shan Road surface magazine site within the Project boundary in the further site walkover, findings of the site walkover and the proposal for SI works should also be presented in the supplementary CAP(s); • Carry out SI works according to the supplementary CAP endorsed by EPD; • Submit CAR(s), detailing findings of the SI works and nature/extent of any soil/groundwater contamination, and, if contaminated identified, RAP(s), discussing the appropriate remedial methods and mitigation							

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		measures, for the identified contamination, for EPD agreement; and • Carry out soil/groundwater remediation works according to EPD agreed RAP and submit RR(s) afterwards for EPD agreement. The remediation works and agreement of RR should be completed prior to re-development.							
6.7.2	-	If contamination were identified, mitigation measures as recommended in the RAP should be followed and should include the following: • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material (or treated soil) after excavation; • Stockpiling site(s) shall be lined with impermeable sheeting and bunded. Stockpiles shall be fully covered by impermeable sheeting to reduce dust emission. If this is not practicable due to frequent	Project Site / Construction Phase	Contractor		√		√ (for existing STS TW)	Guidance Note for Contaminated Land Assessment and Remediation, Practice Guide for Investigation and Remediation of Contaminated Land, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
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		usage, regular watering shall be applied. However, watering shall be avoided on stockpiles of contaminated soil to minimise contaminated runoff. • Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying contaminated materials shall be enforced; • Vehicle wheel and body washing facilities at the site's exist points shall be established and used; and • Pollution control measures for air emissions (e.g. from biopile blower and handling of cement), noise emissions (e.g. from blower or earthmoving equipment), and water discharges (e.g. runoff control from treatment facility) shall be implemented and complied with relevant regulations and guidelines.							

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	Hazard to Life								
	Construction Phase								
7.14.1	6.2.2	The following recommendations are justified to be implemented to meet the EIAO-TM requirements: • The truck should be designed to minimise the amount of combustible in the cabin. The fuel carried in the fuel tank should also be minimised to reduce the duration of any fire; • The accident involvement frequency of the explosives delivery truck should be minimised through implementation of several administrative measures, such as providing training programme to the driver, regular "tool box" briefing session, implementing a defensive driving attitude, selecting driver with good safety record, and providing regular medical checks for the driver; • Avoidance of returning unused explosives to the magazine, only the required quantity of explosives for a particular blast should be transported; • Maintain a minimum headway of 10 minutes between two	Explosives dlivery route / Construction Phase	Contractor	√	√			EIAO-TM

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		consecutive truck convoys whenever practicable; and • The fire involvement frequency should be minimised by carrying better types of fire extinguishers and with bigger capacity onboard of the explosives delivery truck. Emergency plans and trainings could also be provided to make sure that the fire extinguishers are used adequately.							
7.14.2	6.2.3	The magazine should be designed, built, operated and maintained in accordance with Mines Division's guidelines and appropriate industry best practice. In addition, the following recommendations should be implemented: • The security plan should address different alert security level to reduce opportunity for arson or deliberate initiation of explosives; • Emergency plan should be developed to address uncontrolled fire in magazine area, and drill of the emergency plan should be regularly carried out; • Suitable work control system should be set-up, such as an operational manual including Permit-to-Work system, to ensure that work activities undertaken	Magazine Site/ Construction Phase	Contractor	√	√			-

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		during operation of the magazine are properly controlled; • Good house-keeping within the magazine to ensure no combustible materials are accumulated; • Good house-keeping outside the magazine stores to ensure no combustible materials are accumulated; and • Regular checking of the magazine store to ensure no water seepage through the roof, walls or floor.							
7.14.3	6.2.4	The following recommendations should be implemented: • Emergency plan should be developed to address uncontrolled fire during transport. Case of fire near an explosive delivery truck in jammed traffic should be included in the plan. Activation of fuel and battery isolation switches on vehicle when fire breaks out should also be included in the emergency plan to reduce likelihood of prolonged fire leading to explosion; • Working guideline should be developed to define procedure for explosives transport during adverse weather such as thunderstorm;	To and from Magazine Site / Construction Phase	Contractor	√	√			-

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		• Detonators should be transported separately from other Class 1 explosives. Separation of vehicles should also be maintained through the trip; • Develop procedure to ensure the availability of parking space on site for the explosives delivery truck. Delivery should not be commenced if parking space on site is not secured; • Hot work or other activities should be banned in the vicinity of the explosives offloading or charging activities; • Lining should be provided within the transportation box on the vehicle; • Fire screen should be used between cabin and the load on the vehicle; • Ensure packaging of detonators remains intact until handed over at blasting site; • Ensure that cartridged emulsion packages are not damaged before every trip; and • Use experienced driver with good safety record.							

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7.14.4	6.2.5	The following recommendations should be implemented for the safe use of explosives: • Blast Charge Weight should be within MIC as specified for the given blast face; • Temporary mitigation measures such as blast doors or heavy duty blast curtains should be installed at the portals or shafts and at suitable locations underground to prevent flyrock and control the air overpressure; • Multiple faces blasting will be carried out for the construction of cavern in this project. Good communication and control will need to be adopted in ensuring that the works are carried out safely; • It is not intended to carry out complete evacuation of the construction areas and secure refuge areas should be identified to workers in the areas; • A Chief Shotfirer and a Blasting Engineer shall be employed in addition to the normal blasting personnel to ensure that the works are safe and coordinated between blasting areas; • Shotfirer to be provided with a lightning detector, and appropriate	CSTW / Construction Phase	Contractor	√	√			-

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		control measures should be in place; • Speed limit for the diesel vehicle truck and bulk emulsion truck in the access tunnel and cavern should be imposed. The truck may be escorted while underground to ensure route is clear from hazards and obstructions; and • Hot work should be suspended during passage of the diesel vehicle truck and bulk emulsion truck in the access tunnel and cavern. • A boulder survey should be undertaken based on the likely PPV values that would result from the blasting process. Those boulders subject to the vibration higher than the allowable limit should be strengthened, removed, or constructed with boulder fence, prior to the commencement of blasting.							
	Operation Phase								
		Nil							

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	Ecological Impact (Terrestrial and Marine)								
	Construction Phase								
8.8.2	7.2.1	Construction of access roads and other temporary works should be carefully designed (e.g. elevated road for crossing streams) to avoid / minimise habitat loss and fragmentation.	Project site – areas access road / Pre-Construction Phase	Design team / Project Proponent	√				-
8.8.3	7.2.2	Minimise habitat loss to nearby habitats and associated wildlife by implementing the following mitigation measures: - • confining the works within the site boundary; • controlling access of site staff to avoid damage to the vegetation in surrounding areas; and • placement of equipment or stockpile in the existing disturbed / urbanised land within the site boundary of the Project to minimise disturbance to vegetated areas;	Project site / Construction Phase	Contractor		√			-
8.8.3	7.2.2	Reinstatement planting should be implemented upon the completion of construction works to minimise the ecological impact arising from the temporary habitat loss	Project Site (Main Portal Area / Secondary Portal Area / Access Road / Temporary Works Area) /Construction Phase	Project Proponent	√	√		√	

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8.8.2, 8.8.3 & 8.10	7.2.2	Detailed Vegetation Survey shall be conducted by a suitably qualified botanist / ecologist within the works area requiring vegetation clearance prior to commencement of works to identify plant species of conservation importance. The potentially affected individuals shall be tagged and fenced off for preservation, and in the case of unavoidable loss, for transplantation to nearby suitable habitat(s).	Proposed works areas (Main Portal, Secondary Portal, Access Road) / Pre-Construction Phase	Project Proponent / Qualified botanist or ecologist		√			
8.8.2, 8.8.3 & 8.10	7.3.1	A Protection and Transplantation Proposal including the subsequent monitoring visit for the affected plant species should be prepared and conducted by a suitably qualified local ecologist. The Proposal should be submitted for approval at least one month before works commencement. To review the performance of the transplantation exercise, monitoring of transplanted flora should be conducted monthly after the transplantation throughout the construction phase. The parameters to be monitored should include the health condition and survival rate of the transplanted flora and presence of weedy species. Any observations and recommendations should be reported in monthly EM&A reports	Recipient Site for transplanted species / Construction Phase	Project Proponent / Qualified botanist or ecologist		√			

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8.8.3	7.2.2	Mitigation measures should be implemented to control runoff from the construction site, as well as the adopting guidelines and good site practices for handling and disposal of construction discharges in order to minimise the potential indirect impact on the streams (particularly S2) resulting from site runoff. Precautionary measures should also be implemented to minimise indirect impacts to the streams, such as isolating the work site by placing sandbags and silt curtains, covering up construction materials, debris and spoil to avoid being washed into the stream, and properly collecting and treating construction effluent and sewage.	Access Road on Nui Po Shan / Construction Phase	Contractor		√			ETWB TCW No. 5/2005
8.8.3	7.2.2	Implement good site practice to further minimise impacts from disturbance such as noise, air quality and water quality issues, such as: - • the use of quiet plant and EPD's QPME and the availability of British Standards 5228 has been considered; • the use of movable noise barrier; • the use of temporary noise screening structures or purpose-built temporary noise barriers;	Project site / Construction Phase	Contractor		√			-

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		• install site hoarding as temporary noise barrier where construction works are undertaken; • only well-maintained plant should be operated on site and plant should be serviced regularly during the construction programme; • Mitigation measures stipulated in the ProPECC PN 1/94 "Construction Site Drainage" should be complied to minimise water quality impact; • Installation of stand-by pump, emergency power supply and telemetry system to avoid sewage overflow and surcharge to sewerage system due to power/equipment failure.							
8.8.3	7.2.2	Minimise groundwater infiltration during cavern construction with the following water control strategies:- • Probing Ahead: As a normal practice, the Contractor will undertake rigorous probing of the ground ahead of excavation works to identify zones of significant water inflow. The probe drilling results will be evaluated to determine specific grouting requirements in line with the tunnel / cavern advance. In such zones of significant water inflow that could occur as a result of discrete, permeable features, the intent	Project site / Construction Phase	Contractor		√			-

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		would be to reduce overall inflow by means of cut-off grouting executed ahead of the tunnel / cavern advance; • Pre-grouting: Where water inflow quantities are excessive, pre-grouting will be required to reduce the water inflow into the tunnel / cavern. The pre-grouting will be achieved via a systematic and carefully specified protocol of grouting; • In principle, the grout pre-treatment would be designed on the basis of probe hole drilling ahead of the tunnel / cavern face; • The installation of waterproof lining would also be adopted after the formation of the tunnels and caverns.							
8.8.3	7.2.2	In the event of excessive infiltration being observed as a result of the tunnelling or excavation works even after incorporation of the water control strategies, post-grouting should be applied as far as practicable as described below: • Post-grouting: Groundwater drawdown will be most likely due to inflows of water into the tunnel / cavern that have not been sufficiently controlled by the pre-grouting measures in high permeability area. Where this	Project site / Construction Phase	Contractor		√			-

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		occurs post grouting will be undertaken before the lining is installed. Whilst unlikely to be required in significant measure, such a contingency should be allowed for reduction in permeability of the tunnel / cavern surround (by grouting) to limit inflow to acceptable levels. The practical groundwater control measures stated above are proven technologies and have been extensively applied in other past projects. These measures or other similar methods, as approved by the Engineer to suit the works condition shall be applied to minimise the groundwater infiltration.							
8.8.3	7.2.2	In case seepage of groundwater occurs, groundwater should be pumped out from works areas and discharged to the storm system via silt trap. Uncontaminated groundwater from dewatering process should also be discharged to the storm system via silt removal facilities.	Project site / Construction Phase	Contractor		√			-

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8.8.3	7.2.2	Mitigation measures recommended in the water quality impact assessment for controlling water quality impact will also serve to protect marine ecological resources from indirect impacts and ensure no unacceptable impact on marine ecological resources. Relevant government departments including EPD, WSD and AFCD as well as key stakeholders for mariculture and fisheries in Tolo Harbour should be informed of the THEES maintenance / emergency discharge event prior to any discharge. It is recommended that the temporary effluent bypass event and the THEES maintenance period should be shortened as far as possible.	Tolo Harbour / Construction Phase	Contractor and Operator		√			-
	Construction and Operation Phase								
8.8.3	7.2.2	Overall reduction of glare during both construction and operation phase should be considered. A balance between lighting for safety, and avoiding excessive lighting can be achieved through the use of directional lighting to avoid light spill into sensitive areas, and control/timing of lighting periods of some facilities, particularly at the secondary portal which lies approximately 200 m northwest of Ma On Shan Country Park.	Project site / Construction and Operation Phase	Contractor and Operator		√	√		-

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
8.8.3	7.2.2	During the decommissioning and demolition of the existing STSTW, the direction and lighting periods should be controlled during ardeid breeding season (March to August) to minimise the potential indirect impact on Penfold Park Egretry and the ardeids flying over the existing STSTW.	Existing STSTW / Decommissioning / March to August	Contractor				√	-
8.10	7.3	It is anticipated that the construction of rock caverns would not have adverse impacts on groundwater in Nui Po Shan. Nonetheless, surface water level or groundwater level near the caverns will be closely monitored during the construction and operation stage.	Project site / Construction and Operation Phase	Contractor and Operator		√	√		-
	Compensatory Planting								
8.8.4& 8.10.1	7.2.3	Compensatory planting would be provided at main and secondary portal areas, and along the access road.	Main portal, secondary portal, and along access road	Project Proponent	√	√			DEVB TC(W) No. 7/2015
8.8.4 & 8.10.1	7.2.3	To facilitate successful planting, a detailed Woodland Compensation Plan should be prepared by local ecologists with at least 10 years relevant experience to form the basis of the proposed compensatory planting. The Woodland Compensation Plan should include implementation details, management requirement, as well as monitoring requirements (e.g. frequency and parameters) of the	Compensatory planting area (Main portal, secondary portal, and along access road) / pre-construction	Project Proponent	√	√			

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		compensatory planting area. Approval of the Plan should be obtained from EPD at least three months before the prior to commencement of compensatory woodland planting.							
8.8.4 & 8.10.1	7.2.3	Upon the completion of planting, monitoring of the woodland compensation areas should be implemented, with maintenance works (e.g. irrigation, weeding, pruning, control of pests and diseases, replacement planting, repair of damage, etc.) conducted as necessary.	Compensatory planting area (Main portal, secondary portal, and along access road) / Operation	Project Proponent / CSTW Operator			√		
	Fisheries Impact								
9.6	8.2	Potential impacts on fisheries resources and fishing operations arising from the Project have been avoided and minimised by construction of a connection pipes to the existing emergency outfall of STSTW by trenchless method underneath Shing Mun River with the least water quality impact. In addition, the temporary effluent bypass event for THEES connection work would be synchronized within regular THEES maintenance. Therefore, additional water quality impact and fisheries impact from changes of water quality have been avoided. Furthermore, the THEES maintenance discharge would avoid the blooming season of algae (i.e. January to May) to minimise the potential water quality impacts. It is	Tolo Harbour /Construction and Operation Phase	Project Proponent / Contractor	√	√			-

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		recommended that any THEES maintenance period should be shortened as far as possible.							
9.6	8.2	Mitigation measures recommended in the water quality impact assessment for controlling water quality impact will also serve to protect fisheries from indirect impacts and ensure no unacceptable impact on fisheries resources and operations. For more detailed mitigation measures regarding water quality refer to Sections 5.7.2 and 5.13.2 of the EIA Report.	Construction and Operation Phase	Contractor and Operator		√	√		-
9.6	8.2	Relevant government departments including EPD, WSD and AFCD as well as key stakeholders for mariculture and fisheries in Tolo Harbour should be informed prior to the THEES maintenance / emergency discharge events.	Tolo Harbour / Construction and Operation Phase	Project Proponent		√	√		
	Landscape and Visual Impact								
Table 10.10	-	CM1 - Preservation of Existing Vegetation	Construction Sites/ Construction Phase	Project Proponent	√	√		√	DEVB TCW No. 7/2015 and latest Guidelines on Tree Preservation during Development issued by GLTM Section of DEVB
Table 10.10	-	CM2 - Transplanting of Affected Trees	Construction Sites/ Construction Phase	Project Proponent	√	√		√	DEVB TCW No. 7/2015 and the latest Guidelines on Tree Transplanting issued by GLTM Section of DEVB

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
Table 10.10	-	CM3 - Compensatory Tree Planting	Construction Sites/ Construction Phase	Project Proponent	√	√		√	DEVB TCW No. 7/2015
Table 10.10	-	CM4 - Control of Night-time Lighting Glare	Construction Sites/ Construction Phase	Project Proponent	√	√		√	
Table 10.10	-	CM5 - Erection of Decorative Screen Hoarding	Construction Sites/ Construction Phase	Project Proponent	√	√		√	
Table 10.10	-	CM6 - Management of Construction Activities and Facilities	Construction Sites/ Construction Phase	Project Proponent	√	√		√	
Table 10.10	-	CM7 - Reinstatement of Temporarily Disturbed Landscape Areas	Construction Sites/ Construction Phase	Project Proponent	√	√		√	
Table 10.11	-	OM1 - Tree and Shrub Planting at the Temporary Project Magazine Site after Completion of Engineering Works	Temporary Project Magazine Site / Operation Phase	Project Proponent	√	√	√		
Table 10.11	-	OM2 - Aesthetically pleasing design of Aboveground Structures	Tunnel Portals, Administration Building, Ventilation Buildings, Electrical Substations and Ventilation Shaft / Operation Phase	Project Proponent	√	√	√		

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
Table 10.11	-	OM3 - Aesthetically pleasing design of Highways Structures	Access Road to Ventilation Shaft / Operation Phase	Highways Department	√	√	√		
Table 10.11	-	OM4 - Reprovision of Cycle Track	Cycle track / Operation Phase	Highways Department	√	√	√		
Table 10.11	-	OM5 - Provision of Green Roof	Administration Building and Ventilation Buildings / Operation Phase	Project Proponent	√	√	√		
Table 10.11	-	OM6 - Provision of Buffer Planting	Main and Secondary Portal Areas / Operation Phase	Project Proponent	√	√	√		
Table 10.11	-	OM7 - Hydroseeding on the disturbed ground surface after demolition works prior to future redevelopment of the existing STSTW	Existing STSTW / Operation Phase	Lands Department (LandsD) or future development agent in existing STSTW	√	√	√		
Table 10.11	-	OM8 - Woodland Mix Planting on Soil Slopes	Soil Slopes / Operation Phase	Project Proponent	√	√	√		

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
	Cultural Heritage Impact								
11.5.1.1	10.1.1	No potential direct or indirect impact to cultural heritage resource is anticipated, and therefore no mitigation measures are required.	N/A	N/A					EIAO EIAO-TM Antiquities and Monuments Ordinance Guidelines for Cultural Heritage Impact Assessment
	Wastes Management Implications								
12.6.2	11.2.2	Appropriate waste handling, transportation and disposal methods for all waste arising generated during the construction works for the Project should be implemented to ensure that construction wastes do not enter the nearby streams or drainage channel. It is anticipated that adverse impacts would not arise on the construction site, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include: • Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility.	Project Site Area / Construction Phase	Contractor		√		√	Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		• Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter. • Arrangement for regular collection of waste for transport off-site and final disposal. • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. • A Waste Management Plan should be prepared and should be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 19/2005 for details. In order to monitor the disposal of C&D material at landfills and public filling areas, as appropriate, and to control fly tipping, a trip-ticket system should be included as one of the contractual								

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		requirements to be implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may make reference to DEVB TCW No.6/2010 for details.							
12.6.3	11.2.3	Good management and control of construction site activities / processes can minimise the generation of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Maximising the use of reusable steel formwork to reduce the amount of C&D material. • Prior to disposal of C&D waste, it is recommended that wood, steel	Project Site Area / Construction Phase	Contractor		√		√	Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill. • On-site crushing and sorting facilities are being considered to reduce the rock size to fulfill the size requirements from relevant waste collection / transfer / disposal facilities; • Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials. • Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated. • Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and • Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering. In addition to the above measures, other specific mitigation measures are recommended below to minimise environmental impacts during handling, transportation and disposal of wastes.							

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
12.6.4	11.2.4	Storage of materials on site may induce adverse environmental impacts if not properly managed, recommendations to minimise the impacts include: • Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimising the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area should be provided with covers as much as practicable and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations should be designated to stockpile each material to enhance reuse.	Project Site Area / Construction Phase	Contractor		√		√	-
12.6.4	11.2.4	Licensed waste haulers should be employed for the collection and transportation of waste generated. The following measures should be enforced to minimise the potential adverse impacts: • Remove waste in timely manner; • Waste collectors should only collect wastes prescribed by their permits; • Impacts during transportation, such as dust and odour, should be	Project Site Area / Construction Phase	Contractor		√		√	Waste Disposal Ordinance Waste Disposal (Charges for Disposal of Construction Waste) Regulation Land (Miscellaneous Provisions) Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		mitigated by the use of covered trucks or in enclosed containers; • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); • Waste should be disposed of at licensed waste disposal facilities; and • Maintain records of quantities of waste generated, recycled and disposed.							
12.6.4	11.2.4	Land transport will be used for transportation of excavated and stockpile materials. It is expected there will be 1260 vehicles per day for transporting waste during peak construction phase. The tentative transportation routings for the disposal of various types of wastes are shown in Table 12.4. The transportation routing may be changed subject to the traffic conditions. Nevertheless, it is anticipated that there is no adverse impact from the waste during transportation with the implementation of appropriated measures (e.g. using water-tight containers and covered trucks).	Transportation Route of Waste / Construction Phase	Contractor		√			-

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
12.6.4	11.2.4	In order to monitor the disposal of C&D materials at PFRFs and landfills and to control fly-tipping, a trip-ticket system should be established in accordance with DEVB TCW No. 6/2010. A recording system for the amount of waste generated, recycled and disposed, including the disposal sites, should also be set up. Warning signs should be put up to remind the designated disposal sites. Close-circuited television should be installed at the vehicular entrance and exit of the site as additional measures to prevent fly-tipping.	Project Site Area / Construction Phase	Contractor		√		√	DEVB TCW No. 6/2010
12.6.4	11.2.5	In addition to the above general measures, other specific mitigation measures on handling the C&D materials and materials generated from site formation and demolition work are recommended below, which should form the basis of the WMP to be prepared by the contractor(s) in construction phase.	Project Site Area / Construction Phase	Contractor		√		√	Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site
12.6.5	11.2.5	In order to minimise the impact resulting from collection and transportation of C&D materials for off-site disposal, the excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below:	Project Site Area / Construction Phase	Contractor		√		√	Waste Disposal Ordinance ETWB TCW No.19/2005 DEVB TCW No. 6/2010

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		• A WMP, which becomes part of the EMP, should be prepared in accordance with ETWB TCW No.19/2005; • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be adopted for easy tracking; and • In order to monitor the disposal of C&D materials at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to DEVB TCW No. 6/2010). It is recommended that specific areas should be provided by the Contractors for sorting and to provide temporary storage areas (if required) for the sorted materials.							
12.6.5	11.2.5	The Contactor should prepare and implement an EMP in accordance with ETWB TCW No.19/2005, which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should	Project Site Area / Construction Phase	Contractor		√			ETWB TCW No.19/2005

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		be submitted to the Engineer for approval. The Contractor should implement waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor, preferably on a monthly basis.							
12.6.5	11.2.5	All surplus C&D materials arising from or in connection with construction works should become the property of the Contractor when it is removed unless otherwise stated. The Contractor would be responsible for devising a system to work for on-site sorting of C&D materials and promptly removing all sorted and process materials arising from the construction activities to minimise temporary stockpiling on-site. The system should be included in the EMP identifying the source of generation, estimated quantity, arrangement for on-site sorting, collection, temporary storage areas and frequency of collection by recycling Contractors or frequency of removal off-site.	Project Site Area / Construction Phase	Contractor		√		√	-
12.6.6	11.2.6	The practices of good housekeeping for CSTW listed below should be followed to ameliorate any odour impact from handling, collection, transportation and disposal of sludge:	Operation Phases	Operator			√		Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		• Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge should be transported to the STF by water-tight containers to avoid Hydrogen Sulphide (H_2S)/odour emission and ingress of water into the containers which would lower the sludge dryness during transportation • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly							

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		• Sludge trucks and containers should be washed thoroughly before leaving the CSTW to avoid any odour nuisance during transportation							
12.6.6	11.2.6	In addition, all wastewater generated from the sludge dewatering process and all contaminated water from the cleaning operations recommended for odour control will be diverted to the relocated STSTW for proper treatment.	Operation Phases	Operator			√		Waste Disposal Ordinance
12.6.7	11.2.7	If chemical wastes are produced at the construction site or during operation, the Contractor during construction or the operator during operation will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to the licensed Chemical Waste Treatment Centre, or other	Construction and Operation Phases	Contractor / Operator		√	√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage [1]				Relevant Legislation & Guidelines
					Des	C	O	Dec	
		licensed facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.							
12.6.8	11.2.8	Recycling of waste paper, aluminium cans and plastic bottles should be encouraged, it is recommended to place clearly labelled recycling bins at designated locations which could be accessed conveniently. Other general refuse should be separated from chemical and industrial waste by providing separated bins for storage to maximise the recyclable volume.	Construction and Operation Phases	Contractor / Operator		√	√		Public Health and Municipal Services Ordinance (Cap.132)
12.6.8	11.2.8	A reputable licensed waste collector should be employed to remove general refuse on a daily basis to minimise odour, pest and litter impacts.	Construction and Operation Phases	Contractor / Operator		√	√		Public Health and Municipal Services Ordinance (Cap. 132)
	Health Impact								
-	-	Not applicable.							

Appendix 3.1

Action and Limit Level

Action and Limit Level

Action and Limit Level for Noise Monitoring

Monitoring Station	Action Level	Limit Level (dB(A))		
		0700-1900 hrs on normal weekdays	0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days [2]	2300-0700 hrs of all days [2]
CM1	When one documented complaint is received	65 / 70 [1]	60 / 65 / 70 [3]	45 / 50 / 55 [3]
CM2(A)		65 / 70 [1]		
CM3		65 / 70 [1]		
CM4		75		
CM5		75		

Remark 1: Limit level of CM1, CM2(A) and CM3 reduce to 65 dB (A) during examination periods if any.
Remark 2: Construction noise during restricted hours is under the control of Noise Control Ordinance Limit Level to be selected based on Area Sensitivity Rating.
Remark 3: Limit Level for restricted hour monitoring shall act as reference level only. Investigation would be conducted on CNP compliance if exceedance recorded during restricted hour noise monitoring period.

Action and Limit Level for Air Quality Monitoring

Monitoring Locations	1-hour TSP Level in µg/m3	
	Action Level	Limit Level
AM1	294	500
AM2	325	500
AM3(A)	360	500
AM4	297	500
AM5	349	500

Appendix 4.1

Air Quality Monitoring Results and Graphical Presentations

Report on 1-hour TSP monitoring at AM1 - Ah Kung Kok Fishermen Village

Action Level (μg/m3) - 294
Limit Level (μg/m3) - 500

Date	Weather Condition	Time	Mass Concentration (μg/m3)
1-Sep-21	Fine	8:34	16
1-Sep-21	Fine	9:35	16
1-Sep-21	Fine	10:36	10
7-Sep-21	Fine	8:22	39
7-Sep-21	Fine	9:23	38
7-Sep-21	Fine	10:24	39
13-Sep-21	Fine	8:31	78
13-Sep-21	Fine	9:32	82
13-Sep-21	Fine	10:33	79
18-Sep-21	Fine	8:49	24
18-Sep-21	Fine	9:50	21
18-Sep-21	Fine	10:51	31
24-Sep-21	Fine	8:30	24
24-Sep-21	Fine	9:31	23
24-Sep-21	Fine	10:32	27
28-Sep-21	Fine	8:28	42
28-Sep-21	Fine	9:29	41
28-Sep-21	Fine	10:30	37
4-Oct-21	Fine	8:22	18
4-Oct-21	Fine	9:23	18
4-Oct-21	Fine	10:24	17
11-Oct-21	Fine	8:38	13
11-Oct-21	Fine	9:39	13
11-Oct-21	Fine	10:40	13
15-Oct-21	Fine	8:42	38
15-Oct-21	Fine	9:43	38
15-Oct-21	Fine	10:43	37
21-Oct-21	Fine	8:22	36
21-Oct-21	Fine	9:23	41
21-Oct-21	Fine	10:24	38
27-Oct-21	Fine	8:48	26
27-Oct-21	Fine	9:49	31
27-Oct-21	Fine	10:50	35
2-Nov-21	Fine	8:29	44
2-Nov-21	Fine	9:30	38
2-Nov-21	Fine	10:30	40
8-Nov-21	Fine	8:43	36
8-Nov-21	Fine	9:44	38
8-Nov-21	Fine	10:45	38
13-Nov-21	Fine	8:04	35
13-Nov-21	Fine	9:05	32
13-Nov-21	Fine	10:06	30
19-Nov-21	Fine	8:46	74
19-Nov-21	Fine	9:47	66
19-Nov-21	Fine	10:48	58
25-Nov-21	Fine	8:48	26
25-Nov-21	Fine	9:49	31
25-Nov-21	Fine	10:50	35

Report on 1-hour TSP monitoring at AM2 - Block H, Kam Tai Court

Action Level (μg/m3) - 325
Limit Level (μg/m3) - 500

Date	Weather Condition	Time	Mass Concentration (μg/m3)
1-Sep-21	Fine	9:26	16
1-Sep-21	Fine	10:27	18
1-Sep-21	Fine	13:00	20
7-Sep-21	Fine	8:29	55
7-Sep-21	Fine	9:30	48
7-Sep-21	Fine	10:31	70
13-Sep-21	Fine	9:27	17
13-Sep-21	Fine	10:28	24
13-Sep-21	Fine	13:00	26
18-Sep-21	Fine	8:54	17
18-Sep-21	Fine	9:55	22
18-Sep-21	Fine	10:56	27
24-Sep-21	Fine	9:12	18
24-Sep-21	Fine	10:13	17
24-Sep-21	Fine	13:00	16
28-Sep-21	Fine	8:53	8
28-Sep-21	Fine	9:54	8
28-Sep-21	Fine	10:55	6
4-Oct-21	Fine	8:50	21
4-Oct-21	Fine	9:51	15
4-Oct-21	Fine	10:52	20
11-Oct-21	Fine	9:13	35
11-Oct-21	Fine	10:14	25
11-Oct-21	Fine	13:00	29
15-Oct-21	Fine	8:58	44
15-Oct-21	Fine	9:59	39
15-Oct-21	Fine	10:59	44
21-Oct-21	Fine	8:46	37
21-Oct-21	Fine	9:47	31
21-Oct-21	Fine	10:48	39
27-Oct-21	Fine	9:09	24
27-Oct-21	Fine	10:10	24
27-Oct-21	Fine	13:00	22
2-Nov-21	Fine	8:55	56
2-Nov-21	Fine	9:56	43
2-Nov-21	Fine	10:56	52
8-Nov-21	Fine	8:54	30
8-Nov-21	Fine	9:55	27
8-Nov-21	Fine	10:56	32
13-Nov-21	Fine	9:42	52
13-Nov-21	Fine	10:43	52
13-Nov-21	Fine	13:00	38
19-Nov-21	Fine	9:39	43
19-Nov-21	Fine	10:40	31
19-Nov-21	Fine	13:00	41
25-Nov-21	Fine	9:09	24
25-Nov-21	Fine	10:10	24
25-Nov-21	Fine	13:00	22

Report on 1-hour TSP monitoring at AM3(B) - Outside A Kung Kok Street Garden

Action Level (μg/m3) - 360
Limit Level (μg/m3) - 500

Date	Weather Condition	Time	Mass Concentration (μg/m3)
1-Sep-21	Fine	8:26	8
1-Sep-21	Fine	9:28	7
1-Sep-21	Fine	10:29	7
7-Sep-21	Fine	8:28	37
7-Sep-21	Fine	9:29	31
7-Sep-21	Fine	10:30	29
13-Sep-21	Fine	8:51	39
13-Sep-21	Fine	9:52	39
13-Sep-21	Fine	10:53	44
18-Sep-21	Fine	8:58	19
18-Sep-21	Fine	9:59	16
18-Sep-21	Fine	11:00	16
24-Sep-21	Fine	8:40	25
24-Sep-21	Fine	9:41	22
24-Sep-21	Fine	10:42	16
28-Sep-21	Fine	8:36	40
28-Sep-21	Fine	9:37	44
28-Sep-21	Fine	10:38	36
4-Oct-21	Fine	8:40	21
4-Oct-21	Fine	9:41	20
4-Oct-21	Fine	10:42	21
11-Oct-21	Fine	8:35	15
11-Oct-21	Fine	9:36	16
11-Oct-21	Fine	10:36	16
15-Oct-21	Fine	8:37	34
15-Oct-21	Fine	9:38	33
15-Oct-21	Fine	10:39	34
21-Oct-21	Fine	8:29	34
21-Oct-21	Fine	9:30	26
21-Oct-21	Fine	10:30	27
27-Oct-21	Fine	8:19	17
27-Oct-21	Fine	9:20	16
27-Oct-21	Fine	10:20	18
2-Nov-21	Fine	8:26	33
2-Nov-21	Fine	9:27	33
2-Nov-21	Fine	10:27	35
8-Nov-21	Fine	8:20	35
8-Nov-21	Fine	9:21	38
8-Nov-21	Fine	10:22	39
13-Nov-21	Fine	8:16	36
13-Nov-21	Fine	9:17	39
13-Nov-21	Fine	10:17	39
19-Nov-21	Fine	8:36	94
19-Nov-21	Fine	9:37	92
19-Nov-21	Fine	10:38	100
25-Nov-21	Fine	8:19	17
25-Nov-21	Fine	9:20	16
25-Nov-21	Fine	10:21	18

Report on 1-hour TSP monitoring at AM4 - Wellborn Kindergarten

Action Level (μg/m3) - 297
Limit Level (μg/m3) - 500

Date	Weather Condition	Time	Mass Concentration (μg/m3)
1-Sep-21	Fine	8:18	7
1-Sep-21	Fine	9:19	7
1-Sep-21	Fine	10:20	6
7-Sep-21	Fine	8:41	36
7-Sep-21	Fine	9:42	27
7-Sep-21	Fine	10:43	27
13-Sep-21	Fine	8:57	41
13-Sep-21	Fine	9:58	37
13-Sep-21	Fine	10:59	36
18-Sep-21	Fine	8:36	70
18-Sep-21	Fine	9:37	42
18-Sep-21	Fine	10:38	14
24-Sep-21	Fine	8:26	62
24-Sep-21	Fine	9:27	40
24-Sep-21	Fine	10:27	41
28-Sep-21	Fine	8:42	36
28-Sep-21	Fine	9:43	37
28-Sep-21	Fine	10:43	41
4-Oct-21	Fine	8:39	22
4-Oct-21	Fine	9:40	18
4-Oct-21	Fine	10:40	23
11-Oct-21	Fine	8:13	14
11-Oct-21	Fine	9:14	11
11-Oct-21	Fine	10:14	10
15-Oct-21	Fine	8:21	30
15-Oct-21	Fine	9:22	26
15-Oct-21	Fine	10:23	31
21-Oct-21	Fine	8:33	63
21-Oct-21	Fine	9:34	57
21-Oct-21	Fine	10:35	50
27-Oct-21	Fine	8:22	46
27-Oct-21	Fine	9:23	42
27-Oct-21	Fine	10:24	39
2-Nov-21	Fine	8:13	31
2-Nov-21	Fine	9:14	23
2-Nov-21	Fine	10:14	25
8-Nov-21	Fine	8:09	40
8-Nov-21	Fine	9:10	41
8-Nov-21	Fine	10:11	41
13-Nov-21	Fine	8:20	36
13-Nov-21	Fine	9:21	38
13-Nov-21	Fine	10:22	37
19-Nov-21	Fine	8:34	58
19-Nov-21	Fine	9:35	55
19-Nov-21	Fine	10:36	53
25-Nov-21	Fine	8:22	46
25-Nov-21	Fine	9:23	42
25-Nov-21	Fine	10:25	39

Report on 1-hour TSP monitoring at AM5 - The NAAC Harmony Manor

Action Level (μg/m3) - 349
Limit Level (μg/m3) - 500

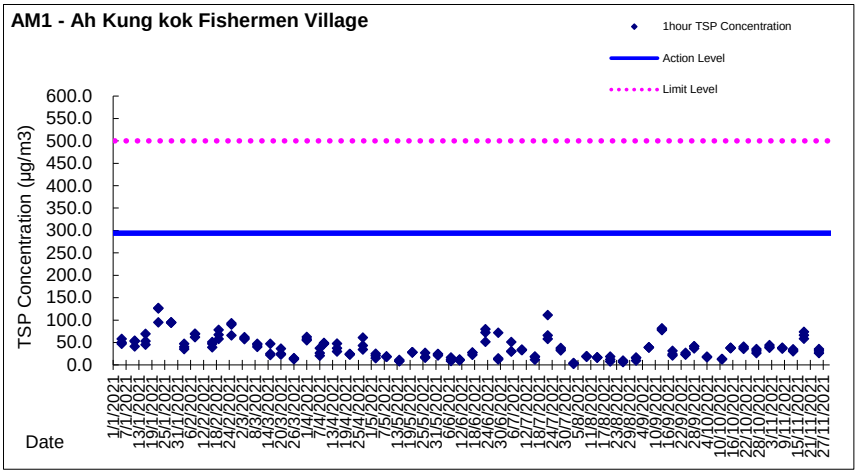
Date	Weather Condition	Time	Mass Concentration (μg/m3)
1-Sep-21	Fine	8:32	8
1-Sep-21	Fine	9:34	8
1-Sep-21	Fine	10:35	5
7-Sep-21	Fine	8:26	14
7-Sep-21	Fine	9:27	20
7-Sep-21	Fine	10:27	22
13-Sep-21	Fine	8:15	38
13-Sep-21	Fine	9:16	33
13-Sep-21	Fine	10:17	35
18-Sep-21	Fine	8:31	39
18-Sep-21	Fine	9:32	41
18-Sep-21	Fine	10:33	33
24-Sep-21	Fine	8:15	15
24-Sep-21	Fine	9:16	13
24-Sep-21	Fine	10:17	9
28-Sep-21	Fine	8:39	38
28-Sep-21	Fine	9:40	34
28-Sep-21	Fine	10:41	35
4-Oct-21	Fine	8:33	26
4-Oct-21	Fine	9:34	25
4-Oct-21	Fine	10:35	25
11-Oct-21	Fine	8:49	14
11-Oct-21	Fine	9:50	12
11-Oct-21	Fine	10:51	12
15-Oct-21	Fine	8:13	32
15-Oct-21	Fine	9:14	31
15-Oct-21	Fine	10:14	31
21-Oct-21	Fine	8:54	22
21-Oct-21	Fine	9:55	18
21-Oct-21	Fine	10:56	18
27-Oct-21	Fine	8:39	38
27-Oct-21	Fine	9:40	32
27-Oct-21	Fine	10:40	38
2-Nov-21	Fine	8:13	31
2-Nov-21	Fine	9:14	23
2-Nov-21	Fine	10:14	25
8-Nov-21	Fine	8:09	40
8-Nov-21	Fine	9:10	41
8-Nov-21	Fine	10:11	41
13-Nov-21	Fine	8:20	36
13-Nov-21	Fine	9:21	38
13-Nov-21	Fine	10:22	37
19-Nov-21	Fine	8:34	58
19-Nov-21	Fine	9:35	55
19-Nov-21	Fine	10:36	53
25-Nov-21	Fine	8:22	46
25-Nov-21	Fine	9:23	42
25-Nov-21	Fine	10:25	39

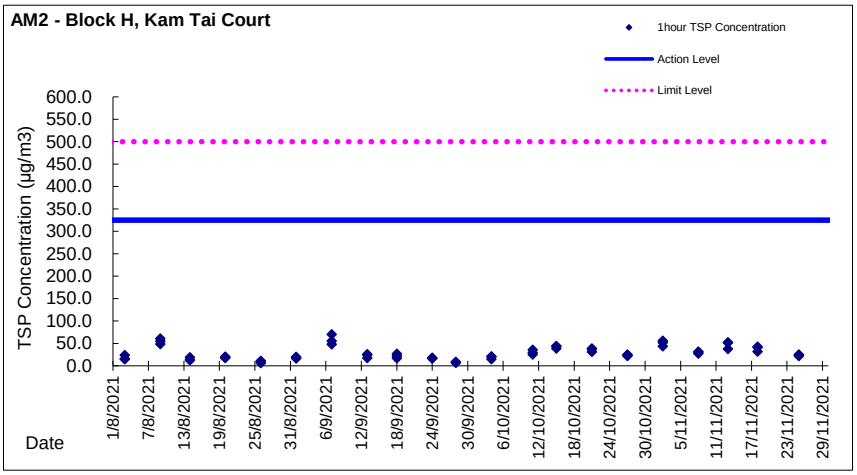
Report on 1-hour TSP monitoring at AM6 - Seaview Villa

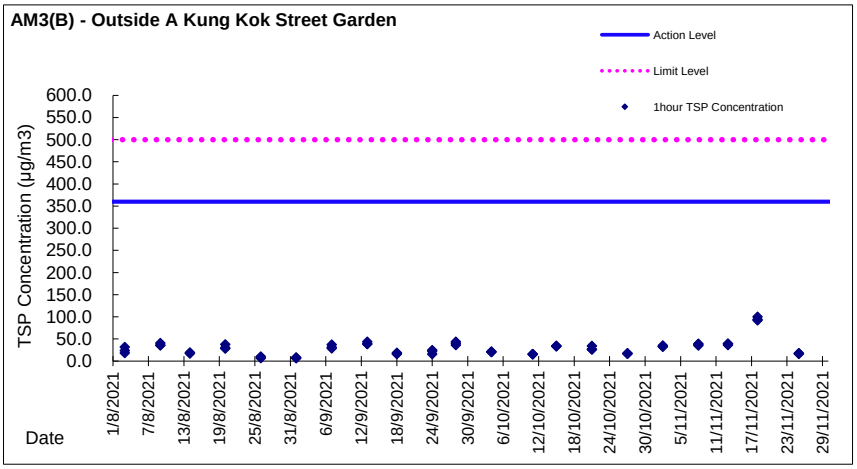
Action Level (μg/m3) - 312
Limit Level (μg/m3) - 500

Date	Weather Condition	Time	Mass Concentration (μg/m3)
2-Nov-21	Fine	9:13	27
2-Nov-21	Fine	10:14	32
2-Nov-21	Fine	13:00	28
8-Nov-21	Fine	8:51	48
8-Nov-21	Fine	9:52	51
8-Nov-21	Fine	10:52	53
13-Nov-21	Fine	8:35	38
13-Nov-21	Fine	9:36	41
13-Nov-21	Fine	10:36	43
19-Nov-21	Fine	8:10	59
19-Nov-21	Fine	9:11	56
19-Nov-21	Fine	10:12	56
25-Nov-21	Fine	13:00	44
25-Nov-21	Fine	14:01	52
25-Nov-21	Fine	15:02	55

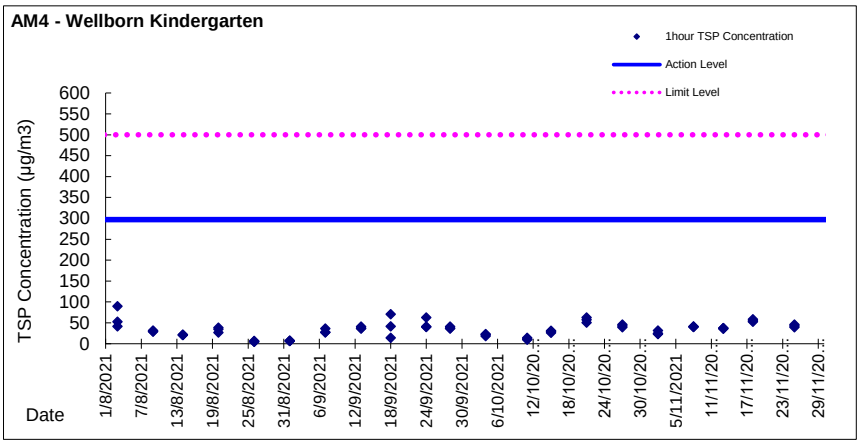
Graphic Presentation of TSP Result

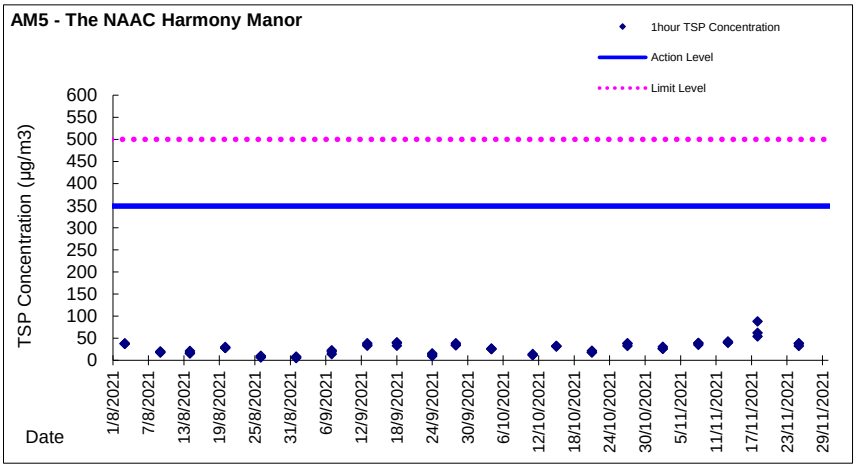


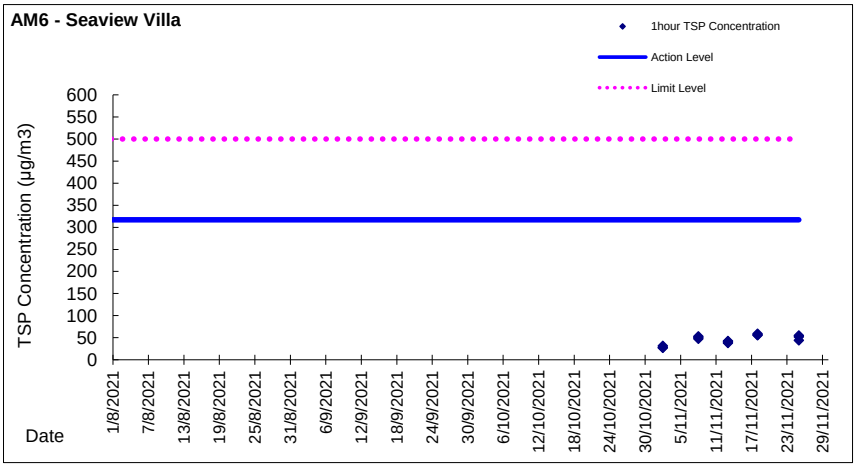




Graphic Presentation of TSP Result







Appendix 4.2

Noise Monitoring Results and Graphical Presentations

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: CM1 - G/F, Wellborn Kindergarten

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
01/09/2021	10:50	Fine	0.0	51.7	55.2	48.4	70
07/09/2021	11:10	Fine	0.0	53.3	56.0	49.5	70
13/09/2021	11:00	Fine	0.0	50.2	53.8	45.5	70
24/09/2021	11:00	Fine	0.0	52.6	55.7	49.4	70
28/09/2021	11:05	Fine	0.0	51.0	54.6	47.2	70
04/10/2021	10:40	Fine	0.0	52.1	54.9	49.4	70
15/10/2021	14:20	Fine	0.0	54.8	57.3	50.5	70
21/10/2021	10:35	Cloudy	0.0	51.6	53.5	48.8	70
27/10/2021	11:20	Fine	0.0	51.3	54.1	46.7	70
02/11/2021	14:20	Fine	0.0	54.1	58.5	48.4	70
08/11/2021	13:55	Fine	0.0	54.6	57.0	49.0	70
17/11/2021	10:30	Fine	0.2	52.5	54.2	48.7	70
22/11/2021	8:18	Fine	0.0	53.8	56.3	50.1	70

* Limit level of noise monitoring station CM1 was adjusted to 65dB(A) during examination period.

Location: CM2(B) - G/F, Kowloon City Baptist Church Hay Nien Primary School

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30-min)			
01/09/2021	10:15	Fine	0.0	66.1	68.0	62.8	70
07/09/2021	10:30	Fine	0.0	62.5	65.8	57.1	70
13/09/2021	10:25	Fine	0.0	63.6	67.2	59.5	70
24/09/2021	10:20	Fine	0.0	63.2	66.7	58.6	70
28/09/2021	10:30	Fine	0.2	64.8	67.1	59.9	70
04/10/2021	10:05	Fine	0.0	63.3	65.6	57.4	70
15/10/2021	13:45	Fine	0.0	64.2	67.5	60.3	70
21/10/2021	10:00	Cloudy	0.0	62.6	65.4	58.9	70
27/10/2021	10:45	Fine	0.0	62.8	63.6	57.4	70
02/11/2021	13:45	Fine	0.0	63.9	66.2	59.6	70
08/11/2021	13:15	Fine	0.0	63.7	65.4	59.4	70
17/11/2021	9:50	Fine	0.3	61.2	63.7	57.5	70
22/11/2021	8:55	Fine	0.0	59.4	64.2	56.5	70

* Limit level of noise monitoring station CM2(A) was adjusted to 65dB(A) during examination period.

Location: CM3 - R/F, S.K.H. Ma On Shan Holy Spirit Primary School

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
01/09/2021	9:30	Fine	0.4	64.3	67.6	59.4	70
07/09/2021	9:40	Fine	0.0	65.8	69.0	61.2	70
13/09/2021	9:20	Fine	2.0	63.5	68.1	58.2	70
24/09/2021	9:30	Fine	0.6	63.4	66.9	57.5	70
28/09/2021	9:45	Fine	0.0	64.6	68.3	58.4	70
04/10/2021	9:20	Fine	0.0	63.8	66.4	58.5	70
15/10/2021	13:00	Fine	0.0	62.5	65.0	57.6	70
21/10/2021	9:15	Cloudy	0.4	64.3	67.2	57.9	70
27/10/2021	10:00	Fine	0.0	65.3	67.2	62.0	70
02/11/2021	13:00	Fine	0.0	64.7	67.5	61.4	70
08/11/2021	11:25	Fine	0.0	65.3	67.4	59.3	70
19/11/2021	9:55	Fine	0.0	65.2	66.9	62.7	70
23/11/2021	11:05	Cloudy	0.8	65.1	67.0	62.3	70

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
01/09/2021	17:00	Fine	0.0	61.1	63.8	58.9	75
07/09/2021	17:00	Fine	0.0	65.6	69.6	61.2	75
13/09/2021	17:00	Fine	0.0	64.7	67.2	61.3	75
24/09/2021	17:00	Fine	0.0	64.7	66.4	61.5	75
28/09/2021	17:00	Fine	0.0	65.9	68.5	61.5	75
04/10/2021	17:00	Fine	0.0	62.3	65.8	57.8	75
15/10/2021	17:00	Fine	0.0	63.7	66.2	58.4	75
22/10/2021	17:00	Cloudy	0.0	62.6	65.9	56.5	75
27/10/2021	17:00	Fine	0.0	63.9	66.0	59.3	75
02/11/2021	17:00	Fine	0.0	63.4	67.0	58.2	75
08/11/2021	17:00	Fine	0.0	63.8	66.1	59.5	75
19/11/2021	17:00	Fine	0.0	64.5	67.2	60.3	75
24/11/2021	17:10	Fine	0.0	65.3	68.9	61.6	75
30/11/2021	17:00	Fine	0.0	62.9	66.0	60.6	75

Location: CM5 - R/F, The Neighbourhood Advice-Action Council Harmony Manor

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
01/09/2021	14:20	Fine	0.5	62.5	66.5	58.7	75
07/09/2021	13:30	Fine	0.2	63.9	66.2	59.4	75
13/09/2021	14:00	Fine	0.2	61.6	64.9	57.8	75
24/09/2021	13:40	Fine	0.3	62.1	65.8	59.2	75
28/09/2021	13:00	Fine	0.6	63.2	67.0	58.5	75
04/10/2021	14:00	Fine	0.0	63.1	66.4	58.0	75
15/10/2021	15:00	Fine	0.0	64.2	68.1	59.8	75
21/10/2021	11:25	Cloudy	0.6	63.5	67.1	59.4	75
27/10/2021	13:50	Fine	0.0	65.7	68.2	61.7	75
02/11/2021	15:15	Fine	0.0	62.7	66.3	57.9	75
08/11/2021	14:30	Fine	0.0	63.3	66.2	59.7	75
19/11/2021	14:23	Fine	1.0	51.4	54.7	47.2	75
25/11/2021	16:14	Fine	0.8	55.9	57.4	48.5	75

Location: DM1 - G/F, Seaview Villa

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
05/11/2021	9:45	Fine	0.0	63.3	66.2	59.7	75
08/11/2021	10:20	Fine	0.0	62.9	65.3	58.9	75
19/11/2021	11:06	Fine	0.8	63.3	66.9	55.9	75
25/11/2021	16:02	Fine	0.0	64.7	69.1	60.3	75

Location: DM2 - G/F, Racecourse Gardens

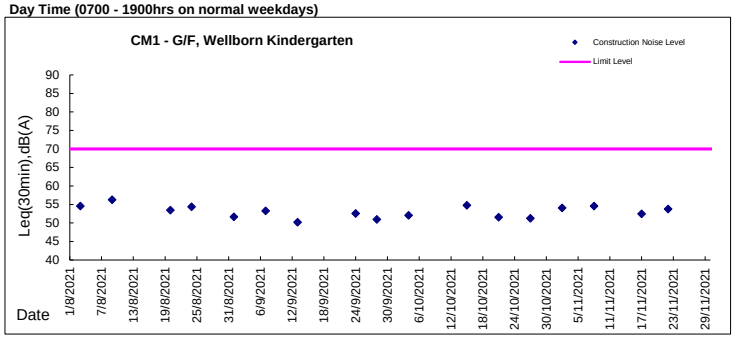
Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
05/11/2021	9:30	Fine	0.0	67.0	69.1	63.0	75
08/11/2021	10:00	Fine	0.0	67.1	69.4	60.5	75
19/11/2021	10:15	Fine	0.0	67.4	70.0	62.3	75
25/11/2021	13:30	Fine	0.0	65.6	68.9	61.3	75

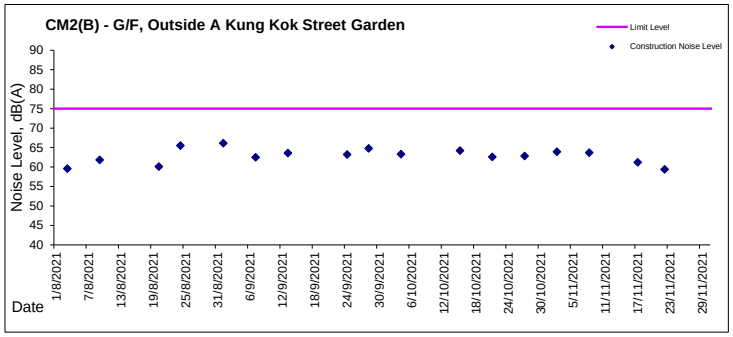
Location: DM3 - R/F, S.K.H. Ma On Shan Holy Spirit Primary School

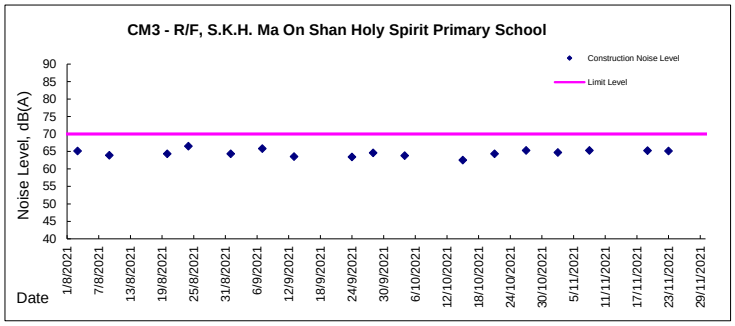
Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level Leq	L10	L90	Limit Level Leq
				Unit: dB(A), (30min)			
02/11/2021	13:00	Fine	0.0	64.7	67.5	61.4	70
08/11/2021	11:25	Fine	0.0	65.3	67.4	59.3	70
19/11/2021	9:55	Fine	0.0	65.2	66.9	62.7	70
23/11/2021	11:05	Cloudy	0.8	65.1	67.0	62.3	70

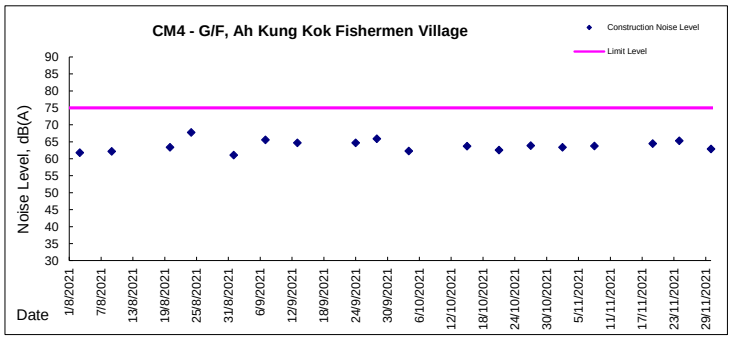
* Limit level of noise monitoring station CM3 was adjusted to 65dB(A) during examination period.

Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)

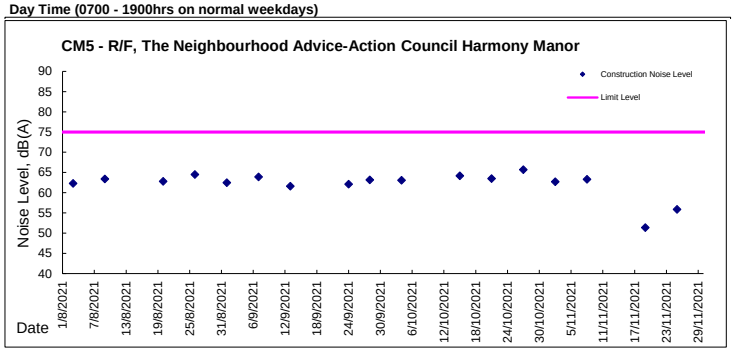


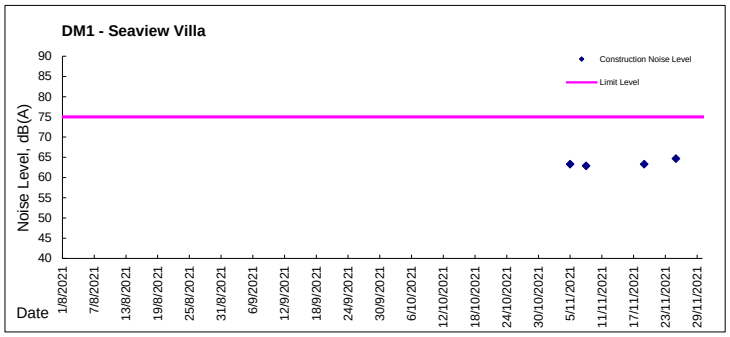


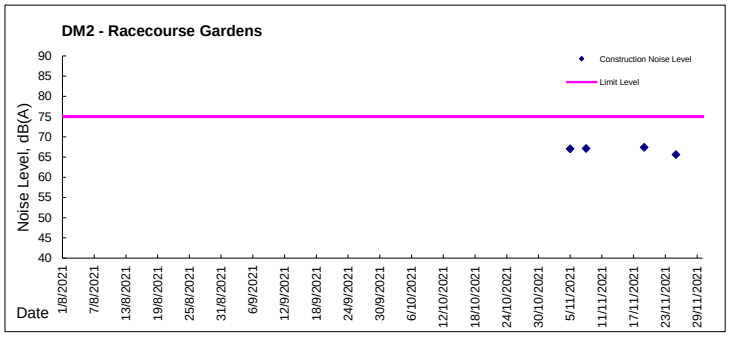


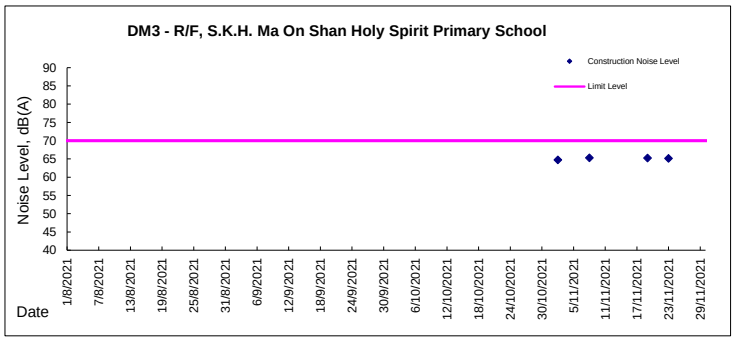


Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)









Noise Monitoring Result

Evening Time (1900 - 2300hrs)

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Weather	Time	Measurement Noise Level			Mean Noise Level	Baseline Level Range (mean level)	Construction Noise Level (baseline correction)	Major Construction Noise Source(s)	Other Noise Source(s)
			Leq	L10	L90	Leq (5min)	Leq	Leq		
			dB(A), (5-min)			Unit: dB(A), (5-min)				
01/09/2021	Fine	21:30	58.4	60.2	55.7	58	53.5-70.9 (mean 56.7)	53	nil	Traffic
		21:35	57.7	59.6	54.7					
		21:40	58.5	60.1	56.1					
		21:45	58.6	60.3	56.3					
		21:50	57.8	59.5	55.2					
		21:55	59.2	62.0	55.1					
07/09/2021	Fine	19:10	65.1	68.1	57.3	66	53.5-70.9 (mean 56.7)	65	nil	Traffic
		19:15	65.0	69.4	58.4					
		19:20	66.7	70.1	58.6					
		19:25	66.6	70.6	59.8					
		19:30	65.7	70.6	57.6					
		19:35	65.8	69.1	58.2					
13/09/2021	Fine	22:30	62.5	68.6	56.2	62	53.5-70.9 (mean 56.7)	61	nil	Traffic
		22:35	62.4	67.4	56.1					
		22:40	62.4	67.8	55.1					
		22:45	62.2	68.4	55.8					
		22:50	62.2	68.5	55.1					
		22:55	62.1	67.0	54.4					
24/09/2021	Fine	19:25	64.3	65.5	62.9	64	53.5-70.9 (mean 56.7)	63	nil	Traffic
		19:30	64.2	65.8	62.1					
		19:35	63.8	65.2	61.9					
		19:40	64.2	65.8	61.6					
		19:45	63.4	65.1	61.4					
		19:50	63.4	65.0	60.9					
28/09/2021	Fine	21:30	66.0	68.2	61.6	65	53.5-70.9 (mean 56.7)	65	nil	Traffic
		21:35	63.9	66.4	60.6					
		21:40	66.3	68.3	61.9					
		21:45	67.3	71.5	61.4					
		21:50	64.0	65.8	61.3					
		21:55	64.9	66.2	61.3					

Noise Monitoring Result

Evening Time (1900 - 2300hrs)

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Weather	Time	Measurement Noise Level			Mean Noise Level	Baseline Level Range (mean level)	Construction Noise Level (baseline correction)	Major Construction Noise Source(s)	Other Noise Source(s)
			Leq	L10	L90	Leq (5min)	Leq	Leq		
			dB(A), (5-min)			Unit: dB(A), (5-min)				
04/10/2021	Fine	20:00	63.1	64.9	60.5	63	53.5-70.9 (mean 56.7)	62	nil	Traffic
		20:05	62.5	64.2	60.2					
		20:10	63.0	64.7	60.6					
		20:15	62.9	64.5	60.4					
		20:20	62.5	64.4	60.1					
		20:25	63.3	65.2	60.8					
15/10/2021	Fine	21:50	62.8	64.3	60.1	63	53.5-70.9 (mean 56.7)	62	nil	Traffic
		21:55	63.0	64.7	60.2					
		22:00	63.3	65.4	60.6					
		22:05	63.1	65.1	60.0					
		22:10	63.5	65.2	61.3					
		22:15	63.8	64.8	60.6					
22/10/2021	Cloudy	20:00	64.6	68.6	56.2	64	53.5-70.9 (mean 56.7)	63	nil	Traffic
		20:05	64.4	67.4	56.1					
		20:10	63.3	67.8	55.1					
		20:15	65.2	68.4	55.8					
		20:20	64.6	68.5	55.1					
		20:25	63.7	67.0	54.4					
27/10/2021	Fine	20:00	62.6	64.3	60.4	63	53.5-70.9 (mean 56.7)	62	nil	Traffic
		20:05	62.3	63.8	60.3					
		20:10	63.4	65.2	60.4					
		20:15	63.3	65.2	60.8					
		20:20	62.5	64.4	59.5					
		20:25	62.5	64.2	60.4					

Noise Monitoring Result

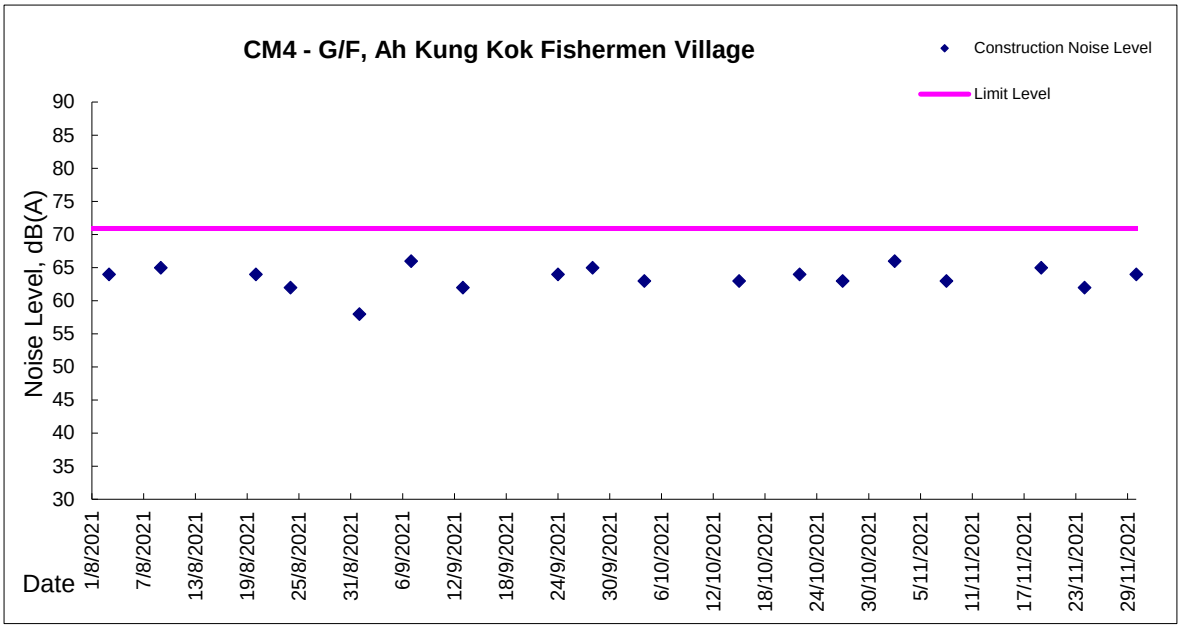
Evening Time (1900 - 2300hrs)

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Weather	Time	Measurement Noise Level			Mean Noise Level	Baseline Level Range (mean level)	Construction Noise Level (baseline correction)	Major Construction Noise Source(s)	Other Noise Source(s)
			Leq	L10	L90	Leq (5min)	Leq	Leq		
			dB(A), (5-min)			Unit: dB(A), (5-min)				
2/11/2021	Fine	19:00	62.8	64.7	60.0	66	53.5-70.9 (mean 56.7)	65	nil	Traffic
		19:05	63.3	65.6	60.0					
		19:10	72.7	75.0	63.2					
		19:15	73.2	74.8	61.3					
		19:20	62.3	64.0	60.1					
		19:25	61.9	63.9	59.6					
8/11/2021	Fine	19:20	63.6	65.5	60.9	63	53.5-70.9 (mean 56.7)	62	nil	Traffic
		19:25	63.3	64.7	61.3					
		19:30	62.8	64.2	61.1					
		19:35	63.5	65.2	61.0					
		19:40	62.7	64.4	60.5					
		19:45	64.8	65.9	60.2					
19/11/2021	Fine	19:45	64.2	61.4	65.0	65	53.5-70.9 (mean 56.7)	64	nil	Traffic
		19:50	67.2	61.6	56.8					
		19:55	61.8	57.1	58.1					
		20:00	66.4	56.9	59.7					
		20:05	67.2	68.0	66.7					
		20:10	62.0	54.0	62.1					
24/11/2021	Fine	22:00	60.6	63.8	58.9	62	53.5-70.9 (mean 56.7)	60	nil	Traffic
		22:05	61.7	63.3	60.2					
		22:10	62.2	64.8	59.8					
		22:15	61.4	64.6	59.8					
		22:20	61.1	65.7	60.4					
		22:25	62.5	65.2	60.8					
30/11/2021	Fine	20:30	64.4	69.7	60.9	64	53.5-70.9 (mean 56.7)	63	nil	Traffic
		20:35	62.8	67.3	61.1					
		20:40	64.2	69.4	62.0					
		20:45	63.5	68.8	60.5					
		20:50	63.4	67.7	60.7					
		20:55	65.1	69.5	61.8					

Graphic Presentation of Noise Monitoring Result

Evening Time (1900 - 2300hrs on normal weekdays)



Noise Monitoring Result

Night Time (2300 - 0700hrs on next day)

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Weather	Time	Measurement Noise Level			Mean Noise Level	Baseline Level Range (mean level)	Construction Noise Level (baseline correction)	Major Construction Noise Source(s)	Other Noise Source(s)
			Leq	L10	L90	Leq (5min)	Leq	Leq		
			dB(A), (5-min)			Unit: dB(A), (5-min)				
02/09/2021	Fine	00:45	56.2	57.1	51.4	55	45.6-63.2 (mean 52.8)	50	nil	Traffic
		00:50	55.8	57.9	51.5					
		00:55	54.5	57.1	50.3					
		01:00	54.6	56.5	49.1					
		01:05	53.5	55.8	49.9					
		01:10	54.2	57.2	49.7					
08/09/2021	Fine	00:00	60.2	58.8	50.4	60	45.6-63.2 (mean 52.8)	59	nil	Traffic
		00:05	60.5	57.0	50.5					
		00:10	60.3	64.6	50.2					
		00:15	59.7	58.1	50.4					
		00:20	60.2	60.5	50.3					
		00:25	60.2	56.6	44.8					
14/09/2021	Fine	00:30	56.9	63.9	51.8	58	45.6-63.2 (mean 52.8)	57	nil	Traffic
		00:35	58.4	63.3	52.5					
		00:40	58.3	64.5	51.4					
		00:45	58.2	63.6	51.2					
		00:50	58.4	63.4	51.4					
		00:55	58.7	64.0	51.1					
25/09/2021	Fine	00:00	62.4	64.5	59.2	62	45.6-63.2 (mean 52.8)	62	nil	Traffic
		00:05	62.0	64.3	58.2					
		00:10	62.7	64.3	60.3					
		00:15	61.9	64.0	58.6					
		00:20	62.5	64.1	60.1					
		00:25	62.1	63.9	58.9					
29/09/2021	Fine	00:15	61.8	64.3	59.4	62	45.6-63.2 (mean 52.8)	62	nil	Traffic
		00:20	62.1	64.3	59.9					
		00:25	62.8	65.1	60.2					
		00:30	62.4	64.6	60.0					
		00:35	62.8	65.6	59.2					
		00:40	62.1	64.2	59.4					

Noise Monitoring Result

Night Time (2300 - 0700hrs on next day)

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Weather	Time	Measurement Noise Level			Mean Noise Level	Baseline Level Range (mean level)	Construction Noise Level (baseline correction)	Major Construction Noise Source(s)	Other Noise Source(s)
			Leq	L10	L90	Leq (5min)	Leq	Leq		
			dB(A), (5-min)			Unit: dB(A), (5-min)				
05/10/2021	Fine	00:30	60.2	62.4	56.3	60	45.6-63.2 (mean 52.8)	59	nil	Traffic
		00:35	59.8	62.1	55.5					
		00:40	60.0	62.2	56.5					
		00:45	59.6	61.6	55.6					
		00:50	60.8	64.5	55.8					
		00:55	59.1	61.5	54.0					
16/10/2021	Fine	01:20	58.7	61.2	55.1	59	45.6-63.2 (mean 52.8)	57	nil	Traffic
		01:25	59.1	61.4	55.1					
		01:30	58.8	60.8	55.7					
		01:35	59.2	61.5	55.9					
		01:40	58.0	60.9	53.4					
		01:45	57.8	60.0	53.5					
23/10/2021	Cloudy	01:05	60.2	63.9	51.8	60	45.6-63.2 (mean 52.8)	59	nil	Traffic
		01:10	60.1	63.3	52.5					
		01:15	61.0	64.5	51.4					
		01:20	60.1	63.6	51.2					
		01:25	59.6	63.4	51.4					
		01:30	59.9	64.0	51.1					
28/10/2021	Fine	00:00	62.4	64.5	59.2	62	45.6-63.2 (mean 52.8)	62	nil	Traffic
		00:05	62.0	64.3	58.2					
		00:10	62.7	64.3	60.3					
		00:15	61.9	64.0	58.6					
		00:20	62.5	64.1	60.1					
		00:25	62.1	63.9	58.9					

Noise Monitoring Result

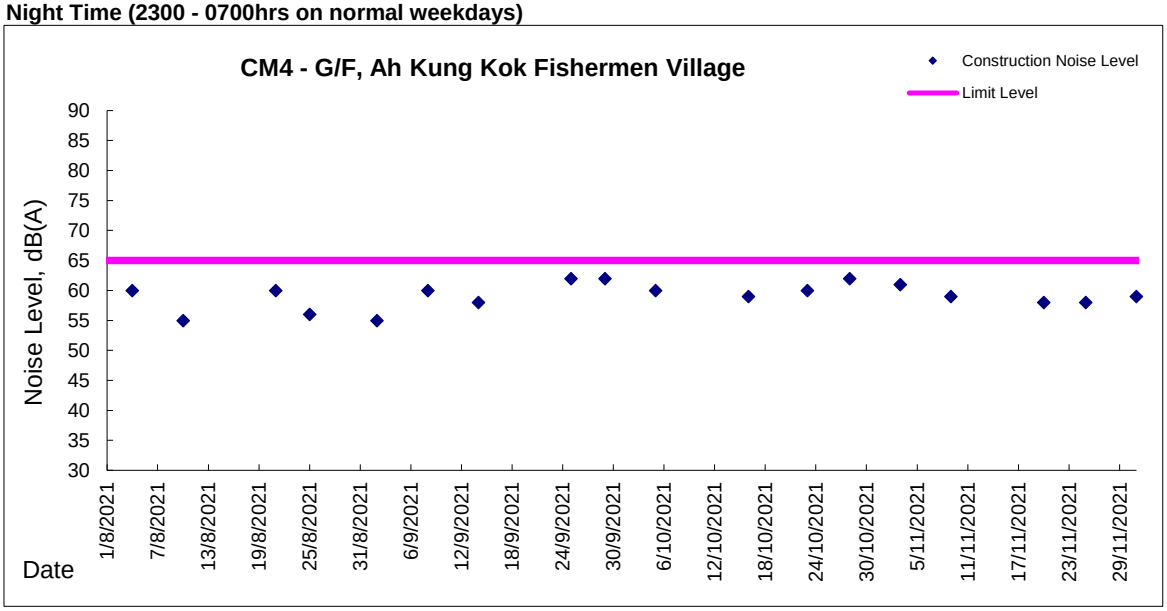
Night Time (2300 - 0700hrs on next day)

Location: CM4 - G/F, Ah Kung Kok Fishermen Village

Date	Weather	Time	Measurement Noise Level			Mean Noise Level	Baseline Level Range (mean level)	Construction Noise Level (baseline correction)	Major Construction Noise Source(s)	Other Noise Source(s)
			Leq	L10	L90	Leq (5min)	Leq	Leq		
			dB(A), (5-min)			Unit: dB(A), (5-min)				
3/11/2021	Fine	0:00	60.2	62.0	57.3	61	45.6-63.2 (mean 52.8)	60	nil	Traffic
		0:05	61.6	63.4	57.9					
		0:10	59.6	61.4	57.2					
		0:15	61.0	62.9	58.9					
		0:20	60.4	61.4	57.0					
		0:25	61.0	63.0	57.0					
9/11/2021	Fine	0:00	59.0	61.0	55.9	59	45.6-63.2 (mean 52.8)	58	nil	Traffic
		0:05	59.5	61.6	55.1					
		0:10	58.8	60.8	56.5					
		0:15	59.1	61.2	55.7					
		0:20	58.0	60.3	55.2					
		0:25	59.4	61.6	56.5					
20/11/2021	Fine	0:05	55.6	58.2	58.8	59	45.6-63.2 (mean 52.8)	57	nil	Traffic
		0:10	63.1	57.3	55.6					
		0:15	54.2	59.6	63.1					
		0:20	62.5	58.1	58.4					
		0:25	62.0	61.3	56.0					
		0:30	54.0	55.0	58.4					
25/11/2021	Fine	3:30	52.2	57.6	50.3	58	45.6-63.2 (mean 52.8)	56	nil	Traffic
		3:35	58.9	64.2	55.5					
		3:40	54.7	60.5	53.1					
		3:45	60.4	64.4	58.2					
		3:50	57.9	64.5	53.6					
		3:55	61.6	64.3	58.0					
1/12/2021	Fine	0:30	58.9	63.2	55.5	59	45.6-63.2 (mean 52.8)	57	nil	Traffic
		0:35	57.4	66.6	55.6					
		0:40	58.2	62.5	56.2					
		0:45	59.8	63.1	57.5					
		0:50	60.4	64.1	58.2					
		0:55	57.8	61.3	56.5					

Graphic Presentation of Noise Monitoring Result

Night Time (2300 - 0700hrs on normal weekdays)



Appendix 4.3

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table

Name of Department: Drainage Services Department **Contract No.: DC/2018/05**

Monthly Summary Waste Flow Table for November 2021 [to be submitted not later than the 15th day of each month following reporting month]

(All quantities shall be rounded off to 3 decimal places.)

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Broken Concrete (see Note 3)	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed as Public Fill	(f) Metals	(g) Paper/cardboard packaging	(h) Plastics (see Note 2)	(i) Chemical Waste	(j) Others, e.g. general refuse disposed at Landfill
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in L)	(in tonne)
Jan-21	17.798	0.389	1.648	15.516	0.245	0.000	0.300	0.000	0.00	190.10
Feb-21	15.555	0.176	0.034	15.092	0.253	0.030	0.250	0.000	0.22	27.65
Mar-21	13.422	0.032	2.050	11.078	0.263	0.000	0.000	0.000	0.0	38.61
Apr-21	27.113	0.107	4.999	21.851	0.157	0.000	0.000	0.000	0.0	60.40
May-21	11.323	0.019	0.684	10.332	0.289	0.000	0.000	0.000	0.0	30.93
Jun-21	17.561	0.000	0.669	16.527	0.365	0.000	0.000	0.000	0.0	51.46
Sub-total	102.771	0.721	10.084	90.395	1.572	0.030	0.550	0.000	0.220	399.15
Jul-21	4.124	0.218	0.500	3.098	0.309	0.034	0.350	0.000	0.300	38.02
Aug-21	2.865	0.286	0.365	2.041	0.173	19.670	0.000	0.000	0.000	21.19
Sep-21	2.555	0.100	0.215	2.125	0.115	0.045	0.350	0.000	0.000	27.46
Oct-21	3.714	0.041	0.195	3.455	0.024	0.000	0.000	0.000	0.000	57.29
Nov-21	9.577	0.087	0.106	7.224	2.160	0.000	0.000	0.000	0.000	26.86
Total	125.607	1.453	11.465	108.336	4.354	19.779	1.250	0.000	0.520	569.97

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 plastics bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 5 m^3 by volume.

(5) Conversion factors for reporting purpose:

Excavated: rock = 2.0 tonnes/m^3, soil = 1.8 tonnes/m^3, broken concrete and bitumen = 2.4 tonnes/m^3, Slurry = 2.8 tonnes/m^3

Monthly Summary Waste Flow Table

Name of Department: Drainage Services Department **Contract No.: DC/2020/05**

Monthly Summary Waste Flow Table for November 2021 [to be submitted not later than the 15th day of each month following reporting month]

(All quantities shall be rounded off to 3 decimal places.)

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Broken Concrete (see Note 3)	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed as Public Fill	(f) Metals	(g) Paper/cardboard packaging	(h) Plastics (see Note 2)	(i) Chemical Waste	(j) Others, e.g. general refuse disposed at Landfill
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in tonne)
Jan-21	-	-	-	-	-	-	-	-	-	-
Feb-21	-	-	-	-	-	-	-	-	-	-
Mar-21	-	-	-	-	-	-	-	-	-	-
Apr-21	-	-	-	-	-	-	-	-	-	-
May-21	-	-	-	-	-	-	-	-	-	-
Jun-21	-	-	-	-	-	-	-	-	-	-
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jul-21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Aug-21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Sep-21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Oct-21	0.026	0.000	0.000	0.000	0.026	0.000	0.000	0.000	0.560	11.92
Nov-21	0.761	0.164	0.030	0.000	0.567	75.270	0.000	0.000	0.000	0.000
Dec-21										
Total	0.787	0.164	0.030	0.000	0.593	75.270	0.000	0.000	0.560	11.920

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 plastics bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 5 m^3 by volume.

(5) Conversion factors for reporting purpose:

Excavated: rock = 2.0 tonnes/m^3, soil = 1.8 tonnes/m^3, broken concrete and bitumen = 2.4 tonnes/m^3, Slurry = 2.8 tonnes/m^3

Appendix 6.1

Event and Action Plans

Event and Action Plan for Construction Air Quality

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Action level being exceedance by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC and ER; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Notify Contractor.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate
2. Action level being exceeded by two or more consecutive sampling	1. Identify source; 2. Inform Contractor, IEC and ER; 3. Advise the Contractor and ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with Contractor, IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.

Event and Action Plan for Construction Air Quality (Con't)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1. Limit level exceedance by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; and 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 3. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 4. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2. Limit level exceedance by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 3. Review Contractor' s remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 4. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; and 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; and 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; and 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; and 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposal if problem still not under control; and 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix 7.1

Complaint Log

Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
190808	29 July 2019	DSD	Construction site area Portion 6	Exposed slope surface without any covering was observed at Portion 6	A public complaint regarding construction dust received by DSD on 29 July 2019 was subsequently referred to ET on 6 August 2019. The complainant reported that exposed slope surface without any covering at Portion 6. Based on the information provided by the Contractor, the concerned area was under slope cutting and filling works for temporary haul road construction. Based on the observation on 6 August 2019 and weekly site inspection on 7 August 2019, the concerned slope was observed covered with the tarpaulin sheets to alleviate the potential dust impact to the surroundings. Upon review on the monitoring data, no exceedances were recorded at the air quality monitoring stations AM2 - Block H, Kam Tai Court and AM4 - Wellborn Kindergarten (located nearest to the concerned slope) during the 1hr TSP monitoring on 23 July 2019 and 29 July 2019 respectively. Follow up site inspection was conducted by the Environmental Team on 07 August 2019 and it was observed that the slope at Portion 6 was properly covered. Nevertheless, in view of the public concern, the Contractor of DC/2018/05 was reminded to enhance the dust suppression measure by providing adequate watering to any exposed surface during cutting slope and fill works to avoid potential dust impact to the surroundings.	Interim investigation report was issue on 16 August 2019
201112	12 November 2020	DSD	Outside site boundary of Portion 11	water contamination / ecological impact	A letter from Kadoorie Farm and Botanic Garden (KFBG) regarding water contamination / ecological impact received by DSD on 12 November 2020 was subsequently referred to ET on 12 November 2020. The KFBG alleged that: - Extracting water directly from the stream, - Surface run-off silt smothering forest understorey	Interim investigation report was issue on 14 December 2020

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					and silting the stream, - **Cement has been disposed into the forest understorey and the stream , and** - **Diesel fuel leaking from pumps and generators at Portion 11.** **The concerned area is natural stream near slope cutting and filling works for temporary haul road construction, outside of the DC/2018/05 construction site boundary.** **The Contractor, RSS conducted walk-through survey on 17 November 2020 starting from around the tree tag T9511/ T9512 and ending at the pool of the natural stream near Portion 11 of DC/2018/05.** **Additional site inspection with EPD, DSD, RSS, ET and the Contractor was conducted on 17 November 2020, additional site inspection with KFBG, DSD, RSS, ET and the Contractor was conducted on 19 November 2020.** **No Pollutants were observed being discharged to the stream, the natural stream was clean with running water during above inspections. However, few spots were found with cement and silt on the bedding of the stream.** **According to the Contractor, the water pumps were the emergency pumps and it had been removed away from the natural stream. No pump was observed during above inspections.** **There was no sign of any diesel fuel leaking from pumps or generators. The nearest generator for the construction work has been located far away from the concerned location. By the walk-through survey along the natural stream, there was no oil-strain or diesel likes contamination being observed.** **By the walk-through survey, various locations were found with silting / sand. The sources of the silt were not necessary from the construction site of DC/2018/05. It could also be contributed by the natural erosion from both sides of the stream.** **Nevertheless, in view of the public concern, the**	

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					Contractor of DC/2018/05 was willing to clean up the stream to address the concerns from KFBG to protect the environment. The Contractor also reminded to keep review the performance of mitigation measures including well cover slope / area with exposed soil with tarpaulin sheets to prevent surface runoff, using cellular confinement system to prevent soil erosion.	
210127	**27 January 2021**	**DSD**	**Construction Area at Portion 6 (Tunnel)**	**Air Quality**	**A public complaint regarding construction dust referred by DSD on 27 January 2021 was subsequently received by ET on 27 January 2021. The complainant reported that:** - **Construction dust emission arising from blasting works in tunnel was observed near Block 6, Chevalier Garden.** **Blasting in the tunnel was carried out under Contract DC/2018/05 at the concerned area** **According to the relevant site information provided by the Contractor of DC/2018/05, there are total of 13nos. of blasting works was carried out in January 2021 in the tunnel.** **The blasting works was carried out in the tunnel. Dust screen, mist curtain, sprinkler system and mist cannon were installed / operated when blasting, the blast door was tightly closed during blasting.** **Based on review on air quality monitoring data, no exceedances were recorded at the air quality monitoring stations AM3(B) - Outside A Kung Kok Street Garden and AM4 - Wellborn Kindergarten (located nearest to the concerned area) during the scheduled 1hr TSP monitoring in January 2021.** **Ad-hoc TSP monitoring and inspection was carried out on 29 January and 1 February 2021 during blasting, no exceedances were recorded at the air**	**Interim investigation report was issue on 7 February 2021**

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					quality monitoring stations AM3(B) - Outside A Kung Kok Street Garden and AM4 - Wellborn Kindergarten. **Based on the site inspection on 28 January 2021, 2nos. mist cannons have been installed and operated on the top of blast door during / after the blast door opened to reduce fumes / mists emission.** **The Contractor of DC/2018/05 was reminded to enhance the dust suppression measure by providing adequate watering after the blast door opened. Contractor is requested to consider extend the time to open the blast door after blasting in order to the fumes and rock dust have been settled in the tunnel.** **Also, the Contractor of DC/2018/05 was reminded that the ventilation system in the tunnel should be maintained in good condition.**	

Appendix 8.1

Construction Programme of Individual Contracts

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
Relocation of Sha Tin Sewage Treatment Works to Caverns - Site Preparation & Access Tunnel							
Contract Particular							
Sectional Completion							
Sectional Completion							
Sect010	Sect 1 (1034d) - Construction of Retaining Wall RMP2 and RMP3	0		29-Nov-21*	29		28-Dec-21
Sect050	Sect 5 (1034d) - Comprises the Preservation and Protection of Existing Trees	0		28-Dec-21*	0		28-Dec-21
Sect070	Sect 7 (1034d) - Comprises the Establishment Works to landscape softworks	0		28-Dec-21*	0		28-Dec-21
Sect080	Establishment Works to Landscape softworks under Section 2 (365d)	366	06-Dec-20 A	06-Dec-21	22	30-Oct-21	28-Dec-21
Sect090	Establishment Works to Landscape softworks under Section 3 (245d)	245	28-Apr-21 A	28-Dec-21	0	08-Oct-21	28-Dec-21
Preliminary Works							
Preliminary Works							
Preliminary Works							
A11980	Preservation and Protection of Existing Trees	835	28-Feb-19 A	28-Dec-21	0	28-Dec-21	28-Dec-21
A12340	Establishment Works to landscape softworks (Section 7)	718	23-Jul-19 A	28-Dec-21	0	23-Jul-19	28-Dec-21
Access Road to Main Portal Area							
Noise Barrier							
Existing Noise Barrier							
A11000	Demolish existing noise barrier	75	02-Aug-21 A	30-Oct-21	94	31-Jan-22	28-Feb-22
Road Works							
Construction Access connecting Ma On Shan Road							
A12300	Existing noise barrier demolished	0	01-Nov-21		94	28-Feb-22	
Mui Tsz Lam Road							
CE216 - Revised Design for Proposed DN450 Fresh Water Main at MTLR							
DN450 Water Main							
P1090	Pipe laying & Valve installation & Blank Flange in Existing MTLR (TTA Stage 4)	6	08-Oct-21	15-Oct-21	44	30-Nov-21	06-Dec-21
P1100	backfilling in Existing MTLR (TTA Stage 4)	4	16-Oct-21	20-Oct-21	44	07-Dec-21	10-Dec-21
Works within Portion 4 & 6							
DN450 Water Main							
A10720	DN450 pipe laying complete	0		16-Oct-21	57		22-Dec-21
A10730	Water connection for DN450	13	18-Oct-21	01-Nov-21	57	23-Dec-21	10-Jan-22
A10750	Existing DN450 potable water main disconnected	0		01-Nov-21	57		10-Jan-22
MTLR - TTA Stage 4							
General							
C10470	Road Works at TTA stage 4 area (including street furniture)	18	01-Dec-21	21-Dec-21	9	11-Dec-21	04-Jan-22
Drainage Works							
C10240	ELS (SMH1017)	69	02-Aug-21 A	23-Oct-21	9	20-Oct-21	03-Nov-21
C10250	Excavation (SMH1017)	6	25-Oct-21	30-Oct-21	9	04-Nov-21	10-Nov-21
C10260	Construct Manhole (SMH1017)(4.9m depth)	26	01-Nov-21	30-Nov-21	9	11-Nov-21	10-Dec-21

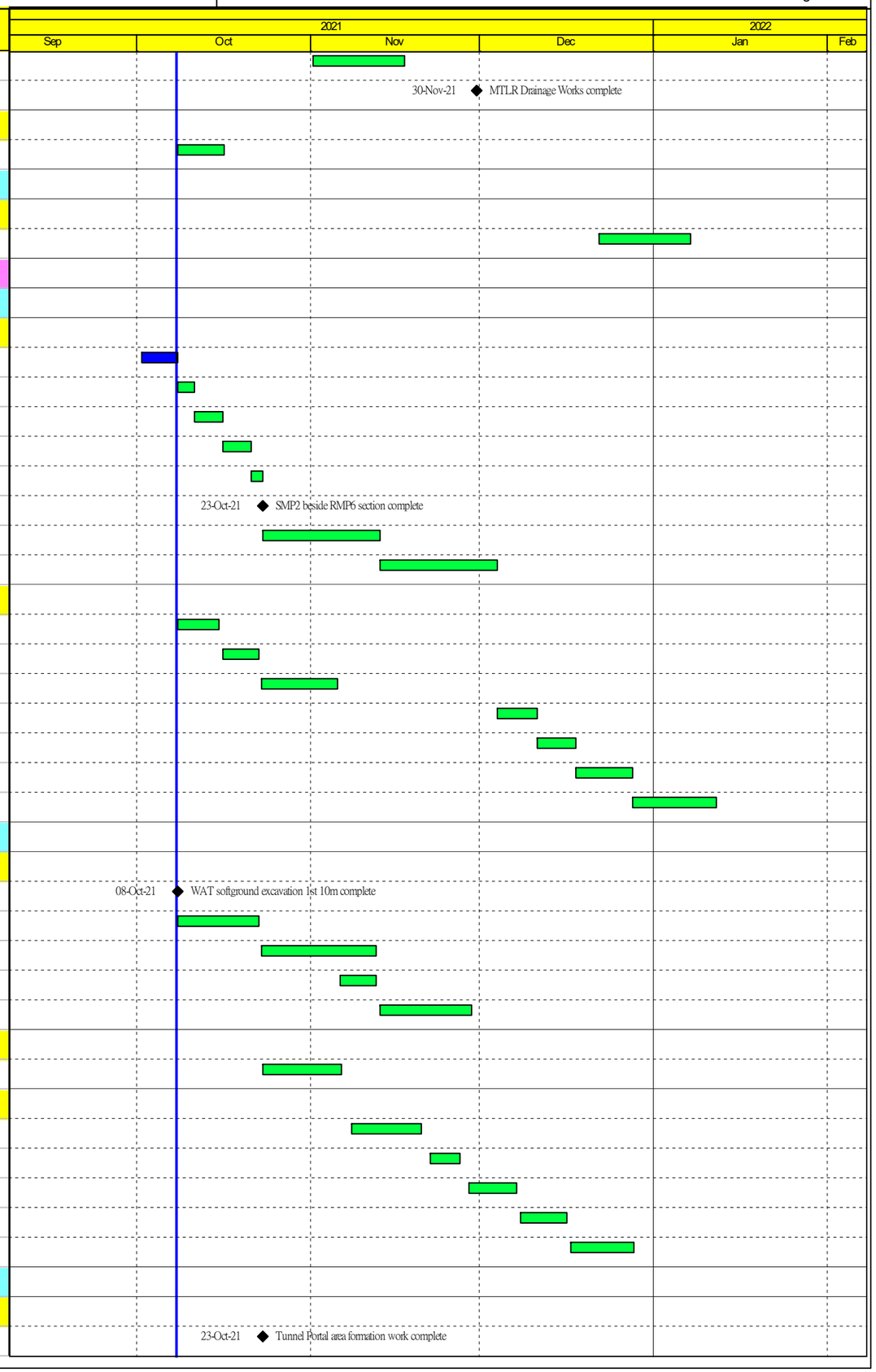
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Crit. Milestone

Project ID: MP006 (2110)
Layout: 3 Month Rolling Programme
Data Date: 08-Oct-21
Page 1 of 4
Primavera Systems, Inc.

Contract No. DC/2018/05
Relocation of Sha Tin Sewge Treatment Works to Caverns - Site Preparation and Access Tunnel Construction
3 Month Rolling Programme

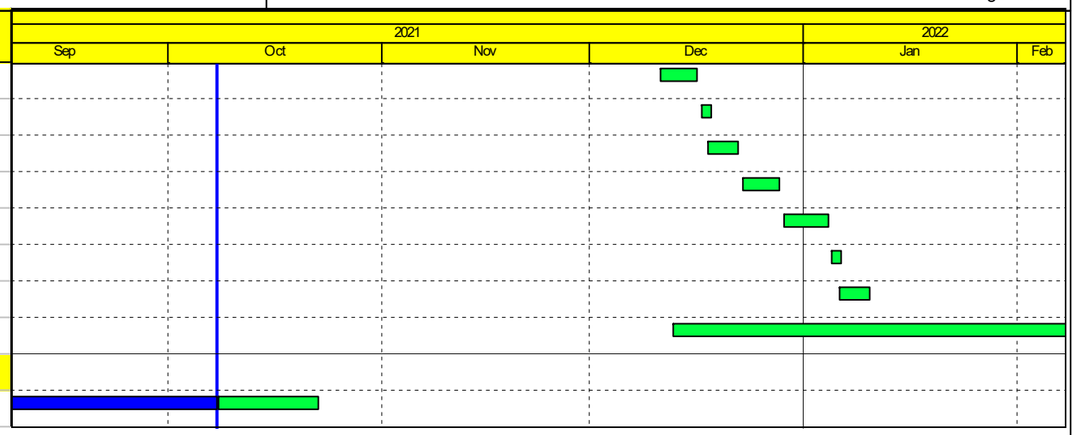
CHINA STATE JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
C10610	Construct (SMH1018 - 1017 pipe)(4.9m depth)	15	01-Nov-21	17-Nov-21	20	24-Nov-21	10-Dec-21
C10630	MTLR Drainage Works complete	0		30-Nov-21	27		04-Jan-22
DN450 Water Main							
C10230	Laying DN450 (CHB 32 - 49) (~3.1m depth)	7	08-Oct-21	16-Oct-21	47	03-Dec-21	10-Dec-21
Road Works							
Mui Tsz Lam Road Realignment							
A10445	Construct remaining road work at MTL Raod realigment	12	22-Dec-21	07-Jan-22	9	05-Jan-22	18-Jan-22
Main Portal Area							
Site Formation for Main Portal							
Slope SMP 2							
A12970	Excavation (15.5 - 12mpd)	5	02-Oct-21 A	08-Oct-21	35	18-Nov-21	18-Nov-21
A12980	Form temp working platform for soil nail at 12mpd	2	08-Oct-21	11-Oct-21	35	19-Nov-21	20-Nov-21
A12990	Soil Nail at 11mpd (Au1-21 & TN9)- 22nos	4	11-Oct-21	16-Oct-21	35	22-Nov-21	25-Nov-21
A13000	Soil Nail at 9mpd (At1-21)- 21nos	4	16-Oct-21	21-Oct-21	35	26-Nov-21	30-Nov-21
A13010	Excavation (12 - 8mpd)	2	21-Oct-21	23-Oct-21	35	01-Dec-21	02-Dec-21
A13015	SMP2 beside RMP6 section complete	0		23-Oct-21	89		14-Feb-22
A13080	Catpatch (1nos) & U-channel at +15.5mpd (SMP2)	18	23-Oct-21	13-Nov-21	35	03-Dec-21	23-Dec-21
A13090	Catpatch (1nos) & U-channel at +8mpd (SMP2)	18	13-Nov-21	04-Dec-21	35	24-Dec-21	17-Jan-22
Slope SMP 1							
A12480	Excavate slope from +23 to +16mpd (SMP1)	6	08-Oct-21	15-Oct-21	59	17-Dec-21	23-Dec-21
A12490	Excavate slope from +16 to +8mpd (SMP1)	6	16-Oct-21	22-Oct-21	59	24-Dec-21	03-Jan-22
A12495	Slope & berm formation (SMP1)	12	23-Oct-21	05-Nov-21	59	04-Jan-22	17-Jan-22
A12500	Catpatch (3nos) & U-channel at +23mpd (SMP1)	6	04-Dec-21	11-Dec-21	35	18-Jan-22	24-Jan-22
A12510	Catpatch (2nos) & U-channel at +16mpd (SMP1)	6	11-Dec-21	18-Dec-21	35	25-Jan-22	31-Jan-22
A12520	Catpatch (2nos) & U-channel at +8mpd (SMP1)	6	18-Dec-21	28-Dec-21	35	08-Feb-22	14-Feb-22
A12530	Maintenance Stairway (SMP1)	12	28-Dec-21	12-Jan-22	35	15-Feb-22	28-Feb-22
Retaining Wall for Main Portal							
Retaining Wall RMP2							
A13370	WAT softground excavation 1st 10m complete	0		08-Oct-21	23		04-Nov-21
A14110	Excavate trench for Gabion wall	12	08-Oct-21	22-Oct-21	23	05-Nov-21	18-Nov-21
A14120	Gabion wall cage & rock installation	18	23-Oct-21	12-Nov-21	23	19-Nov-21	09-Dec-21
A14130	Subsoil pipe installation	6	06-Nov-21	12-Nov-21	23	03-Dec-21	09-Dec-21
A14140	Backfill the slope	14	13-Nov-21	29-Nov-21	23	10-Dec-21	28-Dec-21
Retaining Wall RMP6 - CSD							
A15550	Retaining Wall wall structure to 23mpd - CSD RMP6	12	23-Oct-21	06-Nov-21	89	15-Feb-22	28-Feb-22
Retaining Wall RMP5 - CSD							
A17165	Temp work (Steel ribs footing) at WAT Tunnel portal	12	08-Nov-21	20-Nov-21	14	24-Nov-21	07-Dec-21
A17170	Retaining Wall base (Bay 1) - CSD RMP5	6	22-Nov-21	27-Nov-21	46	18-Jan-22	24-Jan-22
A17180	Retaining Wall wall structure to 7.5mpd (Bay 1)- CSD RMP5 (at WAT portal area)	8	29-Nov-21	07-Dec-21	46	25-Jan-22	09-Feb-22
A17190	Retaining Wall wall structure to 16mpd (Bay 1)- CSD RMP5 (at WAT portal area)	8	08-Dec-21	16-Dec-21	46	10-Feb-22	18-Feb-22
A17200	Retaining Wall wall structure to 23mpd (Bay 1) - CSD RMP5 (at WAT portal area)	8	17-Dec-21	28-Dec-21	46	19-Feb-22	28-Feb-22
Tunnel							
Preliminary Works							
A12350	Tunnel Portal area formation work complete	0		23-Oct-21	101		28-Feb-22

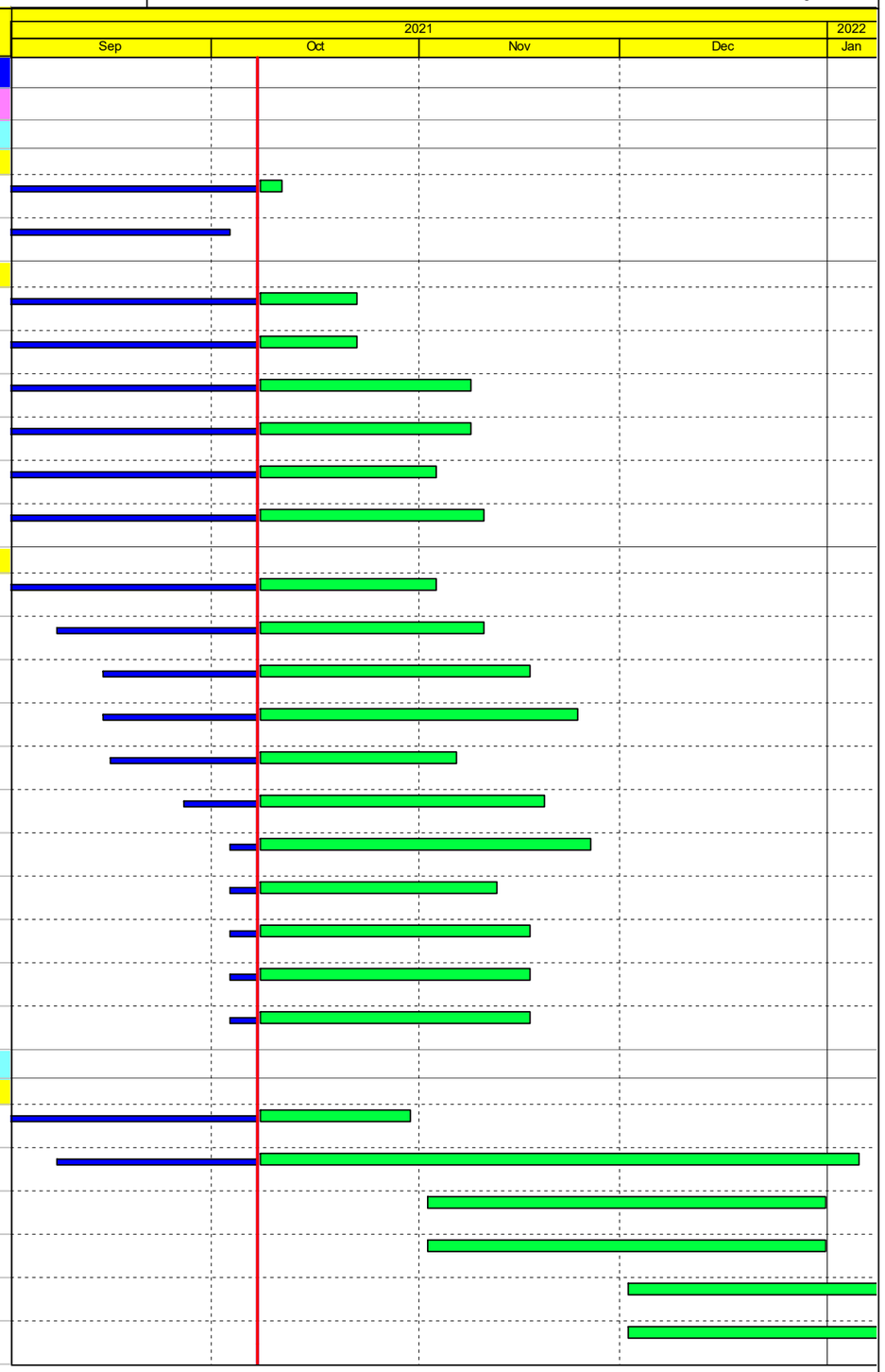


Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
	Hard Rock 284m, Tunnel Excavation by Drill and Blast						
B10760	Permanent bolt and shotcrete - Bottom Bench	188	13-Mar-21 A	30-Oct-21	94	31-Jan-22	28-Feb-22
	Permanent Lining						
A13260	Side Wall - Upper part (LHS)	36	14-Sep-21 A	28-Oct-21	17	29-Oct-21	17-Nov-21
A13270	Side Wall - Upper part (RHS)	36	30-Sep-21 A	12-Nov-21	16	28-Oct-21	01-Dec-21
A13280	Erect Platform for Crown Steel fixing	21	23-Oct-21	16-Nov-21	16	11-Nov-21	04-Dec-21
A13290	Erect Shutter Travellier for Crown	30	30-Oct-21	03-Dec-21	16	18-Nov-21	22-Dec-21
A13300	Crown Lining	60	17-Nov-21	28-Jan-22	16	06-Dec-21	23-Feb-22
A14150	Backfill ramp for temp access	18	19-Oct-21	09-Nov-21	23	15-Nov-21	04-Dec-21
A14170	Backfill 200 thick Grade 200 rock fill for tunnel	60	09-Oct-21	18-Dec-21	52	10-Dec-21	28-Feb-22
	Rigid Barriers						
	Rigid Barrier BMP1						
A13550	Maintenance staircase - RB RMP1	26	08-Oct-21	08-Nov-21	73	06-Jan-22	11-Feb-22
A13560	Hand rail - RB RMP1	14	09-Nov-21	24-Nov-21	73	12-Feb-22	28-Feb-22
	Rigid Barrier BMP2						
A13740	Hand rail - RB BMP2	14	08-Oct-21	25-Oct-21	99	12-Feb-22	28-Feb-22
	Access Road to Portion 12 - Phase 2						
	Road Works						
	Road work at A Kung Kok Shan Road Roundabout						
A15250	Road work for roundabout modification	5	08-Oct-21	13-Oct-21	107	22-Feb-22	26-Feb-22
A15260	Road marking	1	15-Oct-21	15-Oct-21	107	28-Feb-22	28-Feb-22
	CE205 - Western Access Tunnel Entrustment Works						
	Western Access Tunnel						
	Site Formation for Western Tunnel Portal						
E11100	Excavation (+13 to +8mpd) rock breaking (LHS besides RMP5)	18	18-Oct-21	06-Nov-21	14	03-Nov-21	23-Nov-21
E11110	Excavation (+13 to +8mpd) rock breaking (RHS)	18	22-Nov-21	11-Dec-21	14	08-Dec-21	30-Dec-21
	Soft Ground Tunnel Excavation by Drill and Break						
E10730	Pre-Excavation Grouting (Ch187 - 191)	5	08-Oct-21	13-Oct-21	14	26-Oct-21	30-Oct-21
E10740	Tunnel excavation (Ch187 - 191)	2	15-Oct-21	16-Oct-21	14	01-Nov-21	02-Nov-21
E10750	Steel rib & Shortcrete installation (Ch187 - 191)	4	16-Oct-21	20-Oct-21	26	16-Nov-21	19-Nov-21
E10760	Probing and PEG (4nos.,30m)	2	21-Oct-21	22-Oct-21	26	20-Nov-21	22-Nov-21
E10770	Long Canopy Tube (Ch191 - 195)	3	23-Oct-21	26-Oct-21	26	23-Nov-21	25-Nov-21
E10780	Pre-Excavation Grouting (Ch191 - 195)	5	27-Oct-21	01-Nov-21	26	26-Nov-21	01-Dec-21
E10790	Tunnel excavation (Ch191 - 195)	2	02-Nov-21	03-Nov-21	26	02-Dec-21	03-Dec-21
E10800	Steel rib & Shortcrete installation (Ch191 - 195)	4	03-Nov-21	06-Nov-21	26	03-Dec-21	07-Dec-21
E10810	Long Canopy Tube (Ch195 - 199)	3	08-Nov-21	10-Nov-21	26	08-Dec-21	10-Dec-21
E10820	Pre-Excavation Grouting (Ch195 - 199)	5	11-Nov-21	16-Nov-21	26	11-Dec-21	16-Dec-21
E10830	Tunnel excavation (Ch195 - 199)	2	17-Nov-21	18-Nov-21	26	17-Dec-21	18-Dec-21
E10840	Steel rib & Shortcrete installation (Ch195 - 199)	4	18-Nov-21	22-Nov-21	26	18-Dec-21	22-Dec-21
E10850	Long Canopy Tube (Ch199 - 203)	3	23-Nov-21	25-Nov-21	26	23-Dec-21	28-Dec-21
E10860	Pre-Excavation Grouting (Ch199 - 203)	5	26-Nov-21	01-Dec-21	26	29-Dec-21	04-Jan-22
E10870	Tunnel excavation (Ch199 - 203)	2	02-Dec-21	03-Dec-21	26	05-Jan-22	06-Jan-22
E10880	Steel rib & Shortcrete installation (Ch199 - 203)	4	03-Dec-21	07-Dec-21	26	06-Jan-22	10-Jan-22
E10890	Long Canopy Tube (Ch203 - 207)	3	08-Dec-21	10-Dec-21	26	11-Jan-22	13-Jan-22

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
E10900	Pre-Excavation Grouting (Ch203 - 207)	5	11-Dec-21	16-Dec-21	26	14-Jan-22	19-Jan-22
E10910	Tunnel excavation (Ch203 - 207)	2	17-Dec-21	18-Dec-21	26	20-Jan-22	21-Jan-22
E10920	Steel rib & Shortcrete installation (Ch203 - 207)	4	18-Dec-21	22-Dec-21	26	21-Jan-22	25-Jan-22
E10930	Long Canopy Tube (Ch207 - 211)	3	23-Dec-21	28-Dec-21	26	26-Jan-22	28-Jan-22
E10940	Pre-Excavation Grouting (Ch207 - 211)	5	29-Dec-21	04-Jan-22	26	29-Jan-22	10-Feb-22
E10950	Tunnel excavation (Ch207 - 211)	2	05-Jan-22	06-Jan-22	26	11-Feb-22	12-Feb-22
E10960	Steel rib & Shortcrete installation (Ch207 - 211)	4	06-Jan-22	10-Jan-22	26	12-Feb-22	16-Feb-22
E11120	Bottom bench excavation (Ch171 - 203)	75	13-Dec-21	19-Mar-22	14	31-Dec-21	06-Apr-22
Hard Rock Tunnel Excavation by Drill and Blast							
E11314	Permanent bolt and shotcrete (ch227-258) - Bottom Bench (WAT)	89	08-Jul-21 A	22-Oct-21	138	30-Mar-22	13-Apr-22



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
Relocation of STST to Caverns - Main Caverns Construction							
Preliminary Works							
Subletting and Procurement							
1st Batch							
C1030-RP01	Sub-letting 1st batch - Pre-construction Condition Survey (retender)	5.0	16-Jul-21 A	11-Oct-21	59.0	17-Dec-21	20-Dec-21
C1030-RP30	Sub-letting 1st batch - Contractor's Design Services (Package 1 - PS1.109)	5.0	24-Jul-21 A	04-Oct-21 A			
2nd Batch							
C1031-RP02	Sub-letting 2nd batch - P2 & P4 Access construction	5.0	10-Aug-21 A	22-Oct-21	154.0	22-Apr-22	06-May-22
C1031-RP04	Sub-letting 2nd batch - Permanent Lining (MAT) construction	5.0	10-Aug-21 A	22-Oct-21	222.0	15-Jul-22	28-Jul-22
C1031-RP08	Sub-letting 2nd batch - Portion 10 - Site Investigation	5.0	10-Aug-21 A	08-Nov-21	337.0	30-Nov-22	31-Dec-22
C1031-RP28	Sub-letting 2nd batch - pipe jacking for effluent pipeline	5.0	10-Aug-21 A	08-Nov-21	176.0	20-May-22	20-Jun-22
C1031-RP38	Sub-letting 2nd batch - Portion 10 - piling works (Soldier Pile wall)	5.0	10-Aug-21 A	03-Nov-21	229.0	23-Jul-22	17-Aug-22
C1031-RP48	Sub-letting 2nd batch - Slopeworks, soil nail, erosion mat, etc.	5.0	10-Aug-21 A	10-Nov-21	53.0	10-Dec-21	14-Jan-22
3rd Batch							
C1032-RP02	Sub-letting 3rd batch - Temp Explosive Magazine (civil works) [target 3 Nov 21]	5.0	01-Sep-21 A	03-Nov-21	2.0	11-Oct-21	05-Nov-21
C1032-RP04	Sub-letting 3rd batch - Temp Explosive Magazine (M&E works) [target 10 Nov 21]	5.0	08-Sep-21 A	10-Nov-21	139.0	31-Mar-22	07-May-22
C1032-RP06	Sub-letting 3rd batch - Noise Barrier NB4 (steelwork & panels) [target 17 Nov 21]	5.0	15-Sep-21 A	17-Nov-21	249.0	16-Aug-22	24-Sep-22
C1032-RP08	Sub-letting 3rd batch - Noise Barrier NB4 (r.c. works) [24 Nov 21]	5.0	15-Sep-21 A	24-Nov-21	171.0	14-May-22	30-Jun-22
C1032-RP10	Sub-letting 3rd batch - Blasting Works (1) - CA, MD, CAV1 &2, BD1,2,3,4 [6 Nov 21]	5.0	16-Sep-21 A	06-Nov-21	191.0	08-Jun-22	07-Jul-22
C1032-RP20	Sub-letting 3rd batch - Blasting Works (2) - CAV3 &4, BD1,2,3,4, VA [19 Nov 21]	5.0	27-Sep-21 A	19-Nov-21	224.0	18-Jul-22	27-Aug-22
C1032-RP30	Sub-letting 3rd batch - Blasting Works (3) - CAV5, SD, BD1,2,3,4, SAT [26 Nov 21]	5.0	04-Oct-21 A	26-Nov-21	392.0	13-Feb-23	01-Apr-23
C1032-RP40	Sub-letting 3rd batch - Blasting Works (4) - Ventilation Shaft VS [12 Nov 21]	5.0	04-Oct-21 A	12-Nov-21	361.0	30-Dec-22	10-Feb-23
C1032-RP50	Sub-letting 3rd batch - apply for temp power supply for Cavern Tunneling Works [17 Nov 21]	5.0	04-Oct-21 A	17-Nov-21	1532.0	28-Dec-26	05-Feb-27
C1032-RP60	Sub-letting 3rd batch - apply for temp water supply for Cavern Tunneling Works [17 Nov 21]	5.0	04-Oct-21 A	17-Nov-21	1532.0	28-Dec-26	05-Feb-27
C1032-RP70	Sub-letting 3rd batch - Crusher setup, running and maintenance in WA3 [17 Nov 21]	5.0	04-Oct-21 A	17-Nov-21	57.0	15-Dec-21	26-Jan-22
Procurement of Major Construction Plant							
Procurement of Tunneling Equipment							
A20310	Procurement of Emulsion Pumps - process of contract award	135.0	02-Aug-21 A	30-Oct-21	98.0	14-Jan-22	05-Feb-22
A20320	Procurement of Drill Jumbo (1st) - process of contract award	5.0	08-Sep-21 A	05-Jan-22	6.0	14-Oct-21	11-Jan-22
A20330	Procurement of Drill Jumbo (2nd) - process of contract award	60.0	02-Nov-21	31-Dec-21	6.0	08-Nov-21	06-Jan-22
A21090	Procurement of Spraying Machine - process of contract award	60.0	02-Nov-21	31-Dec-21	6.0	08-Nov-21	06-Jan-22
A21100	Procurement of Wheel Loader - process of contract award	60.0	02-Dec-21	30-Jan-22	6.0	08-Dec-21	05-Feb-22
A21104	Procurement of Articulated Dump Truck - process of contract award	60.0	02-Dec-21	30-Jan-22	6.0	08-Dec-21	05-Feb-22



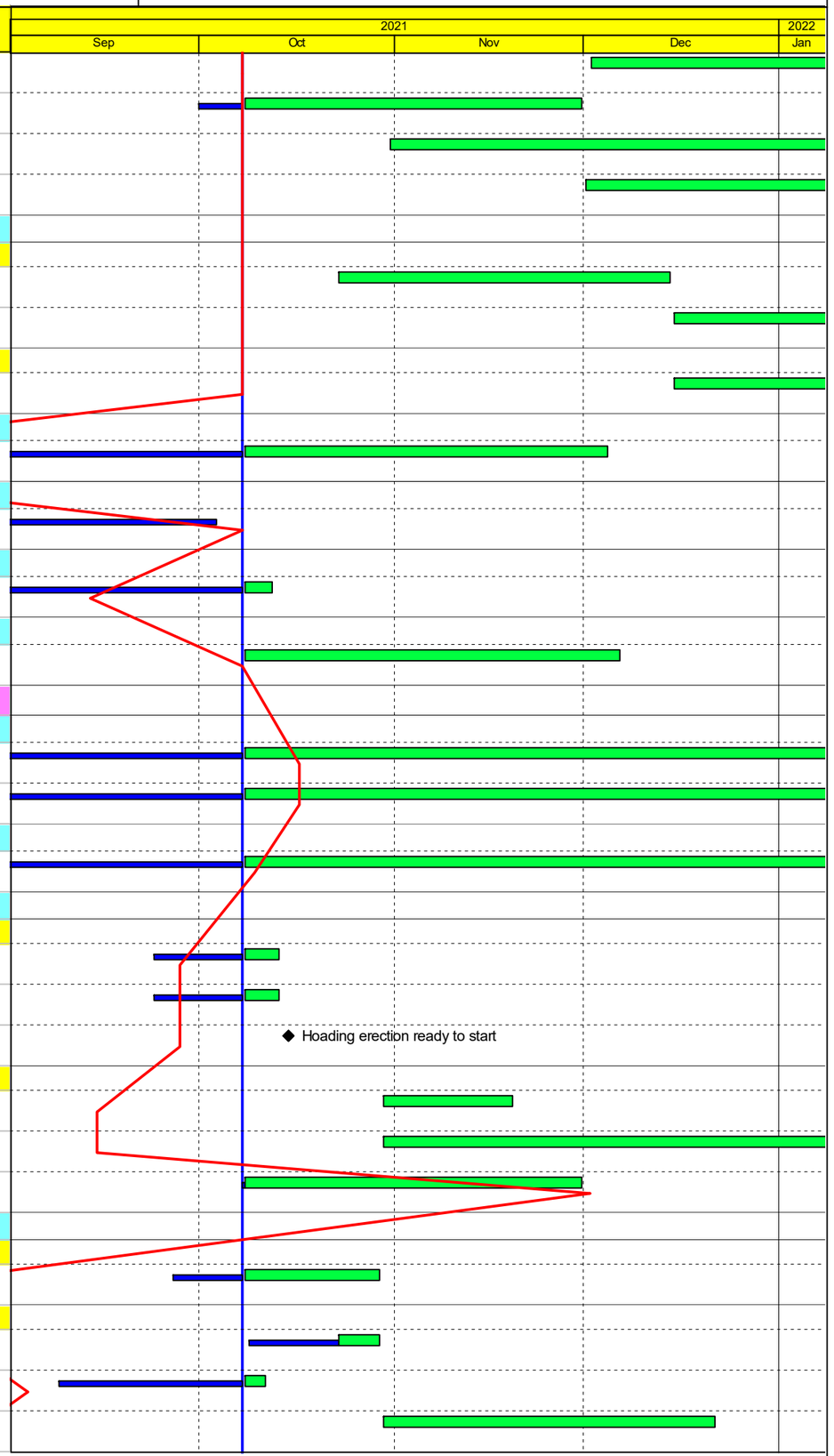
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Crit. Milestone

Project File: C2-3MRP001-b-(2110)
Layout: DC2020-05 - 3M Rolling Prog (submission)
Data Date: 08-Oct-21
Page 1 of 5

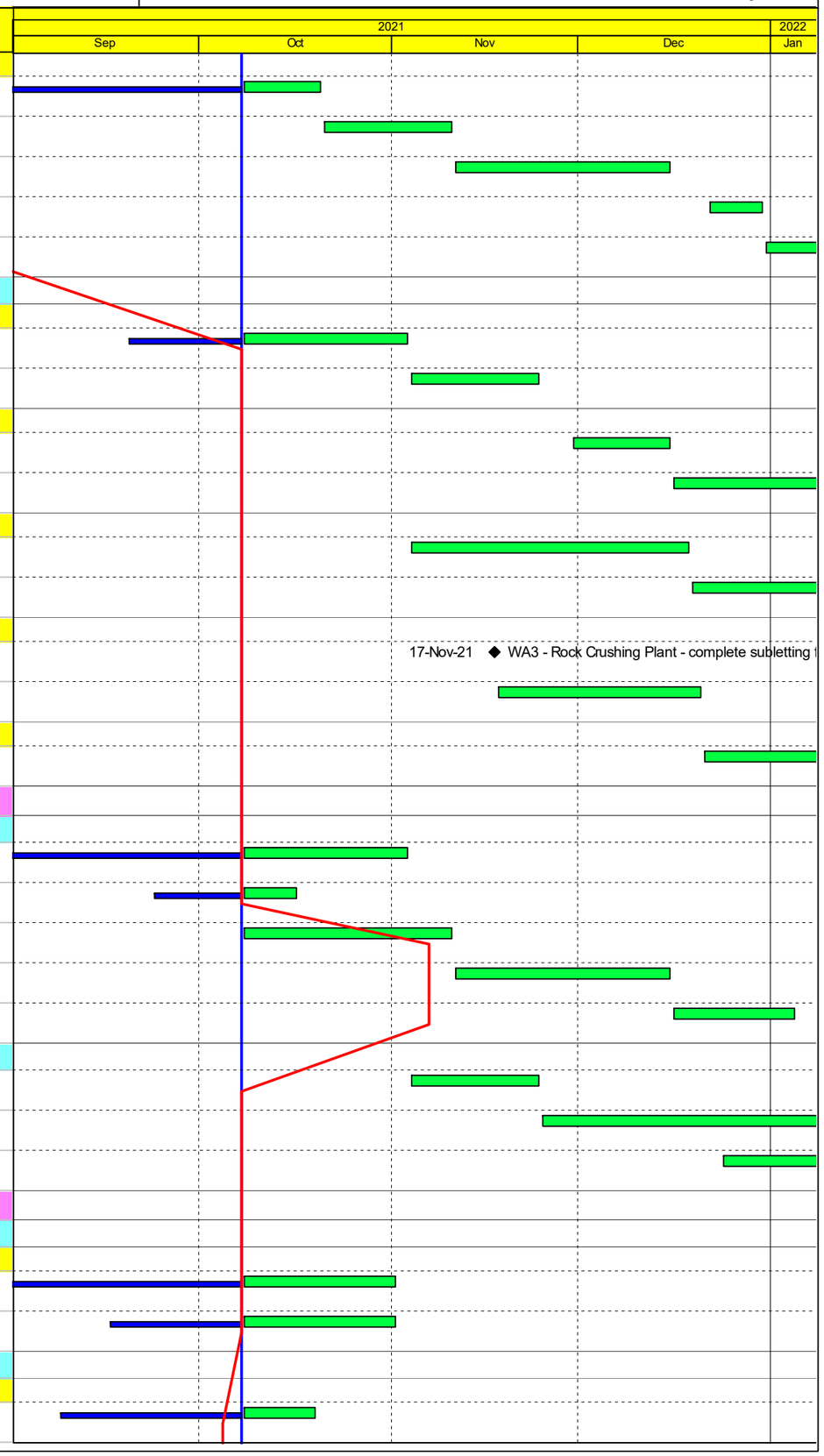
Contract No. DC/2020/05
Relocation of Sha Tin Sewge Treatment Works to Caverns - Main Caverns Construction
3 Months Rolling Programme (Oct to Dec 2021)

China State – Alchmex Joint Venture

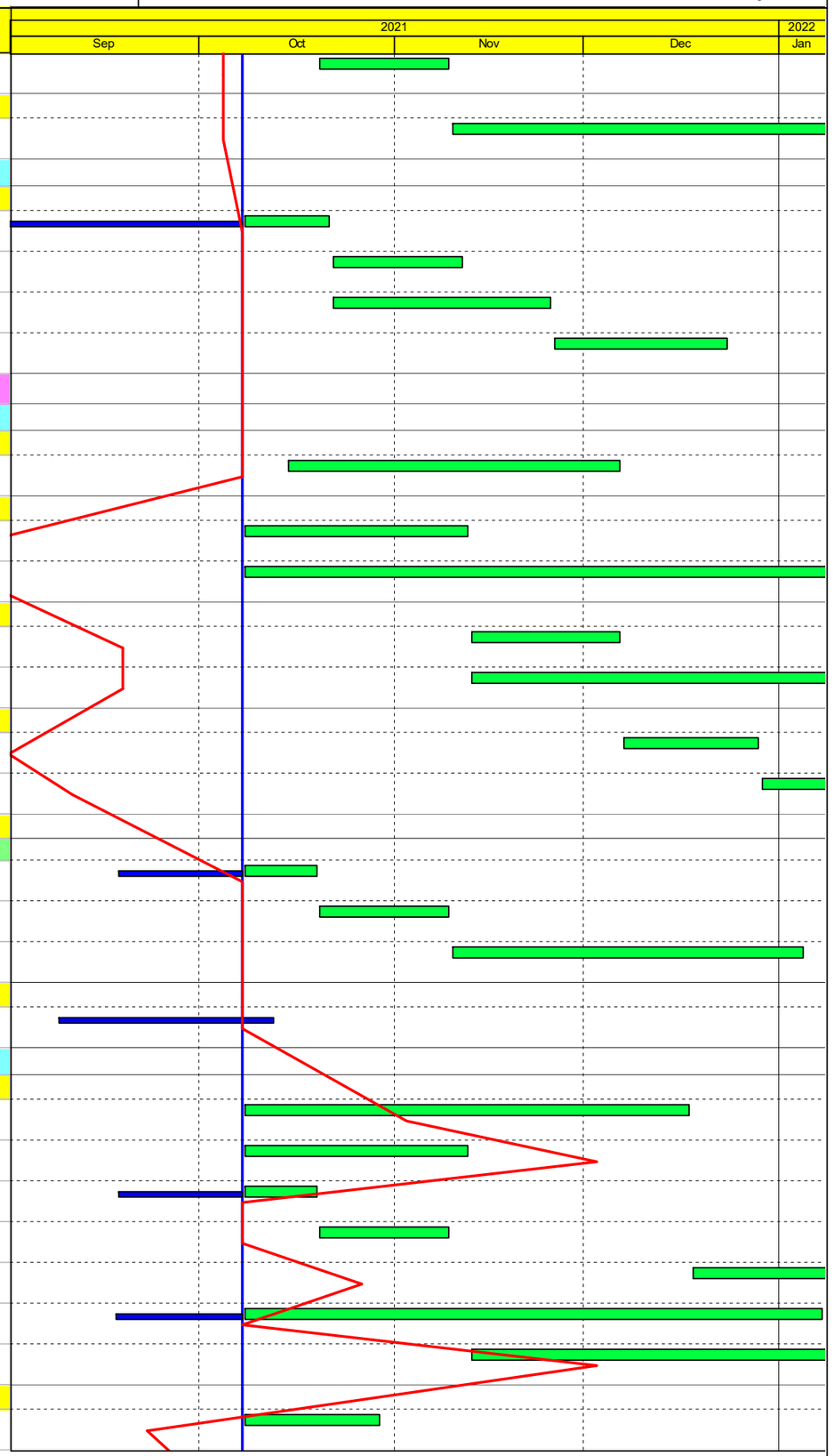
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
A21150	Procurement of Rock Bolting Rig - process of contract award	60.0	02-Dec-21	30-Jan-22	6.0	08-Dec-21	05-Feb-22
A21160	Procurement of Ventilation Fan & Duct - process of contract award	90.0	01-Oct-21 A	30-Nov-21	74.0	21-Dec-21	12-Feb-22
A21170	Procurement of Emulsion Pumps - order and delivery	90.0	31-Oct-21	28-Jan-22	98.0	06-Feb-22	06-May-22
A21230	Procurement of Ventilation Fan & Duct - order and delivery	60.0	01-Dec-21	29-Jan-22	74.0	13-Feb-22	13-Apr-22
	Off-Site Fabrication						
	Off-site Fabrication of Lining Shutter						
A20340	Lining Shutter - Design preparation, review and accept by PM	45.0	23-Oct-21	14-Dec-21	222.0	29-Jul-22	20-Sep-22
A20350	Lining Shutter - Place Order, Factory Fabrication and Delivery	90.0	15-Dec-21	09-Apr-22	439.0	21-Jun-23	07-Oct-23
	Off-site Fabrication of Travelling Formworks						
A20370	Travelling Formwork - Design preparation, review and accept by PM	45.0	15-Dec-21	15-Feb-22	222.0	21-Sep-22	14-Nov-22
	3D Reality Model						
C1130	Develope a 3D reality model for construction area	62.0	05-Jul-21 A	04-Dec-21	1860.0	11-Nov-26	07-Jan-27
	Rock Handling Plan						
C1150	Rock handling plan	68.0	05-Jul-21 A	04-Oct-21 A			
	Temporary Drainage Management Plan						
C1170	Temporary drainage management plan	60.0	05-Jul-21 A	12-Oct-21	176.0	20-May-22	24-May-22
	Application and Agreement with CEDD/PMD of Disposal to Public Fill						
A20470	Disposal to Public Fill - Application and agreement with CEDD/PMD for disposal C&D waste to public fill	60.0	08-Oct-21	06-Dec-21	151.0	08-Mar-22	06-May-22
	General Site Preparation Works						
	Maintainance and Upkeeping Works						
A10630	Maintainance of Core Boxes at Portion 10	1620.0	05-Jul-21 A	24-Dec-26	9.0	20-Oct-21	07-Jan-27
A11890	Maintainance of Site hoarding and project signboard	1620.0	05-Jul-21 A	24-Dec-26	9.0	20-Oct-21	07-Jan-27
	Tree Preservation and Protection						
C1050	Preservation and Protection of Existing Trees	1620.0	05-Jul-21 A	04-Jan-27	3.0	12-Oct-21	07-Jan-27
	Hoarding						
	Design of Hoarding						
A10010	Hoading Design approval	18.0	24-Sep-21 A	13-Oct-21	158.0	27-Apr-22	03-May-22
A20000	Hoading Plan approval	18.0	24-Sep-21 A	13-Oct-21	158.0	27-Apr-22	03-May-22
A20010	Hoading erection ready to start	0.0	15-Oct-21		158.0	04-May-22	
	Hoarding Erection						
A10030	Hoarding erection - Portion 10 (Secondary Portal Area)	18.0	30-Oct-21	19-Nov-21	145.0	04-May-22	25-May-22
A10050	Hoarding erection - WA4	60.0	30-Oct-21	11-Jan-22	1463.0	27-Oct-26	07-Jan-27
A10060	Hoarding erection - WA3	45.0	08-Oct-21 A	30-Nov-21	1478.0	23-Oct-26	14-Dec-26
	Site Office at WA2						
	Hoarding at WA2						
A10040	Hoarding at WA2 - erect hoarding	18.0	27-Sep-21 A	29-Oct-21	145.0	08-Apr-22	03-May-22
	Demolition of Existing Building at WA2						
A10460	Demolition Ex. DSD Building - remove Asbestos	6.0	09-Oct-21 A	29-Oct-21	1433.0	11-Sep-26	17-Sep-26
A10468	Demolition Ex. DSD Building - Disconnect utility services	18.0	09-Sep-21 A	11-Oct-21	1448.0	15-Sep-26	17-Sep-26
A10470	Demolition Ex. DSD Building - carry out demolition work	45.0	30-Oct-21	21-Dec-21	1433.0	18-Sep-26	12-Nov-26



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
Site Office Erection at WA2							
A10480	WA2 Site office - design preparation	15.0	17-Aug-21 A	20-Oct-21	1438.0	03-Sep-26	14-Sep-26
A10490	WA2 Site office - design approval	18.0	21-Oct-21	10-Nov-21	1438.0	15-Sep-26	07-Oct-26
A10500	WA2 Site office - off-site fabrication	30.0	11-Nov-21	15-Dec-21	1438.0	08-Oct-26	12-Nov-26
A10510	WA2 Site office - unit delivery to site	6.0	22-Dec-21	30-Dec-21	1433.0	13-Nov-26	19-Nov-26
A10520	WA2 Site office - Erection & installation	36.0	31-Dec-21	18-Feb-22	1433.0	20-Nov-26	04-Jan-27
WA3 Rock Crushing Plant Design, Procurement and Installation							
WA3 Rock Crushing Plant - Design							
A21000	WA3 - Rock Crushing Plant - Design preparation and submission	21.0	20-Sep-21 A	03-Nov-21	48.0	04-Dec-21	31-Dec-21
A21010	WA3 - Rock Crushing Plant - PM, ET review and acceptance	21.0	04-Nov-21	24-Nov-21	60.0	03-Jan-22	23-Jan-22
WA3 Rock Crushing Plant - Application of Specific Process License							
A21020	WA3 - Rock Crushing Plant - carry out AQIA & prepare APCP	14.0	30-Nov-21	15-Dec-21	44.0	24-Jan-22	15-Feb-22
A21022	WA3 - Rock Crushing Plant - Submit Form 1 to EPD	40.0	16-Dec-21	24-Jan-22	62.0	16-Feb-22	27-Mar-22
WA3 Rock Crushing Plant - Application of Variation of Environmental Permit (VEP)							
A21110	WA3 - Rock Crushing Plant - VEP - preparation of ERR	45.0	04-Nov-21	18-Dec-21	72.0	15-Jan-22	28-Feb-22
A21120	WA3 - Rock Crushing Plant - VEP - liaison with EPD & update information of AQIA to ERR	30.0	19-Dec-21	17-Jan-22	72.0	01-Mar-22	30-Mar-22
WA3 Rock Crushing Plant - Procurement							
A21045	WA3 - Rock Crushing Plant - complete subletting for crusher setup and running	0.0		17-Nov-21	57.0		26-Jan-22
A21050	WA3 - Rock Crushing Plant - plant procurement & fabrication	28.0	18-Nov-21	20-Dec-21	57.0	27-Jan-22	07-Mar-22
WA3 Rock Crushing Plan - Installation of Rock Crushing Plant							
A21060	WA3 - Rock Crushing Plant - installation	20.0	21-Dec-21	15-Jan-22	57.0	08-Mar-22	30-Mar-22
Temporary Explosive Magazine							
General							
A17580	Temp Explosive Mag. - Temporary Explosive Magazine design approval	18.0	18-Aug-21 A	03-Nov-21	2.0	11-Oct-21	05-Nov-21
A17580-130	Temp Explosive Mag - Pending comments from FSD,PF, other authorities	5.0	24-Sep-21 A	16-Oct-21	1559.0	29-Jan-27	05-Feb-27
A18390	Temp Explosive Mag. - Method statement approval by mines dept.	28.0	08-Oct-21	10-Nov-21	119.0	08-Mar-22	09-Apr-22
A18470	Temp Explosive Mag. - Submit information of Explosive Delivery Vehicle (EVD) and drivers	30.0	11-Nov-21	15-Dec-21	119.0	11-Apr-22	20-May-22
A18520	Temp Explosive Mag. - EVD and divers approval by mines dept.	14.0	16-Dec-21	04-Jan-22	119.0	21-May-22	07-Jun-22
Temporary Explosive Magazine							
A18170	Temp Explosive Mag. - Excavation and base slab	18.0	04-Nov-21	24-Nov-21	2.0	06-Nov-21	26-Nov-21
A18190	Temp Explosive Mag. - Construct Temporary Explosive Store No.1	45.0	25-Nov-21	19-Jan-22	2.0	27-Nov-21	21-Jan-22
A18200	Temp Explosive Mag. - Construct Temporary Explosive Store No.2	45.0	24-Dec-21	24-Feb-22	2.0	29-Dec-21	26-Feb-22
Main Portal Area and Main Access Tunnel (East & West) MATE, MATW							
Provision of P2 Access and P4 Access							
Design of P2 Access and P4 Access							
A10130	P2 access - STLA application period (if required)	120.0	05-Jul-21 A	01-Nov-21	1922.0	12-Jan-27	05-Feb-27
A10550	P2 access - obtain consent from relevant authorities	44.0	17-Sep-21 A	01-Nov-21	1546.0	14-Jan-27	05-Feb-27
Noise Barrier NB4							
NB4 - Design of Noise Barrier							
A10190	Noise Barrier NB4 - design preparation	21.0	09-Sep-21 A	19-Oct-21	166.0	07-May-22	18-May-22



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
A10200	Noise Barrier NB4 - design approval	18.0	20-Oct-21	09-Nov-21	166.0	19-May-22	09-Jun-22
NB4 - Procurement of Noise Barrier Panels							
A10230	Noise Barrier NB4 - panel procurement	90.0	10-Nov-21	04-Mar-22	166.0	10-Jun-22	24-Sep-22
Effluent Pipelines and Connection Chamber							
THEEs Tunnel - MS Submission for Pre-Construction Condition Survey to Existing THEEs Tunnel							
A17212	THEEs Tunnel - Condition Survey - Method statement preparation & submission	52.0	19-Aug-21 A	21-Oct-21	21.0	03-Nov-21	15-Nov-21
A17222	THEEs Tunnel - Condition Survey - MS Approval period	18.0	22-Oct-21	11-Nov-21	33.0	30-Nov-21	20-Dec-21
A17224	THEEs Tunnel - Conidtion Survey - Consent from DSD for access into THEEs Tunnel	35.0	22-Oct-21	25-Nov-21	25.0	16-Nov-21	20-Dec-21
A17232	THEEs Tunnel - Condition survey for THEEs tunnel —— (1st entrance, 4 weeks) ——	24.0	26-Nov-21	23-Dec-21	21.0	21-Dec-21	20-Jun-22
Secondary Portal Area and Secondary Access Tunnel (SAT)							
Secondary Portal Area - Site Formation & Landscaping for Secondary Portal							
Secondary Portal Area - Temp Haul Road and Site Drainage							
A11374	SAT - Construct temp site drainage	45.0	15-Oct-21	06-Dec-21	14.0	01-Nov-21	22-Dec-21
Secondary Portal Area - Trees at Slope SSP1							
A11570	Portion 10 - Tree felling	30.0	08-Oct-21	12-Nov-21	151.0	19-Apr-22	25-May-22
A11580	Portion 10 - Tree Transplant	90.0	08-Oct-21	25-Jan-22	91.0	27-Jan-22	25-May-22
Secondary Portal Area - Trees at RW1, SP1, SP2							
A11140	RW1, SP1, SP2 - Tree felling	20.0	13-Nov-21	06-Dec-21	243.0	14-Sep-22	08-Oct-22
A11150	RW1, SP1, SP2 - Tree Transplant	90.0	13-Nov-21	08-Mar-22	243.0	14-Sep-22	31-Dec-22
Secondary Portal Area - Slope SSP1 - Portal Slope Excavation							
A11105	Slope SSP1 - Temp cut slope (+41 to +26mpd)	17.0	07-Dec-21	28-Dec-21	14.0	23-Dec-21	14-Jan-22
A11110	Slope SSP1 - Rock Slope (26 - 19.5mpd)	20.0	29-Dec-21	21-Jan-22	14.0	15-Jan-22	14-Feb-22
Secondary Portal Area - Flexible Barrier							
Secondary Portal Area - Flexible Barrier - Design & Procurement							
A11530	Flexible Barrier - Flexible barrier design preparation	24.0	18-Sep-21 A	19-Oct-21	193.0	10-Jun-22	20-Jun-22
A11540	Flexible Barrier - Flexible barrier design approval	18.0	20-Oct-21	09-Nov-21	193.0	21-Jun-22	12-Jul-22
A11550	Flexible Barrier - Material procurement & testing	45.0	10-Nov-21	04-Jan-22	193.0	13-Jul-22	02-Sep-22
Secondary Portal Area - Soldier Pile Wall SP2							
A11245	Soldier Pile Wall SP2 - Removal of Existing CLP OHL cable and poles - by CLP	94.0	09-Sep-21 A	13-Oct-21 A			
Secondary Access Tunnel (SAT)							
SAT - Blasting Permit							
A20050	SAT - Update BAR (Blasting Assessment Report) - preparation and submission	60.0	08-Oct-21	17-Dec-21	313.0	02-Nov-22	13-Jan-23
A20060	SAT - Method statement for tunnel works (Blasting)	30.0	08-Oct-21	12-Nov-21	343.0	07-Dec-22	13-Jan-23
A20070	SAT - Blast Door Design preparation & submission	24.0	18-Sep-21 A	19-Oct-21	308.0	27-Oct-22	05-Nov-22
A20080	SAT - Blast Door Design approval	18.0	20-Oct-21	09-Nov-21	308.0	07-Nov-22	26-Nov-22
A20100	SAT - Blasting Permit/ License - Preparation and submission	21.0	18-Dec-21	14-Jan-22	313.0	14-Jan-23	14-Feb-23
A20140	SAT - Permanent Power for Tunnel work	90.0	18-Sep-21 A	07-Jan-22	359.0	28-Dec-22	01-Apr-23
A20150	SAT - Tunnel Ventilation installation	60.0	13-Nov-21	25-Jan-22	344.0	16-Jan-23	01-Apr-23
SAT - Instrumentation and Monitoring							
A11600	SAT - Vibration monitoring station installation (Portion 10)	18.0	08-Oct-21	29-Oct-21	296.0	13-Oct-22	02-Nov-22



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Late Start	Late Finish
SAT - Soft Ground Excavation (Drill & Break)							
SAT - Design & Fabrication of Steel Arch							
A11702	SAT - Design submission of steel arch for soft ground excavation	23.0	08-Oct-21	04-Nov-21	256.0	24-Aug-22	20-Sep-22
A11704	SAT - Design approval of steel arch for soft ground excavation	18.0	05-Nov-21	25-Nov-21	256.0	21-Sep-22	13-Oct-22
A11706	SAT - Steel arch fabrication and delivery	26.0	26-Nov-21	28-Dec-21	256.0	14-Oct-22	12-Nov-22
Cavern Complex							
Cavern Complex - Preparation Works							
Cavern Complex - Permanent Power Supply for Tunneling Works							
A12510	Cavern Complex - Power & water supply for Tunnel work	45.0	18-Sep-21 A	07-Jan-22	105.0	19-Feb-22	24-May-22
Cavern Complex - Blasting Permit							
A12470	Blasting Permit - Blasting Permit/ License - Preparation and submission	14.0	19-Sep-21 A	19-Nov-21	121.0	10-Mar-22	25-Apr-22
Cavern Complex - Blasting Door Design and Installation							
A12462	Cavern Blast Door - Blast Door Design preparation & submission	24.0	18-Sep-21 A	19-Oct-21	85.0	20-Jan-22	29-Jan-22
A12464	Cavern Blast Door - Blast Door Design approval	18.0	20-Oct-21	09-Nov-21	85.0	31-Jan-22	26-Feb-22
A12466	Cavern Blast Door - Blast Door fabrication & installation	45.0	10-Nov-21	04-Jan-22	85.0	28-Feb-22	25-Apr-22
Cavern Complex - Temporary Ventilation System							
Cavern Complex - Temp Ventilation (Stage 1)							
A12605	Cavern Complex - Temp tunnel ventilation design (Stage 1) preparation	30.0	08-Sep-21 A	04-Oct-21 A			
A12615	Cavern Complex - Temp tunnel ventilation design (Stage 1) approval	18.0	05-Oct-21 A	20-Nov-21	113.0	01-Mar-22	13-Apr-22
Cavern Complex - Temp Ventilation (Stage 2)							
A20200	Cavern Complex - Temp tunnel ventilation design (Stage 2) preparation	52.0	08-Oct-21	08-Dec-21	54.0	11-Dec-21	19-Feb-22
A20210	Cavern Complex - Temp tunnel ventilation design (Stage 2) approval	18.0	09-Dec-21	31-Dec-21	54.0	21-Feb-22	12-Mar-22
Ventilation Shaft and Ventilation Adit							
Ventilation Shaft (VS)							
VS - Preparation of Method Statement for Blasting works							
A18550	VS - Update BAR (Blasting Assessment Report) - preparation and submission	60.0	08-Oct-21	17-Dec-21	271.0	12-Sep-22	22-Nov-22
A18580	VS - Method statement for excavation works (Blasting)	30.0	13-Nov-21	17-Dec-21	289.0	09-Nov-22	13-Dec-22
VS - Site Preparation							
A18540	VS - Boulder survey & condition survey	30.0	08-Oct-21	12-Nov-21	280.0	22-Sep-22	28-Oct-22
VS - Application of Blasting Permit							
A18590	VS - Blasting Permit/ License - Preparation and submission	14.0	18-Dec-21	06-Jan-22	289.0	14-Dec-22	31-Dec-22
VS - Instrumentation and Monitoring							
A18660	VS - Vibration monitoring station installation (Portion 11, 12)	26.0	11-Nov-21	10-Dec-21	112.0	01-Apr-22	06-May-22
A19050	VS - Settlement marker (portion 12, 13A)	18.0	11-Nov-21	01-Dec-21	210.0	03-Aug-22	23-Aug-22
VS - Protective Enclosure							
A18560	VS - Protective Enclosure - Design preparation and submission	45.0	01-Sep-21 A	12-Nov-21	94.0	31-Jan-22	12-Mar-22
A18562	VS - Protective Enclosure - Design review and accept by PM	21.0	13-Nov-21	07-Dec-21	94.0	14-Mar-22	07-Apr-22
A18564	VS - Protective Enclosure - construct footing	40.0	08-Dec-21	26-Jan-22	94.0	08-Apr-22	30-May-22