

JOB NO.: TCS00881/18 & TCS00944/18

SITE FORMATION AND ASSOCIATED INFRASTRUCTURAL WORKS FOR DEVELOPMENT OF COLUMBARIUM, CREMATORIUM AND RELATED FACILITIES AT SANDY RIDGE CEMETERY

MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT (NO.59) – JUNE 2023

PREPARED FOR HSIN CHONG TSUN YIP JOINT VENTURE & SANG HING CIVIL CONTRACTORS CO., LTD

Reference No. Certified By Date **Prepared By** 13 Jul 2023 TCS00881/18/600/R0763v2

Nicola HonTam Tak Wing(Environmental Consultant)(Environmental Team Leader)

Version	Date	Remarks
1	11 Jul 2023	First Submission
2	13 Jul 2023	Amended according to IEC's comment



Our Ref: TCS00881/18/300/L0764

Civil Engineering and Development Department 2/F, Civil Engineering and Development Building, 101 Princess Margaret Rd, Homantin, Kowloon

Attn: Mr. SHUM Ngai Hung, Steven

13 July 2023 By e-mail

Dear Sirs,

Re: Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery Monthly Environmental Monitoring & Audit Report (No.59) – June 2023

We confirmed that the captioned report has complied with the requirement set out in the EM&A Manual, we hereby certify the captioned report pursuant to Specific Condition 3.4 of the Environmental Permit No. FEP-01/534/2017/A and EP-534/2017/A.

Should you have any queries, please feel free to contact the undersigned at Tel: 2959-6059 or Fax: 2959-6079 or Email: <u>twtam@fordbusiness.com</u>.

Yours sincerely, For and on Behalf of Action-United Environmental Services & Consulting (AUES)

T. W. Tam Environmental Team Leader TW/nh

cc

ARUP (RE of Contracts 1 and 2)HCTY-JV (Contractor of Contract 1)Sang Hing (Contractor of Contract 2)Acuity (IEC)

Mr. Anthony Lau Mr. Ho Man To Mr. Elvin Lam Mr. Jacky Leung

by e-mail by e-mail by e-mail





aurecon

Our Ref.: PL-202307019

Hsin Chong Tsun Yip Joint Venture (CV/2016/10) Hsin Chong Centre 107 – 109 Wai Yip Street Kwun Tong, Kowloon Hong Kong

Attention: Mr. HO Man-to

13 July 2023

Dear Sir,

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery Monthly Environmental Monitoring and Audit Report (No. 59) June 2023

I refer to the email of the ET regarding the captioned Monthly Report. According to Section 3.4 of the EP-534/2017/A and the FEP-01/534/2017/A, I hereby verify the Monthly EM&A Report for June 2023 (Version 2) with Ref. No. TCS00881/18/600/R0763v2.

You are required to follow up the comments from EPD and IEC on the relevant EPs requirement and provide supplementary information of this report for our further review as soon as possible.

Yours faithfully,

CH Leung

Leung CH Jacky Independent Environmental Checker



EXECUTIVE SUMMARY

ES.01. This is the 59th Monthly Environmental Monitoring and Audit (EM&A) Report summarizing the monitoring results and inspection findings under the Project for the period from 1st to 30th June 2023 (the Reporting Month).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.02. In the Reporting Month, the major construction works under the Project included Contract CV/2016/10 (hereinafter named "Contract 1") and Contract CV/2017/02 (hereinafter named "Contract 2"). Environmental monitoring activities under the EM&A programme in this Reporting Month are summarized in the following table.

Issues	Environmental Monitoring	Monitorin	Total Occasions/	
155405	Parameters / Inspection	CV/2016/10	CV/2017/02	dates
Air Quality	1-hour TSP 24-hour TSP	ASR-1	ASR-2 ASR-3	45 18
Construction Noise	L _{eq (30min)} Daytime	CN-1 CN-2	CN-3 CN-4	16
Water Quality	In-situ measurement and Water sampling	M3	M1, M2 and M4	13
Ecology	Sensitive Habitat	Transect within site area of CV/2016/10	Transect within site area of CV/2017/02	20 th June
Landscape & Visual	Site Inspection	Site area of CV/2016/10	Site area of CV/2017/02	30 th June
Inspection & Audit	Environmental Team (ET) Regular Environmental Site Inspection	Site area of CV/2016/10	Site area of CV/2017/02	4

Table ES-1Summary of EM&A Programme in the Reporting Month

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.03. In the Reporting Month, no exceedance of air quality and water quality monitoring was recorded. No noise complaint (which triggered Action Level) was received and Limit Level exceedance for noise monitoring exceedance was recorded. The statistics of environmental exceedance, Notification and investigation of exceedance are summarized in the following table.

Environmental	Monitoring	Action	Limit	E	vent & Action
Issues	Parameters			Investigation Findings	Corrective Actions
Air Quality	1-hour TSP	0	0	-	-
Air Quality	24-hour TSP	0	0	-	-
Construction Noise	Leq _{30min} Daytime	0	0	-	-
	DO	0	0	-	-
Water Quality	Turbidity	0	0	-	-
Water Quanty	Suspended Solids (SS)	0	0	-	-

ES.04. Monthly ecological monitoring for sensitive habitat for area of Contract 1 and Contract 2 were undertaken on 20th June 2023. After analysing survey results in June from 2019 to 2023 for Contract 1, a significant increase in both the species richness and abundance for Wetland and Non-wetland habitat are recorded in June 2023. This could be benefited by some positive factors such as the major construction works were completed and most of the PME has been removed from site. For Contract 2, after analysing survey results in June from 2019 to 2023, records in species richness and abundance for wetland and non-wetland habitats are unstable, this may due to natural fluctuation. According to the recent on-site observation, there are new built workshops by others situated on both sides of Lin Ma Hang Road so the disturbance to fauna species from construction



works could be increased. Due to the cause was not related to this project, remedial action to remove or reduce source of disturbance is limited.

- ES.05. Besides, compensation planting works have been conducted in early Jan 2023. Therefore, disturbance to fauna species from construction works have been largely minimised. In addition, woodland compensation and grassland reinstatement would be implemented in the second and third quarter of 2023. Hence, the habitat of fauna species would be gradually recovered and expectation of increase in the species richness and abundance for wetland habitat is high.
- ES.06. In the Reporting Period, there was no vegetation clearance for both Contract 1 and Contract 2, and precautionary check for the presence of nesting birds was not required to carry out.
- ES.07. Landscape and visual inspection at both Contracts were undertaken on *30th June 2023*. The Contractor was reminded to prevent the construction material pile within Tree Protection Zone and ensure no works is allowed within the TPZ.

ENVIRONMENTAL COMPLAINT

ES.08. No environmental complaint was recorded in this Reporting Month. The statistics of summons or successful prosecutions are summarized in the following tables.

 Table ES-3
 Environmental Complaint Summaries in the Reporting Month

Reporting Month		Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
	Contract 1	0	2	(1) Air Quality (1) Noise
1 st – 30 th June 2023	Contract 2	0	5	(1) Water (2) Air Quality (1) Noise (1) soil/ muddy water

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.09. No environmental summons or successful prosecution was recorded in this Reporting Month. The statistics of summons or successful prosecutions are summarized in the following tables.

Table ES-4Environmental Summons Summaries in the Reporting Month

Demosting Ma		Environmental Summons Statistics			
Reporting Month		Frequency	Cumulative	Summons Nature	
$1^{st} - 30^{th}$ June 2023	Contract 1	0	0	NA	
1 - 30 June 2023	Contract 2	0	0	NA	

 Table ES-5
 Environmental Prosecution Summaries in the Reporting Month

Reporting Month		Environmental Prosecution Statistics			
		Frequency	Cumulative	Prosecution Nature	
$1^{st} - 30^{th}$ June 2023	Contract 1	0	0	NA	
1 - 30 June 2025	Contract 2	0	0	NA	

ES.010. In addition, no complaint and emergency event relating to violation of environmental legislation for illegal dumping and landfilling was received.

REPORTING CHANGE

ES.011. No reporting change was made in the Reporting Month.

SITE INSPECTION

ES.012. In the Reporting Month, joint site inspections for Contract 1 to evaluate the site environmental performance were carried out by the Resident Engineer, ET and the Contractor of the Contract 1 on *1st*, *8th* 15th, 21st and 29th June 2023. Moreover, joint site inspections for Contract 2 by the RE, ET



and the Contractor of Contract 2 were carried out 1^{st} , 8^{th} 15^{th} , 21^{st} and 29^{th} June 2023. No non-compliance was noted during the site inspections.

FUTURE KEY ISSUES

- ES.013. During wet season, water quality mitigation measures as recommended in the EM&A Manual should be fully implemented, in particular to prevent surface runoff and other pollutants from flowing to local stream and Conservation Area.
- ES.014. The Contractors are reminded to pay special attention on the air quality mitigation measures such as wheel wash facilities, watering of haul roads, loose soil construction surface and covering of dusty materials with tarpaulin sheet should be implemented as far as practicable.
- ES.015. Construction noise would be a key environmental issue during construction phase of the Project. Noise mitigation measures such as using quiet plants and mobile noise barriers should be implemented in accordance with the EM&A requirement.



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1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Civil Engineering and Development Department (CEDD) is the Project Proponent for the Project "Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery". The Project is a Designated Project to be implemented under Environmental Permit No. EP-534/2017/A and FEP-01/534/2017/A. The layout plan of the Project is shown in Appendix A. Major works to be executed under the Project shall include to the following:

Designated Works under EP-534/2017/A

- Site formation of about 5.5 hectares of land and associated drainage, sewerage and landscape works for development of Columbarium and Crematorium facilities at the Sandy Ridge Cemetery;
- (ii) Construction of a new road (about 800m) connecting the Crematorium and Man Kam To Road and the pick-up/drop-off point at Man Kam To Road;
- (iii) Widening two sections of the existing Sha Ling Road (about 900m and 500m respectively);
- (iv) Widening of about 1.4km of the existing Lin Ma Hang Road; and
- (v) Improvement works to the existing barging point at Siu Lam (the barging point is rejected by Tuen Mun DC and no improvement works required)

Designated Works under FEP-01/534/2017/A

- (i) Site formation works for a formed platform of about 1.8 hectares and associated drainage, sewerage and landscape works for development of Columbarium at the Sandy Ridge Cemetery;
- (ii) Construction of the pick-up/drop-off point at Man Kam To Road;
- (iii) Widening of 900m of the existing Sha Ling Road;
- (iv) Improvement works to the existing barging point at Siu Lam (the barging point is rejected by Tuen Mun DC and no improvement works required)
- 1.1.2 To facilitate the Project management, the Project works were separated into three Contracts to be executed which are described in below sub-sections.
- 1.1.3 Contract No. CV/2016/10 Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery (hereinafter named "Contract 1"):-
 - Site formation of about 1.77 ha of land for the proposed pick-up and drop-off area for shuttle bus operation;
 - Upgrading of a section of 900m existing Sha Ling Road from 3m wide carriageway to 7.3m wide carriageway with footpath at both sides;
 - Construction of one EVA with a total length of about 160m;
 - Construction of noise barriers along Sha Ling Road;
 - Modification of junction between Man Kam To Road and Sha Ling Road;
 - Construction of a new pick up / drop off point at Man Kam To Road;
 - Relocation and construction of a new refuse collection point near junction between Man Kam To Road and Sha Ling Road;
 - Associated geotechnical works including cut and fill slopes, soil nailing works and retaining structures;
 - Associated drainage, sewerage and waterworks along Sha Ling Road; and
 - Associated landscaping works.
- 1.1.4 Contract No. CV/2017/02 Infrastructural Works at Man Kam To Road and Lin Ma Hang Road for Development of Columbarium at Sandy Ridge Cemetery (hereinafter named "Contract 2"):-
 - Construction of a new road connecting Columbarium site to Crematorium site;
 - Construction of one EVA with a total length of about 300m;
 - Widening of a section of 1.4 km long Lin Ma Hang Road (between Man Kam To Road and Ping Yuen River) from 6m wide carriageway to 7.3m with 2m width footpath on both sides;
 - Provision of a pair of lay-by at Lin Ma Hang Road;
 - Construction of a new vehicular access connecting the Sheung Shui Landmark North PTI and Lung Sum Avenue;



- Construction of covered walkway along Fanling Station Road;
- Removal of planters and central divider along Fanling Station Road and San Wan Road;
- Associated drainage, sewerage, waterworks and utility works along Man Kam To Road and Lin Ma Hang Road;
- Associated geotechnical works including cut and fill slopes, soil nailing works and retaining structures; and
- Associated landscaping works.
- 1.1.5 CEDD Contract No. (to be confirmed):-
 - Site Formation for the platform of the columbarium site;
 - Construction of two 2 at-grade access roads;
 - Construction of road junction between Man Kam To Road and the new access road;
 - Associated drainage, sewerage and waterworks along the two new access roads;
 - Associated geotechnical works including cut and fill slopes, soil nailing works and retaining structures; and
 - Associated landscaping works
- 1.1.6 Hsin Chong Tsun Yip Joint Venture (hereafter referred as "HCTYJV") has been awarded Contract 1 on 5 December 2017. According to the Contract requirement, HCTYJV shall take over the responsibility for part of the Environmental Permit No. EP-534/2017 for ease of management, therefore application for Further Environmental Permit was submitted by HCTYJV to EPD on 26 January 2018 and Further Environmental Permit No. FEP-01/534/2017 was granted to HCTYJV by EPD on 23 February 2018. Furthermore, EPD issued Environmental Permit No. FEP-01/534/2017/A on 24 December 2018.
- 1.1.7 Sang Hing Civil Contractors Company Limited (hereinafter referred as "Sang Hing") was awarded Contract 2 on 23 May 2018. The Contract Works is a Designated Project as under Environmental Permit (EP) No. EP-534/2017. Furthermore, EPD issued Environmental Permit No. EP-534/2017/A on 24 December 2018.
- 1.1.8 Action-United Environmental Services & Consulting (AUES) has been commissioned by the Contractors as an Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme in accordance with the approved EM&A Manual as well as the associated duties. As part of the EM&A programme, baseline monitoring to determine the ambient environmental conditions was completed before construction work commencement. The Baseline Monitoring Report (air, noise and water) certified by ET Leader (ETL) and verified by Independent Environmental Checker (IEC) was submitted to Environmental Protection Department (EPD) and it was approved by EPD on 25 October 2018.
- 1.1.9 Major construction work of Contract 1 and Contract 2 was commenced on 16 August 2018 and 5 November 2018 respectively.
- 1.1.10 This is the **59th** Monthly EM&A Report summarizing the monitoring results and inspection findings for the period from **1st** to **30th June 2023**.

1.2 REPORT STRUCTURE

- 1.2.1 The Monthly EM&A Report is structured into the following sections:-
 - Section 1 Introduction Section 2 Project Organization and Construction Progress Summary of Monitoring Requirements Section 3 Section 4 Air Quality Monitoring Results Noise Monitoring Results Section 5 Water Quality Monitoring Results Section 6 Ecology Monitoring Results Section 7 Landscape & Visual Section 8 Waste Management Section 9 Section 10 Site Inspections



Section 11Environmental Complaints and Non-ComplianceSection 12Implementation Status of Mitigation Measures

- **Ection 12** Implementation Status of Miligation Med
- Section 13 Conclusions and Recommendation



2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 CONSTRUCTION CONTRACT PACKAGING

- 2.1.1 To facilitate the project management and implementation, the Project was divided by the following contracts:
 - Contract 1 (Contract No. CV/2016/10)
 - Contract 2 (Contract No. CV/2017/02)
 - Contract 3 (Contract No. TBA)
- 2.1.2 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in *Appendix B*.

2.2 CONSTRUCTION PROGRESS

2.2.1 As the construction works under C1 have been completed. There is no updated three months rolling programme of C1. The three-month rolling construction programme Contract 2 is enclosed in *Appendix C*. Construction activities of the Contract 1 and Contract 2 undertaken in the Reporting Month are presented below.

Contract 1 (CV/2016/10)

- Hydroseed works
- Defect works on FS1 and Cut Slope

Contract 2 (CV/2017/02)

- Construction of footpath at Lin Ma Hang Road
- Planting works at Sandy Ridge and Lin Ma Hang Road

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project in this Reporting Month is presented in *Tables 2-1 and 2-2*.

Table 2-1 Status of Environmental Licenses and Permits for Contract 1	Table 2-1	Status of Environmental Licenses and Permits for Contract 1
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Table 2			
Item	Description	License/ Permit ref no.	License/ Permit Status
1	Air Pollution Control	Ref. no. 428909	Valid
	(Construction Dust) Regulation	Acknowledged by EPD on 20/12/2017	
2	Chemical waste Producer	WPN: 5231-641-H3937-01	Valid
	Registration	Issued by EPD on 27/03/2018	
3	Water Pollution Control	License no. WT00030795-2018	Valid
	Ordinance	Issued date: 9/5/2018	
		Expire Date: 31/5/2023	
4	Billing Account for Disposal	Account no.: 7029769	Valid
	of Construction Waste		

Table 2-2Status of Environmental Licenses and Permits for Contract 2

Item	Description	License/ Peri	License/ Permit ref no.		
1			Man Kam To Road	Valid	
	(Construction Dust)	Acknowledged by EPD on	(near Sha Ling Road to		
	Regulation	14/12/2018	Kong Nga Po Road		
		Ref. no. 440405	Fanling Station Road	Valid	
		Acknowledged by EPD on			
		14/12/2018			
		Ref. no. 440404	Sa Ling Road (Sandy	Valid	
		Acknowledged by EPD on	Ridge Cemetery)		
		14/12/2018			



Item	Description	License/ Per	License/ Permit Status	
		Ref. no. 440401 Acknowledged by EPD on 14/12/2018	Lin Ma Hang Road (San Uk Ling – Muk Wu Nga Yiu)	Valid
		Ref. no. 440402 Acknowledged by EPD on 14/12/2018	Lung Sum Avenue (near Landmark North)	Valid
2	Chemical waste Producer Registration	WPN: 5213-641-S4151-01 Issued by EPD on 04/02/20		Valid
3	Water Pollution Control Ordinance	License no: WT00032936-2018 Issued date: 16/01/2019 Expire Date: 31/01/2024	Man Kam To Road & Lin Ma Hang Road, Man Kam To	Valid
		License no: WT00033335-2019 Issued date: 29/03/2019 Expire Date: 31/03/2024	Columbarium at Sandy Ridge Cemetery	Valid
		License no: WT00034717-2019 Issued date: 9/10/2019 Expire Date: 31/10/2024	Fanling Station Road	Valid
4	Billing Account for Disposal of Construction Waste	Account no.: 7031098	·	Valid

2.4 SUMMARY OF SUBMISSION UNDER THE ENVIRONMENTAL PERMIT REQUIREMENTS

2.4.1 *Tables 2-3 to 2-4* summarized the submission status under the EP and/or FEP stipulation in the Reporting Month.

Table 2-3Status of Submission as under FEP

Item	EP and / or FEP Stipulation	Description	Status
1	Condition 2.10 of FEP	Management organization of : i) the main construction companies; ii) ET; and iii) IEC and the supporting team	Submitted and no approval is required.
2	Condition 2.11 of FEP	i) Detailed phasing programme of all construction works; and ii) Location plan of all construction works	Submitted and no approval is required.
3	Condition 2.12 of FEP	Contamination Assessment Plan (CAP)	Approved by EPD on 27 May 2019
4	Condition 2.13 of FEP	Grassland Reinstatement Plan	Approved by EPD on 18 April 2023
5	Condition 2.14 to 2.16 of FEP	Vegetation Survey Report and Vegetation Transplantation Proposal for Contract 1	Approved by EPD on 12 October 2018
6	Condition 2.17 of FEP	Woodland Compensation Plan (Rev.05) Woodland Compensation Plan (Rev.09)	Approved by EPD on 30 Jun 2020 Approved by EPD on 4 May 2023
7	Condition 2.18 of FEP	Monitoring and Survey Plan for Golden-headed Cisticola for Contract 1 (Rev.02)	Approved by EPD on 22 Oct 2019
8	Condition 2.20 of FEP	Landscape & Visual Mitigation and Tree Preservation Plan(s) Contract 1 (Rev.04)	Pending approval
9	Condition 2.22 of FEP	Traffic Noise Mitigation Plan Contract 1 (Rev. 4)	Pending approval

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery Monthly Environmental Monitoring & Audit Report (No.59) – June 2023



Item	EP and / or FEP Stipulation	Description	Status
10	Condition 3.3 of the FEP	Baseline Monitoring Report (Air,	Approved by EPD on 25
		Noise and Water)	October 2018
11	Condition 4.2 of the FEP	The Contract Internet website	Internet website address has
			notified EPD on 15 Jun 2018
			and no approval is required.

Table 2-4Status of Submission as under EP

Item	EP and / or FEP Stipulation	Description	Status
1	Condition 2.10 of EP	Management organization of : i) the main construction companies; ii) ET; and iii) IEC and the supporting team	Submitted and no approval is required.
2	Condition 2.11 of EP	i) Detailed phasing programme of all construction works; and ii) Location plan of all construction works	Submitted and no approval is required.
3	Condition 2.12 of EP	Layout Plan for the proposed footpath at Lin Ma Hang Road	Approved by EPD on 25 April 2022
4	Condition 2.13 of EP	Contamination Assessment Plan (CAP)	Approved by EPD on 27 May 2019
5	Condition 2.14 of EP	Grassland Reinstatement Plan	Approved by EPD on 18 April 2023
6	Condition 2.15 to 2.17 of EP	Vegetation Survey Report and Vegetation Transplantation Proposal under Contract 2	Approved by EPD on 15 June 2022
7	Condition 2.18 of EP	Woodland Compensation Plan (Rev.05) Woodland Compensation Plan (Rev.09)	Approved by EPD on 30 Jun 2020 Approved by EPD on 4 May 2023
8	Condition 2.19 of EP	Monitoring and Survey Plan for Golden-headed Cisticola Contract 2	Approved by EPD on 9 Nov 2022
9	EP	Landscape & Visual Mitigation and Tree Preservation Plan(s) Contract 2	Pending approval
10	Condition 2.23 of EP	Traffic Noise Mitigation Plan Contract 2	Pending approval
11	Condition 3.3 of the EP	Baseline Monitoring Report (Air, Noise and Water)	Approved by EPD on 25 October 2018
12	Condition 4.2 of the EP	The Contract Internet website	Internet website address has notified EPD on 15 June 2018 and no approval is required.



3. SUMMARY OF IMPACT MONITORING REQUIREMENT

3.1 GENERAL

- 3.1.1 The EM&A requirements are set out in the Approved EM&A Manual. Environmental issues such as air quality, construction noise, water quality and ecology were identified as the key issues during the construction phase of the Project.
- 3.1.2 A summary of construction phase EM&A requirements are presented in the sub-sections below.

3.2 MONITORING PARAMETERS

- 3.2.1 The EM&A impact monitoring shall cover the following environmental aspect:
 - Air quality;
 - Construction noise;
 - Water quality;
 - Ecology; and
 - Landscape and visual

3.2.2 A summary of the monitoring parameters is presented in *Table 3-1* below

Table 3-1Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	1-hour TSP;24-hour TSP
Noise	 Leq_(30min) during normal working hours.; and Leq_(15min) during the construction works undertaken in Restricted Hours
Water Quality	 In-situ Measurements Dissolved Oxygen Concentration (mg/L) & Saturation (%); Temperature (°C); Turbidity (NTU); Salinity (ppm) pH unit; Water depth (m); and Stream Flow Velocity (m/sec). Laboratory Analysis Suspended Solids (mg/L)
Ecology	Ecologically sensitive habitats (wetland habitats and non-wetland habitats)

3.3 MONITORING LOCATIONS

- 3.3.1 According to the Approved EM&A Manual of the Project Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery, the designated monitoring locations for air quality, noise, water quality and ecology under the monitoring programme, is shown in Appendix D.
- 3.3.2 Since the Project was divided into three Works Contracts and all Contracts will be commenced at different time, the construction phase impact monitoring will only be performed at the Contract-related monitoring stations upon commencement of each Contract Works.

Air Quality

3.3.3 There were three (3) designated air quality monitoring stations recommended in the Approved EM&A Manual Section 5.6.1.1. There was proposed relocation of air quality monitoring location ASR-3 in October 2018 since the landlord refused to set up the HVS at his premises and nearby Conservation Area due to noise nuisance and Muk Wu Nga Yiu House No. 2A was proposed as alternative location ASR-3a. The proposal dated on 9 November 2018 which verified by IEC was submitted to EPD for approval. Based on rationale in Section 3.3.2, the Contract-related air quality monitoring location for construction phase were summarized in *Table 3-2* and illustrated in *Appendix D*.



Location ID	Description in EM&A Manual	Location	Related Work Contract
ASR-1	Village House along Man Kam To Road	Sha Ling Village House No.6	Contract 1
ASR-2	Village House at San Uk Ling	San Uk Ling Village House No.1	Contract 2
ASR-3	Village House at Muk Wu Nga Yiu	Muk Wu Nga Yiu House No.28	Contract 2
ASR-3a (#)	Village House at Muk Wu Nga Yiu	Muk Wu Nga Yiu House No.2A	Contract 2

 Table 3-2
 Designated Air Quality Monitoring Location under the Project

Remark: (#) There was proposed relocation of air quality monitoring location ASR-3 in October 2018. The proposal dated on 9 November 2018 after verified by IEC was submitted to EPD for approval.

3.3.4 If the designated monitoring location is required to relocate, alternative monitoring location shall agree with IEC and seek for EPD approval which shall meet the following criteria:

- i) Be at the site boundary or such locations close to the major dust emission source;
- ii) Close to the sensitive receptors;
- iii) Take into account the prevailing meteorological conditions;
- iv) For monitoring location located in the vicinity of the ASRs, care shall be taken to cause minimal disturbance to the occupants during monitoring.
- v) When positioning the HVS, the following points shall be noted:
 - a. a horizontal platform with appropriate support to secure the samples against gusty wind shall be provided;
 - b. no two samplers shall be placed less than 2m apart;
 - c. the distance between the HVS and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the HVS;
 - d. a minimum of 2 m separation from walls, parapets and penthouses is required for HVS at the rooftop;
 - e. a minimum of 2 m separation from any supporting structure, measures horizontally is required;
 - f. no furnace or incinerator flue is nearby;
 - g. airflow around the sampler is unrestricted;
 - h. the HVS is more than 20 m from the dripline;
 - i. any wire fence and gate to protect the HVS, shall not cause any obstruction during monitoring;
 - j. permission must be obtained to set up the HVS and to obtain access to the monitoring stations; and
 - k. a secured supply of electricity is needed to operate the HVS.

Construction Noise

3.3.5 There were four (4) designated noise monitoring locations recommended in the Approved EM&A Manual Section 6.5.1.1. Based on rationale in Section 3.3.2, the Contract-related noise quality monitoring location for construction phase were summarized in *Table 3-3* and illustrated in *Appendix D*.

Table 3-3Designated Construction Noise Monitoring Location under the Project

Locatio n ID	Description in EM&A Manual	Location	Related Work Contract
CN-1	Village house to the west of	Village house to the west of Sha Ling	Contract 1
	Sha Ling Road	Road (free field condition)	
CN-2	Village house to the north of	Sha Ling Village House No. 25 (free	Contract 1
	Man Kam To Road	field condition)	& 3
CN-3	Village house near San Uk	San Uk Ling Village House No. 18 (free	Contract 2
	Ling	field condition)	
CN-4	Village house of Muk Wu	Muk Wu Village House No. 267 (1m	Contract 2
		façade from the building)	



Water Quality

3.3.6 There were four (4) water quality monitoring locations recommended in the Approved EM&A Manual Section 7.6.1.2. The locations and coordinates of water quality monitoring were listed in *Table 3-4*. Based on rationale in Section 3.3.2, the Contract-related water quality monitoring location for construction phase were summarized in *Table 3-4* and illustrated in *Appendix D*.

Proposed	Co-ore	linates	Description	Related Work
Location ID	North	East	Description	Contract
M1	843 431	831 308	Midstream of Nam Hang Stream	Contract 2
M2	843 840	831 101	Downstream of Nam Hang Stream	Contract 2
M3	843 509	830 040	Wetland in the Conservation Area near Yuen Leng Chai	Contract 1
M4	843 997	831 783	Watercourse across Lin Ma Hang Road, running from east of San Uk Ling to Man Kam To Boundary Control Point	Contract 2

Table 3-4Designated Water Quality Monitoring Stations under the Project

3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 The requirements of impact monitoring were stipulated in *Sections 5.8.1.1, 6.7.1.1* and *7.8.1.4* of the approved *EM&A Manual* and presented as follows.

Air Quality Monitoring

- 3.4.2 Monitoring frequency for air quality impact monitoring is as follows:
 - 1-Hour TSP 3 sets of 1-hour TSP monitoring shall be carried out once every six days during construction periods
 - 24-Hour TSP 24-hour TSP monitoring shall be carried out every six days during construction periods

Noise Monitoring

3.4.3 Noise impact monitoring shall be carried out once per week during construction periods. The noise measurement for the time period between 0700 and 1900 hours shall be measured in terms of L_{eq} (30 minutes) or 6 sets of L_{eq} (5mins).

Water Quality Monitoring

3.4.4 The monitoring frequency shall be 3 days per week during construction phase and the interval between two sets of monitoring shall not be less than 36 hours.

3.5 MONITORING EQUIPMENT

3.5.1 The monitoring equipment using for the EM&A program as proposed by the ET shall be verified by the IEC.

Air Quality Monitoring

- 3.5.2 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.* If ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to IEC for approval.
- 3.5.3 The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.
- 3.5.4 All equipment used by ET for air quality monitoring is listed in *Table 3-5*.

Table 3-5Air Quality Monitoring Equipment

Equipment	Model
24-hour TSP	
High Volume Air Sampler (HVAS)	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025A
1-Hour TSP	
Portable Dust Meter	Laser Dust Monitor, Model AM510

 $Z: Jobs \ 2018 \ TCS 00881 (CV-2016-10) \ 600 \ EM\&A \ Report \ Submission \ Monthly \ Report \ 2023 \ 59th \ Month \ (June \ 2023) \ R0763v2. doc \ R0763v2. \ R07$



Equipment Model	
	/ Sibata LD-3 Laser Dust monitor Particle Mass Profiler & Counter

Wind Data Monitoring Equipment

- 3.5.5 According to the approved EM&A Manual, wind data monitoring equipment shall also be provided and set up for logging wind speed and wind direction near the dust monitoring locations. The equipment installation location shall be proposed by the ET and agreed with the IEC. For installation and operation of wind data monitoring equipment, the following points shall be observed:
 - The wind sensors should be installed 10 m above ground so that they are clear of obstructions 1) or turbulence caused by buildings.
 - The wind data should be captured by a data logger. The data shall be downloaded for analysis 2) at least once a month.
 - 3) The wind data monitoring equipment should be re-calibrated at least once every six months.
 - Wind direction should be divided into 16 sectors of 22.5 degrees each. 4)
- 3.5.6 ET has liaised with the premises owners/ landlords to grant the permission for the HVS installation. However, they rejected to set up wind data monitoring equipment installation in their premises.
- 3.5.7 Under this situation, the ET proposed to obtain representative wind data from the Hong Kong Observatory Ta Kwu Ling Weather Station. Ta Kwu Ling Station is located near the Project site which situated at the sea level above 15mPD and the wind data monitoring equipment is installed 10 m above the existing ground.

Noise Monitoring

- 3.5.8 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in ms⁻¹ before each noise monitoring event. Noise measurements should not be made in fog, rain, wind with a steady speed exceeding 5 m s⁻¹ or wind with gusts exceeding 10 m s⁻¹.
- 3.5.9 Noise monitoring equipment used for impact monitoring is listed in Table 3-6.

Table 3-6	Noise Monitoring Equipment	
	E 4	

Equipment	Model
Integrating Sound Level Meter	Rion NL-52 Sound Level Meter
Calibrator	Rion NC-73 Acoustical Calibrator
Portable Wind Speed Indicator	Testo Anemometer

3.5.10 Sound level meters listed above comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications, as recommended in TM issued under the NCO.

Water Quality Monitoring

3.5.11 Water quality parameters include dissolved oxygen, water temperature & depth, turbidity, salinity, pH and stream flow velocity shall be measured *in-situ*, and suspended solids shall be analyzed by a HOKLAS-accredited testing laboratory.

Dissolved Oxygen and Temperature Measurement

- 3.5.12 The dissolved oxygen (DO) measuring instruments should be portable and weatherproof. The equipment should also complete with cable and sensor, and DC power source. It should be capable of measuring:
 - A DO level in the range of 0 20 mg/L and 0 200% saturation; and



- A temperature of 0 45 degree Celsius.
- 3.5.13 The equipment should have a membrane electrode with automatic temperature compensation complete with a cable.
- 3.5.14 Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO measuring instruments prior to each measurement.

Turbidity Measurement

3.5.15 The turbidity measuring instruments should be a portable and weatherproof with DC power source. It should have a photoelectric sensor capable of measuring turbidity level between 0–1000 NTU (for example, Hach model 2100Q or an approved similar instrument).

Salinity Measurement

3.5.16 A portable salinometer capable of measuring salinity in the range of 0–40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.

<u>pH Measurement</u>

3.5.17 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions accordingly to the APHA Standard Methods.

Water Depth Measurement

3.5.18 A portable, battery-operated echo sounder or an approved similar instrument should be used for water depths determination at each designated monitoring station.

Stream Flow Velocity Equipment

3.5.19 Since the EM&A Manuals do not specified instrument to use stream flow velocity measurement, the monitoring of stream flow velocity is therefore proposed to be conducted by using a flow probe which is a digital water velocity meter.

Water Sampling Equipment

- 3.5.20 A water sampler is required for suspended solid (SS) monitoring. A water sampler e.g. Kahlsico Water Sampler, which is a transparent PVC cylinder with capacity not less than 2 litres, will be used for water sampling if water depth over than 0.5m.
- 3.5.21 For sampling from very shallow water depths e.g. <0.5 m, water sample will be collected from water surface below 100mm using plastic bottle to avoid inclusion of bottom sediment or humus. Moreover, Teflon/stainless steel bailer or self-made sampling buckets maybe used for water sampling. The equipment used for sampling will be depended the sampling location and depth situations.

Sample Containers and Storage

- 3.5.22 Water samples for suspended solid should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory within 24 hours of collection and be analyzed as soon as possible after collection.
- 3.5.23 Analysis of suspended solids should be carried out in a HOKLAS or other accredited laboratory. Water samples of about 1L should be collected at the monitoring stations for carrying out the laboratory suspended solids determination. The SS determination work should start within 24 hours after collection of the water samples. The SS analyses should follow the *APHA Standard Methods* 2540D with Limit of Reporting of 2 mg/L.
- 3.5.24 Details of the equipment used for water quality monitoring are listed in *Table 3-7* below.

Table 3-7Water Quality Monitoring Equipment



Equipment	Model
Water Depth Detector	Tape measures
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends or Teflon/stainless steel bailer or self-made sampling bucket
Thermometer & DO meter	YSI Professional DSS
pH meter	YSI Professional DSS
Turbidimeter	YSI Professional DSS
Salinometer	YSI Professional DSS
Stream Flow Velocity	FP211 Global Flow Probe
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box with Ice pad

3.5.25 Furthermore, Suspended Solids (SS) analysis was carried out by *ALS Technichem (HK) Pty Ltd*. Which is one a local HOKLAS-accredited laboratory

3.6EQUIPMENT CALIBRATION

- 3.6.1 The HVAS is operated and calibrated on a regular basis in accordance with the manufacturer's instruction using Tisch Calibration Kit Model TE-5025A. Calibration would carry out at fortnightly interval. The calibration data are properly documented and the records are maintained by ET for future reference. Furthermore, Tisch Calibration Kit will be calibrated by the manufacturer in yearly basis.
- 3.6.2 The 1-hour TSP meter calibrated by a local HOKLAS-accredited laboratory would be undertaken in yearly basis. Zero response of the equipment was checked before and after each monitoring event.
- 3.6.3 The sound level meter and acoustic calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.6.4 The multi-parameter Water Quality Monitoring System is calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.6.5 All updated calibration certificates of the monitoring equipment used for the impact monitoring program in this Reporting Month are attached in *Appendix E*.

3.7 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.7.1 The impact monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.
- 3.7.2 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, noise meter and Multi-parameter Water Quality Monitoring System are downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

3.8DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.8.1 The baseline monitoring results form the basis for determining the environmental acceptance criteria for the impact monitoring. The air quality, construction noise and water quality criteria, namely Action and Limit levels were established according to Approved EM&A Manual, and they are listed in *Tables 3-8, 3-9* and *3-10* below.

Table 3-8	Action and Limit Levels for Air Quality Monitoring
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Monitoring Station	Action I	Level (µg /m ³)	Limit Level (µg/m ³)		
Monitoring Station	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP	
ASR-1	331	181	500	260	



Monitoring Station	Action 1	Level (µg /m³)	Limit Level (µg/m ³)	
Monitoring Station	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
ASR-2	316	165	500	260
ASR-3	307	160	500	260

Table 3-9	Action and Limit Levels for Construction Noise
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Manitaring Lagation	Action Level Limit Level in dB(A)		
Monitoring Location	Monitoring Location Time Period: 0700-1900 hours on normal weekda		
CN-1,CN-2, CN-3, CN-4	When one or more documented complaints are received	75 dB(A)	

* Reduces to 70 dB(A) for schools and 65 dB(A) during the school examination periods. Note:

Table 3-10 Action and Limit Levels for Water Quality

Parameter	Performance	Monitoring Location				
	criteria	M1	M2	M3	M4	
$\mathbf{DO}(\mathbf{m}_{\mathbf{Z}}/\mathbf{I})$	Action Level	3.03	4.99	4.58	3.62	
DO (mg/L)	Limit Level	2.97	4.90	4.49	3.52	
Turbidity	Action Level	7.1	39.7	5.6	5.4	
(NTU)	Limit Level	7.6	42.2	5.9	5.9	
SS(ma/I)	Action Level	8.5	29.0	9.3	4.8	
SS (mg/L)	Limit Level	10.1	31.0	9.5	5.0	
Notes:	-					

• For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits

For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

3.8.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in *Appendix F*.



4. AIR QUALITY

4.1 MONITORING RESULTS

- 4.1.1 In the Reporting Month, air quality monitoring was performed at all designated locations. Impact monitoring schedule provided to all relevant parties was shown in *Appendix G*.
- 4.1.2 In this Reporting Month, there were 6 sessions of 24-hour TSP and 15 sessions of 1-hour TSP undertaken at each designated station for air quality monitoring. The air quality monitoring results are summarized in *Tables 4-1* to 4-3. The database of 24-hour TSP is shown in *Appendix H* and the graphical plots of monitoring result are shown in *Appendix I*.

 Table 4-1
 Summary of Air Quality Monitoring Results at ASR-1 under Contract 1

	24-hour		1-hour TSP (μg/m³)			
Date	TSP (µg/m ³)	Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
2 Jun 23	56	3-Jun-23	9:30	79	83	75
8 Jun 23	179	9-Jun-23	9:00	80	77	79
14 Jun 23	30	15-Jun-23	9:30	61	53	56
19 Jun 23	11	20-Jun-23	13:30	88	92	82
24 Jun 23	25	26-Jun-23	13:02	83	89	90
29 Jun 23	20					
Average	54	Average			78	
(Range)	(11 – 179)	(Range)			(53 – 92)	

Table 4-2	Summary of Air Quality Monitoring Results at ASR-2 under Contract 2

	24-hour		1-hour TSP (μg/m³)			
Date	TSP (µg/m ³)	Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
2 Jun 23	51	3-Jun-23	9:34	93	97	85
8 Jun 23	37	9-Jun-23	9:20	90	92	86
14 Jun 23	26	15-Jun-23	9:36	69	71	62
19 Jun 23	29	20-Jun-23	13:34	75	81	77
24 Jun 23	12	26-Jun-23	13:06	77	85	82
29 Jun 23	51					
Average	34	Averag	ge		81	
(Range)	(12 – 51)	(Range	e)		(62 – 97)	

Table 4-3	Summary of Air Quality Monitoring Results at ASR-3a under Contract 2
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	24-hour	1-hour TSP (μg/m ³)							
Date	TSP (µg/m ³)	Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured			
2 Jun 23	33	3-Jun-23	9:40	72	88	76			
8 Jun 23	70	9-Jun-23	13:00	83	80	77			
14 Jun 23	28	15-Jun-23	9:41	49	52	57			
19 Jun 23	24	20-Jun-23	13:39	62	67	71			
24 Jun 23	86	26-Jun-23	13:13	81	84	89			
29 Jun 23	28								
Average	45	Averag	ge	73					
(Range)	(24 – 86)	(Range	e)	(49 - 89)					

4.2 AIR MONITORING EXCEEDANCE

4.2.1 As shown in *Tables 4-1 to 4-3*, the monitoring results of 24-hour and 1-hour TSP monitoring in the Reporting Month were below the Action/ Limit Level. No Notification of Exceedance (NOE) of air quality monitoring criteria was issued and therefore corrective action was not required. The meteorological data during the impact monitoring days are summarized in *Appendix J*.



5. CONSTRUCTION NOISE

5.1 MONITORING RESULTS

- In the Reporting Month, noise monitoring was performed at all designated locations. Impact 5.1.1 monitoring schedule provided to all relevant parties was shown in *Appendix G*.
- 5.1.2 In this Reporting Month, 4 sessions of noise monitoring were undertaken at each designated noise monitoring location. The sound level were set in a free field situation for CN1, CN2 and CN3 and therefore a façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines. The monitoring result of noise monitoring is show in Tables 5-1 and 5-2 and the graphical plots are shown in *Appendix I*.

Table 5-1	Summary of Construction Noise Monitoring Results under Contract 1
	Construction Noise Level (L_{abs}, A) dB(A)

Construction Noise Level (Leq30min), dB(A)									
Date	Start Time	CN1(*)	Start Time	CN2(*)					
9 Jun 23	9:32	59	13:06	65					
15 Jun 23	13:30	60	14:04	66					
20 Jun 23	13:12	66	13:50	59					
26 Jun 23	13:05	64	13:41	62					
Limit Level	Limit Level 75 dB(A)								

(*) A façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines.

Table 5-2	Summary of Construction	Noise Monitoring Results under Contract 2

	Construction Noise Level (Leq30min), dB(A)									
Date	Start Time	CN3 ^(*)	Start Time	CN4						
9 Jun 23	10:40	56	11:16	64						
15 Jun 23	14:38	56	15:12	64						
20 Jun 23	14:27	64	15:09	61						
26 Jun 23	14:18	59	14:57	61						
Limit Level		75	dB(A)							

(*) A façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines.

5.1.3 Prior and after noise monitoring, the accuracy of the sound level meter has been checked by an acoustic calibrator to ensure the measurement within acceptance range of ± 0.5 dB. Moreover, wind speed checked by portable wind speed meter has been performed before noise monitoring. No noise measurement was performed in fog, rain, wind with a steady speed exceeding 5 m s⁻¹ or wind with gusts exceeding 10 m s⁻¹.

5.2 NOISE MONITORING EXCEEDANCE

5.2.1 As shown in Tables 5-1 and 5-2, no noise complaint (which triggered Action Level) and Limit Level exceedance for noise monitoring exceedance was recorded in the Reporting Month.



6. WATER QUALITY

6.1 MONITORING RESULTS

- 6.1.1 In the Reporting Month, water quality monitoring was performed at all designated locations. Impact monitoring schedule provided to all relevant parties was shown in *Appendix G*.
- 6.1.2 In the Reporting Month, a total of 13 monitoring days were carried out for water quality impact monitoring. The monitoring result of key parameters including Dissolved Oxygen, Turbidity and Suspended Solids are summarized in *Tables 6-1* and *6-2*. Detailed monitoring results including in-situ measurements and laboratory analysis data are shown in *Appendix H* and graphical plots for monitoring result are shown in *Appendix I*.

Parameters								
Date	DO (Averaged) (mg/L)	Turbidity (Averaged) (NTU)	Suspended Solids (Averaged) (mg/L)					
2 Jun 23	6.57	3.2	3.5					
5 Jun 23	6.89	4.3	3.5					
7 Jun 23	6.54	2.6	3.5					
9 Jun 23	6.96	4.9	4.0					
12 Jun 23	6.77	5.4	4.5					
14 Jun 23	7.32	4.4	5.0					
16 Jun 23	7.12	5.5	6.0					
19 Jun 23	7.04	3.1	3.5					
21 Jun 23	7.02	3.0	3.0					
23 Jun 23	6.76	4.3	4.5					
26 Jun 23	5.86	5.5	6.0					
28 Jun 23	6.53	3.9	8.5					
30 Jun 23	6.41	5.3	9.0					

 Table 6-1
 Summary of Water Quality Monitoring Results – M3 under Contract 1

Table 6-2 Summary of Water Qual	lity Monitoring Results (M1	, M2 and M4) under Contract 2
		, ,

	Parameters										
Date	DO (Averaged) (mg/L)			Turbid	Turbidity (Averaged) (NTU)			Suspended Solids (Averaged) (mg/L)			
	M1	M2	M4	M1	M1 M2 M4			M2	M4		
2 Jun 23	7.15	7.00	5.38	6.1	9.5	3.8	7.5	10.5	3.0		
5 Jun 23	7.24	7.24	5.35	6.2	2.1	2.9	8.0	6.5	2.5		
7 Jun 23	7.15	7.36	6.03	6.7	2.8	3.8	7.5	3.5	4.0		
9 Jun 23	7.27	7.39	6.39	2.0	6.6	4.7	4.5	4.5	4.5		
12 Jun 23	7.22	7.32	6.33	3.2	4.9	3.5	4.0	3.5	4.0		
14 Jun 23	7.23	7.53	7.34	6.9	12.9	5.4	8.0	19.5	4.0		
16 Jun 23	7.24	7.27	6.98	6.3	11.1	3.2	6.5	15.0	4.0		
19 Jun 23	7.26	7.12	6.90	3.3	4.4	3.3	5.0	4.5	4.5		
21 Jun 23	7.01	7.11	6.87	3.4	3.6	2.3	3.5	4.0	4.0		
23 Jun 23	7.14	6.88	6.71	3.3	6.3	3.0	3.5	4.0	4.0		
26 Jun 23	7.27	6.81	6.79	6.6	21.4	5.0	4.0	25.5	4.5		
28 Jun 23	7.07	6.79	7.12	6.9	18.6	2.1	7.0	25.5	3.0		
30 Jun 23	7.17	7.05	7.12	5.1	17.2	3.8	4.5	22.0	3.5		

6.1.3 During the Reporting Month, field measurements including temperature of stream water, salinity concentrations, pH values and the stream flow velocity for all monitoring locations are summarized in *Table 6-3*.

 Table 6-3
 Summary of Field Measurements for Water Quality

	Parameters of field measurements									
Monitoring	pH (Ave	eraged)	Salinity (Averaged)		Temp (Averaged)		Water Flow			
Location	(un	nit)	(ppt)		t) (ppt) (°C)		(°C)		(Averaged	l) (m/s)
	min	max	min	min max min max		min	max			
M1	7.1	8.0	0.05	0.11	26.0	28.6	< 0.1	< 0.1		



	Parameters of field measurements							
Monitoring Location	pH (Averaged) (unit)		Salinity (Averaged) (ppt)		Temp (Averaged) (°C)		Water Flow (Averaged) (m/s)	
	min	max	min	max	min	max	min	max
M2	7.0	7.6	0.07	0.12	26.1	28.9	< 0.1	< 0.1
M3	7.1	7.5	0.02	0.08	26.0	28.5	< 0.1	< 0.1
M4	7.0	7.4	0.05	0.08	26.3	28.8	< 0.1	< 0.1

6.2 WATER QUALITY MONITORING EXCEEDANCE

6.2.1 In this Reporting Month, no water quality exceedances were recorded. The summary of non-compliance of water quality performance is shown in *Table 6-4*.

Table 6-4Action and Limit (A/L) Levels Exceedance Record

Station	DO		Turbidity		SS Total P Exceedance				Project excee	Related dance
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
M1	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0
M3	0	0	0	0	0	0	0	0	0	0
M4	0	0	0	0	0	0	0	0	0	0

6.2.1 Notification of Exceedance and the investigation for exceedance in the Reporting Month is summarized in *Table 6-5*.

Table 6-5 S	Summary of Investigation	of Water Quality	Exceedance in the Re	porting Month
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Date of	Exceeded	Exceeded	Cause of Water Quality Exceedance
Exceedance	Location	Parameter	



7. ECOLOGY MONITORING

7.1 REQUIREMENT

- 7.1.1 According to approved EIA report (AEIAR-198/2016), habitat types within project boundary comprise of watercourse, grassland, upland grassland, plantation, woodland and developed area. Natural habitats were of moderate ecological value in terms of species diversity, species rarity, species abundance, ecological linkage as well as nursery. Moreover, 0.3ha of wet woodland on the northern side of Sandy Ridge was deemed habitat with high ecological value. Four types of habitats were regarded as ecologically sensitive habitats, namely wet woodland, watercourses, upland grassland and woodland. Considering human disturbance in upcoming construction and operation phases, ecologically sensitive habitats shall be monitored in accordance with EM&A Manual.
- 7.1.2 The objective of ecologically sensitive habitats monitoring is to evaluate the effectiveness of measures to minimize impacts on concerned habitats from disturbance and pollution. In order to monitor the effectiveness of the measures to the minimize impact on ecologically sensitive habitats from disturbance and pollution, monthly monitoring during construction and operation phases is required as specified in EM&A Manual. Standard faunal transect and sampling surveys cover both wetland habitats (*wet woodland and watercourse*) and non-wetland habitats (*upland grassland and woodland*).

7.2 METHODOLOGY

7.2.1 Wetland habitats include wet woodland and watercourses. Monitoring surveys using standardized quantitative methodology will conduct at fixed points. For seasonal watercourse, the survey will be conducted whenever the habitat appears. Measures to respond to decreases in numbers of aquatic fauna using the wetland habitats and Action/Limit levels to trigger these measures are detailed in *Table 7-1*.

Table 7-1 AC	tion and Linni Levels for we	t wooulallu Habit	ats withinto mg					
Action Level	Response	Limit Level	Response					
	e	taxa diversity by	Investigate cause and if cause identified as related to the project instigate remedial action.					

 Table 7-1
 Action and Limit Levels for Wet Woodland Habitats Monitoring

Remarks: Action and Limit Levels and Responses to Evidence of Declines in Aquatic Fauna

7.2.2 Non-wetland habitats consist of upland grassland and woodland. Monthly quantitative surveys of non-aquatic fauna will be conducted using standard route transect counts. Measures to respond to decreases in numbers of non-aquatic fauna using the non-wetland habitats and Action/Limit levels to trigger these measures are detailed in *Table 7-2*.

 Table 7-2
 Action and Limit Levels for Non-Wet Woodland Habitats Monitoring

Action Level	Response	Limit Level	Response
	e	species diversity	Investigate cause and if cause identified as related to the project instigate remedial action.

Remarks: Action and Limit Levels and Responses to Evidence of Declines in Non-Aquatic Fauna

7.2.3 The ecological survey includes all taxa being investigated in accordance with EIA report. Schedule of faunal surveys in each year during construction phase is presented in *Table 7-3*.

Table 7-3Schedule of Faunal Surveys in each year During Construction Phase

						J	. 9					
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mammals					\checkmark							
Birds (day)					\checkmark		\checkmark	\checkmark			\checkmark	



Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Birds (night)								\checkmark				
Herpetofauna								\checkmark				
Dragonflies												
Butterflies												
Aquatic fauna								\checkmark				\checkmark

<u>Mammal Survey</u>

7.2.4 Mammal surveys will be conducted along the proposed transects (shown in *Appendix K* - Ecological Survey Reports) in during both daytime and night time periods. Along with direct observations, other field signs, such as scats and tracks, will be searched and recorded if present.

<u>Bird Survey</u>

7.2.5 Bird surveys will be conducted along the transects (shown in *Appendix K* - Ecological Survey Reports) during the surveys, species and their vocalizing individuals recorded will be enumerated and recorded according to the habitat(s) they are utilizing.

Herpetofauna Survey

7.2.6 Reptile and amphibian surveys will be conducted along transects (shown in *Appendix K* - Ecological Survey Reports) during surveys careful searches of appropriate microhabitats and refugia for reptiles and their vocalizing individuals will be undertaken and all reptiles observed will be identified and counted.

Dragonfly and Butterfly Survey

7.2.7 Dragonfly and Butterfly surveys will be conducted along transects (shown in *Appendix K* - Ecological Survey Reports) during surveys all dragonflies and Butterflies seen will be identified and counted as accurately as possible.

Aquatic Fauna Survey

- 7.2.8 Freshwater fishes and macro-invertebrates will be recorded by direct observation. All species trapped/recorded will be enumerated and identified (to the lowest taxonomic level possible), and the species of conservation importance photographed.
- 7.2.9 After each ecological monitoring survey, a monthly report of the survey result and data collected will be provided with reference to EM&A Manual. An annual analysis of data will be carried out in order to study if there is any significant reduction in taxa diversity and abundance.

7.3 ECOLOGICAL MONITORING SURVEY FINDINGS (CONTRACT 1)

7.3.1 In the Reporting Month, ecological monitoring was undertaken on 20th June 2023, a sunny day. The day and night survey covered wetland and non-wetland areas. The survey was conducted by transect and at fixed points. All species seen would be identified and counted as accurately as possible. Results of the monitoring survey are presented below:

Monitoring Result for Contract 1

Mammal

7.3.2 There was a total of 1 mammal individuals from 1 species recorded in the monitoring area.

Birds

7.3.3 There were a total of 60 birds individuals from 15 species recorded in the monitoring area. No Golden-headed Cisticola was observed during the bird survey. Four species of conservation interests were recorded in this survey: Black Kite (Milvus migrans) 黑鳶, Lesser Coucal (Centropus bengalensis) 小鴉鵑, Greater Coucal (Centropus sinensis) 褐翅鴉鵑, White-throated Kingfisher (Halcyon smyrnensis) 白胸翡翠.

<u>Herpetofauna</u>



7.3.4 There was no reptile species recorded in monitoring area. There were 2 amphibian species recorded in the monitoring area.

<u>Butterfly</u>

7.3.5 There were a total of 15 butterfly individuals from 4 species recorded in the monitoring area.

<u>Dragonfly</u>

7.3.6 There were a total of 20 dragonfly individuals from 4 specie recorded in the monitoring area.

Aquatic Fauna Survey (Freshwater communities)

7.3.7 There was 1 species of freshwater crab recorded in the monitoring area.

7.3.8 The summaries of faunal survey result are shown in *Tables 7-4* and 7-5.

Scientific Name	Common /	Chinese Name		Non-we			etlan	
	Engineer Name	Chinese Manie	n Status	UG	WL	MA	WW	WO
Mammal Survey				1				
Callosciurus	Pallas's Squirrel	赤腹松鼠			1			
erythraeus								
Avifauna Survey	DI I K			2				
Milvus migrans	Black Kite	黑鳶	Fellowes et al. (2002): RC;	2				
			Appendix 2 of					
			CITES					
Centropus	Lesser Coucal	小鴉鵑	Class 2	3				
bengalensis			Protected					
			Animal of					
			China;China Red Data					
			Book Status:					
			(Vulnerable)					
Centropus sinensis	Greater Coucal	褐翅鴉鵑	Class 2	2			1	
r			Protected					
			Animal of					
			China;China					
			Red Data Book Status:					
			(Vulnerable)					
Caprimulgus affinis	Savanna Nightjar	林夜鷹	(vullerable)	1				
Glaucidium	Asian Barred	斑頭鵂鶹	Class 2					
cuculoides	Owlet	小工业只有运用运	Protected					
cuculolues	Owlet		Animal of	4				
			China;	4				
			Appendix 2 of CITES					
Eudynamys	Asian Koel	噪鵑	CITES	1				
scolopaceus				1				
Hierococcyx	Large Hawk	大鷹鵑		1				
sparverioides	Cuckoo			1				
Apus nipalensis	House Swift	小白腰雨燕		10				
Halcyon smyrnensis	White-throated	白胸翡翠	Fellowes et al.	1				
	Kingfisher		(2002): LC	1				
Corvus	Large-billed Crow	大嘴烏鴉		2				
macrorhynchos				<u> </u>			<u> </u>	
Pycnonotus jocosus	Red-whiskered	紅耳鵯		3			10	
	Bulbul	1		5			10	
Pycnonotus sinensis	Chinese Bulbul	白頭鵯		5			2	
Pycnonotus	Sooty-headed	白喉紅臀鵯		4				
aurigaster	Bulbul			4				
Prinia flaviventri	Yellow-bellied	黃腹鷦鶯		2			2	
·	Prinia			2			2	

Table 7-4Result of Faunal Survey under Contract 1



	Common /		Conservatio	Non-we	tland	W	'etlan	d
Scientific Name	Engineer Name	Chinese Name	n Status	UG	WL	MA	WW	WC
Orthotomus	Common	長尾縫葉鶯		4			1	
sutorius	Tailorbird			4			1	
N/A								
Amphibian Survey								
Fejervarya	Paddy Frog	澤蛙						+
limnocharis								
Polypedates	Brown Tree Frog	斑腿泛樹蛙						+
megacephalus								
Butterfly Survey								
Neopithecops	Quaker	一點灰蝶			1			
zalmora					1			
Papilio protenor	Spangle	藍鳳蝶		1	2			
Mycalesis mineus	Dark Brand Bush	小眉眼蝶		2	2		1	
	Brown			Z	2		1	
Abisara echerius	Plum Judy	蛇目褐蜆蝶		4			2	
Odonate Survey								
Orthetrum	Common Red	赤褐灰蜻		•	•			1
pruinosum	Skimmer			2	2			
Tramea virginia	Saddlebag Glider	華斜痣蜻					1	1
Rhyothemis	Variegated	斑麗翅蜻		2				2
variegata arria	Flutterer	クェルD 入ご AFI		2				
Pseudothemis	Pied Skimmer	玉帶蜻					3	6
zonata							3	

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse + Species appeared but uncountable

Table 7-5 Result of Freshwater Communities Survey under Contract	Table 7-5	Result of Freshwater Communities Survey under Contract 1
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Scientific Name Con		Common	Chinese Name	Conservatio	Non-w	Wetland			
Scientific Ivalle	Name		n Status	UG	WL	MA	WW	WC	
Somanniathelp zanklon	ohusa	鐮刀束腰蟹	Somanniathelph usa zanklon						+

+ Species appeared but uncountable

Discussion

- 7.3.9 After analysing survey results in May from 2019 to 2023, a significant increase in both the species richness and abundance for Wetland and Non-wetland habitat are recorded in June 2023. This could be benefited by some positive factors such as the major construction works were completed and most of the PME has been removed from site. Besides, compensation planting works have been conducted in early Jan 2023. Therefore, disturbance to fauna species from construction works have been largely minimised. In addition, woodland compensation and grassland reinstatement would be implemented in the second and third quarter of 2023. Hence, the habitat of fauna species would be gradually recovered and expectation of increase in the species richness and abundance for wetland habitat is high.
- 7.3.10 Yet, good site practice during construction, with reference to EM&A Manual, is still required to prevent or alleviate environmental impacts. Continuous monitoring is also recommended to inspect any changes in species diversity.

7.4 ECOLOGICAL MONITORING SURVEY FINDINGS (CONTRACT 2)

7.4.1 In the Reporting Month, ecological monitoring was undertaken at work area of Contract 2 on 20th June 2023, a sunny day. The day and night survey covered wetland and non-wetland areas. The survey was conducted by transect and at fixed point. All species seen would be identified and counted as accurately as possible. Results of the monitoring survey are presented below:



Monitoring Result for Contract 2

<u>Mammal</u>

7.4.2 There was no mammal recorded in the monitoring area

<u>Birds</u>

7.4.3 There were a total of 16 bird individuals from 5 species recorded in the monitoring area. No Golden-headed Cisticola was observed during the bird survey.

<u>Herpetofauna</u>

7.4.4 There was no reptile recorded in the monitoring area. There was no amphibian recorded in the monitoring area.

<u>Butterfly</u>

7.4.5 There were total of 7 butterfly individuals from 4 species recorded in the monitoring area.

Dragonfly

7.4.6 There were total of 8 dragonfly individuals from 4 species recorded in the monitoring area.

Aquatic Fauna Survey (Freshwater communities)

7.4.7 There were 2 species of freshwater fish were recorded in the monitoring area.

7.4.8 The summaries of faunal survey result are shown in *Tables 7-6* and 7-7.

Table 7-6Result of Faunal Survey under Contract 2

Scientific Name	Common / Engineer	Chinese	Conservation		on- land	v	Vetlaı	nd
	Name	Name	Status	UG	WL	MA	WW	WC
Mammal Survey				r.				
Avifauna Survey		ľ	ľ		1			
Spilopelia chinensis	Spotted Dove	珠頸斑鳩		4				
Amaurornis phoenicurus	White-breasted Waterhen	白胸苦惡鳥				1		
Pycnonotus jocosus	Red-whiskered Bulbul	紅耳鵯		4			2	
Prinia flaviventris	Yellow-bellied Prinia	黃腹鷦鶯		1		2		
Orthotomus sutorius	Common Tailorbird	長尾縫葉鶯			2			
Reptile Survey								
Amphibian Survey								
Butterfly Survey		ľ	ľ		1			
Udaspes folus	Grass Demon	薑弄蝶				2		
Papilio polytes	Common Mormon	玉帶鳳蝶		1				
Eurema hecabe	Common Grass Yellow	寬邊黃粉蝶				2		
Pieris canidia	Indian Cabbage White	東方菜粉蝶			2			
Odonate Survey								
Anax guttatus	Pale-spotted Emperor	斑偉蜓				1		
Copera marginipes	Yellow Featherlegs	黃狹扇蟌				1		
Pseudothemis zonata	Pied Skimmer	玉帶蜻				2		



Scientific Name	Common / Engineer Name	Chinese Name	Conservation Status	No wetl	on- and	v	Vetlar	nd
	ivanic	ivanic	Status	UG	WL	MA	WW	WC
Pantala flavescens	Wandering Glider	黄蜻				4		

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Scientific Name	Common Name	Chinese Name	Conservation Non- Status Wetland Wetl				etlan	land
	Name		Status	UG	WL	MA	WW	WC
Gambusia affinis	Mosquito fish	食蚊魚						+
Puntius semifasciolatus	Chinese Barb	五線無鬚鰓						+

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

+: Species appeared but uncountable.

Discussion

- 7.4.9 After analysing survey results in June from 2019 to 2023, records in species richness and abundance for wetland and non-wetland habitats are unstable, this may due to natural fluctuation. According to the recent on-site observation, there are new built workshops by others situated on both sides of Lin Ma Hang Road so the disturbance to fauna species from construction works could be increased. Due to the cause was not related to this project, remedial action to remove or reduce source of disturbance is limited.
- 7.4.10 Nevertheless, the situation could be benefited by some positive factors such as the major construction works in this contract were completed and most of the PME has been removed from site. Besides, compensation planting works have been conducted in early Jan 2023. Therefore, disturbance to fauna species from construction works have been largely minimized internally. In addition, woodland compensation and grassland reinstatement would be implemented in the second and third quarter of 2023. Hence, the habitat of fauna species would be gradually recovered and expectation of increase in the species richness and abundance for wetland habitat is high.
- 7.4.11 Still, a good site practice during construction, with reference to EM&A Manual, is required to prevent or alleviate environmental impacts. For instance, the size of work areas should be minimized and disturbed areas should be reinstated immediately after completion of construction works. In addition, implementing proper waste disposal is necessary to reduce contamination to water and soil. Continuous monitoring is also recommended to inspect any significant decrease in species diversity.
- 7.4.12 The detailed Ecological Survey Reports for Contract 1 and Contract 2 are attached in *Appendix K*.
- 7.4.13 The tentative ecology inspection and monitoring in the next Reporting Month (July 2023) is scheduled on 13th July 2023.

7.5 MONITORING OF FLORA SPECIES OF CONSERVATION INTEREST UNDER CONTRACT 1

- 7.5.1 According to the approved vegetation survey report and transplantation proposal under FEP-01/534/2017/A, an individual of flora species of conservation interest (the transplanted T-2928) was identified and transplanted to the receptor site.
- 7.5.2 According to approved vegetation survey report and transplantation proposal, post-transplantation monitoring was conducted once per week in the first three months after the transplantation in Oct 2018 and once in each of the following month in the remaining establishment period for 12 month. During the remaining construction phase of the project, the transplanted T-2928 would be monitored on quarterly basis.
- 7.5.3 A landscape sub-contractor was employed by the Contractor to monitor the health condition of transplanted species and provide advice on necessary weeding, fertilizing and pest control. The



monitoring records were submitted to ET and IEC for review and record. Moreover, inspection of the transplanted T-2928 was undertaken by ET as part of the weekly site inspection. No construction activity and disturbance were observed at the location of the transplanted T-2928. The health condition of the transplanted T-2928 was fair with normal foliage color and density.

7.6 MEASURE FOR PROTECTION OF NESTING BIRD

- 7.6.1 Pursuant to FEP-01/534/2017/A condition 2.19 and EP-534/2017/A condition 2.20, precautionary checks for the presence of nesting birds shall be carried out in the breeding season (February to July) before vegetation clearance.
- 7.6.2 In the Reporting Period, there was no vegetation clearance for both Contract 1 and Contract 2, and precautionary check for the presence of nesting birds was not required to carry out.



8. LANDSCAPE AND VISUAL

8.1 REQUIREMENT

- 8.1.1 The EIA has recommended EM&A for landscape and visual resources to be undertaken during the design, construction and operational stages of the project. The design, implementation and maintenance of landscape mitigation measures is a key aspect of this and should be checked to ensure that they are fully realized and that potential conflicts between the proposed landscape measures and any other project works let its are resolved at the earliest possible date and without compromise to the intention of the mitigation measures. In addition, implementation of the mitigation measures recommended by the EIA will be monitored through the site audit programme.
- 8.1.2 A number of mitigation measures to ameliorate the landscape and visual impacts of the Project implementation is summarized in the EMIS of *Appendix 13.1* of the EIA Report.
- 8.1.3 The landscape and visual mitigation measures proposed should be incorporated in the landscape and engineering design. Mitigation measures to be implemented during construction should be adopted from the start of construction and be in place throughout the entire construction period. Mitigation measures to be implemented during operation should be integrated into the detailed design and built as part of the construction works so that they are in place on commissioning of the Project. Tree transplantation and compensatory planting should be carried out as early as possible in the Project with transplantation carried out prior to construction starting in any particular area.
- 8.1.4 During construction phase, Landscape & Visual Monitoring of the contractor's operations should be conducted monthly and reported by ET, and countersigned by IEC.

8.2 FINDINGS / DEFICIENCIES DURING SITE INSPECTION IN THE REPORTING MONTH

8.2.1 In the Reporting Month, landscape & visual inspection was carried out by the Registered Landscape Architect for works area of Contract 1 and Contract 2 on 30th June 2023. The findings / reminders recorded during the inspection are presented in *Tables 8-1 and 8-2*.

Date	Findings and Reminder	Follow-Up Status
30 th June 2023	1. The Contractor is reminded to set up TPZ of proper size and with appropriate material around retain trees according to approved method statement.	Reminded only
	2. The Contractor is reminded to prevent the construction material pile within TPZ and ensure no works is allowed within the TPZ.	Reminder only
	3. Transplanted tree T2465 and T2928 were in fair health condition with normal foliage color and density. Contractor is reminded to provide proper maintenance according to the method statement.	Reminder only

Table 8-1	Landscape & Vi	isual Inspection	Finding for Contract 1
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Table 8-2Landscape & Visual Inspection Finding for Contract 2

Date	Findings and Reminder	Follow-Up Status
30 th June 2023	1. Contractor is reminded to set up TPZ of proper size and with appropriate material around retain trees according to approved method statement. Contractor should prevent any construction material pile within TPZ and ensure no works is allowed within the TPZ.	Reminder only

8.2.2 Inspection checklist of Landscape & Visual signed by RLA is attached in *Appendix L*.



9. WASTE MANAGEMENT

9.1 GENERAL WASTE MANAGEMENT

9.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time in accordance with the Waste Management Plan (WMP).

9.2 RECORDS OF WASTE QUANTITIES

- 9.2.1 All types of waste arising from the construction work are classified into the following:
 - Construction & Demolition (C&D) Material;
 - Chemical Waste;
 - General Refuse; and
 - Excavated Soil.
- 9.2.2 The quantities of waste for disposal in this Reporting Month are summarized in *Table 9-1* and *9-2* and the Monthly Summary Waste Flow Table is shown in *Appendix M*. Whenever possible, materials were reused on-site as far as practicable.

	Contract 1		Contract 2	
Type of Waste	Quantity	Disposal Location	Quantity	Disposal Location
Total generated C&D Materials (Inert) ('000m ³)	0.100		0	
Reused in this Contract (Inert) ('000m ³)	0		0	
Reused in other Projects (Inert) ('000m ³)	0		0	
Disposal as Public Fill (Inert) ('000m ³)	0.100	Tuen Mun Area 38	0	

Table 9-1Summary of Quantities of Inert C&D Materials

Remark: the unit is '000kg

Table 9-2Summary of Quantities of C&D Wastes

	Contract 1		Contract 2	
Type of Waste	Quantity	Disposal Location	Quantity	Disposal Location
Recycled Metal ('000kg)	0		0	
Recycled Paper / Cardboard Packing ('000kg)	0		0	
Recycled Plastic ('000kg)	0		0	
Chemical Wastes ('000kg)	0		0	
General Refuses ('000m ³)	0.010	NENT Landfill	7.130 (#)	NENT Landfill

Remark: (#) the unit is in '000kg

9.2.3 Since canteen and/or kitchen are not allowed setting on the Project site, no domestic wastewater was generated from the Project.



10. SITE INSPECTION

10.1 REQUIREMENT

10.1.1 According to the approved EM&A Manual, environmental site inspection should be led by RE and attended by the Contractor and ET at least once per week. Regular environmental site inspections shall be carried out to assess the environmental performance.

10.2 FINDINGS / DEFICIENCIES DURING SITE INSPECTION IN THE REPORTING MONTH

Contract 1

10.2.1 In the Reporting Month, joint site inspections for Contract 1 to evaluate the site environmental performance were carried out by the RE, ET and the Contractor on 1st, 8th 15th, 21st and 29th June 2023. No non-compliance was noted in the Reporting Month. The findings / deficiencies that observed during the weekly site inspection are listed in Table 10-1.

Date	Findings / Deficiencies	Follow-Up Status
1 st June 2023	• No adverse environmental issue was observed.	N/A
8 th June 2023	• No adverse environmental issue was observed.	N/A
15 th June 2023	• No adverse environmental issue was observed.	N/A
21 st June 2023	• No adverse environmental issue was observed.	N/A
29 th June 2023	• No adverse environmental issue was observed.	N/A

Table 10-1Site Observations for the Works of Contract 1

Contract 2

10.2.2 In the Reporting Month, joint site inspections for Contract 2 to evaluate the site environmental performance carried out by the RE, ET and the Contractor was on 1st, 8th 15th, 21st and 29th June 2023. No non-compliance was noted in the Reporting Month. The findings / deficiencies that observed during the weekly site inspection are listed in Table 10-2.

Table 10-2Site Observations for the Works of Contract 2

Date	Findings / Deficiencies	Follow-Up Status
1 st June 2023	• No adverse environmental issue was observed.	N/A
8 th June 2023	• No adverse environmental issue was observed.	N/A
15 th June 2023	• The Contractor was reminded to maintain good	Reminder only
	housekeeping.	
21 st June 2023	• No adverse environmental issue was observed.	N/A
29 th June 2023	• No adverse environmental issue was observed.	N/A



11. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

11.1 Environmental Complaint, Summons and Prosecution

11.1.1 In the Reporting Month, no environmental complaint was received for the project. No summons and prosecution was lodged for the Contract. The statistical summary table of the environmental complaint, summons and prosecution are presented in *Tables 11-1, 11-2* and *11-3*. The complaint log for the Project is shown in *Appendix N*.

Table 11-1 Statistical Summary of Environmental Complaints

Donouting Mor	41	Environmental Complaint Statistics				
Reporting Mor	lth	Frequency Cumulative		Complaint Nature		
$1^{st} - 30^{th}$ June 2023	Contract 1	0	2	(1) Air Quality (1) Noise		
1 st – 30 th June 2023	Contract 2	0	5	(1) Water (2) Air Quality (1) Noise (1) Soil / muddy water		

Table 11-2 Statistical Summary of Environmental Summons

Denewing Men	41.	Environmental Summons Statistics					
Reporting Mon	In	Frequency	Cumulative	Complaint Nature			
$1^{st} - 30^{th}$ June 2023	Contract 1	0	0	NA			
$1^{st} - 30^{th}$ June 2023	Contract 2	0	0	NA			

Table 11-3 Statistical Summary of Environmental Prosecution

Depending Man	th	Environmental Prosecution Statistics						
Reporting Mon	un	Frequency	uency Cumulative Complain					
$1^{st} - 30^{th}$ June 2023	Contract 1	0	0	NA				
$1^{st} - 30^{th}$ June 2023	Contract 2	0	0	NA				

11.1.2 In addition, no complaints received and emergency event relating to violation of environmental legislation for illegal dumping and landfilling were received.



12. IMPLEMENTATION STATUS OF MITIGATION MEASURES

12.1 GENERAL REQUIREMENTS

- 12.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste.
- 12.1.2 The Works of Contract 1 and Contract 2 under the Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual subject to the site condition. Environmental mitigation measures implemented in this Reporting Month is summarized in *Table 12-1*. The status of the Environmental mitigation measures are presented in *Appendix O*.

Issues	Environmental Mitigation Measures									
Water Quality	 Provided efficient silt removal facilities to reduce SS level before effluent discharge. Provided ditches, earth bunds or sand bag barriers to minimize polluted runoff. Temporary drainage was provided to prevent runoff going through site surface and minimize polluted runoff. Provided perimeter cut-off drains at site boundaries to intercept storm runoff from crossing the site. Exposed slopes surface were compacted and covered with tarpaulin or similar means. Provided portable chemical toilets on site. 									
Air Quality	 Maintain damp / wet surface on access road. Maintain low vehicular speed within the works areas. Provided vehicle wheel washing facilities at each construction site exit; Provided water spraying every hour for all active works area. Stockpiles of dusty material were covered with impervious sheeting. Provided workers to clear dusty materials at the vehicle entrance or exit regularly. Stockpile more than 20 bags of cement or dry pulverized fuel ash (PFA) has been covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. 									
Noise	 Restricted operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. Keep good maintenance of plants. Placed noisy plants away from residence and school. Provided noise barriers or hoarding to enclose the noisy plants or works. Shut down the plants when not in used. 									
Waste and	Provided on-site sorting prior to disposal.									
Chemical	Followed requirements and procedures of the "Trip-ticket System"									
Management	 Predicted required quantity of concrete accurately. Collected the unused fresh concrete at designated locations in the sites for subsequent disposal. 									
Ecology	 Implementing water control measures (ETWB TCW No. 5/2005) to avoid direct or indirect impacts any watercourses and impact to any aquatic fauna during the construction phase. Demarcation fencing has been erected to prevent unauthorised encroachment into the riparian corridor by constructions works and traffic. The construction work and site formation have been phased in order to reduce overall noise disturbance impacts in particular areas. Works have been restricted to daytime and any construction lighting was designed and positioned as to not impact on adjacent ecologically sensitive areas. 									
General	The site was generally kept tidy and clean.Environmental Permit was displayed at site entrance.									

 Table 12-1
 Environmental Mitigation Measures



12.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

- 12.2.1 According to the information provided by HCTYJV, the forthcoming construction activities for Contract 1 are listed below:
 - Planting works
 - Hydroseeding work
 - Paint road marking
- 12.2.2 According to the information provided by Sang Hing, the forthcoming construction activities for Contract 2 are listed below:
 - Construction of footpath at Lin Ma Hang Road
 - Planting works at Sandy Ridge and Lin Ma Hang Road

12.3 KEY ISSUES FOR THE COMING MONTH

12.3.1 The construction activities are illustrated in *Appendix P*. Key issues to be considered in the coming month for the works of Contract 1 and 2 shown in *Table 12-2* and *Table 12-3*.

Description of Construction Activities	Used on PME	Environmental Mitigation Measures
Construction Activities	PME	 Environmental Mitigation Measures Provided efficient silt removal facilities to reduce SS level before effluent discharge. Exposed slopes surface were compacted and covered with tarpaulin or similar means. Maintain damp / wet surface on access road. Maintain low vehicular speed within the works areas. Provided vehicle wheel washing facilities at each construction site exit; Stockpiles of dusty material were covered with impervious sheeting. Provided workers to clear dusty materials at the vehicle entrance or exit regularly. Restricted operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. Keep good maintenance of plants. Provided noise barriers or hoarding to enclose the noisy plants or works. Shut down the plants when not in used. Provided on-site sorting prior to disposal. Followed requirements and procedures of the "Trip-ticket System"
		 Works have been restricted to daytime and any construction lighting was designed and positioned as to not impact on adjacent ecologically sensitive areas. The site was generally kept tidy and clean.

 Table 12-2
 Work Undertaken and Illustrations of Mitigation Measures for Contract 1

Table 12-3	Work Undertaken and Illustrations of Mitigation Measures for Contract 2
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Construction Activities	Used on PME	Environmental Mitigation Measures
Construction of footpath at Lin Ma Hang Road	truck • Excavator	 Provided efficient silt removal facilities to reduce SS level before effluent discharge. Exposed slopes surface were compacted and covered with tarpaulin or similar means. Maintain damp / wet surface on access road. Maintain low vehicular speed within the works areas. Provided vehicle wheel washing facilities at each construction site exit.



Construction Activities	Used on PME	Environmental Mitigation Measures
Planting works at Sandy Ridge and Lin Ma Hang Road	• Roller	 Provided water spraying for all active works area, in particular for the soil nail works. Stockpiles of dusty material were covered with impervious sheeting. Provided workers to clear dusty materials at the vehicle entrance or exit regularly. Restricted operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. Keep good maintenance of plants. Placed noisy plants away from residence and school. Provided noise barriers or hoarding to enclose the noisy plants or works. Shut down the plants when not in used. Provided on-site sorting prior to disposal. Followed requirements and procedures of the "Trip-ticket System" Demarcation fencing has been erected to prevent unauthorised encroachment into the riparian corridor by constructions works and traffic. Works have been restricted to daytime and any construction lighting was designed and positioned as to not impact on adjacent ecologically sensitive areas. The site was generally kept tidy and clean.

12.3.2 The Contractors are reminded to pay special attention on water quality mitigation measures and should fully implement the measures as recommended in the EM&A Manual, in particular to prevent surface runoff and other pollutants from flowing to local stream and Conservation Area.



13. CONCLUSIONS AND RECOMMENTATIONS

13.1 CONCLUSIONS

- 13.1.1 This is the 59th Monthly EM&A Report presenting the monitoring results and inspection findings for the period of 1st to 30th June 2023.
- 13.1.2 In the Reporting Month, no 24-hour or 1-hour TSP monitoring result that triggered the Action or Limit Levels was recorded. No NOEs or the associated corrective action was therefore required.
- 13.1.3 In the Reporting Month, no noise complaint (which triggered Action Level) was received and no Limit Level exceedance for noise monitoring exceedance was recorded.
- 13.1.4 In the Reporting Month, no water quality exceedances were recorded
- 13.1.5 Monthly ecological monitoring for sensitive habitat for area of Contract 1 and Contract 2 were undertaken on 20th June 2023. After analysing survey results in June from 2019 to 2023 for Contract 1, a significant increase in both the species richness and abundance for Wetland and Non-wetland habitat are recorded in June 2023. This could be benefited by some positive factors such as the major construction works were completed and most of the PME has been removed from site. For Contract 2, after analysing survey results in June from 2019 to 2023, records in species richness and abundance for wetland and non-wetland habitats are unstable, this may due to natural fluctuation. According to the recent on-site observation, there are new built workshops by others situated on both sides of Lin Ma Hang Road so the disturbance to fauna species from construction works could be increased. Due to the cause was not related to this project, remedial action to remove or reduce source of disturbance is limited.
- 13.1.6 Besides, compensation planting works have been conducted in early Jan 2023. Therefore, disturbance to fauna species from construction works have been largely minimised. In addition, woodland compensation and grassland reinstatement would be implemented in the second and third quarter of 2023. Hence, the habitat of fauna species would be gradually recovered and expectation of increase in the species richness and abundance for wetland habitat is high.
- 13.1.7 In the Reporting Period, there was no vegetation clearance for both Contract 1 and Contract 2, and precautionary check for the presence of nesting birds was not required to carry out.
- 13.1.8 Landscape and visual inspection at both Contracts were undertaken on *30th June 2023*. The Contractor was reminded to prevent the construction material pile within Tree Protection Zone and ensure no works is allowed within the TPZ.
- 13.1.9 In the Reporting Month, no environmental complaints, summons and prosecution were received. In addition, no complaints received and emergency events relating to violation of environmental legislation for illegal dumping and landfilling were received.
- 13.1.10 In the Reporting Month, joint site inspections for Contract 1 to evaluate the site environmental performance were carried out by the Resident Engineer, ET and the Contractor of the Contract 1 on 1st, 8th 15th, 21st and 29th June 2023. Moreover, joint site inspections for Contract 2 by the RE, ET and the Contractor of Contract 2 were carried out on 1st, 8th 15th, 21st and 29th June 2023. No non-compliance was noted during the site inspections.

13.2 RECOMMENDATIONS

- 13.2.1 During wet season, water quality mitigation measures as recommended in the EM&A Manual should be fully implemented, in particular to prevent surface runoff and other pollutants from flowing to local stream and Conservation Area.
- 13.2.2 The Contractors are reminded to pay special attention on the air quality mitigation measures such as wheel wash facilities, watering of haul roads, loose soil construction surface and covering of dusty materials with tarpaulin sheet should be implemented as far as practicable.



13.2.3 Construction noise would be a key environmental issue during construction phase of the Project. Noise mitigation measures such as using quiet plants and mobile noise barriers should be implemented in accordance with the EM&A requirement.

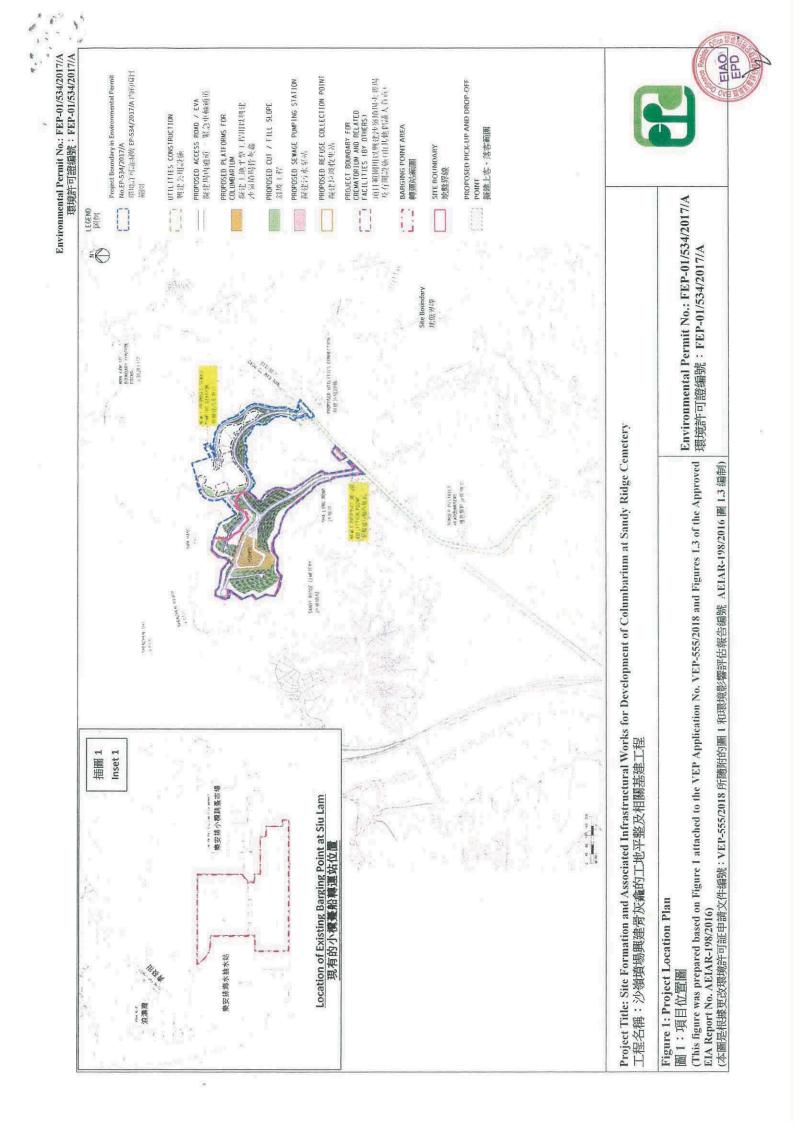


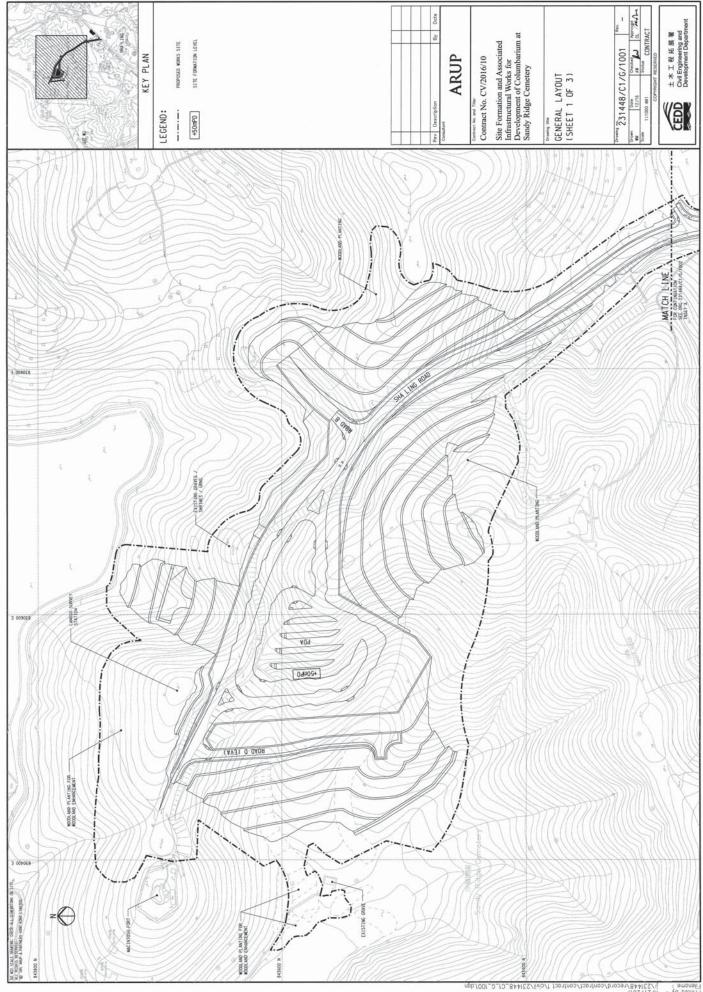
Appendix A

Layout Plan of the Project

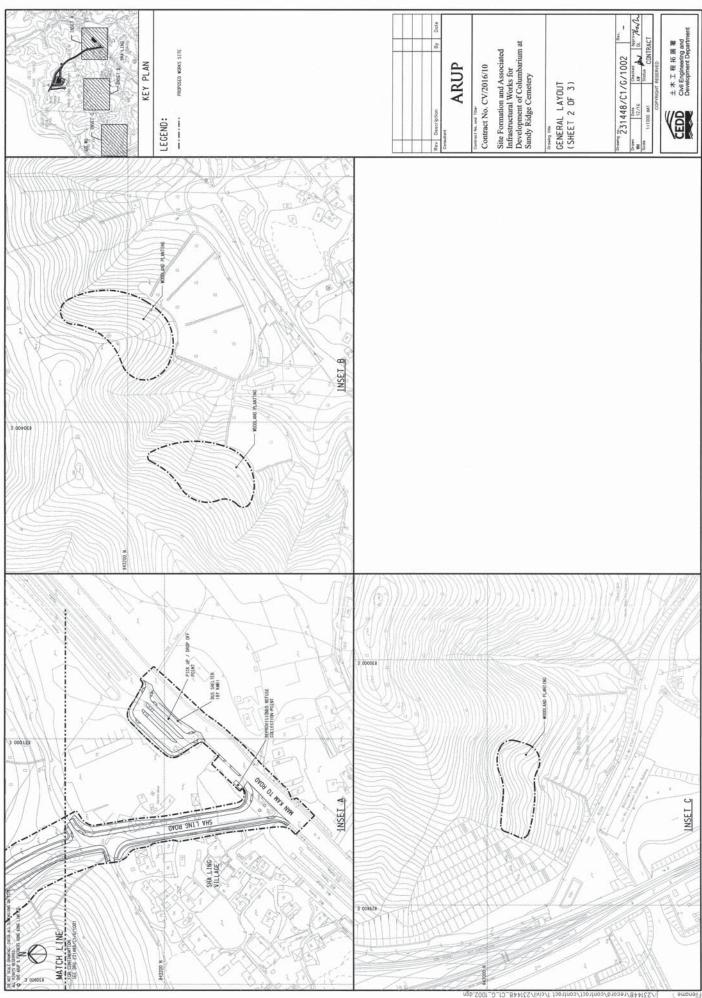


Layout Plan of Contract CV/2016/10

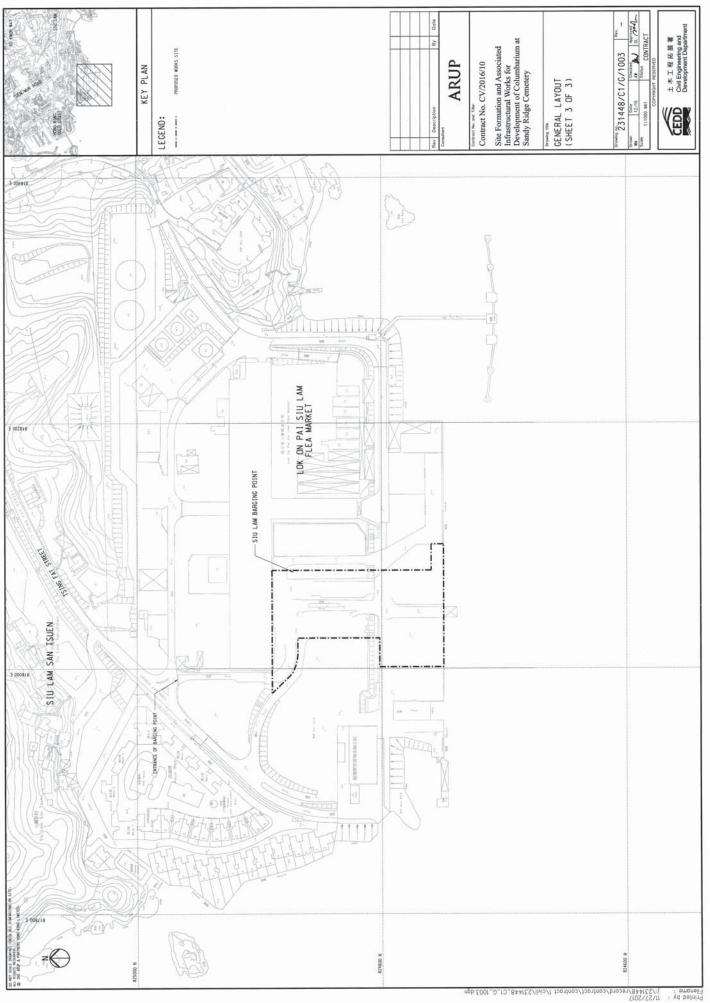




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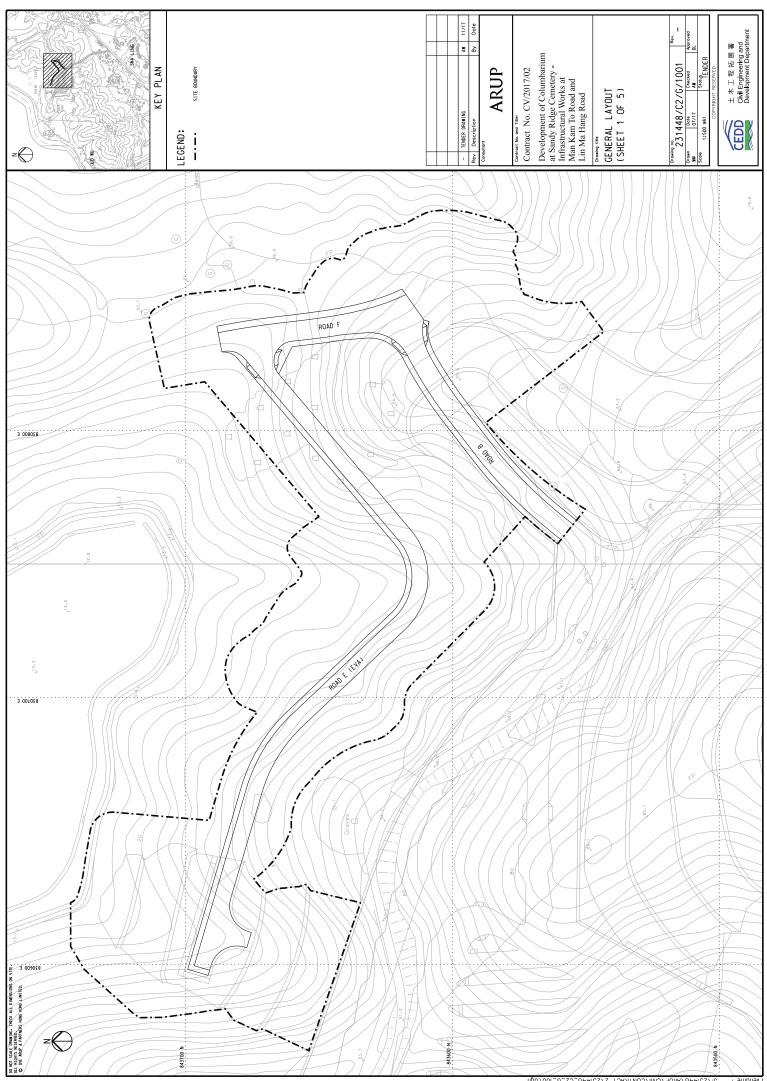


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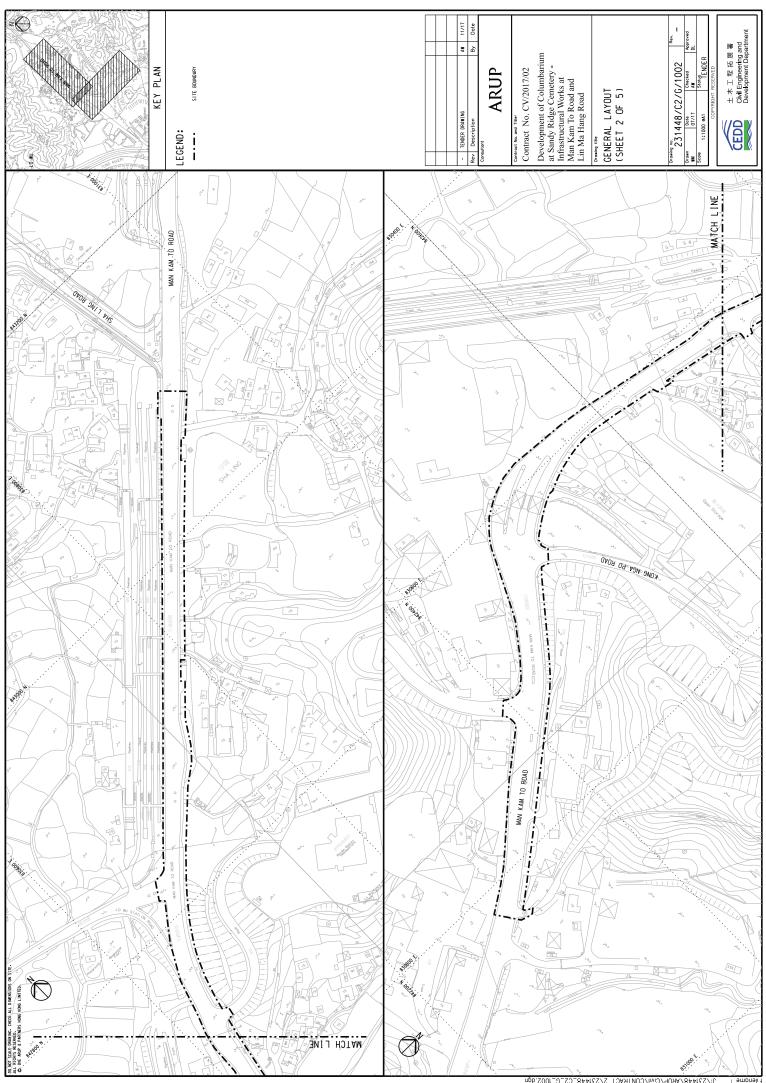




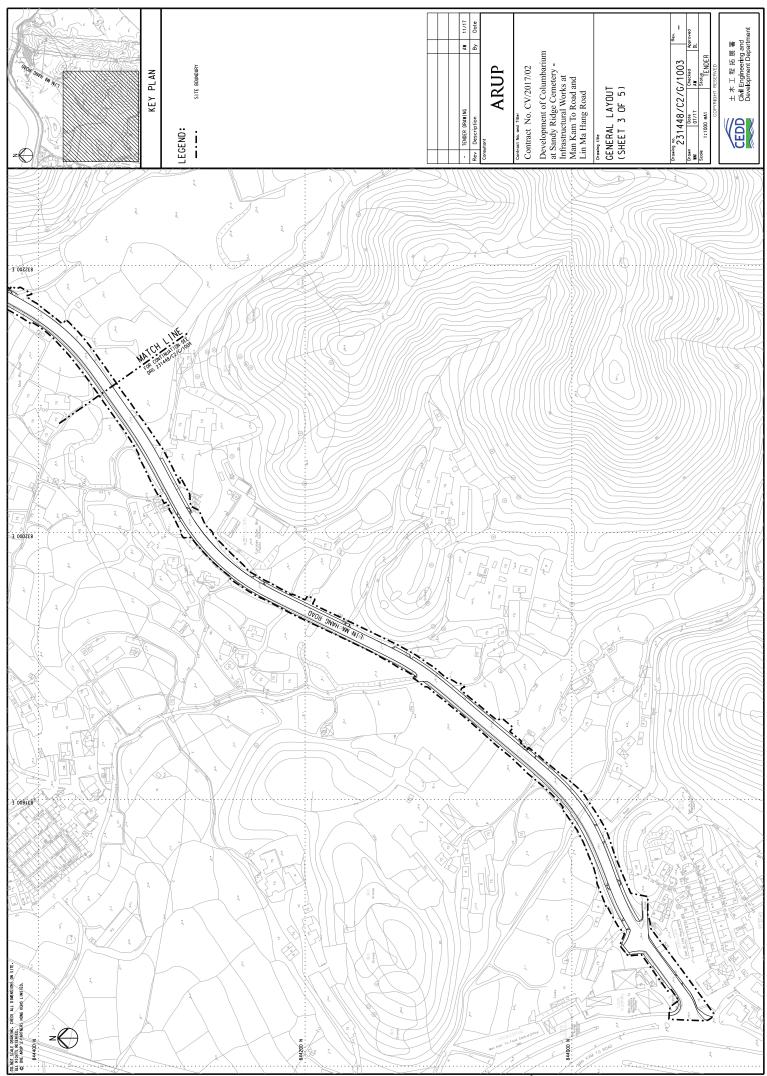
Layout Plan of Contract CV/2017/02



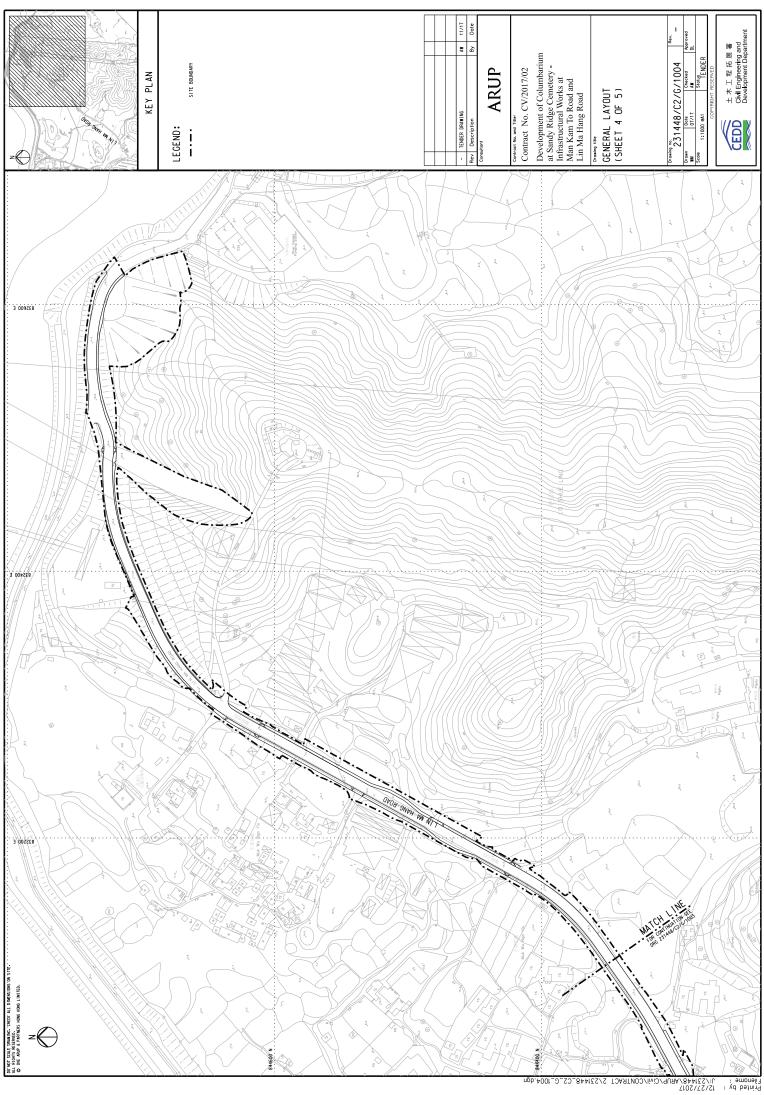
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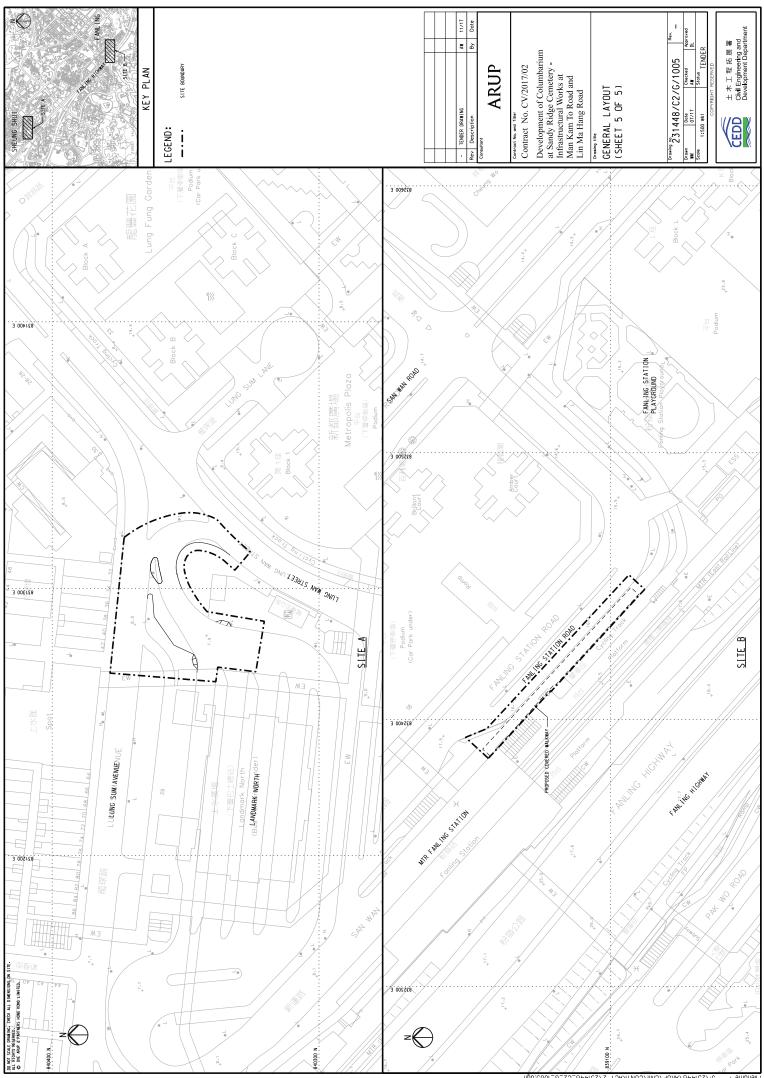


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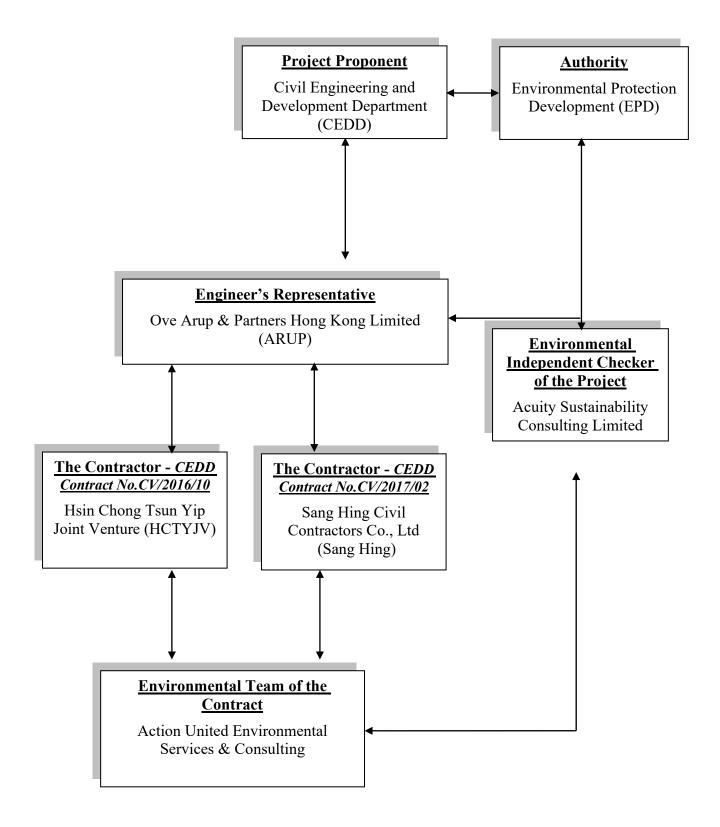


Appendix B

Organization Structure and Contact Details of Relevant Parties



The Contract's Environmental Management Organization





Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Employer	BOK Kwok-ming, Aaron	2762-5624	2714-0695
ARUP	Engineer's Representative	Steve Tang	6190-1513	2268-3950
ACUITY	Independent Environmental Checker	Mr. Leung CH Jacky	2698-6833	2698-9383
HCTYJV	Project Director	Mr. Keniel Kwong	9495-2408	2633-4691
HCTYJV	Construction Manager	Mr. Ho Man To	9620-9794	2633-4691
HCTYJV	Environmental Officer	To be	e advised	
HCTYJV	Environmental supervisor	Mr. Leung Pak Sum	9437-3606	2633-4691
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Mr. Ben Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959-6059	2959-6079
AUES	Environmental Site Inspector	Mr. Martin Li	2959-6059	2959-6079
AUES	Qualified Ecologist	Mr. Leung Wing Keung, Mike	2959-6059	2959-6079
AUES	Qualified Ecologist	Mr. Keith L.W. Kei	2959-6059	2959-6079
AUES	Registered Landscape Architect	Mr. Shui Yau Bun, Ivan	2959-6059	2959-6079

Contact Details of Key Personnel for CV/2016/10 (Contract 1)

Legend:

- CEDD (Employer) Civil Engineering and Development Department
 ARUP (Engineer) Ove Arup & Partners Hong Kong Limited
 HCTYJV (Main Contractor) Hsin Chong Tsun Yip Joint Venture
 ACUITY (IEC) Acuity Sustainability Consulting Limited
- AUES (ET) Action-United Environmental Services & Consulting



Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Employer	BOK Kwok-ming, Aaron	2762-5624	2714-0695
ARUP	Engineer's Representative	Anthony Lau	6190-1513	2268-3950
ACUITY	Independent Environmental Checker	Ir. Leung CH Jacky	2698-6833	2698-9383
SANG HING	Project Director	Edwin Au	9208-7329	2403-1162
SANG HING	Construction Manager	Raymond Wong	9272-1831	2403-1162
SANG HING	Site Agent	Elvin Lam	6285-0803	2403-1162
SANG HING	Environmental Officer	Keibi Chan	6090-0183	2403-1162
SANG HING	Environmental Supervisor	Kenny Chan	6115-0120	2403-1162
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Mr. Ben Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959-6059	2959-6079
AUES	Environmental Site Inspector	Mr. Martin Li	2959-6059	2959-6079
AUES	Qualified Ecologist	Mr. Leung Wing Keung, Mike	2959-6059	2959-6079
AUES	Qualified Ecologist	Mr. Keith L.W. Kei	2959-6059	2959-6079
AUES	Qualified Ecologist	Mr. N.L Lam, Alan	2959-6059	2959-6079
AUES	Registered Landscape Architect	Mr. Shui Yau Bun, Ivan	2959-6059	2959-6079

Contact Details of Key Personnel for CV/2017/02 (Contract 2)

Legend:

- CEDD (Employer) Civil Engineering and Development Department
- ARUP (Engineer) Ove Arup & Partners Hong Kong Limited
- Sang Hing (Main Contractor) Sang Hing Civil Contractors Co., Ltd
- ACUITY (IEC) Acuity Sustainability Consulting Limited
- AUES (ET) Action-United Environmental Services & Consulting



Appendix C

Three Months Rolling Programme



Three Months Rolling Programme of

Contract CV/2016/10

(Not used)

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Three Months Rolling Programme of

Contract CV/2017/02

3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

	structural	Works at Man Kam To Road and Lin Ma Hang	Ruau				(•)	
ID	WBS 7	Task Name	Duration	Start Date	Completion				Qtr 4, 2	2010	
					Date			November	Qu +, 2	June	
						24/9		1/7	7/4	12/1	18/10
1	1	Letter of Accordance	0 dava	20/5/2010	20/5/2010	2479		1//	//4	12/1	16/10
1		Letter of Acceptance	0 days	30/5/2018	30/5/2018	1					
2		Starting Date	0 days	31/5/2018	31/5/2018	• • • • • • • • • • • • • • • • • • •					
5		ET Submissions	9 days	26/9/2018	5/10/2018		H				
12	4	Applications to Government Department	27 days	4/6/2018	30/6/2018	B0					
20	5	Submissions & acceptances	835 days	4/6/2018	15/9/2020	B			_		
44		Liaison with Utility Undertakers	979 days		3/2/2021						i
47		•	979 days		3/2/2021						
.,		A1 to A4 (refer PS Appendix A1)	575 uuys	1/0/2010	5/2/2021						
48			200 dave	4/0/0040	04/0/0040						
40		Liaison Meeting with Interface and associated	389 days	1/6/2018	24/6/2019						
50		contractors									
		Tree Survey Reporting	164 days		11/11/2018			1			
			671 days		1/4/2020	<u> </u>			-		
66	11	Provision of Project Manager's Site Accommodation	28 days	1/6/2018	28/6/2018						
		(PS1.08A(b) & 1.49)									
67	12	Design of irrigation system within the Sandy Ridge	21 davs	20/12/2019	10/1/2020					BK	
		Cemetery (LS/2021, 2041, 2042, W/1041,1011)									
70		Condition Survey	81 dave	23/8/2018	11/11/2018			4			
		section 1 of the works - Completion of all works			3/2/2021		-				
//			515 uays	51/5/2010	JIZIZUZI						
		within Parts A1, A2 and B of the Site except									
70		Establishment works	050	00/0/00 10	0/0/000		<u> </u>				_
	14.1	Parts A1	859 days		3/2/2021						
79	14.1.1	access date for section 1 (Parts A1) - not more	0 days	28/9/2018	28/9/2018						
		than 120 days after the starting date									
80	14.1.2	form temporary haul road from the south side	14 days	2/10/2018	22/10/2018						
		to Parts A1									
81	14.1.3	general site clearance	30 days	23/10/2018	28/11/2018		l l				
82	14.1.4	initial survey		29/11/2018	2/1/2019						
	14.1.5	construction of temporary drainage	21 days		26/1/2019						
	14.1.6							_			
04	14.1.0		258 days	28/1/2019	23/12/2019					-	
101		Parts A1)									
	14.1.7	A1) Construction of Retaining Wall RW13 (bay			12/12/2019					I	
125	14.1.8	Site Formation works for Fill Slope FS18	231 days	15/4/2019	3/2/2020						
136	14.1.9	CS21 - slope cutting	7 days	20/12/2019	30/12/2019					•	
137	14.1.10	install instrument for CS21		31/12/2019	6/1/2020					K	
138	14.1.11	placement of erosion control mat/ hydroseeding		7/1/2020	8/1/2020					k −	
	14.1.12	minor cutting CS26 (Parts A1) (for Road E)		9/1/2020	16/1/2020						
		- · · · · · · ·	7 days							· ·	
	14.1.13	Drainage works at Road E	43 days	17/1/2020	10/3/2020					<u> </u>	
143	14.1.14	Waterworks at Road E	24 days	11/3/2020	14/4/2020						
	14.1.15	CS23 - slope cutting & 300U channel	17 days	11/3/2020	1/4/2020						
145	14.1.16	install instrument for CS23	5 days	2/4/2020	8/4/2020					Г Г	
146	14.1.17	placement of erosion control mat/ hydroseeding		9/4/2020	14/4/2020					A A A A A A A A A A A A A A A A A A A	
	14.1.18	backfilling of pipe trench to formation	9 days	15/4/2020	25/4/2020					l K	
		(including SRT test)									
148	14.1.19	300U channel behind RW13	4 days	27/4/2020	2/5/2020						
	14.1.20	300U channel and planter wall at south side of		4/5/2020	6/6/2020						
		Road E	Ju uays	71 51 2020	0/0/2020						
150	14.1.21		161	01610000	20/40/0000						
		Roadworks of Road E (A1-ch66-243)	164 days		30/12/2020					<u> </u>	
151	14.1.21.1	ducting for road lighting (RD/2091) &	20 days	8/6/2020	2/7/2020						
		construction of irrigation system									
152	14.1.21.2	kerbing, sub-base (include subbase SRT	24 days	3/7/2020	30/7/2020					—	
		test) & cross road duct (RD/2061, 2081)									
153	14.1.21.3	concrete pavement	45 days	31/7/2020	21/9/2020						h
154	14.1.21.4				26/11/2020						
		emergency crash gate, beam barriers									
155	14.1.21.5	concrete footpath	27 dave	27/11/2020	30/12/2020						
	14.1.22	•		31/12/2020	16/1/2020						
	14.1.22	street lighting (Drg/ RD/2091)									_ }
		landscaping (hydroseeding)	5 days	18/1/2021	22/1/2021						₽
	14.1.24	landscaping (shrub planting)	10 days		3/2/2021					_	F 1
	14.2	Parts A2		31/12/2019	3/2/2021					↓	
160	14.2.1	access date for section 1 (Parts A2) - not more	0 days	31/12/2019	31/12/2019						
		than 580 days after the starting date								Ш	
161	14.2.2	form temporary haul road to Parts A2	6 days	2/1/2020	8/1/2020	\				₩	
162	14.2.3	general site clearance	18 days		1/2/2020						
		contractors Company Limited			• • • • • •	I		Page 1/	0	1 1	I I

		Qtr 1, 2023
January 25/7	1/5	August 5/2
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3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

	ii works at mari kani to Roau anu Lin ma hang					(
ID WBS	Task Name	Duration	Start Date	Completion				Qtr 4, 2019					Qtr 1, 2023
				Date		1	November	Qu 7, 2017	June		Januar		August
					24/9		1/7	7/4	12/1	15	18/10 25/7	1/5	5/2
163 14.2.4	initial survey	12 days	3/2/2020	15/2/2020									
164 14.2.5	construction of temporary drainage		17/2/2020	10/3/2020					Ě				
165 14.2.6	Site Formation works for Cut Slope CS22 (in Pa		11/3/2020	30/3/2020					н				
174 14.2.7	Construction of Retaining Wall RW13 Bay 6 to			10/8/2020									
199 14.2.8	(west) drainage works at Road E (ch250 to		8/8/2020	26/8/2020									
	300)	ie aaye	0/0/2020	20/0/2020									
200 14.2.9	(west) waterworks at Road E (ch250 to 300)	15 days	27/8/2020	12/9/2020					La contra c	.			
		ie aaye	2110/2020	12/0/2020					_				
201 14.2.10	construction of Irrigation System	5 days	12/9/2020	17/9/2020					i i i i i i i i i i i i i i i i i i i				
202 14.2.11	U channel for Road E	3 days	17/9/2020	19/9/2020					1	◆			
203 14.2.12	Roadworks of Road E (A2-ch243-300)	42 days	19/9/2020	17/11/2020					F				
209 14.2.13	street lighting for Road E (Drg/ RD/2091)		17/11/2020	26/11/2020						•			
210 14.2.14	landscaping (shrub planting)		27/11/2020	1/12/2020						K			
211 14.2.15			8/8/2020	4/9/2020									
212 14.2.16	site formation works for Cut Slope CS25 (A2)		5/9/2020	18/9/2020					i i i i i i i i i i i i i i i i i i i				
213 14.2.17	placement of erosion control mat/ hydroseeding		19/9/2020	21/9/2020						★			
214 14.2.18	drainage works at Road B & sewerage works		19/9/2020	28/10/2020									
	at Road B	20 auyo	101012020	20/10/2020					-				
215 14.2.19	waterworks at Road B	25 days	29/10/2020	30/11/2020									
		20 uuyo		00/11/2020									
216 14.2.20	backfill formation for Road B	3 days	1/12/2020	3/12/2020						K			
217 14.2.21	street lighting ducts and drawpits at Road B	9 days	1/12/2020	10/12/2020						*			
218 14.2.22	arrange Town Gas to lay cables (NOT YET		11/12/2020	16/12/2020									
	AGREED)												
219 14.2.23	planter wall for Road B	5 davs	17/12/2020	22/12/2020						š			
220 14.2.24	arrange HKT to lay PCCW cables (NOT YET		23/12/2020	30/12/2020						τ			
	AGREED)	,											
221 14.2.25	Roadworks of Road B (A2-ch28.5-90)	19 days	31/12/2020	22/1/2021						H			
222 14.2.25.1	kerbing & sub-base (include sub-base SRT t			9/1/2021						K			
223 14.2.25.2	DBM (Roadbase)	2 days	11/1/2021	12/1/2021						5			
224 14.2.25.3	base course and wearing course	2 days	13/1/2021	14/1/2021						Б, I			
225 14.2.25.4	directional sign, roadmarkings & footpath	7 days	15/1/2021	22/1/2021						T I			
226 14.2.26	landscaping (hydroseeding)	17 days	13/1/2021	1/2/2021						F			
227 14.2.27	landscaping (shrub planting)	3 days	1/2/2021	3/2/2021						- F			
228 14.3	Parts B - refer Appendix MKTR01A &	979 days	31/5/2018	3/2/2021		P							
	Appendix MKTR01B												
229 14.3.1	access date for section 1 (Parts B) - the	0 days	31/5/2018	31/5/2018		A .							
	starting date												
230 14.3.2			1/6/2018	4/10/2018									
231 14.3.3	utility detection and submit reports		5/10/2018	9/11/2018			I						
232 14.3.4	Temporary Traffic Arrangement (TTA) Scheme	134 days	1/6/2018	9/11/2018		P+	9						
236 14.3.5	for Man Kam Road	250 1	40/44/0010	4714/0000									
250 14.3.5		352 days	10/11/2018	17/1/2020			·						
237 14.3.5.1	(DN400)-refer to Drawings No. MKTR	50 davia	10/11/0010	10/1/0010									
237 14.3.5.1 246 14.3.5.2	Phase 1: TTA 1s		10/11/2018	12/1/2019									
240 14.3.5.2 255 14.3.5.3	Phase 1: TTA 8s Phase 1: TTA 15s		14/11/2018 20/11/2018	12/1/2019 12/1/2019									
264 14.3.5.4	Phase 1: TTA 155 Phase 2: TTA 2s		15/1/2018	4/3/2019									
273 14.3.5.5	Phase 2: TTA 2s Phase 2: TTA 9s		15/1/2019	4/3/2019									
273 14.3.5.6 282 14.3.5.6	Phase 2: TTA 9s Phase 2: TTA 16s	39 days 40 days	14/1/2019	4/3/2019									
282 14.3.5.7 291 14.3.5.7	Phase 3: TTA3s	39 days	5/3/2019	23/4/2019			-						
<u> </u>	Phase 3: TTA3s Phase 3: TTA10s		5/3/2019	23/4/2019									
300 14.3.5.9 309 14.3.5.9	Phase 3: TTATUS Phase 3: TTATUS	39 days	5/3/2019	23/4/2019									
318 14.3.5.10	Phase 3: TTAT/S Phase 4: TTA4s	39 days	29/4/2019	14/6/2019									
327 14.3.5.11	Phase 4: TTA4s Phase 4: TTA11s		29/4/2019	14/6/2019									
336 14.3.5.12			29/4/2019	14/6/2019									
345 14.3.5.13	Phase 5: TTA5s		19/6/2019	7/8/2019				· •					
354 14.3.5.14	Phase 5: TTA5s Phase 5: TTA12s		15/6/2019	7/8/2019									
363 14.3.5.15			15/6/2019	7/8/2019									
372 14.3.5.16		45 days 46 days	9/8/2019	3/10/2019									
381 14.3.5.17	Phase 6: TTA13s		14/8/2019	3/10/2019									
390 14.3.5.18			8/8/2019	3/10/2019									
390 14.3.5.18 399 14.3.5.19		47 days	8/8/2019 8/10/2019	27/11/2019									
577 14.5.5.19	F110501.11A15	44 uays	0/10/2019	21/11/2019									<u> </u>

3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

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ID	WBS	Task Name	Duration	Start Date	Completion	Qtr 4, 2019
					Date	November June
400	44.0 5.00				0=14,4,100,4,0	24/9 1/7 7/4 12/1
408	14.3.5.20	Phase 7: TTA14s	46 days		27/11/2019	
417	14.3.5.21	Phase 7: additional TTA21s		24/10/2019	27/11/2019	
427 437	14.3.5.22	additional Phase 8: additional TTA 0s		27/11/2019	17/1/2020	
	14.3.6	Construction of Sewerage (DN630) - refer to Drawing No. MKTR Programme/DR/001	311 days	18/1/2020	3/2/2021	
438	14.3.6.1	Phase A: TTA 1n	50 days		21/3/2020	
447	14.3.6.2	Phase A: TTA 7n	52 days	18/1/2020	21/3/2020	
456	14.3.6.3	Phase B: TTA 2n	52 days	23/3/2020	28/5/2020	
465	14.3.6.4	Phase B: TTA 8n	52 days		28/5/2020	
474	14.3.6.5	Phase C: TTA 3n	52 days	29/5/2020	30/7/2020	
483 492	14.3.6.6 14.3.6.7	Phase C: TTA 9n	52 days	29/5/2020	30/7/2020	
501	14.3.6.8	Phase D: TTA 4n	52 days	31/7/2020	29/9/2020	
510	14.3.6.9	Phase D: TTA 10n Phase E: TTA 5n	52 days	31/7/2020	29/9/2020 2/12/2020	
519	14.3.6.10	Phase E: TTA 5h Phase E: TTA 11n	52 days 52 days	30/9/2020 30/9/2020	2/12/2020	
528	14.3.6.11	Phase F: TTA 6n	52 days 51 days	3/12/2020	3/2/2020	
537	14.3.6.12	Phase F: additional TTA 12s	38 days		3/2/2021	
546	14.3.6.13	Phase F: additional TTA 125	38 days	18/12/2020	3/2/2021	
555	15	Planned Completion for section 1 of the works	0 days	3/2/2020	3/2/2021	
556	16	Completion Date for section 1 of the works	0 days	3/2/2021	3/2/2021	
557		section 2 of the works - Completion of all works within Parts C1 and C2 of the Site except Establishment works			3/2/2021	
	17.1	access date for section 2 (Part C1)	0 days	31/5/2018	31/5/2018	
559	17.2	Temporary Traffic Arrangement (TTA) Scheme for Lin Ma Hang Road	162 days	1/6/2018	9/11/2018	B
565	17.3	works at Lin Ma Hang Road (section 2 Part C1) refer Appendice LMHR01a to d	817 days	10/11/2018	3/2/2021	
566	17.3.1	Phase I (stage 1)-south lane (chainage 240-28	3 23 davs	10/11/2018	6/12/2018	
577	17.3.2	Phase I (stage 2)-north lane (chainage 240-28			27/12/2018	н
587	17.3.3	Phase I (stage 3)-south lane (chainage 283-33			28/1/2019	н
598	17.3.4	Phase I (stage 4)-north lane (chainage 283-33			20/2/2019	
608	17.3.5	Phase I (stage 5)-south lane (chainage 335-38		21/2/2019	13/3/2019	H H
618	17.3.6	Phase I (stage 6)-north lane (chainage 335-38	(16 days	14/3/2019	1/4/2019	H
627	17.3.7	Phase I (stage 7)-south lane (chainage 380-43	23 days	2/4/2019	3/5/2019	
638	17.3.8	Phase I (stage 8)-north lane (chainage 380-43		4/5/2019	22/5/2019	н
648	17.3.9	Phase I (stage 9)-south lane (chainage 190-24		23/5/2019	13/6/2019	H
659	17.3.10	Phase I (stage 10)-north lane (chainage 190-2	-	14/6/2019	3/7/2019	
669	17.3.11	Phase II (stage 1)-south lane (chainage 32-85)-Noise Barrier MM6 (bays 1-3) & MM7 (bays 1-2)	95 days	4/7/2019	25/10/2019	
703	17.3.12	Phase II (stage 2)-north lane (chainage 32-85)-Noise Barrier MM9 (bays 1-4)	84 days	26/10/2019	7/2/2020	
	17.3.13	Phase II (stage 3)-south lane (chainage 85-13)	8 38 days	8/2/2020	23/3/2020	
746	17.3.14	Phase II (stage 4)-north lane (chainage 85-138)-Noise Barrier MM10 (bays 1-4)	68 days		17/6/2020	
776	17.3.15	Phase II (stage 5)-south lane (chainage 138-19	36 days	18/6/2020	31/7/2020	
787	17.3.16	Phase II (stage 6)-north lane (chainage 138-190)-Noise Barrier MM10 (bays 5-9)	85 days	1/8/2020	11/11/2020	
818	17.3.17	Phase II (stage 7)-south lane (chainage 0-32)-Noise Barrier MM5 (bays 1-2)	53 days	12/11/2020	15/1/2021	
851	17.3.18	Phase II (stage 8)-north lane (chainage 0-32)	16 days	16/1/2021	3/2/2021	
862	17.3.19	Noise Barrier MM8 (bays 1-3)	140 days		18/1/2021	
891	17.3.20	Street lighting (drawpits, abandon existing		14/12/2020	9/1/2021	
		public lighting & cable, 100uPVC ducts) (ch0-435)	21 udys	17/12/2020	JI 1/2021	
892	17.3.21	tree planting	3 days	11/1/2021	13/1/2021	
893	17.3.22	Street furniture & construction of footpath (ch0-435)	22 days	9/1/2021	3/2/2021	
894	17.3.23	Phase Ia (stage 101)-south lane (chainage 63		10/11/2018	3/12/2018	
00.4	17.3.24	Phase Ia (stage 102)-north lane (chainage 633		4/12/2018	21/12/2018	H
904	_					
904 914 925	17.3.25 17.3.26	Phase la (stage 103)-south lane (chainage 685 Phase la (stage 104)-north lane (chainage 685			23/1/2019 15/2/2019	

		Qtr 1, 2023
January 25/7	1/5	August 5/2
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3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

No. No. <th>- Innastractural</th> <th>works at man rain to road and Lin ma hang road</th> <th></th> <th></th> <th>· · · · · · · · · · · · · · · · · · ·</th> <th> </th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	- Innastractural	works at man rain to road and Lin ma hang road			· · · · · · · · · · · · · · · · · · ·	 						
No. B No. B <th< th=""><th>ID WBS</th><th>Task Name Duration</th><th>Start Date</th><th>Completion</th><th></th><th></th><th>Otr 4 2</th><th>019</th><th></th><th></th><th>Ot</th><th>r 1, 2023</th></th<>	ID WBS	Task Name Duration	Start Date	Completion			Otr 4 2	019			Ot	r 1, 2023
1 10 Proce staget Total the strange Tot 1 Sec. 100 201 201				Date		August						
13 51					24/9		7/4		18/10		1/5	5/2
11 1.5.2.3. Product hums detrught of finds 1000 1000 12 1.5.2.3. Product hums detrught of finds 1000 1000 12 1.5.2.3. Product hums detrught of finds 1000 1000 12 1.5.2.3. Product hums detrught of finds 1000 10000 12 1.5.2.3. Product hums detrught of finds 10000 100000 12 1.5.2.3. Product hums detrught of finds 100000 1000000 12 1.5.2.3. Product hums detrught of finds 1000000 10000000 12 1.5.2.3. Product hums detrught of finds 1000000 10000000 12 1.5.2.3. Product hums detrught of finds 1000000 10000000 12 1.5.2.3. Product hums detrught of finds 10000000 10000000 12 1.5.3. Product hums detrught of finds 10000000 10000000 12 1.5.3. Product hums detrught of finds 10000000 10000000 12 1.5.3. Product hums detrught of finds 1.5.3.0.00000 10000000 12 1.5.3.0.0.000000000000000		Phase la (stage 105)-south lane (chainage 740 24 days	16/2/2019	15/3/2019		H						
Bit These traps (f) consultang basis afford (f) solution (f)												
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101 102 Press Togs							н					
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Image: Provide Lighting & cable, 100uPVC ducts) Image: Provide Lighting & Cable, 100uPVC ducts) Image: Provide Lighting & Cable, 100uPVC ducts) 1276 17.3.65 tree planting 1 day 6/1/2021 6/1/2021 1277 17.3.66 Street Limiture & Construction of footpath 25 days 6/1/2021 3/2/2021 1278 17.4 Noise Barrier works above the concrete (section 2 Part) 6/1/2021 3/2/2021 1279 17.4.1 seek specialist subcontractor to PM for 0 days 29/0/2018 29/2/2019 1280 17.4.2 propose specialist subcontractor to PM for 0 days 106/6/2019 20/6/2019 1281 17.4.3 acceptance 0 days 106/6/2019 28/10/2019 1282 17.4.4 propose specialist subcontractor by Project Manager 1/4 days 28/10/2019 1284 17.4.4 propose design, if any 10 days 16/6/2019 28/10/2019 1284 17.4.4 propose design, if any 28/10/2019 28/10/2019 28/10/2019 1285 17.4.4 revise design 0 days 28/10/												
12/16 17.3.56 Street furniture & construction of footpath (ch690-1377) 1 day (ch690-1377) 6/1/2021 6/1/2021 12/7 17.3.66 Street furniture & construction of footpath (ch690-1377) 6/1/2021 3/2/2021 12/7 17.4 Noise Barrier works above the concrete substructure of the noise barrier (section 2 Part substructure of the noise barrier (section 12 Part substructure of the noise section 12 Part substructure of the noise barrier (section 12 Part section 12 Part substructure of the noise barrier (section 12 Part section 12 Part substructure of the noise barrier (section 12 Part section	1213 11.3.04		2311212020	0/1/2021					•)			
1276 173.65 Street furniture & construction of footpath (ch989-1377) 1 day Street furniture & construction of footpath (ch989-1377) 61/12021 61/12021 32/2021 1278 17.4 Noise Barrier works above the concrete substructure of the noise barrier (section 2 Part) 67/4 days 28/10/2018 28/5/2019 1279 17.4.1 seek specialist subcontractor to PM for acceptance 0 days 26/5/2019 26/5/2019 1281 17.4.2 propose specialist subcontractor by Project Manager 0 days 26/5/2019 26/5/2019 1282 17.4.4 propase specialist subcontractor by Project Manager 0 days 16/6/2019 16/6/2019 1283 17.4.5 submit design of PMs comment 0 days 17/6/2019 14/10/2019 1284 17.4.5 submit design of PMs comment 0 days 28/10/2019 28/10/2019 1285 17.4.4 revise design 28 days 28/10/2019 28/10/2019 1286 17.4.5 submit design of PMs comment 0 days 16/12/2019 16/12/2019 1286 17.4.4 revise design 28 days 19/11/2019 16/12/2019 1286 17.4.4 </th <th></th>												
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1283 17.4.5 submit a proposal detailing the changes to PM's design, if any 14 days 15/10/2019 28/10/2019 1284 17.4.6 submit 1st design for PM's comment 0 days 28/10/2019 28/10/2019 1285 17.4.7 PM's comments 21 days 29/10/2019 18/11/2019 1285 17.4.7 PM's comments 28 days 19/11/2019 16/12/2019 1286 17.4.8 revise design for PM's acceptance 0 days 16/12/2019 16/12/2019 1287 17.4.9 submit 3 sample panels for each type & colour for acceptance 7 days 17/12/2019 23/12/2019 1289 17.4.11 PM's & relevant authorities' acceptance 0 days 13/1/2020	1282 1744		17/6/2010	14/10/2010								
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1289 17.4.11 PM's & relevant authorities' acceptance 0 days 13/1/2020 13/1/2020	1200 17.4.10		1/11/2/2019	23/12/2019								
	1280 17 / 11		12/1/2020	12/1/2020								
	1270 11.4.12	ordening or noise partier parter 0 0ays	10/1/2020	13/1/2020				↓ ▼)				

3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

	Works at Main Rain To Road and Lin Ma hang	Noau				(
ID WBS	Task Name	Duration	Start Date	Completion			Qtr 4, 2	2019			O	tr 1, 2023
				Date –		Novemb	January					
					24/9	1/7	7/4	June 12/1	18/10	25/7	1/5	5/2
1291 17.4.13	fabricating of panel and steelworks	180 days	16/1/2020	13/7/2020								
1292 17.4.14			14/7/2020	27/9/2020								
1293 17.4.15	completion of concrete curing of substructure			19/1/2021			 					
	of Nosie Barriers	-										
1301 17.4.16			28/9/2020	25/11/2020				F				
1005	substructure of the noise barrier MM6, MM7 &											
1308 17.4.17		54 days	26/11/2020	30/1/2021					BB			
1215 47440	substructure of the noise barrier MM10 (app.	40.1	0011/0001	00///0000/								
1315 17.4.18	construction works above the concrete	10 days	20/1/2021	30/1/2021					F			
1322 17.4.19	substructure of the noise barrier MM5 & MM8	0 days	3/2/2021	3/2/2021								
т. IJ	submit as-built drawings & design calculation & 2 sets of velographs for noise barrier works	0 days	JIZIZUZI	JIZIZUZI								
	a 2 sets of verographs for holse battler WOINS											
1323 17.5	access date for section 2 (Part C2)	0 days	24/2/2019	24/2/2019			*					
1324 17.6	additional site possession for areas outside	0 days		24/2/2019			*					
	site boundary {for 3NW-C/C470 (existing	,.										
	D-DH7), C224 (existing D-DH11) & C225 new											
	drillholes DHA1,A2 & A3 }											
1325 17.7			25/2/2019	3/2/2021								
1326 17.7.1			25/2/2019	18/4/2019								
1327 17.7.2			11/4/2019	8/6/2019								
1328 17.7.3 1329 17.7.4			22/5/2019	15/6/2019								
1529 11.1.4	drilling of verification boreholes DHA1,A2 & A3	21 days	17/6/2019	11/7/2019								
1330 17.7.5	baseline monitoring for 3NW-C/C230 (DH15 &	30 dava	12/7/2019	15/8/2019								
1550 11.1.0	16) & C225 (DH3 & 17) on existing drillholes &		12/1/2019	15/0/2019								
	3NW-C/C470 (existing D-DH7), C224 (existing											
	D-DH11) & C225 proposed verification											
	drillholes DHA1,A2 & A3											
1331 17.7.6	submit 4 sets of initial readings of baseline	0 days	15/8/2019	15/8/2019			▲					
	monitoring and preliminary logs to the Project											
	Manager to the Project Manager											
1332 17.7.7	• • • •	59 days		26/10/2019								
1333 17.7.7.1	removal of existing trees	10 days	16/8/2019	27/8/2019								
1224 47770	hearding 0.4	0.1	00/0/00 10	0/0/0040								
1334 17.7.7.2	hoarding & fencing	6 days	28/8/2019	3/9/2019								
1335 17.7.7.3	slope excavation works	1 day	4/9/2019	4/9/2019								
1555 11.1.1.0	Siche excavation mores	1 day	4/3/2013	41312019								
1336 17.7.7.4	temporary scaffolding	5 days	5/9/2019	10/9/2019								
1337 17.7.5	proposed slope stripping for mapping or	8 days		20/9/2019								
	rock and relict discontinuities (AS5-A,B,											
1338 17.7.7.6	Phase I	8 days	21/9/2019	30/9/2019			н					
1339 17.7.7.6.1	install test nail PN02 & pull out test		21/9/2019	27/9/2019			l 👗					
	-											
1340 17.7.7.6.2	drill, install steel bars and grout soil nails	2 days	28/9/2019	30/9/2019			۲ - F					
1041	(B01-12)	•										
1341 17.7.7.7	Phase II		2/10/2019	11/10/2019			₩					
1342 17.7.7.1	install test nail PN01 & pull out test	6 days	2/10/2019	9/10/2019								
1343 17.7.7.2	duil install start have and security of the	م مام	10/10/0010	11/10/0010			↓ ↓					
1545 11.1.1.2	drill, install steel bars and grout soil nails (A01-17)	∠ days	10/10/2019	11/10/2019			٦ ا					
1344 17.7.7.8	(A01-17) raking drains	1 day	12/10/2019	12/10/2019								
1345 17.7.7.9	TDR Test (including test & wait issue result)			15/10/2019								
1346 17.7.7.10	soil nail head works		16/10/2019	18/10/2019								
1347 17.7.7.11			19/10/2019	24/10/2019								
1348 17.7.7.12			25/10/2019				↓ ↓					
	hydroseeding	,0										
1349 17.7.8	Slopeworks: - 3NW-C/C230 (ch1240-1330S/I	130 days	28/10/2019	2/4/2020								
1350 17.7.8.1	removal of existing trees		28/10/2019	7/11/2019			i i i i i i i i i i i i i i i i i i i					
	•											
1351 17.7.8.2	hoarding & fencing	9 days	8/11/2019	18/11/2019			Š					
10.50												
1352 17.7.8.3	temporary scaffolding	7 days	19/11/2019	26/11/2019			Ă					

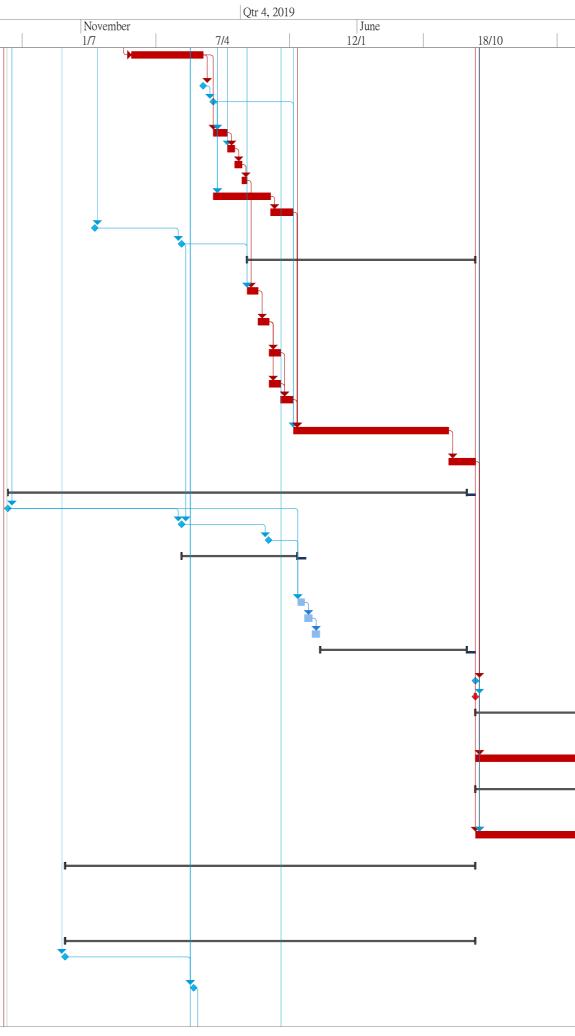
3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

	Works at Marrian To Road and Ein Marriang	y Nodu				(_ • · _ · _ • _	,								
ID WBS	Task Name	Duration S	tart Date Comp	oletion				Qtr 4	, 2019							Qtr 1, 2023	
			Da	ate		Novemb	ber			June			Janua	ary			August
10.50					24/9	1/7		7/4		12/1		18/10	25/7		1/5		5/2
1353 17.7.8.4	proposed slope stripping for mapping or rock and relict discontinuities (AS3-A,B,	8 days 27						I									
1354 17.7.8.5	slope excavation works	1 day 6/	/12/2019 6/12/	2019					ĥ								
1355 17.7.8.6	Phase I	25 days 7	/12/2019 8/1/2	2020					H-4								
1356 17.7.8.6.1	install test nail PN22 & pull out test	6 days 7	/12/2019 13/12	/2019					Ř								
1357 17.7.8.6.2	drill, install steel bars and grout soil nails (K01-22, N01-05, M01-11, J01-25)	10 days 14	/12/2019 27/12	/2019													
1358 17.7.8.6.3	TDR Test (including test & wait issue resu	u 2 days 28							<u>F</u>								
1359 17.7.8.6.4	soil nail head works	7 days 31							ĥ								
1360 17.7.8.7	Phase II		0/1/2020 6/2/2						H								
1361 17.7.8.7.1	install test nail PN21 & pull out test	6 days 9	9/1/2020 15/1/	2020													
1362 17.7.8.7.2	drill, install steel bars and grout soil nails (H01-25, L01-16)	8 days 1	6/1/2020 24/1/	2020					T								
1363 17.7.8.7.3	raking drains	2 days 2	9/1/2020 30/1/	2020					t t								
1364 17.7.8.7.4	TDR Test (including test & wait issue resu		1/1/2020 1/2/2						ι 🛉								
1365 17.7.8.7.5	soil nail head works		3/2/2020 6/2/2						5								
1366 17.7.8.8	225UC, 300SC & catchpits		7/2/2020 2/3/2	2020													
1367 17.7.8.9	600mm width concrete maintenance staircase with handrailing	9 days 3	3/3/2020 12/3/	2020													
1368 17.7.8.10	soil replacement by no-fines concrete	6 days 1	3/3/2020 19/3/	2020					н								
1369 17.7.8.10.1	stage 1			2020													
1370 17.7.8.10.1	temporary cut & excavation of soil			2020					5								
1371 17.7.8.10.1	placement of no-fine concrete			2020					ار ا								
1372 17.7.8.10.2	stage 2	2 days 1	6/3/2020 17/3/	2020													
1373 17.7.8.10.2				2020					- E								
1374 17.7.8.10.2				2020					Ъ								
1375 17.7.8.10.3				2020					•								
1376 17.7.8.10.3				2020					- F								
137717.7.8.10.3137817.7.8.11				2020													
	biodegradable erosion control mat with hydroseeding & shrub planting		0/3/2020 2/4/2						-								
137917.7.9140417.7.10	Slopeworks: - 3NW-C/C224 (ch1040-1120N/			2020					. '								
1404 17.7.10 1438 17.7.11	Slopeworks: - 3NW-C/C225 (ch1300-1376N/								J			4					
	Slopeworks: - 3NW-C/C231 (ch1220-1240N/ Planned Completion for section 2 of the works										•						
	Completion Date for section 2 of the works		3/2/2021 3/2/2 3/2/2021 3/2/2														
1507 20	section 3 of the works - Completion of all works within Parts D and E of the Site				F							4					
1508 20.1		800 days 26	6/11/2018 3/2/2	2021					_			4					
1509 20.1.1	access date for section 3 (Parts D) - not more than 180 days after the starting date																
1510 20.1.2	seek specialist for design, supply and installation of the covered walkway	59 days 27															
1511 20.1.3	acceptance of specialist	0 days 1		2019													
1512 20.1.4	design for approval for lighting system for the covered walkway	-		2019													
1513 20.1.5	submit for approval for lighting system for the covered walkway	0 days 14	4/7/2019 14/7/	2019			•										
1514 20.1.6	acceptance of lighting system for the covered walkway	-	4/8/2019 4/8/2														
1515 20.1.7	Coordination with CLP to obtain the electricity supply for the street lighting system (Design for Road B, Road E, Road F(part), Lin Ma Hang Road and Sheung Shui Landmark PTI & Lighting system for the covered walkway)		5/8/2019 19/1/	2020													
1516 20.1.8	design for glazing system of the proposed covered walkway at Fanling Station Road	150 days 1		2019													
1517 20.1.9	submission of glazing system			2019													
1518 20.1.10	acceptance of glazing system and fall arrest system by Project Manager	0 days 4	4/8/2019 4/8/2	2019													

3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

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- IIIIa	Siluciula	I WORKS at Mail Nath TO Noau and Lin Ma hang	Nuau		
ID	WBS	Task Name	Duration	Start Date	Completion Date –
1519	20.1.11	design for fall arrest system of the proposed covered walkway at Fanling Station Road	150 days	15/2/2019	14/7/2019
	20.1.12 20.1.13	submission of fall arrest system acceptance of fall arrest system by Project	0 days 0 days	14/7/2019 4/8/2019	14/7/2019 4/8/2019
1522	20.1.14	Manager Liaison with MTRC for the works arrangement	30 days	5/8/2019	3/9/2019
	20.1.15	general site clearance	12 days	4/9/2019	18/9/2019
	20.1.16	initial survey	12 days	19/9/2019	3/10/2019
	20.1.17	utility detection and submit reports	8 days	4/10/2019	14/10/2019
	20.1.18	Fabrication of Steelworks & glass panel	100 days	5/8/2019	2/12/2019
	20.1.19	delivery steelworks & glass panel to site	38 days	3/12/2019	18/1/2020
1528	20.1.20	application of XP (for Parts D)	0 days	29/11/2018	29/11/2018
1529	20.1.21	acceptance of XP (for Parts D)	0 days	30/5/2019	30/5/2019
1530	20.1.22	Construction of Covered Walkway at Fanling Station	390 days	15/10/2019	3/2/2021
1531	20.1.22.1	construct the concrete foundation of covered walkway (first 20m)	20 days	15/10/2019	6/11/2019
1532	20.1.22.2	construct the concrete foundation of covered walkway (2nd 20m)	20 days	7/11/2019	29/11/2019
	20.1.22.3	construct the concrete foundation of covered walkway (3rd 20m)	20 days	30/11/2019	23/12/2019
	20.1.22.4	demolished existing planter (drg.WY/1051)	20 days	30/11/2019	23/12/2019
	20.1.22.5	construct the concrete foundation of covered walkway (4th 20m)	20 days	24/12/2019	18/1/2020
	20.1.22.6	construction of covered walkway including steelworks, glass panel and electrical works	265 days	20/1/2020	9/12/2020
	20.1.22.7	Reinstatement of the pavement and street furniture	45 days	10/12/2020	3/2/2021
	20.2	Parts E	782 days	31/5/2018	16/1/2021
	20.2.1	access date for section 3 (Parts E)	0 days	31/5/2018	31/5/2018
	20.2.2	application of XP (for Parts E)	0 days	30/5/2019	30/5/2019
	20.2.3	acceptance of XP (for Parts E)	0 days	28/11/2019	28/11/2019
1542	20.2.4	Temporary Traffic Arrangement (TTA) Scheme for Sheung Shui Landmark North PTI and Fanling Station Road	242 days	31/5/2019	27/1/2020
1546	20.2.5	general site clearance	12 days	29/1/2020	11/2/2020
1547	20.2.6	initial Survey	14 days	12/2/2020	27/2/2020
1548	20.2.7	utility detection and submit reports	14 days	28/2/2020	14/3/2020
1549	20.2.8	Road Improvement works at Sheung Shui Landmark North PTI	250 days	16/3/2020	16/1/2021
	21	Planned Completion for section 3 of the works	0 days	3/2/2021	3/2/2021
	22	Completion Date for section 3 of the works	0 days	3/2/2021	3/2/2021
1561	23	section 4 of the works - Completion of Establishment works for the Landscape Softworks within Parts A1, A2 and B of the Site	1095 days	4/2/2021	3/2/2024
1562	23.1	Establishment works for the Landscape Softworks within Parts A1, A2 and B of the Site	1095 days	4/2/2021	3/2/2024
1565	26	section 5 of the works - Completion of Establishment works for the Landscape Softworks within Parts C1 and C2 of the Site	1095 days	4/2/2021	3/2/2024
1566	26.1	Establishment works for the Landscape Softworks within Parts C1 and C2 of the Site	1095 days	4/2/2021	3/2/2024
1569	29	section 6 of the works (section Subject to Excision) - Completion of all works within Parts A3 and A4 of the Site except Establishment works. Extent of works under section 6 of the works is defined in Drawing No.:	859 days	28/9/2018	3/2/2021
	29.1	Parts A3	859 days	28/9/2018	3/2/2021
	29.1.1	access date for section 6 (Part A3) - not more than 120 days after the starting date	0 days	28/9/2018	28/9/2018
1572	29.1.2	The time for ordering the "section Subject to Excision" for section 6 and 7 is within 390 days commencing from and including the starting	0 days	24/6/2019	24/6/2019



		Qtr 1, 2023	
January 25/7		5/2	August
2311	1/5	512	

3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

	WORKS at Wall Kall TO KOau and Lin Wa hang	Ittoau				(
ID WBS 7	Fask Name	Duration	Start Date	Date Completion Date —			Qtr 1, 2023					
				Date		November	Qtr 4, 2019	June		January		August
					24/9	1/7	7/4	12/1	18/10	25/7	1/5	5/2
1573 29.1.3		5 days	25/6/2019	29/6/2019			—— H ĭ					
	to Parts A3											
1574 29.1.4	general site clearance & tree felling	12 days	2/7/2019	15/7/2019			Ĩ. Internet and the second se					
1575 29.1.5	initial survey	12 days	2/7/2019	15/7/2019								
1576 29.1.6	construction of temporary drainage		15/7/2019	30/7/2019								
1577 29.1.7	Construction of Retaining Wall RW14 (Bay			22/8/2020			I					
	1-Bay 6)	· · · , ·										
1602 29.1.8	backfilling works behind Retaining Wall RW14	90 days	22/8/2020	15/12/2020					•			
1603 29.1.9	(bay1 to 6) (include SRT tests)	07.1	001010000	0/44/0000								
			30/9/2020	9/11/2020				н				
1613 29.1.10		30 days	10/11/2020	15/12/2020								
1614 00 4 44	(include SRT tests)			10/10/0000					_			
1614 29.1.11	install instrument for RW14		11/12/2020	16/12/2020								
1615 29.1.12	construct 300U channel & catchpit in front of R	,		19/12/2020					₽			
1616 29.1.13	site formation works for fill slope FS19 and FS20 (including in "backfilling works behind Retaining Wall RW14 (bay1 to 6)")	90 days	22/8/2020	15/12/2020				•				
1617 29.1.14	300U channel & stepped channel for FS19 & 2	3 days	16/12/2020	18/12/2020								
1618 29.1.15	install instrument for FS19 & FS20	5 days	16/12/2020	21/12/2020								
1619 29.1.16	minor site formation works for cut slope CS25		16/12/2020	16/12/2020					H			
1620 29.1.17	minor site formation works for cut slope CS26	3 days	17/12/2020	19/12/2020					F			
1621 29.1.18	install instruments for CS25 & CS26	5 davs	21/12/2020	28/12/2020					X			
1622 29.1.19	waterworks at Road E		21/12/2020	6/1/2021					The second secon			
		12 duys	21/12/2020	0/1/2021								
1623 29.1.20	drainage works at Road E	10 days	31/12/2020	12/1/2021								
1624 29.1.21	U channels at Road E	7 days	5/1/2021	12/1/2021					1 I.			
1625 29.1.22	Roadworks of Road E (ch20-60)	19 days	13/1/2021	3/2/2021					н			
1631 29.1.23	Site Formation works for Cut Slope CS24 (include temporary cutting from top of RW12 to toe of CS24) (for RW12 bays 1-3)	4 days	17/9/2019	20/9/2019			ĥ					
1632 29.1.24	install instrument for CS24	5 days	23/9/2019	27/9/2019			The second se					
1633 29.1.25	temporary soil nails between CS20 & RW12 (for RW12 bays 1-3)	30 days	23/9/2019	4/11/2019								
1634 29.1.26		67 days	5/11/2019	24/1/2020			F					
1657 29.1.27		40 davs	4/6/2020	22/7/2020								
1658 29.1.28	Completion of Site Formation works for Cut Slope 25	2 days	21/7/2020	22/7/2020								
1659 29.1.29	Waterworks at Road F	24 days	23/7/2020	19/8/2020				μ.				
1660 29.1.30			20/8/2020	17/9/2020				1				
1661 29.1.31	planter wall for Road E and Road F in Parts A3		18/9/2020	3/10/2020				i				
1662 29.1.32	UU-Arrange Town Gas & PCCW to lay across			22/10/2020				Ě.				
	Road F (not yet agree)											
1663 29.1.33		55 days	23/10/2020	4/1/2021				F				
1664 29.1.33.1	kerbing and cross road duct (RD/2061, 2081)		23/10/2020	6/11/2020				۱. Element of the second se				
1665 29.1.33.2	ducting for road lighting & construction of	12 days	9/11/2020	23/11/2020								
1666 29.1.33.3	irrigation system	10 de	04/44/0000	7/10/0000					T			
1667 29.1.33.3	bituminous pavement		24/11/2020	7/12/2020								
	traffic signs, directional signs, type 2 railing & footpath			4/1/2021								
1668 29.1.34	street lighting (Drg/ RD/2091)	6 days	5/1/2021	11/1/2021					l f			
1669 29.1.35	landscaping (hydroseeding)	9 days	12/1/2021	21/1/2021					L L			
1670 29.1.36			22/1/2021	3/2/2021					i i			
1671 29.2	Parts A4		24/6/2019	3/2/2021			P					
1672 29.2.1	access date for section 6 (Parts A4) - not more than 580 days after the starting date			31/12/2019								
1673 29.2.2		0 davs	24/6/2019	24/6/2019								
	Excision" for section 6 and 7 is within 390 days											
	commencing from and including the starting											

3 Month Rolling Programme (from 26/12/2022 to 25/2/2023)

		· ·					-		-					
ID	WBS	Task Name	Duration	Start Date	Completion Date			Qtr 4, 20	019					Qtr 1, 2023
1					Daie		November		June			January		August
						24/9	1/7	7/4	12/1		18/10	25/7	1/5	5/2
	29.2.3	general site clearance	15 days	2/1/2020	18/1/2020				■					
1675		initial survey	11 days	11/1/2020	23/1/2020									
	29.2.5	construction of temporary drainage	15 days	16/1/2020	5/2/2020				■ ́n					
1677	29.2.6	Site Formation works for Cut Slope CS24	7 days	29/1/2020	5/2/2020									
		(include temporary cutting from top of RW12 to toe of CS24) (for RW12 bays 4-6)												
1678		install instrument for CS24	3 days	6/2/2020	8/2/2020				ĥ					
1679	29.2.8	temporary soil nails between CS20 & RW12 (for RW12 bays 4-6)	35 days	6/2/2020	17/3/2020									
1680	29.2.9	Construction of Retaining Wall RW12 CH 21-40	58 days	18/3/2020	3/6/2020				—					
1703	29.2.10		125 days		3/11/2020				H					
1737	29.2.11	Site Formation works for Cut Slope CS26 (A4)		13/10/2020	22/10/2020									
			,											
	29.2.12	Site Formation works for Cut Slope CS25 (A4)	9 days	23/10/2020	5/11/2020					Ĭ.				
	29.2.13	complete the construction of U channel at CS 25 and 26	15 days	4/11/2020	23/11/2020									
1740	29.2.14	planter wall	10 days	18/11/2020	28/11/2020					F				
1741	29.2.15	Waterworks at Road B		24/11/2020	2/12/2020					T				
			,											
	29.2.16	Sewerage works at Road B	7 days	27/11/2020	4/12/2020									
	29.2.17	Drainage works at Road B	7 days	30/11/2020	7/12/2020					Ť				
	29.2.18	UU - Arrange Town Gas & PCCW to lay cables (not agreed yet)	14 days	8/12/2020	23/12/2020					Ĭ				
	29.2.19	Roadworks of Road B (A4-ch90-130)	23 days	23/12/2020	21/1/2021					F	1			
	29.2.20	street lighting (Drg/ RD/2091)	4 days	21/1/2021	25/1/2021						⊾			
	29.2.21	landscaping (hydroseeding)	7 days	25/1/2021	1/2/2021						K			
	29.2.22	landscaping (shrub planting)	5 days	29/1/2021	3/2/2021						Ň			
1753		Planned Completion for section 6 of the works	0 days	3/2/2021	3/2/2021						4			
1754	31	Completion Date for section 6 of the works	0 days	3/2/2021	3/2/2021						4			
1755		section 7 of the works (section Subject to	1095	4/2/2021	3/2/2024						H	 		
		Excision) - Completion of Establishment works for the Landscape Softworks within Parts A3	days											
1756	32.1	Establishment works for the Landscape Softworks within Parts A3 and A4 of the Site	1095 days	4/2/2021	3/2/2024						*			

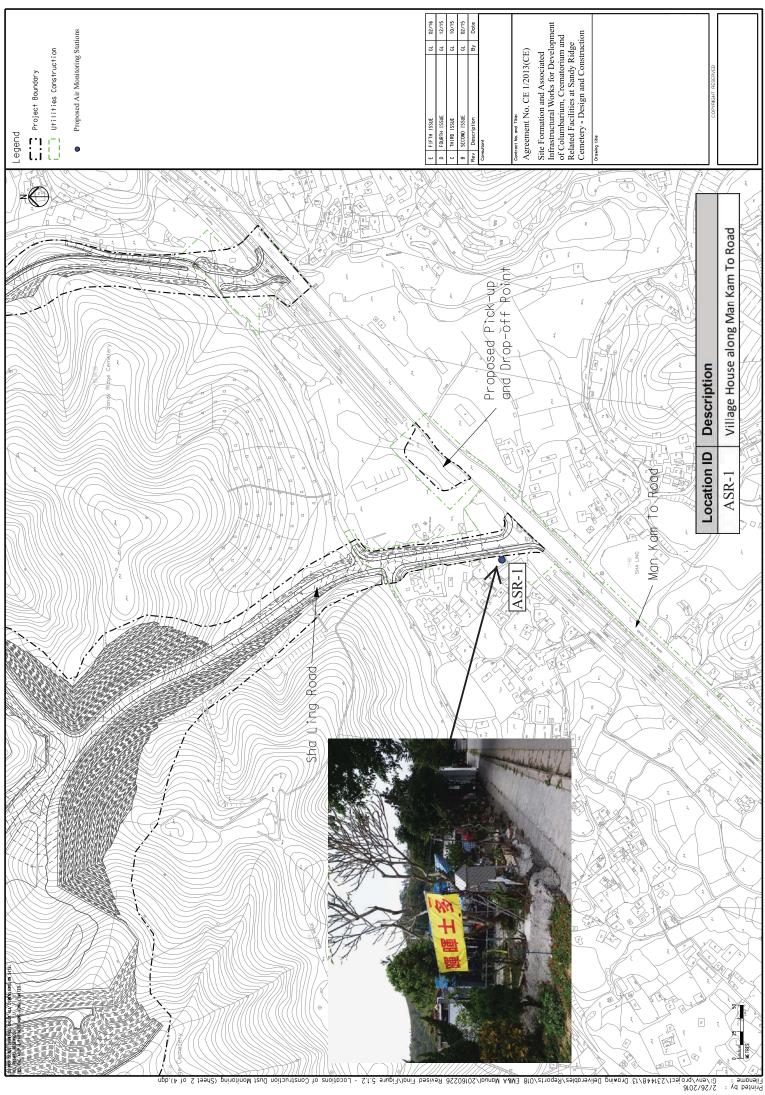


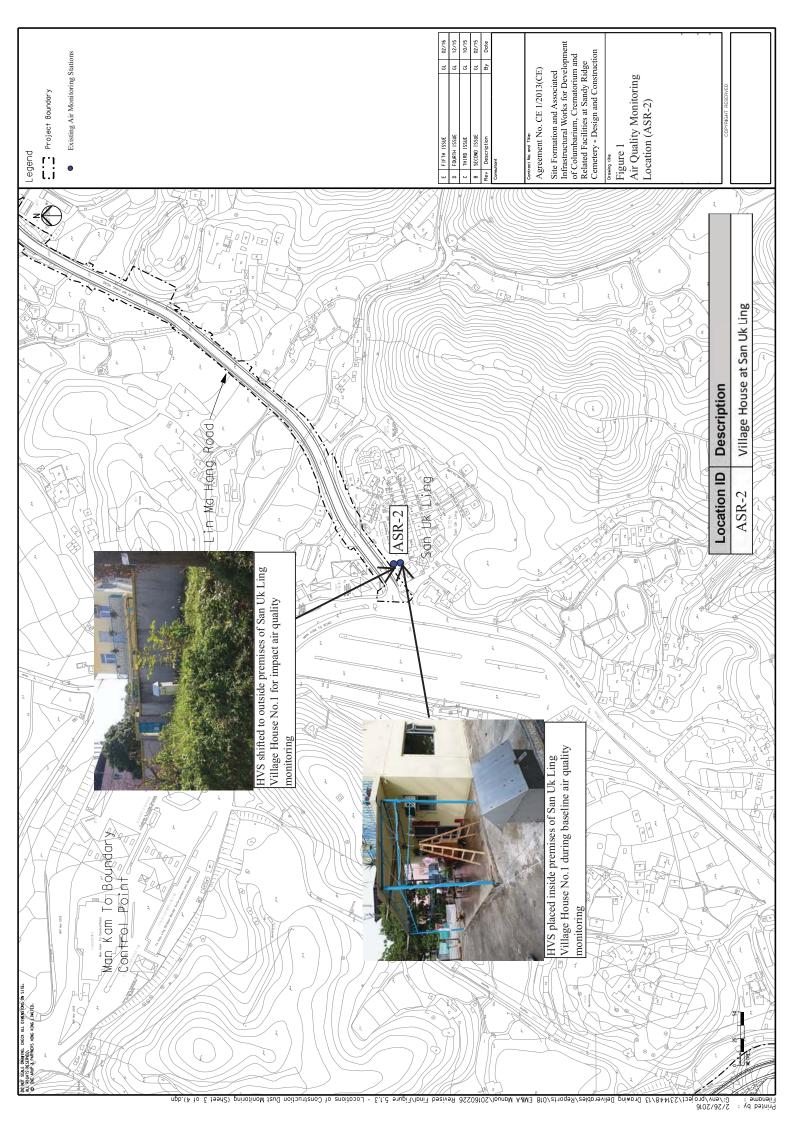
Appendix D

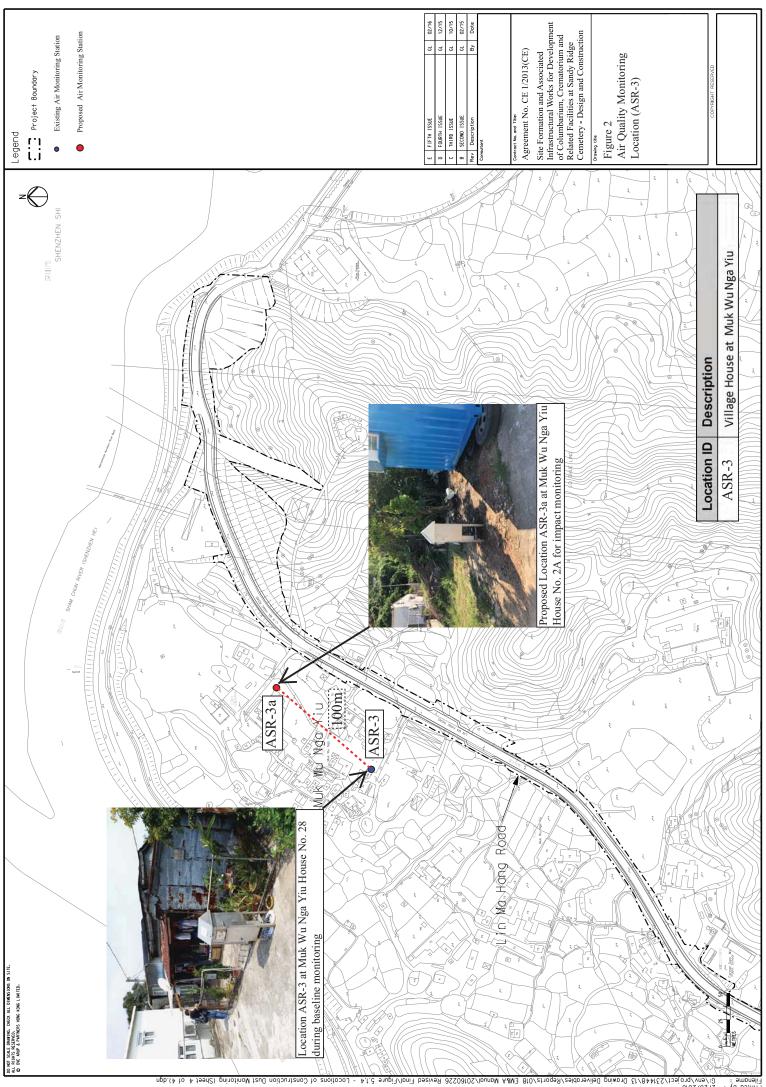
Monitoring Locations



Air Quality Monitoring Location

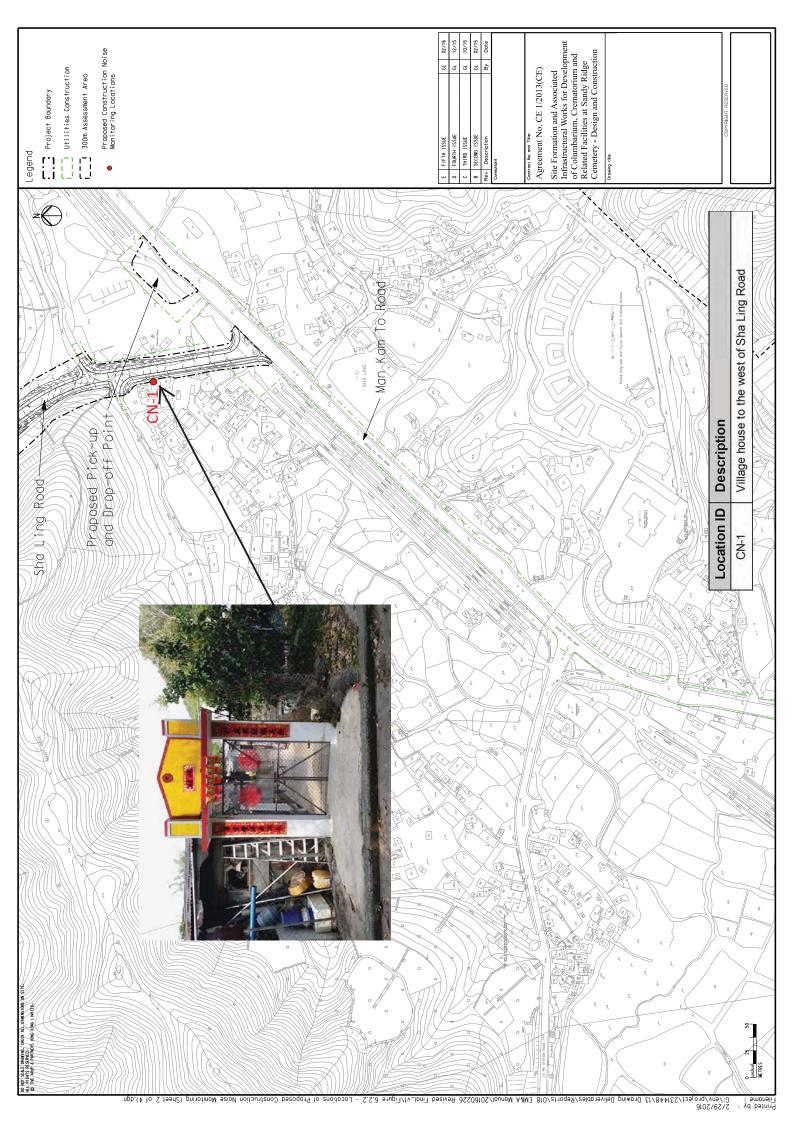


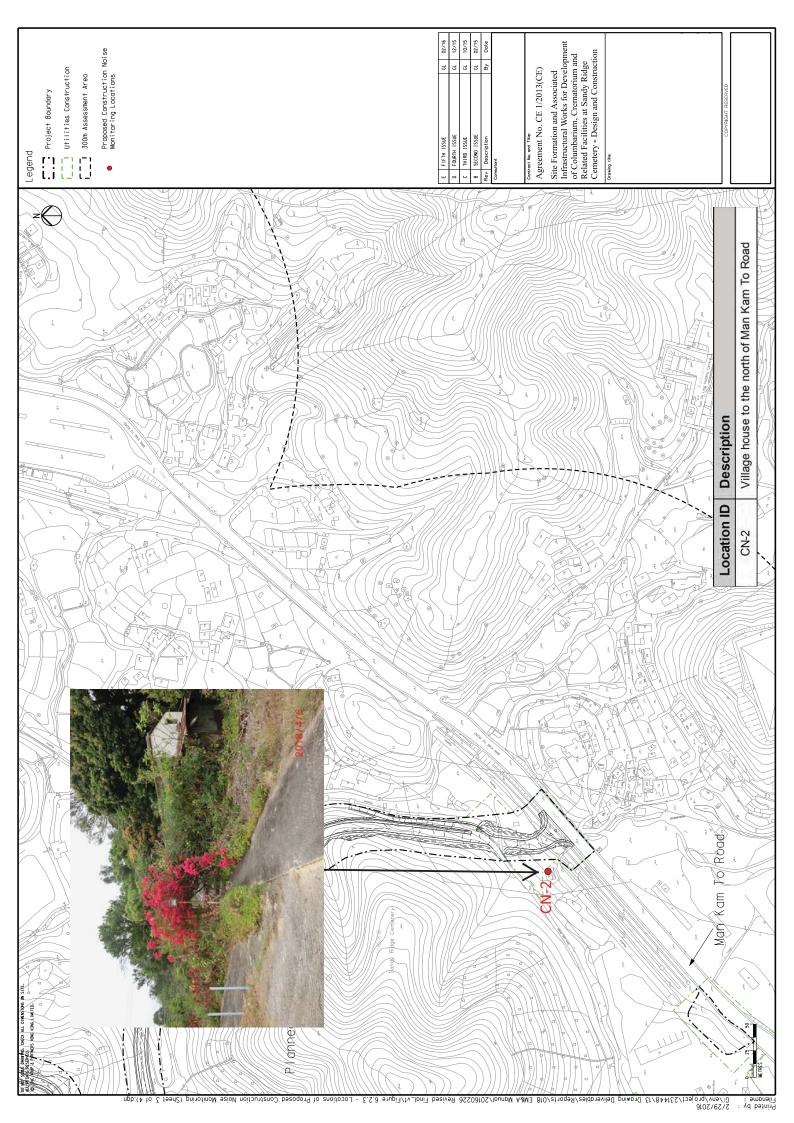


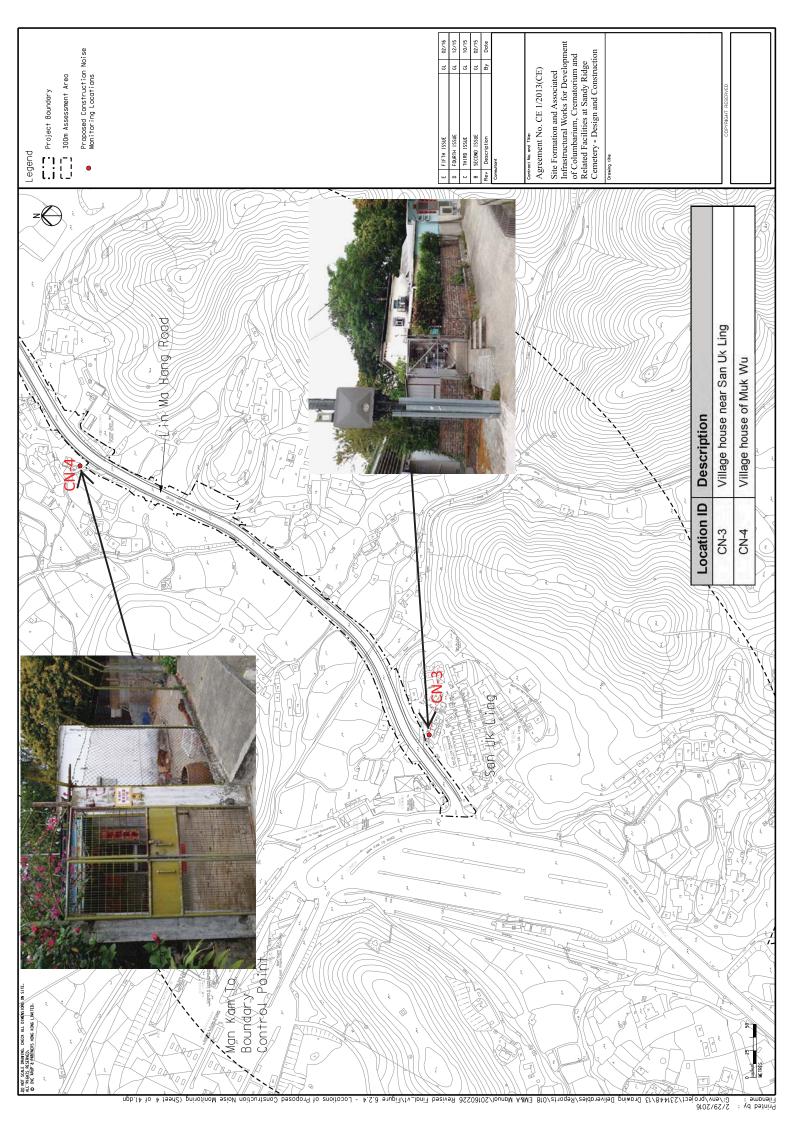




Noise Monitoring Location

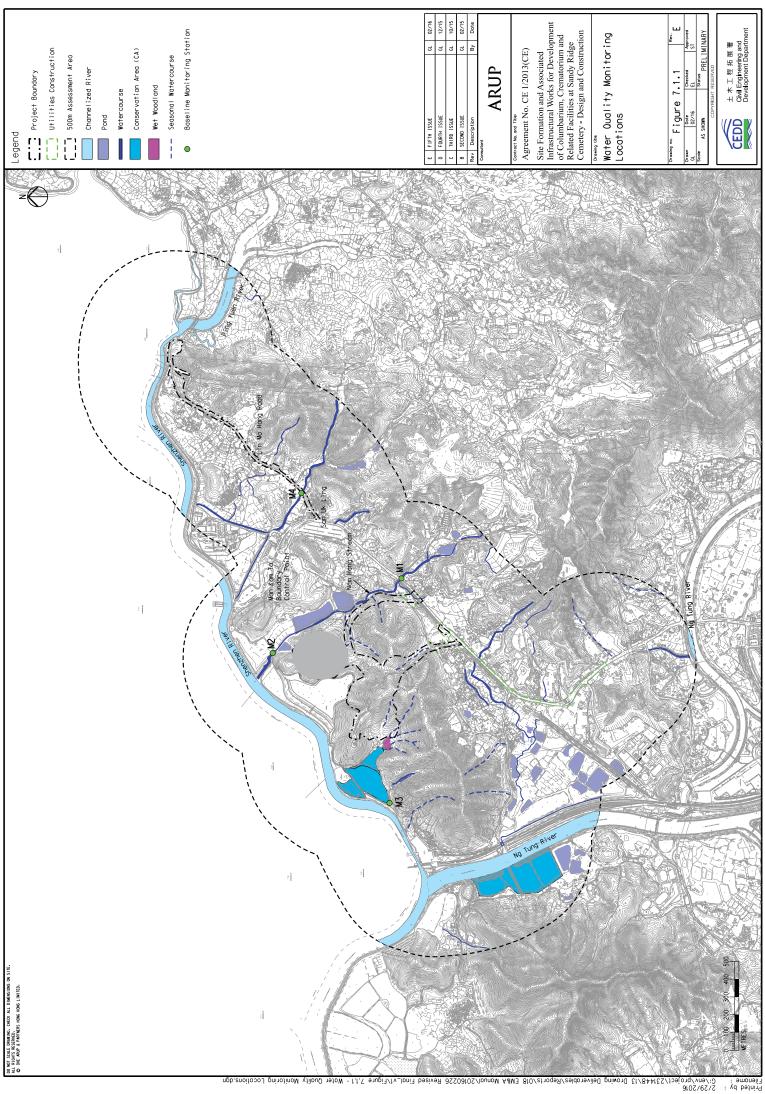








Water Quality Monitoring Station





Appendix E

Calibration Certificate of Monitoring Equipment and

Laboratory Certificate

 $Z: \label{eq:loss} 2018 \ CV-2016-10) \ 600 \ EM\&A\ Report\ Submission \ Monthly\ Report\ 2023 \ 59th\ Month\ (June\ 2023) \ R0763v \ 2.doc \ 2.doc$

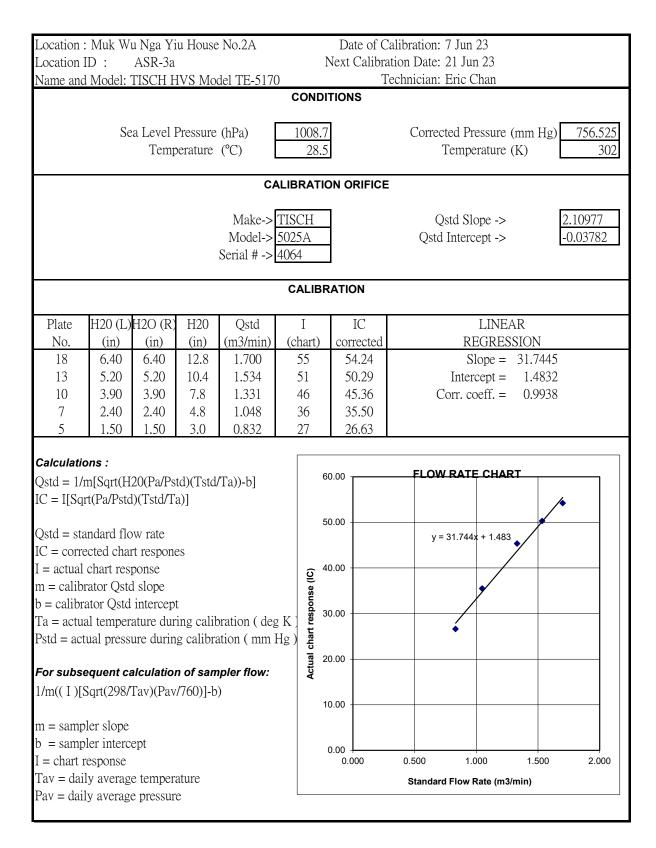
Location : Location I Name and	D :	ASR-1		No.6 del TE-517()	N	Jext Calibra	Calibration: 20 May 23 ation Date: 3 Jun 23 Fechnician: Eric Chan
	WIGGEI.	1100111				ON		Connorm. Ene Chair
	Se	ea Level I Temp	Pressure perature	· ,	1005	5.8 7.5		Corrected Pressure (mm Hg) 754.35 Temperature (K) 301
					CALIB	RA		ICE
				Make-> Model-> Serial # ->	5025A			Qstd Slope -> 2.10977 Qstd Intercept -> -0.03782
					C	ALI	BRATION	
Plate		H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart	.)	IC corrected	LINEAR REGRESSION
18 18 13 10 7 5	18 6.40 6.40 12.8 1.700 5 13 5.20 5.20 10.4 1.534 4 10 3.90 3.90 7.8 1.331 3 7 2.70 2.70 5.4 1.111 3						53.35 46.44 38.53 31.62 24.70	Slope = 34.0216 Intercept = -5.5456 Corr. coeff. = 0.9961
Pstd = actu For subse 1/m((I)[S m = sampl	n[Sqrt(H t(Pa/Pstd ndard flc cted chan chart resp ator Qstd d temper ual press equent ca Sqrt(298/	l)(Tstd/Ta ow rate et respond ponse d slope intercept ature dur ure durin alculation Tav)(Pav	a)] es t ing calib g calibra n of sam	pration (deg ation (mm] apler flow:		Actual chart response (IC)	60.00 50.00 40.00 30.00 20.00 10.00	FLOW RATE CHART
I = chart re Tav = dail	b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure						0.00	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)

Location :	San Uk	t Ling V	illage H	ouse No.1			Date of C	Calibration: 20 Ma	y 23			
Location I	D :	ASR-2]	Next Calibra	ation Date: 3 Jun	23			
Name and	Model: 7	FISCH F	IVS Mo	del TE-517()		Т	echnician: Eric C	han			
						ON	DITIONS					
	Se	a Level I	Pressure	(hPa)	10	05.8	2	Corrected Pre	essure (1	mm Hø)	754.	35
	500		perature			27.5			rature (]			01
		TCIII	Clature	(C)		21.J		Tempe		IX)		01
				C	CALIBI	RAT		E				
				Make->	TISCI	H]	Qstd Slo	one ->		2.10977	
				Model->				Qstd Interco	-		-0.03782	
				Serial # ->		1	-	Quita mitoro	opt y		0.05702	_
							J 					
					CA	ALIE	RATION					
Plate	H20 (L)	H2O (R)	H20	Qstd	Ι		IC		LINE	AR		
No.	(in)	(in)	(in)	(m3/min)	(cha	urt)	corrected	R	EGRES	SION		
18	6.40	6.40	12.8	1.700	52	2	51.38			28.331	9	
13	5.20	5.20	10.4	1.534	46		45.45		cept =	2.397		
10	3.90	3.90	7.8	1.331	40		39.52	Corr. cc	-	0.997		
7	2.40	2.40	4.8	1.048	32		31.62	0011.00	011.	0.771	0	
5	1.50	1.50	3.0	0.832	27		26.68					
	1.50	1.50	5.0	0.052			20.00					F
Calculatio	ons:						60.00	FLOW RAT	E CHAF	RT		
Qstd = 1/r	n[Sart(H)	$\mathcal{D}(\mathbf{P}_{2}/\mathbf{P}_{3})$	td)(Tstd	/Ta)) - h]			00.00					
IC = I[Sqn				(1 <i>u))</i> 0]								
IC – 1[541		/1500/1	a)]				50.00				•	
Qstd = sta	ndord flo	w roto										
~			20									
IC = correction		-	es			(jc)	40.00	y = 28.332x	: + 2.397			
I = actual	-					JSe						
m = calibr	-	-				spor						
b = calibra	-	-				tre	30.00					
	-		-	oration (deg		char		•				
Pstd = act	ual pressu	are durin	g calibra	ation (mm]	Hg)	Actual chart response						
						Act	20.00					
For subse	For subsequent calculation of sampler flow:											
1/m((I)[S	Sqrt(298/1	Гav)(Pav	r/760)]-b)			10.00					
							10.00					
m = samp	ler slope											
b = samp	ler interce	ept					0.00					
I = chart r							0.000	0.500	.000	1.500	2.000	0
Tav = daily average temperature								Standard Flow	Rate (m3	/min)		
Pav = dail		-			L							
	,	1										

														_
Location :	Muk Wi	u Nga Yi	iu House	No.2A		Date of Calibration: 20 May 23								
Location I	D :	ASR-3a				Next Calibration Date: 3 Jun 23								
Name and	Model: '	TISCH H	IVS Mo	del TE-517(0			Т	echnic	ian: Eric C	han			
					CC	ONDI	TION	IS						
	G	T 1				0050	1		G	. 1.D	,	тт \ Г		25
	Se	a Level 1		. ,	1005.8			Co	orrected Pre			754		
		Temp	berature	(°C)		27.5	'			Temper	ature (K)	-	301
				CA	ALIBF	RATIO	O NC	RIFICE						
				Make->	TISC	Ή]			Qstd Slo	pe ->	2	2.10977	,
				Model->					(Qstd Interce	ept ->	-	0.0378	2
				Serial # ->	4064									
					CA	LIBR	RATIO	ON						
Plate	H20 (L)	H2() (R)	H20	Qstd		I	1	IC			LINEAR	1		
No.	(in)	(in)	(in)	(m3/min)		art)		rected			GRESSI			
18	6.40	6.40	12.8	1.700		5		4.34			ope = 3			
13	5.00	5.00	10.0	1.505		.7	46.44			Intercept = -2.8048				
10	3.80	3.80	7.6	1.314	4	0	39.52			Corr. coeff. = 0.9967				
7	2.50	2.50	5.0	1.069	3	4	3	3.59						
5	1.50	1.50	3.0	0.832	2	5	2	4.70						
					_									
Calculatio						6	0.00 -		FI	LOW RATE	CHART			
Qstd = 1/r				[Ta))-b]		Ū	0.00							
IC = I[Sqn	t(Pa/Pstd	l)(1sta/1	a)]									1		
Qstd = sta	indard flo	w rate				5	0.00 -							
IC = correction			es							y = 33.109	- 2.805			
I = actual		_				Ω ⁴	0.00 -							
m = calibr	ator Qst	l slope				response (IC)								
b = calibra	ator Qstd	intercep	t			üod ,	0.00 -				*			
	-		-	oration (deg	- 1	÷	0.00							
Pstd = act	ual press	ure durin	g calibra	ation (mm]	Hg)	chai				*				
For subse	equent ca	alculatio	n of sam	nler flow [.]		Actual char	0.00 -							
	For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)													
1/111((1)[(1	0.00 -					_						
m = samp	m = sampler slope													
	b = sampler intercept						0.00 -							
I = chart response								000	0.50	0 1.0	00	1.500	2.0	00
Tav = daily average temperature							Sta	ndard Flow R	ate (m3/mi	n)				
Pav = dail	y average	e pressur	e		L]

. .	G1 7 .	T 7111					D	
Location :			e House	No.6				Calibration: 7 Jun 23
Location I		ASR-1	WC Mo	del TE-517()	Γ		ation Date: 21 Jun 23 Fechnician: Eric Chan
Ivame and	WOUEI.	поспг	1 V S 1V100	uel 1E-31/(00		
	Se	ea Level I	Pressure	(hPa)	100)8.7]	Corrected Pressure (mm Hg) 756.525
			berature	. ,		28.5		Temperature (K) 302
		1						
					CALIE	BRA	TION ORIF	ICE
							1	
				Make->			4	Qstd Slope -> 2.10977
				Model->		L	-	Qstd Intercept -> -0.03782
				Serial # ->	4064			
							IBRATION	
					Ľ	AL	IBRATION	
Plate	H20 (L)	H2O (R)	H20	Qstd	Ι		IC	LINEAR
No.	(in)	(in)	(in)	(m3/min)	(chai	rt)	corrected	REGRESSION
18	6.60	6.60	13.2	1.726	55		54.24	Slope = 34.5057
13	5.40	5.40	10.8	1.563	48		47.33	Intercept = -5.7023
10	4.20	4.20	8.4	1.381	43		42.40	Corr. coeff. = 0.9988
7	2.80	2.80	5.6	1.130	34		33.53	
5	1.70	1.70	3.4	0.885	25		24.65	
Onlawlatin					ſ	-		FLOW RATE CHART
		20(D _a /D _a	د. 1) (T1	/Tra)) 1-1				
Qstd = 1/r IC = I[Sqr				(1a))-0]			60.00	
IC – 1[34]		1)(1510/17	a)]					,
Qstd = sta	ndard flo	w rate					50.00	
IC = correction			es					y = 34.506x - 5.702
I = actual		-) C)	40.00	y
m = calibi						Actual chart response (I0	40.00	
b = calibra	ator Qstd	intercept	t			resn		× ×
Ta = actua	al temper	ature dur	ing calib	oration (deg	g K)	hart	30.00	
Pstd = act	ual press	ure durin	g calibra	ation (mm]	Hg)	o lei		▲
						Acti	20.00	
	For subsequent calculation of sampler flow:							
1/m((I)[S	1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)						10.00	
	11						10.00	
m = samp		out						
b = samp		ері					0.00	
I = chart response Tav = daily average temperature							0.000	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)
Pav = dail Pav = dail		-						
	y averag	e pressur	C					

-														
Location :	San Uk	k Ling V	illage H	ouse No.1			Date c	of Calib	oration:	7 Jun 2	3			
Location 1	D :	ASR-2]	Next Cal	ibratior	n Date:	21 Jun	23			
Name and	Model:	TISCH H	IVS Mo	del TE-517()			Tech	nician:	Eric Ch	nan			
						ONE	DITIONS							
	Se	a Level I	Pressure	(hPa)	10	08.7	,		Correct	ted Pres	ssure (n	nm Hg)	7	56.525
	50		perature	. ,		28.5				Tempera		0,	/.	302
		TOUIL	Crature	(\mathbf{C})		20.5				lemper	ature (r	X)		502
				C	ALIB	RAT	ION ORI	FICE						
				Make->	TISC	U	1		0	std Slop			2.10	077
				Model->					-	-				
						A			Qsta	Interce	pt ->		-0.0.	3782
				Serial # ->	4064]							
					C	ALIB	RATION							
Plate	H20 (L)	H2O (R)	H20	Qstd	Ι		IC				LINEA	AR		
No.	(in)	(in)	(in)	(m3/min)	(cha	art)	correct	ed		RE	EGRES	SION		
18	6.60	6.60	13.2	1.726	58	8	57.20)		Slo	pe =	33.323	31	
13	5.40	5.40	10.8	1.563	5	1	50.29)	Intercept = -1.1539			39		
10	4.20	4.20	8.4	1.381	40	6	45.36	5	С	orr. coe	-	0.99	56	
7	2.90	2.90	5.8	1.150	30		35.50							
5	1.40	1.40	2.8	0.805	2		26.63							
						-						_		
Calculatio	ons :						70.00 -		FLO\	N RATE				_
Qstd = 1/r	n[Sqrt(H	20(Pa/Ps	td)(Tstd	/Ta))-b]										
IC = I[Squ		-												
		., (= = = = = = =	/]				60.00						•	
Qstd = sta	ndard flo	w rate											/	
IC = correction			<u>-c</u>				50.00						/	
I = actual			05			(j			y	= 33.323×	c - 1.154			
m = calibi	-	-				chart response (IC)	40.00							
b = calibra	-	-	+			ods	40.00							
	-	-		motion (da	~ V \	2 T								
	-		-	oration (deg		cha	30.00			/				
Pstd = act	ual pressi	ure durin	ig calibra	ation (mm)	Hg)	Actual				*				
_ ,						Ac	20.00							
	For subsequent calculation of sampler flow:													
1/m((I)[S	Sqrt(298/	Tav)(Pav	r/760)]-b)										
							10.00							
m = samp														
b = samp	ler interco	ept					0.00							_
I = chart r	esponse						0.000)	0.500		000	1.500		2.000
Tav = dail	y average	e temper	ature						Standa	rd Flow F	kate (m3/	min)		
Pav = dail	y average	e pressur	e											



Location : Sha Ling Village House No.6 Location ID : ASR-1 Name and Model: TISCH HVS Model TE-5170	1	Next Calibra	Calibration: 23 Jun 23 ation Date: 7 Jul 23 Cechnician: Eric Chan						
Sea Level Pressure (hPa) Temperature (°C)	CON 1006.5 30.0		Corrected Pressure (mm Hg) 754.875 Temperature (K) 303						
CALIBRATION ORIFICE Make-> TISCH Qstd Slope -> 2. Model-> 5025A Qstd Intercept -> -(Serial # -> 4064									
CALIBRATION									
Plate H20 (L)H2O (R) H20 Qstd No. (in) (in) (in) (m3/min) 18 6.50 6.50 13.0 1.707 13 5.30 5.30 10.6 1.543 10 4.20 4.20 8.4 1.376 7 2.80 2.80 5.6 1.127	I (chart) 56 49 44 24	IC corrected 54.89 48.03 43.13 33.33	LINEAR REGRESSION Slope = 35.5785 Intercept = -6.2477 Corr. coeff. = 0.9991						
7 2.80 2.80 5.6 1.127 5 1.60 1.60 3.2 0.856	34 25	55.55 24.50							
Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg I Pstd = actual pressure during calibration (mm Ha For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure	· ÷	60.00 50.00 40.00 30.00 10.00 0.000	FLOW RATE CHART						

Location :	San Ul	c Ling V	illage H	ouse No.1			Date o	f Calir	oration: 23 Jun	23			
Location 1		ASR-2	inuge II]			n Date: 7 Jul 2				
Name and	l Model: '	TISCH H	IVS Mo	del TE-5170				Tech	nician: Eric C	han			
					С	ON	DITIONS						
	Se	a Level I	Pressure	(hPa)	10	06.5	5		Corrected Pressure (mm Hg) 754			54.875	
		Temp	erature	(°C)		30.0			Temperature (K)				303
						PAT		FICE					
				Make->					Qstd Slo	-		2.10	
	Model-> 502								Qstd Interco	ept ->		-0.0	3782
				Serial # ->	4004								
					C	ALIE	BRATION						
Plate	H20 (L)	H2O (R)	H20	Qstd	Ι		IC			LINE	AR		
No.	(in)	(in)	(in)	(m3/min)	(cha		correcte			EGRES			
18	6.60	6.60	13.2	1.720	57		55.87			ope =	33.75		
13	5.40	5.40	10.8	1.557	5		49.99			cept =	-2.52		
10	4.30	4.30	8.6	1.392	46		45.09		Corr. co	eff. =	0.99	59	
7 5	2.90 1.40	2.90 1.40	5.8 2.8	1.146 0.802	35 20		34.31 25.48						
	<u> </u>	1110	2.0	01002		0	20110		FLOW RAT		т		
		<u> </u>	4 J) (T- 4 J	/T) 1. 1			60.00						-
Qstd = 1/r IC = I[Sqr		-		(1a))-0]								1	
	1 1 1 5 10)(1500/1	u/]				50.00					/	_
Qstd = sta									y = 33.756	5x - 2.526	•		
IC = correction		-	es			(IC)	40.00						_
I = actual m = calibi		-				Actual chart response							
b = calibra	-	-	t			resp	30.00						
	-		_	oration (deg		chart							
Pstd = act	ual pressi	ure durin	g calibra	ation (mm)	Hg)	tual e	20.00 —						
For subse	For subsequent calculation of sampler flow:												
	l/m((I)[Sqrt(298/Tav)(Pav/760)]-b)						10.00 —						
	104 010						10.00						
m = samp b = samp		ent											
I = chart r		opi					0.00	1	0.500	1.000	1.500)	2.000
Tav = daily average temperature									Standard Flow	Rate (m3/	/min)		
Pav = dail		-			L								

Location :	Muk Wi	u Nga Yi	iu House	e No.2A		Date of Calibration: 23 Jun 23								
Location I		ASR-3a					Next			Date: 7 Jul				
Name and	Model:	TISCH H	IVS Mo	del TE-517(echni	cian: Eric (Chan			
					cc	OND	ITION	IS						
	50	a Level I	Draggura	(hD_{0})	10	06 5	-		C	Corrected Dr	raccura (m		751 9	75
	36		perature		<u>1006.5</u> 30.0			C	Corrected Pressure (mm Hg) 754.875 Temperature (K) 303					
		TCHI	Niature	(\mathbf{C})		50.0	J			remp	nature (r	()		505
				CA	ALIBR	RATIO	ON O	RIFICE						
				Make->	TISC	Ή]			Qstd S1	ope ->	(2	2.10977	7
				Model->	5025	А				Qstd Interc	ept ->	-	0.0378	2
				Serial # ->	4064									
					СА	LIBF	RATIO	NC						
Plate	H20 (L)	H2O (R)	H20	Qstd]	[IC			LINEAI	R		
No.	(in)	(in)	(in)	(m3/min)	(ch			rected		R	EGRESS			
18	6.40	6.40	12.8	1.694	5			5.87			lope = 3			
13	5.00	5.00	10.0	1.499	5	1	49.99			Intercept = -0.6573				
10	3.80	3.80	7.6	1.309	4	5	44.11			Corr. co	oeff. =	0.9982		
7	2.40	2.40	4.8	1.044	3	6	3	5.29						
5	1.50	1.50	3.0	0.829	2	7	2	6.46						
Calculatio					Г									
Qstd = 1/r	-	$\Omega(D_0/D_0)$	td)(Tetd	/Ta)) b]		6	50.00 ·			LOW RAT		-		
$Q_{SIG} = I/I$ IC = I[Sq1				(1 <i>a))</i> -0]										
10 – 1[0qi		1)(1500/1	u)]			-	-0.00							
Qstd = sta	indard flo	w rate				c	50.00			y = 33.719	x - 0.657			
IC = corrections	ected chai	rt respon	es								*			
I = actual	chart resp	ponse				<u></u> ට 4	40.00							
m = calibr	-	-				response (IC)					•			
b = calibra	-	_				spor	30.00			/	1			
				oration (deg		5				•				
Pstd = act	ual press	ure durin	ig calibra	ation (mm]	Hg)	l char								
For subse	eauent ca	alculatio	n of san	pler flow:		Actual	20.00							
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)														
				, ,		1	10.00							
m = samp	m = sampler slope													
b = sampler intercept							0.00							
I = chart response								000	0.5	00 1.0	000	1.500	2.0	00
Tav = dail		-							St	andard Flow	Rate (m3/m	iin)		
Pav = dail	y average	e pressur	e											

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER HK2307087
CLIENT	ACTION-UNITED ENVIRONMENTAL	
	SERVICES & CONSULTING	
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41	SUB-BATCH : 1
	TAI LIN PAI ROAD, KWAI CHUNG, N.T.	DATE RECEIVED : 20-FEB-2023
	······································	DATE OF ISSUE : 27-FEB-2023
PROJECT	:	NO. OF SAMPLES : 1
		CLIENT ORDER

General Comments

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the • item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	Position	
Richard Juny.		
Richard Fung	Managing Director	

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release. ALS Technichem (HK) Pty Ltd

Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Kwai Tsing Hong Kong

WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2307087

: 1 : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING :



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2307087-001	S/N: 366407	AIR	20-Feb-2023	S/N: 366407

Equipment Verification Report (TSP)

Equipment Calibrated:

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	366407
Equipment Ref:	EQ107

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018 & HVS 019
Last Calibration Date:	14 December 2022 & 10 January 2023

Equipment Verification Results:

Verification Date:

10, 11 &12 January 2023

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
10-Jan-23	2hr1min	14:41 ~ 16:42	18.2	1018.8	7.6	613	5.1
11-Jan-23	2hr01min	13:16 ~ 15:17	18.1	1017.6	25.2	1786	14.8
11-Jan-23	2hr01min	15:25 ~ 17:26	18.1	1017.6	15.8	1206	10.0
12-Jan-23*	61mins	09:31 ~ 10:32	18.8	1014.5	112.8	3679	60.1
12-Jan-23*	61mins	10:36 ~ 11:37	18.8	1014.5	81.5	2077	33.9

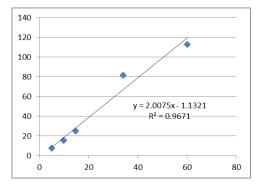
(*) Suspended particle was added into calibration room of HVS019 for high concentration test.

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration) <u>565 (CPM)</u> 565 (C

Linear Regression of Y or X

Slope (K-factor): Correlation Coefficient (R)

<u>2.0075 (µg/m³)/CPM</u> 0.9834 13 February 2023



(CPM)

Remarks:

Date of Issue

1. **Strong** Correlation (R>0.8)

2. Factor 2.0075 (µg/m³)/CPM should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	Signature :	Ja	Date :	13 February 2023
QC Reviewer :	Ben Tam	Signature : _	\$6	Date :	13 February 2023

I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope	Location : Gold King Industrial Building, Ky Location ID : Calibration Room(HVS 018)	wai Chung		Date of Calibration: 14-Dec-22 Next Calibration Date: 14-Mar-23							
Temperature (°C) 12.5 Temperature (K) 286 CALIBRATION ORIFICE Make-> Model-> TISCH 5025A 27-Dec-21 Qstd Slope -> Qstd Intercept -> 27-Dec-22 1.99838 4.000903 27-Dec-22 CALIBRATION ORIFICE Temperature (K) 286 Plate H20 (D) H20 (R H20 Qstd I IC LINEAR No. (in) (in) (in) (m3/min) (chart) corrected REGRESSION REGRESSION Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 Calculations : (Std = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Graduat flow rate IC = corrected chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope for the calibration (deg K) Pstd = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (deg K) Im = sampler slope m = sampler slope		CONDITIO	NS								
$\begin{array}{c c c c c c c c c c c c c c c c c c c $											
Model-> 5025A Qstd Intercept -> 0.00903 27-Dec-21 Expiry Date-> 27 -Dec-22 CALIBRATION INTERCENTION CALIBRATION CALIBRATION CALIBRATION CALIBRATION INTERCENT OF CONTRACT ON TABLE CHART Control of any of the standard flow rate [C = corrected chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) PStd = actual pressure during calibration (mm Hg) Model > 10.00 Model > 2000 Image: Calibration of sampler flow: I/m((1) [Sqrt(298/Tav)(Pav/760)]-b) <td>CALIE</td> <td>BRATION</td> <td>ORIFICE</td> <td>E</td>	CALIE	BRATION	ORIFICE	E							
Plate H20 (L)H2O (R) H20 Qstd I IC LINEAR No. (in) (in) (in) (m3/min) (chart) corrected REGRESSION 18 6 6 12.0 1.783 54 55.39 Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 28 28 28.72 28 28.72 28 28.72 Calculations : Qstd = standard flow rate IC = corrected chart respones I I IC = corrected chart respones I I = actual chart response m = calibrator Qstd slope b = calibrator Qstd slope 0 0 0 0 90 90.00 90.00 90.00 90.00 0 0 0 0 0 0 0 0 0 0 0 0 0	Model-> 502	25A		Qstd Intercept -> -0.00903							
No. (in) (in) (m ² /min) (chart) corrected REGRESSION 18 6 6 12.0 1.783 54 55.39 Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 5 1.5 1.5 3.0 0.894 28 28.72 Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] 60.00 60.0	C	CALIBRAT	ION								
18 6 6 12.0 1.783 54 55.39 Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 Corr. coeff. = 0.9991 State 1.5 1.5 3.0 0.894 28 28.72 Corr. coeff. = 0.9991 Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] 60.00 50.00 50.00 50.00 IC = corrected chart response 60.00 50.00<											
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart response I = actual chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope	18 6 6 12.0 1.783 5.7 13 4.8 4.8 9.6 1.595 4 10 3.8 3.8 7.6 1.420 4 8 2.5 2.5 5.0 1.152 3	54 55.39 48 49.23 44 45.13 36 36.93		Intercept = 2.5287							
b = sampler intercept $I = chart response$ $0.00 + + + + + + + + + + + + + + + + + +$	Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept	- 00.05 - 00.05 - 00.05 - 00.02 - 00.01 - 00.01									



RECALIBRATION DUE DATE:

December 27, 2022

	Ce	rtifa	Calibration				ntion				
Cal. Date:	Calibration Certification Information Date: December 27, 2021 Rootsmeter S/N: 438320 Ta: 295										
		27, 2021	ROOLS	meter 5/14.	436320			°K			
Operator:	Jim Tisch					Pa:	740.4	mm Hg			
Calibration	Model #:	TE-5025A	Cali	brator S/N:	1612						
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ				
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)				
	1	1	2	1	1.3890	3.2	2.00				
	2	3	4	1	0.9760	6.4	4.00				
	3	5	6	1	0.8740	7.9	5.00				
	4	7	8	1	0.8320	8.8	5.50				
	5	9	10	1	0.6870	12.7	8.00				
				Data Tabula	tion						
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(Tstd)		Qa	√∆H(Ta/Pa)				
	(m3)	(x-axis)	y (y-ax		Va	(x-axis)	(y-axis)				
	0.9799	0.7055	1.40	1	0.9957	0.7168	0.8927				
	0.9756	0.9996	1.98		0.9914	1.0157	1.2624				
	0.9736	1.1140	2.21	1	0.9893	1.1320	1.4114				
	0.9724	1.1688	2.32	65	0.9881	1.1876	1.4803				
	0.9673	1.4079	2.80	1	0.9828	1.4306	1.7853				
		m=	1.998			m=	1.25135				
	QSTD	b=	-0.00		QA	b= r=					
		r=	0.999	999							
			(m	Calculation							
		ΔVol((Pa-ΔP) Vstd/ΔTime	/Pstd)(Tstd/T	a)	Conception of the local division of the loca	ΔVol((Pa-Δ Va/ΔTime	P)/Pa)				
	Q3tu-	vstu/Anne	For subsequ	lent flow ra	te calculation						
	Qstd=	1/m ((\\ \ \ \ \ \ \ \ \ \ \ \ \ (Pa <u>Tstd</u> Pstd Ta	The second s		1/m ((√∆H	l(Ta/Pa))-b)				
		Conditions						I			
Tstd:	298.15	°K		Ι		RECA	LIBRATION				
Pstd:	Contraction of the second seco	mm Hg			LIS EPA reco	mmende	nnual recalibratio	n ner 1000			
AH: calibrat		(ey ter reading (i	n H2O)				Regulations Part 5				
		eter reading					, Reference Meth				
Ta: actual al	osolute tem	perature (°K)					ended Particulate				
		ressure (mm	Hg)				ere, 9.2.17, page 3				
b: intercept				l			,				
m: slope											

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

<u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9005

Location :Gold King Industrial Building, KwaLocation ID :Calibration Room(HVS 019)							nung	Date of Calibration: 10-Jan-23 Next Calibration Date: 9-Apr-23			
						COND	ITIONS				
	Sea Level Pressure (hPa)1018.8Corrected Pressure (mm Hg)764.1Temperature (°C)18.2Temperature (K)291										
					CALI	BRATI	ON ORIFIC	CE			
			Calibrat	Make-> Model-> ion Date->		25A		Qstd Slope -> 2.10977 Qstd Intercept -> -0.03782 Expiry Date-> 15-Dec-23			
					C	CALIB	RATION				
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)		[art)	IC corrected	LINEAR REGRESSION			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				5 4 4	55 55.79 48 48.69 44 44.63 36 36.52		Slope = 31.4802 Intercept = 1.9499 Corr. coeff. = 0.9967				
51.51.53.00.8512Calculations :Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]Qstd = standard flow rateIC = corrected chart responesI = actual chart responsem = calibrator Qstd slopeb = calibrator Qstd slopeb = calibrator Qstd interceptTa = actual temperature during calibration (deg K)Pstd = actual pressure during calibration (mm Hg)For subsequent calculation of sampler flow:1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)m = sampler slopeb = sampler interceptI = chart response						00 90 90 90 90 90 90 90 90 90 90 90 90 9	0.00 0.00 0.00 0.00 0.00 0.000	FLOW RATE CHART			
Tav = dail Pav = dail						<u> </u>					



RECALIBRATION DUE DATE:

December 15, 2023

nmental Certificate of Calibration

- 1 -			Calibration					017	
Cal. Date:	December 15, 2022 Rootsm			meter S/N:	neter S/N: 438320 Ta:			°K	
Operator:	Jim Tisch					748.0	mm Hg	1	
Calibration	Model #:	TE-5025A	Calil	prator S/N:	4064				1
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	1	×
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)		
	1	1	2	1	1.4430	3.2	2.00		
	2	3	4	1	1.0210	6.4	4.00	1	
	3	5	6	1	0.9170	7.9	5.00		
	4	7	8	1	0.8730	8.8	5.50	1	
	5	9	10	1	0.7210	12.8	8.00]	
	-			Data Tabula	tion)'	1	
				V Total V				1	
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(<u>Tstd</u>)		Qa	√∆H(Ta/Pa)		
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)		
	0.9900	0.6861	1.41	01	0.9957	0.6900	0.8881	.]	
	0.9858	0.9655	1.99		0.9914	0.9711	1.2560	-	
	0.9838	1.0728	2.22		0.9894	1.0790	1.4042	-	
	0.9826	1.1255	2.33		0.9882	1.1320	1.4728	-	
	0.9772	1.3554	2.82		0.9829	1.3632	1.7762	-	
	OCTD	m= b=	-0.03	All source into party or construction of the second	0.4	m= b=	1.32110	-	
	QSTD	r=	0.999		QA	r=	0.99998	-	
			ana da kana da	Calculatio	ns			ī	
	Vstd=	ΔVol((Pa-ΔP)	/Pstd)(Tstd/T		procession of the second se	ΔVol((Pa-Δ	P)/Pa)	1	
	Qstd=	Vstd/∆Time			the second se	Va/∆Time		1	
			For subsequ	ent flow ra	te calculatio	ns:]	
	Qstd=	1/m ((√∆H(Pa Pstd Tstd	-))-b)	Qa=	1/m ((√∆ł	H(Ta/Pa))-b)		
	Standard	Conditions						_	
Tstd						RECA	LIBRATION		
Pstd		mm Hg			LIS EDA rocc	ommende o	nnual recalibrati	on por 1	202
		(ey ter reading (i	n H2O)				Regulations Part	-	
		eter reading (i					, Reference Met		
		perature (°K)					ended Particulat		
		ressure (mm				-	ere, 9.2.17, page		111
b: intercept	t				u u	слатоэри		50	
m: slope									

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

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER HK2307088
CLIENT	ACTION-UNITED ENVIRONMENTAL	
	SERVICES & CONSULTING	
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41	SUB-BATCH : 1
	TAI LIN PAI ROAD, KWAI CHUNG, N.T.	DATE RECEIVED : 20-FEB-2023
		DATE OF ISSUE : 27-FEB-2023
PROJECT	:	NO. OF SAMPLES : 1
		CLIENT ORDER +

General Comments

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the • item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	Position	
Richard Juny.		
Richard Fung	Managing Director	

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release. ALS Technichem (HK) Pty Ltd

Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Kwai Tsing Hong Kong

WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2307088

: 1 : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING :



ALS Lab **Client's Sample ID** Sample Sample Date External Lab Report No. ID Туре HK2307088-001 AIR 20-Feb-2023 S/N: 366418 S/N: 366418

Equipment Verification Report (TSP)

Equipment Calibrated:

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	366418
Equipment Ref:	EQ108

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018 & HVS 019
Last Calibration Date:	14 December 2022 & 10 January 2023

Equipment Verification Results:

Verification Date:

10, 11 &12 January 2023

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
10-Jan-23	2hr1min	14:41 ~ 16:42	18.2	1018.8	7.6	584	4.8
11-Jan-23	2hr01min	13:16 ~ 15:17	18.1	1017.6	25.2	1677	13.9
11-Jan-23	2hr01min	15:25 ~ 17:26	18.1	1017.6	15.8	1106	9.1
12-Jan-23*	61mins	09:31 ~ 10:32	18.8	1014.5	112.8	3546	57.9
12-Jan-23*	61mins	10:36 ~ 11:37	18.8	1014.5	81.5	2110	34.5

(*) Suspended particle was added into calibration room of HVS019 for high concentration test.

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration) <u>685 (CPM)</u> 685 (C

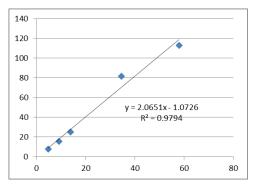
Linear Regression of Y or X

Slope (K-factor):

Correlation Coefficient (R)

0.9896 13 February 2023

2.0651 (µg/m³)/CPM



(CPM)

Remarks:

Date of Issue

1. **Strong** Correlation (R>0.8)

2. Factor 2.0651 (µg/m³)/CPM should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	Signature :	Ja	Date :	13 February 2023
QC Reviewer :	Ben Tam	Signature : _	\$6	Date :	13 February 2023

Location :Gold King Industrial Building, Kwai ChungLocation ID :Calibration Room(HVS 018)						Date of Calibration: 14-Dec-22 Next Calibration Date: 14-Mar-23		
						COND	ITIONS	
								Corrected Pressure (mm Hg) 766.05 Temperature (K) 286
					CALI	BRATI	ON ORIFIC	CE
						SCH 25A Dec-21		Qstd Slope -> 1.99838 Qstd Intercept -> -0.00903 Expiry Date-> 27-Dec-22
					(CALIB	RATION	
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)		I art)	IC corrected	LINEAR REGRESSION
18 13 10 8 5	6 4.8 3.8 2.5 1.5	6 4.8 3.8 2.5 1.5	12.0 9.6 7.6 5.0 3.0	1.783 1.595 1.420 1.152 0.894	4 4 3	64 55.39 18 49.23 14 45.13 36 36.93 28 28.72		Slope = 29.6312 Intercept = 2.5287 Corr. coeff. = 0.9991
S 1.5 1.5 5.0 0.894 2.4 Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I actual chart response M = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept I = chart response I = chart response I = chart response						00 Actual chart response (IC) 00 01 01		FLOW RATE CHART
Tav = dail Pav = dail						<u> </u>		



RECALIBRATION DUE DATE:

December 27, 2022

	Ce	rtifa	Calibration				ntion			
Cal. Date:	Calibration Certification Information ate: December 27, 2021 Rootsmeter S/N: 438320 Ta: 295 °K									
		27, 2021	ROOLS	meter 5/14.	436320					
Operator:	Jim Tisch					Pa:	740.4	mm Hg		
Calibration	Model #:	TE-5025A	Cali	brator S/N:	1612					
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ]		
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)			
	1	1	2	1	1.3890	3.2	2.00			
	2	3	4	1	0.9760	6.4	4.00	1		
	3	5	6	1	0.8740	7.9	5.00	-		
	4	7	8	1	0.8320	8.8	5.50	4		
	5	9	10	1	0.6870	12.7	8.00]		
				Data Tabula	tion]		
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(Tstd)		Qa	√∆H(Ta/Pa)			
	(m3)	(x-axis)	y (y-ax		Va	(x-axis)	(y-axis)			
	0.9799	0.7055	1.40	1	0.9957	0.7168	0.8927			
	0.9756	0.9996	1.98		0.9914	1.0157	1.2624			
	0.9736	1.1140	2.21	1	0.9893	1.1320	1.4114			
	0.9724	1.1688	2.32	65	0.9881	1.1876	1.4803			
	0.9673	1.4079	2.80	1	0.9828	1.4306	1.7853	1		
		m=	1.998			m= 1.25135 b= -0.00574		1		
	QSTD	b=	-0.00		QA	b=	3			
		r=	0.999	999		r=]			
				Calculation						
	been service and service on the service of the serv	the local data and the second	/Pstd)(Tstd/T	a)	Conception of the local division of the loca	ΔVol((Pa-Δ Va/ΔTime	P)/Pa)			
	Qstd=	Vstd/∆Time	For subcos	ont flow no						
	Qstd=	1/m ((1/DH(Pa (Tstd Pstd Ta	uent flow rate calculations: $\overline{-})_{-b} \qquad Qa= 1/m((\sqrt{\Delta H(Ta/Pa)})_{-b})$						
		Conditions		. / /		//.		1		
Tstd:	298.15	°K		ſ		RECA	LIBRATION			
Pstd:	Contractor and the second seco	mm Hg		ľ				4000		
AH: calibrat		(ey ter reading (i	n H2O)				nnual recalibratio			
		eter reading (I					Regulations Part ! , Reference Meth			
		perature (°K)					ended Particulat			
Pa: actual b	arometric pi	ressure (mm					erided Particulation and Part			
b: intercept						- Autoophe	, J.2.17, page			
m: slope				-						

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

<u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9005

Location :Gold King Industrial Building, Kwai ChungLocation ID :Calibration Room(HVS 019)							Date of Calibration: 10-Jan-23 Next Calibration Date: 9-Apr-23	
						COND	ITIONS	
Sea Level Pressure (hPa) 10 Temperature (°C)								Corrected Pressure (mm Hg) 764.1 Temperature (K) 291
					CALI	BRATI	ON ORIFIC	CE
Make-> TIS Model-> 502 Calibration Date-> 15-De						25A Qstd In		Qstd Slope -> 2.10977 Qstd Intercept -> -0.03782 Expiry Date-> 15-Dec-23
					C	CALIB	RATION	
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)		[art)	IC corrected	LINEAR REGRESSION
18 13 10 8 5	6 4.9 3.9 2.4	6 4.9 3.9 2.4	12.0 9.8 7.8 4.8	1.683 1.523 1.361 1.071	5 4 4 3	55 55.79 48 48.69 44 44.63 36 36.52		Slope = 31.4802 Intercept = 1.9499 Corr. coeff. = 0.9967
51.51.53.00.85128Calculations :Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]Qstd = standard flow rateIC = corrected chart responesI = actual chart responsem = calibrator Qstd slopeb = calibrator Qstd slopeb = calibrator Qstd interceptTa = actual temperature during calibration (deg K)Pstd = actual pressure during calibration (mm Hg)For subsequent calculation of sampler flow:1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)m = sampler slopeb = sampler interceptI = chart response						00 90 90 90 90 90 90 90 90 90 90 90 90 9	.00 .00 .00 .00 .00 .00 .00 .00 .00	FLOW RATE CHART
Tav = dail Pav = dail						<u> </u>		



RECALIBRATION DUE DATE:

December 15, 2023

nmental Certificate of Calibration

- 1 -			Calibration					°K	
Cal. Date:	December 15, 2022 Rootsm			meter S/N:	438320	Ta:	Ta: 295		
Operator:	Jim Tisch					Pa:	748.0	mm Hg	1
Calibration	Model #:	TE-5025A	Calil	brator S/N:	4064				1
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	1	Ň
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)		
	1	1	2	1	1.4430	3.2	2.00		
	2	3	4	1	1.0210	6.4	4.00	1	
	3	5	6	1	0.9170	7.9	5.00		
	4	7	8	1	0.8730	8.8	5.50	1	
	5	9	10	1	0.7210	12.8	8.00]	
				Data Tabula	tion		<i>†</i>	1	
				V/ Total V				1	
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	r)(<u>⊺std</u>) ∏(⊤Ta)		Qa	√∆H(Ta/Pa)		
	(m3)	(x-axis)	(y-axis)		Va	(x-axis)	(y-axis)		
	0.9900	0.6861	1.4101		0.9957	0.6900	0.8881	-	
	0.9858	0.9655	1.9943		0.9914	0.9711	1.2560	-	
	0.9838	1.0728	2.2296		0.9894	1.0790	1.4042	-	
	0.9826	1.1255	2.3385		0.9882	1.1320	1.4728	-	
	0.9772	1.3554	2.82		0.9829	1.3632	1.7762	-	
	OCTD	m= b=	-0.03	and in some state of the second state of the s	04	m= b=	1.32110	-	
	QSTD	r=	0.999		QA	r=	0.99998	-	
				Calculatio	ns			1	
	Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/T		Va= ΔVol((Pa-ΔP)/Pa)				
	Qstd=	Vstd/∆Time			Qa=	Va/∆Time		1	
			For subsequ	uent flow ra	te calculatio]			
	Qstd=	Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)$ -			$Qa= 1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$				
	Standard	Conditions						_	
Tstd						RECA	LIBRATION		
Pstd		mm Hg			LIS EPA rock	ommende o	nnual recalibrati	on por 1	000
AH: calibrat		Key ter reading (i	n H2O)				Regulations Part	-	
		eter reading					, Reference Met		
		perature (°K)					ended Particulat		
		ressure (mm			1	-	ere, 9.2.17, page		
b: intercept	t					e / terrospin	, J.2.17, page		
m: slope									

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

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER HK2307089
CLIENT	ACTION-UNITED ENVIRONMENTAL	
	SERVICES & CONSULTING	
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41	SUB-BATCH : 1
	TAI LIN PAI ROAD, KWAI CHUNG, N.T.	DATE RECEIVED : 20-FEB-2023
		DATE OF ISSUE : 27-FEB-2023
PROJECT	:	NO. OF SAMPLES : 1
		CLIENT ORDER

General Comments

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the • item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	Position	
Kirland Jong .		
Richard Fung	Managing Director	

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release. ALS Technichem (HK) Pty Ltd

Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Kwai Tsing Hong Kong

WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2307089

: 1 : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING :



ALS Lab **Client's Sample ID** Sample Sample Date External Lab Report No. ID Туре HK2307089-001 AIR 20-Feb-2023 S/N: 366410 S/N: 366410

Equipment Verification Report (TSP)

Equipment Calibrated:

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	366410
Equipment Ref:	EQ110

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018 & HVS 019
Last Calibration Date:	14 December 2022 & 10 January 2023

Equipment Verification Results:

Verification Date:

10, 11 &12 January 2023

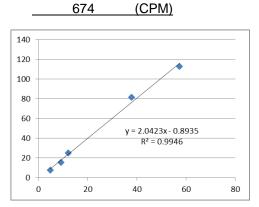
Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
10-Jan-23	2hr1min	14:41 ~ 16:42	18.2	1018.8	7.6	584	4.8
11-Jan-23	2hr01min	13:16 ~ 15:17	18.1	1017.6	25.2	1470	12.2
11-Jan-23	2hr01min	15:25 ~ 17:26	18.1	1017.6	15.8	1103	9.1
12-Jan-23*	61mins	09:31 ~ 10:32	18.8	1014.5	112.8	3507	57.3
12-Jan-23*	61mins	10:36 ~ 11:37	18.8	1014.5	81.5	2311	37.8

(*) Suspended particle was added into calibration room of HVS019 for high concentration test.

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration) 674 (CPM)

Linear Regression of Y or X

Slope (K-factor):2.0423 (µg/m³)/CPMCorrelation Coefficient (R)0.9973Date of Issue13 February 2023



Remarks:

1. **Strong** Correlation (R>0.8)

2. Factor 2.0423 (µg/m³)/CPM should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	Signature :	Ja	Date :	13 February 2023
QC Reviewer :	Ben Tam	Signature :		Date :	13 February 2023

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope	Location : Gold King Industrial Building, Ky Location ID : Calibration Room(HVS 018)	wai Chung Date of Calibration: 14-De Next Calibration Date: 14-Ma		
Temperature (°C) 12.5 Temperature (K) 286 CALIBRATION ORIFICE Make-> Model-> TISCH 5025A 27-Dec-21 Qstd Slope -> Qstd Intercept -> 27-Dec-22 1.99838 4.000903 27-Dec-22 CALIBRATION ORIFICE Temperature (K) 286 Plate H20 (D) H20 (R H20 Qstd I IC LINEAR No. (in) (in) (in) (m3/min) (chart) corrected REGRESSION REGRESSION Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 Calculations : (Std = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Graduat flow rate IC = corrected chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope for the calibration (deg K) Pstd = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (deg K) Im = sampler slope FLOW RATE CHART		CONDITIO	NS	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				
Model-> 5025A Qstd Intercept -> 0.00903 27-Dec-21 Expiry Date-> 27 -Dec-22 CALIBRATION INTERCENTION CALIBRATION CALIBRATION CALIBRATION CALIBRATION INTERCENT COLSPACE Calculations : Calculations : Qstd = standard flow rate IC = corrected chart response I = actual temperature during calibration (deg K) Possubsequent calculation of sampler flow: I/m(I) [Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope<	CALIE	BRATION	ORIFICE	E
Plate H20 (L)H2O (R) H20 Qstd I IC LINEAR No. (in) (in) (in) (m3/min) (chart) corrected REGRESSION 18 6 6 12.0 1.783 54 55.39 Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 28 28 28.72 28 28.72 28 28.72 Calculations : Qstd = standard flow rate IC = corrected chart respones I	Model-> 502	25A		Qstd Intercept -> -0.00903
No. (in) (in) (m ² /min) (chart) corrected REGRESSION 18 6 6 12.0 1.783 54 55.39 Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 5 1.5 1.5 3.0 0.894 28 28.72 Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] 60.00 60.0	C	CALIBRAT	ION	
18 6 6 12.0 1.783 54 55.39 Slope = 29.6312 13 4.8 4.8 9.6 1.595 48 49.23 Intercept = 2.5287 10 3.8 3.8 7.6 1.420 44 45.13 Corr. coeff. = 0.9991 8 2.5 2.5 5.0 1.152 36 36.93 Corr. coeff. = 0.9991 9 5 1.5 1.5 3.0 0.894 28 28.72 Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] 60.00 60.00 60.00 12 actual chart response 60.00 50.00 50.00 50.00 13 actual chart response 60.00 50.00 </td <td></td> <td></td> <td></td> <td></td>				
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart response I = actual chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope	18 6 6 12.0 1.783 5.7 13 4.8 4.8 9.6 1.595 4 10 3.8 3.8 7.6 1.420 4 8 2.5 2.5 5.0 1.152 3	8 49 4 4 <u>4</u> 6 30	9.23 5.13 6.93	Intercept = 2.5287
b = sampler intercept $I = chart response$ $0.00 + + + + + + + + + + + + + + + + + +$	Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept	- 00.05 - 00.05 - 00.05 - 00.02 - 00.01 - 00.01		



RECALIBRATION DUE DATE:

December 27, 2022

	Ce	rtifa	Calibration				ntion	
Cal. Date:	December	27 2021		meter S/N:		annan an ann an Adres An Inne Aigeine Inne Station	295	°K
		27, 2021	ROOLS	meter 5/14.	436320			
Operator:	Jim Tisch					Pa:	740.4	mm Hg
Calibration	Model #:	TE-5025A	Cali	1612				
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.3890	3.2	2.00	
	2	3	4	1	0.9760	6.4	4.00	
	3	5	6	1	0.8740	7.9	5.00	
	4	7	8	1	0.8320	8.8	5.50	
	5 9 10		10	1	0.6870	12.7	8.00	
				Data Tabula	tion			
	Vstd Qstd $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right)}$)(Tstd)		Qa	√∆H(Ta/Pa)	
	(m3)	(x-axis)	y (y-ax		Va	(x-axis)	(y-axis)	
	0.9799	0.7055	1.40	1	0.9957	0.7168	0.8927	
	0.9756	0.9996		1.9841		1.0157	1.2624	
	0.9736	1.1140		2.2183		1.1320	1.4114	
	0.9724	1.1688	2.32	65	0.9881	1.1876	1.4803	
	0.9673	1.4079	2.80	1	0.9828	1.4306	1.7853 1.25135	
		m=	1.998	and a second		m=		
	QSTD	b=	-0.00		QA	b=		
		r=	0.999	999		r=	0.99999	
			(m	Calculation				
		ΔVol((Pa-ΔP) Vstd/ΔTime	/Pstd)(Tstd/T	a)	Conception of the local division of the loca	ΔVol((Pa-Δ Va/ΔTime	P)/Pa)	
	Q3tu-	vstu/Anne	For subsequ	lent flow ra	te calculation			
	Qstd=	1/m ((\\ \ \ \ \ \ \ \ \ \ \ \ \ (Pa <u>Tstd</u> Pstd Ta	The second s		1/m ((√∆H	l(Ta/Pa))-b)	
		Conditions						I
Tstd:	298.15	°K		Ι		RECA	LIBRATION	
Pstd:	Contraction of the second seco	mm Hg			LIS EPA reco	mmende	onual recalibratio	n ner 1000
AH: calibrat		(ey ter reading (i	n H2O)		US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51,			
		eter reading			Appendix B to Part 50, Reference Method for the			
Ta: actual al	osolute tem	perature (°K)					ended Particulate	
		ressure (mm	Hg)				ere, 9.2.17, page 3	
b: intercept				l			,	
m: slope								

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

<u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9005

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Location I	D :		-	strial Buildi m(HVS 019		wai Cł	nung	Date of Calibration: 10-Jan-23 Next Calibration Date: 9-Apr-23		
						COND	ITIONS			
	Se	a Level I Temp	Pressure erature	. ,	1	018.8 18.2		Corrected Pressure (mm Hg) 764.1 Temperature (K) 291		
					CALI	BRATI	ON ORIFIC	CE		
			Calibrat	Make-> Model-> ion Date->		25A		Qstd Slope -> 2.10977 Qstd Intercept -> -0.03782 Expiry Date-> 15-Dec-23		
					C	CALIB	RATION			
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)		[art)	IC corrected	LINEAR REGRESSION		
18 13 10 8 5	6 4.9 3.9 2.4 1.5	6 4.9 3.9 2.4 1.5	12.0 9.8 7.8 4.8 3.0	1.683 1.523 1.361 1.071 0.851	5 4 4	5 55.79 8 48.69 4 44.63 6 36.52		Slope = 31.4802 Intercept = 1.9499 Corr. coeff. = 0.9967		
Pstd = actu For subse 1/m((I)[S m = sampl b = sampl I = chart re	n[Sqrt(H t(Pa/Pstc ndard flo cted cha chart res ator Qstd tor Qstd l temper ual press quent ca cqrt(298/ er slope er interc esponse	d)(Tstd/T ow rate rt respon ponse d slope intercep ature durin ure durin alculation Tav)(Pav	a)] es t ting cali g calibr n of san t/760)]-t	bration (de ation (mm apler flow:		00 905 905 905 905 901 901 901	0.00 0.00 0.00 0.00 0.00 0.000	FLOW RATE CHART		
Tav = dail Pav = dail						<u> </u>				



RECALIBRATION DUE DATE:

December 15, 2023

nmental Certificate of Calibration

- 1 -			Calibration					017	*approximation
Cal. Date:	December	15, 2022	Roots	meter S/N:	438320	Ta:	295	°K	
Operator:	Jim Tisch					Pa:	748.0	mm Hg	1
Calibration	Model #:	TE-5025A	Calil	prator S/N:	4064				1
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	1	×
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)		
	1	1	2	1	1.4430	3.2	2.00		
	2	3	4	1	1.0210	6.4	4.00	1	
	3	5	6	1	0.9170	7.9	5.00		
	4	7	8	1	0.8730	8.8	5.50	1	
	5	9	10	1	0.7210	12.8	8.00]	
	-			Data Tabula	tion)'	1	
				V Total V				1	
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(<u>Tstd</u>)		Qa	√∆H(Ta/Pa)		
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)		
	0.9900	0.6861	1.41	01	0.9957	0.6900	0.8881	.]	
	0.9858	0.9655	1.99		0.9914	0.9711	1.2560	-	
	0.9838	1.0728	2.22		0.9894	1.0790	1.4042	-	
	0.9826	1.1255	2.33		0.9882	1.1320	1.4728	-	
	0.9772	1.3554	2.82		0.9829	1.3632	1.7762	-	
	OCTD	m= b=	-0.03	All source into party or construction of the second	0.4	m= b=	1.32110	-	
	QSTD	r=	0.999		QA	r=	0.99998	-	
			ana da kana da	Calculatio	ns			ī	
	Vstd=	ΔVol((Pa-ΔP)	/Pstd)(Tstd/T		procession of the second se	ΔVol((Pa-Δ	P)/Pa)	1	
	Qstd=	Vstd/∆Time			the second se	Va/∆Time		1	
			For subsequ	ent flow ra	te calculatio	ns:]	
	Qstd=	1/m ((√∆H(Pa Pstd Tstd	-))-b)	Qa=	1/m ((√∆ł	H(Ta/Pa))-b)		
	Standard	Conditions						_	
Tstd						RECA	LIBRATION		
Pstd		mm Hg			LIS EDA rocc	ommende o	nnual rocalibrati	on por 1	202
AH. calibrat		(ey ter reading (i	n H2O)		US EPA recommends annual recalibration per 1998				
		eter reading (i			40 Code of Federal Regulations Part 50 to 51,				
		perature (°K)			Appendix B to Part 50, Reference Method for the				
		ressure (mm			Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30				
b: intercept	t				u u	слатоэри		50	
m: slope									

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



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C226777 證書編號

ITEM TESTED / 送檢环	頁目	(Job No. / 序引編號:IC22-2282)	Date of Receipt / 收件日期: 8 November 2022
Description / 儀器名稱	:	Sound Level Meter (EQ013)	
Manufacturer / 製造商	:	Rion	
Model No. / 型號	:	NL-52	
Serial No. / 編號	:	00921191	
Supplied By / 委託者	:	Action-United Environmental Services a	and Consulting
		Unit A, 20/F., Gold King Industrial Buil	ding,
		35-41 Tai Lin Pai Road, Kwai Chung, N	I.T.
TEST CONDITIONS /) 비나구너	ht III-	

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 19 November 2022

TEST RESULTS / 測試結果

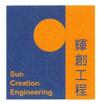
The results apply to the particular unit-under-test only. The results do not exceed manufacturer's specification. The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試	:H T Wong Assistant Engineer		
Certified By 核證	: KCLee Engineer	Date of Issue : 簽發日期	21 November 2022

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C226777 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- 2. Self-calibration was performed before the test.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

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

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

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

6.1.2 Linearity

	UU	Γ Setting		Applie	d Value	UUT
Range	Function	Frequency	Time	Level	Freq.	Reading
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)
30 - 130	130 L _A A		Fast	94.00 1		93.8 (Ref.)
				104.00		103.9
				114.00		113.9

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

6.2 Time Weighting

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C226777 證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

		Setting		Appl	ied Value	UUT	IEC 61672
Range	Function	Frequency	Time	Level	Freq.	Reading	Class 1 Spec.
(dB)		Weighting	Weighting	(dB)		(dB)	(dB)
30 - 130	L _A	А	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.6	-16.1 ± 1.5
					250 Hz	85.1	-8.6 ± 1.4
					500 Hz	90.5	-3.2 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	95.0	$+1.2 \pm 1.6$
					4 kHz	94.8	$+1.0 \pm 1.6$
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					16 kHz	85.8	-6.6 (+3.5 ; -17.0)

6.3.2 <u>C-Weighting</u>

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Certificate of Calibration 校正證書

Certificate No. : C226777 證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 12910

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :	94 dB :	63 Hz - 125 Hz 250 Hz - 500 Hz	
		1 kHz	$\pm 0.20 \text{ dB}$
		2 kHz - 4 kHz	$\pm 0.35 \text{ dB}$
		8 kHz	$\pm 0.45 \text{ dB}$
		16 kHz	$\pm 0.70 \text{ dB}$
	104 dB :	1 kHz	: ± 0.10 dB (Ref. 94 dB)
	114 dB :	1 kHz	: \pm 0.10 dB (Ref. 94 dB)

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

Note :

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

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C226779 證書編號

ITEM TESTED / 送檢項	目	(Job No. / 序引編號:IC22-2282)	Date of Receipt / 收件日期: 8 November 2022
Description / 儀器名稱 :		Sound Level Meter (EQ015)	
Manufacturer / 製造商 :		Rion	
Model No. / 型號 :		NL-52	
Serial No. / 編號 :		00142581	
Supplied By / 委託者 :		Action-United Environmental Services a	nd Consulting
		Unit A, 20/F., Gold King Industrial Buil	ding,
		35-41 Tai Lin Pai Road, Kwai Chung, N	Г.Т.

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 19 November 2022

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試

H T Wong

Assistant Engineer

Certified By 核證 K 🕻 Lee Engineer

Date of Issue 簽發日期 :

21 November 2022

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C226779 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- 2. Self-calibration was performed before the test.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

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

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

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

6.1.2 Linearity

	UU	Г Setting		Applie	d Value	UUT
Range	Function	Frequency	Time	Level	Freq.	Reading
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)
30 - 130	L _A	А	Fast	94.00	1	93.8 (Ref.)
				104.00		103.8
				114.00		113.7

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

6.2 Time Weighting

	UUT	Setting		Applie	d Value	UUT	IEC 61672
Range	Function	Frequency	Time	Level	Freq.	Reading	Class 1 Spec.
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)	(dB)
30 - 130	L _A	А	Fast	94.00	1	93.8	Ref.
			Slow			93.8	± 0.3

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C226779 證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

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

6.3.2 C-Weighting

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory. 本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



Certificate of Calibration 校正證書

Certificate No. : C226779 證書編號

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

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :	250 Hz - 50 1 kHz 2 kHz - 4 kH 8 kHz 16 kHz	$\begin{array}{llllllllllllllllllllllllllllllllllll$
		$\pm 0.70 \text{ dB}$
	104 dB : 1 kHz	$\pm 0.10 \text{ dB} (\text{Ref. 94 dB})$
	114 dB : 1 kHz	$\pm 0.10 \text{ dB} (\text{Ref. 94 dB})$

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

Note :

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

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory



Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C224779 證書編號

ITEM TESTED / 送檢功	頁目	(Job No. / 序引編號: IC22-1539)	Date of Receipt / 收件日期: 4 August 2022
Description / 儀器名稱	:	Sound Level Calibrator (EQ085)	
Manufacturer / 製造商	:	Rion	
Model No. / 型號	:	NC-73	
Serial No. / 編號	:	10655561	
Supplied By / 委託者	:	Action-United Environmental Services a	nd Consulting
		Unit A, 20/F., Gold King Industrial Build	ding,
		35-41 Tai Lin Pai Road, Kwai Chung, N	.т.
		55-41 Tai Lin Fai Koad, Kwai Chung, N	.1.

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 August 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

The results do not exceed manufacturer's specification & user's specified acceptance criteria.

The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

1

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試	: H T Wong Assistant Engineer			
Certified By 核證	: K C Lee Engineer	Date of Issue 簽發日期	:	23 August 2022

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



Certificate of Calibration 校正證書

Certificate No. : C224779 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- 2. The results presented are the mean of 3 measurements at each calibration point.
- 3. Test equipment :

Equipment ID CL130 CL281 TST150A

Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C223647 AV210017 C221750

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

UUT	Measured Value	Mfr's Spec.	Uncertainty of Measured Value
Nominal Value	(dB)	(dB)	(dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

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

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

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

Note :

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

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



ALS Technichem (HK) Pty Ltd 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong **T:** +852 2610 1044 **F:** +852 2610 2021 www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: CLIENT:	MR BEN TAM ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING	WORK ORDER:	HK2312949
ADDRESS:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD,	SUB-BATCH: LABORATORY:	0 HONG KONG
	KWAI CHUNG, N.T.	DATE RECEIVED: DATE OF ISSUE:	04-Apr-2023 18-Apr-2023

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the

laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type:	Multifunctional Meter
Service Nature:	Performance Check
Scope:	Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Brand Name/ Model No.:	[YSI]/ [Professional DSS]
Serial No./ Equipment No.:	[17B102764/17B100758]/ [EQW019]
Date of Calibration:	18-April-2023

GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Ms. Lin Wai Yu, Iris Assistant Manager - Inorganics

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WORK ORDER:	HK2312949		
SUB-BATCH: DATE OF ISSUE: CLIENT:	0 18-Apr-2023 ACTION-UNITED ENVIRONMEN	NTAL SERVICES & CONSULTING	
Equipment Type:	Multifunctional Meter		
Brand Name/ Model No.:	[YSI]/ [Professional DSS]		
Serial No./ Equipment No.:	[17B102764/17B100758]/[EQV	V019]	
Date of Calibration:	18-April-2023	Date of Next Calibration:	18-July-2023

PARAMETERS:

Conductivity

Method Ref: APHA (23rd edition), 2510B

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	155.6	+5.9
6667	7056	+5.8
12890	13643	+5.8
58670	57773	-1.5
	Tolerance Limit (%)	±10.0

Dissolved Oxygen

Method Ref: APHA (23rd edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.65	2.71	+0.06
5.61	5.59	-0.02
7.08	7.05	-0.03
	Tolerance Limit (mg/L)	±0.20

pH Value

Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)	
4.0	3.86	-0.14	
7.0	6.97	-0.03	
10.0	10.07	+0.07	
	Tolerance Limit (pH unit)	±0.20	

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris Assistant Manager - Inorganics



WORK ORDER:	HK2312949		
SUB-BATCH: DATE OF ISSUE: CLIENT:	0 18-Apr-2023 ACTION-UNITED ENVIRONMEI	NTAL SERVICES & CONSULTING	
Equipment Type:	Multifunctional Meter		
Brand Name/ Model No.:	[YSI]/ [Professional DSS]		
Serial No./ Equipment No.:	[17B102764/17B100758]/ [EQV	V019]	
Date of Calibration:	18-April-2023	Date of Next Calibration:	18-July-2023

PARAMETERS:

Turbidity

Method Ref: APHA (23rd edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	-0.04	
4	4.22	+5.5
40	39.62	-1.0
80	75.70	-5.4
400	397.80	-0.5
800	736.18	-8.0
	Tolerance Limit (%)	±10.0

Salinity

Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	10.43	+4.3
20	21.18	+5.9
30	32.17	+7.2
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris Assistant Manager - Inorganics



WORK ORDER:	HK2312949		
SUB-BATCH: DATE OF ISSUE: CLIENT:	0 18-Apr-2023 ACTION-UNITED ENVIRONMEN	TAL SERVICES & CONSULTING	
Equipment Type:	Multifunctional Meter		
Brand Name/ Model No.:	[YSI]/ [Professional DSS]		
Serial No./ Equipment No.:	[17B102764/17B100758]/ [EQW	019]	
Date of Calibration:	18-April-2023	Date of Next Calibration:	18-July-2023

PARAMETERS:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
6.5	7.2	+0.7
24.5	23.9	-0.6
44.0	43.4	-0.6
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris Assistant Manager - Inorganics



ALS Technichem (HK) Pty Ltd

11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong **T:** +852 2610 1044 **F:** +852 2610 2021 www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM
CLIENT:	ACTION UNITED ENVIRONMENT SERVICES AND
	CONSULTING
ADDRESS:	UNIT A ,20/F., GOLD KING INDUSTRIAL BUILDING,
	NO. 35-41 TAI LIN PAI ROAD,
	KWAI CHUNG, N.T. HONG KONG

WORK ORDER: HK2318969

SUB-BATCH:	0
LABORATORY:	HONG KONG
DATE RECEIVED:	15-May-2023
DATE OF ISSUE:	22-May-2023

<u>COMMENTS</u>

The calibration of flow rate performed by AUES staff on 02 May 2023.

Scope of Test:	Flow rate
Equipment Type:	Flow Meter
Brand Name:	Global Water
Model No.:	FP211
Serial No.:	22B106785
Equipment No.:	
Calibration Factor:	318
Date of Calibration:	02 May, 2023

<u>NOTES</u>

This report superseded any previous report(s) with same work order number.

Mr. Fung Lim Chee, Richard Managing Director Life Sciences Hong Kong

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Page 1 of 2



Work Order:	HK2318969
Sub-batch:	0
Date of Issue:	22-May-2023
Client:	ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Reference Equipment:

Model: SonTek IQ Standard Serial Number : IQ1217004

Equipment to be calibrated:

Equipment Type:	Flow Meter
Brand Name:	Global Water
Model No.: FP211	
Serial No.:	22B106785
Equipment No.:	
Calibration Factor:	318

Date of Calibration: 02 May, 2023

Parameters: The calibration of flow meter is verified with standard flow meter on site by AUES Staff.

Flow rate

Trial	Reading of Reference Equipment (m/s) SonTek IQ Standard Serial No: IQ1217004	Reading of Equipment to be calibrated (m/s) Global Water FP211
	Serial No: 10/12/7004	Serial No. 22B106785
1	0.10	0.1
2	0.21	0.2
3	0.39	0.4
4	0.79	0.8
5	1.01	1.0
6	1.09	1.1

Mr. Fung Lim Chee, Richard Managing Director, Life Sciences Hong Kong



Hong Kong Accreditation Service 香港認可處

Certificate of Accreditation

認可證書

This is to certify that 特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong 香港新界葵涌永業街1-3號忠信針織中心11樓

is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017 for performing specific laboratory activities as listed in the scope of accreditation within the test category of 獲香港認可處根據ISO/IEC 17025:2017認可 進行載於認可範圍內下述測試類別中的指定實驗所活動

Environmental Testing

環境測試

 This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and
the implementation of a management system relevant to laboratory operation
(see joint IAF-ILAC-ISO Communiqué).

 此項 ISO/IEC 17025:2017 的認可資格證明此實驗所具備指定範疇內所須的技術能力並
實施一套與實驗所運作相關的管理體系
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of HKAS is affixed hereto by the authority of the HKAS Executive 現經香港認可處執行機關授權在此蓋上香港認可處的印章



Date of First Registration : 15 September 1995 首次註冊日期:一九九五年九月十五日

SHUM Wai-leung, Executive Administrator 執行幹事 沈偉良 Issue Date : 28 February 2020 簽發日期 : 二零二零年二月二十八日

Registration Number : HOKLAS 066 註冊號碼:

L001934



CALIBRATION CERTIFICATES FOR MONITORING EQUIPMENT USED IN THE REPORTING MONTH

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1a		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-1	20 May 2023	3 Jun 2023
1b		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-1	7 Jun 2023	21 Jun 2023
1c		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-1	23 Jun 2023	7 Jul 2023
2a		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-2	20 May 2023	3 Jun 2023
2b		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-2	7 Jun 2023	21 Jun 2023
2c	Air	TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-2	23 Jun 2023	7 Jul 2023
3a	7 111	TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-3a	20 May 2023	3 Jun 2023
3b		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-3a	7 Jun 2023	21 Jun 2023
3c		TISCH High Volume Air Sampler, HVS Model TE-5170 TSP Sampler Calibration Spreadsheet for ASR-3a	23 Jun 2023	7 Jul 2023
4		Calibration Kit TISCH Model TE-5025A Orifice ID 4064 and Rootsmeter S/N 438320	15 Dec 22	15 Dec 23
5		Laser Dust Monitor, Model LD-3B (Serial No. 366407) – EQ107	13 Feb 23	13 Feb 24
6		Laser Dust Monitor, Model LD-3B (Serial No. 366418) – EQ108	13 Feb 23	13 Feb 24
7		Laser Dust Monitor, Model LD-3B (Serial No. 366410) – EQ110	13 Feb 23	13 Feb 24
9		Rion NL-52 Sound Level Meter (Serial No. 00921191) – EQ013	19 Nov 22	19 Nov 23
10	Noise	Rion NL-52 Sound Level Meter (Serial No. 00142581) – EQ015	19 Nov 22	19 Nov 23
11		Rion NC-73 Acoustical Calibrator (Serial No. 10655561) – EQ085	20 Aug 22	20 Aug 23
12		YSI Professional DSS (Serial No.17B102764)	18 Apr 23	18 Jul 23
13	Water	Global Water FP211 Flow Meter (Serial No. 22B106785)	2 May 23	2 May 24



Appendix F

Event and Action Plan of Air Quality, Noise and Water Quality

Event and Action Plan for air quality

E-con4		Action			
Event	ET	IEC	ER	Contractor	
Action level exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. 	 Check monitoring data submitted by ET; Check Contractor's working method. 	1. Notify Contractor	 Rectify any unacceptable practice; Amend working methods if appropriate. 	
Action level exceedance for two or more consecutive samples	 Identify source; Inform IEC and ER; Advise the ER on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and ER; If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Submit proposals for remedial to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 	
Limit level exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 	
Limit level exceedance for two or more consecutive samples	 Notify IEC, ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	 Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; 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. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated. 	

Note: ET – *Environmental Team IEC* – *Independent Environmental Checker ER* – *Engineer's Representative*

Event and Action Plan for Construction Noise

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker ER – Engineer's Representative

Event and Action Plan for Water Quality

F 4			Action	
Event	ET	IEC	ER	Contractor
Action level exceedance for one sampling day	 Inform IEC, Contractor and ER; Check monitoring data, all plant, equipment and Contractor's working methods; and Discuss remedial measures with IEC and Contractor and ER. 	 Discuss with ET, ER and Contractor on the implemented mitigation measures; Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and Review and advise the ET and ER on the effectiveness of the implemented mitigation measures. 	 Discuss with IEC, ET and Contractor on the implemented mitigation measures; Make agreement on the remedial measures to be implemented; Supervise the implementation of agreed remedial measures. 	 Identify source(s) of impact; Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ER, ET and IEC and purpose remedial measures to IEC and ER; and Implement the agreed mitigation measures.
Action level exceedance for more than one consecutive sampling days	 Repeat in-situ measurement on next day of exceedance to confirm findings; Inform IEC, contractor and ER; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss remedial measures with IEC, contractor and ER Ensure remedial measures are implemented 	 Discuss with ET, Contractor and ER on the implemented mitigation measures; Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and Review and advise the ET and ER on the effectiveness of the implemented mitigation measures. 	 Discuss with ET, IEC and Contractor on the proposed mitigation measures; Make agreement on the remedial measures to be implemented ; and Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures. 	 Identify source(s) of impact; Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Discuss with ET, IEC and ER and submit proposal of remedial measures to ER and IEC within 3 working days of notification; and Implement the agreed mitigation measures.
Limit level exceedance for one sampling day	 Repeat measurement on next day of exceedance to confirm findings; Inform IEC, contractor and ER; Rectify unacceptable practice; Check monitoring data, all plant, equipment and Contractor's working methods; Consider changes of working methods; Discuss mitigation measures with IEC, ER and Contractor; and Ensure the agreed remedial measures are implemented 	 Discuss with ET, Contractor and ER on the implemented mitigation measures; Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and Review and advise the ET and ER on the effectiveness of the implemented mitigation measures. 	 Discuss with ET, IEC and Contractor on the implemented remedial measures; Request Contractor to critically review the working methods; Make agreement on the remedial measures to be implemented; and Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures. 	 Identify source(s) of impact; Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; and Implement the agreed remedial measures.
Limit level exceedance for more than one consecutive sampling days	 Inform IEC, contractor and ER; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; and Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days 	 Discuss with ET, Contractor and ER on the implemented mitigation measures; Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and Review and advise the ET and ER on the effectiveness of the implemented mitigation measures. 	 Discuss with ET, IEC and Contractor on the implemented remedial measures; Request Contractor to critically review the working methods; Make agreement on the remedial measures to be implemented; Discuss with ET and IEC on the effectiveness of the implemented mitigation measures; and Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level. 	 Identify source(s) of impact; Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; and Implement the agreed remedial measures; and As directed by the ER, to slow down or stop all or part of the construction activities until no exceedance of Limit level.

Note: ET - Environmental Team IEC - Independent Environmental Checker ER - Engineer's Representative Each step of actions required shall be implemented within 1 working day unless otherwise specified or agreed with EPD.



Appendix G

Monitoring Schedules of the Reporting Month and Coming Month



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

Impact Monitoring Schedule of Air Quality, Noise and Water Quality – June 2023

✓	Monitoring Day
	Sunday or Public Holiday



Impact Monitoring Schedule of Air Quality, Noise and Water Quality – July 2023

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

✓	Monitoring Day
	Sunday or Public Holiday



Appendix H

Monitoring Data

- 24-hour TSP Air Quality
- Noise
- Water Quality



Air Quality (24-hour TSP)



						24-H	our TSI	P Monitor	ring Data f	or ASR-1					
DATE	SAMPLE NUMBER		APSED TI	ME	CHAI	RT REA	DING	AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER V (g		DUST WEIGHT COLLECTED	24-Hr TSP (μg/m ³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m ³ /min)	(std m ³)	INITIAL	FINAL	(g)	~ _ /
2 Jun 23	29530	27142.71	27166.71	1440.00	42	42	42.0	30.7	1004.8	1.38	1988	2.7800	2.8922	0.1122	56
8 Jun 23	29545	27166.71	27190.71	1440.00	42	42	42.0	29.4	1007.1	1.37	1973	2.7900	3.1428	0.3528	179
14 Jun 23	29393	27190.71	27214.71	1440.00	40	40	40.0	27.7	1004.9	1.31	1893	2.7186	2.7757	0.0571	30
19 Jun 23	29458	27214.71	27238.71	1440.00	40	40	40.0	29.1	1007.5	1.31	1891	2.7664	2.7878	0.0214	11
24 Jun 23	29478	27238.71	27262.71	1440.00	40	40	40.0	29.1	1007.1	1.29	1856	2.7029	2.7495	0.0466	25
29 Jun 23	29546	27262.71	27286.71	1440.00	40	40	40.0	29.5	1006.9	1.29	1855	2.7835	2.8200	0.0365	20

						24-Ho	ur TSP	Monitori	ng Data fo	r ASR-2					
DATE	SAMPLE NUMBER		APSED TIN	ИE	CHAI	RT REA	DING	AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER V (g	r)	DUST WEIGHT COLLECTED	24-Hr TSP (µg/m ³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m ³ /min)	(std m ³)	INITIAL	FINAL	(g)	
2 Jun 23	29531	24559.36	24583.36	1440.00	41	41	41.0	30.7	1004.8	1.34	1934	2.7775	2.9118	0.1343	69
8 Jun 23	29544	24583.36	24607.36	1440.00	41	41	41.0	29.4	1007.1	1.25	1803	2.7800	2.8727	0.0927	51
14 Jun 23	29394	24607.36	24631.36	1440.00	41	41	41.0	27.7	1004.9	1.25	1806	2.7197	2.7866	0.0669	37
19 Jun 23	29459	24631.36	24655.36	1440.00	41	41	41.0	29.1	1007.5	1.25	1804	2.7464	2.7934	0.0470	26
24 Jun 23	29477	24655.36	24679.36	1440.00	41	41	41.0	29.1	1007.1	1.28	1840	2.7031	2.7566	0.0535	29
29 Jun 23	29548	24679.36	24703.36	1440.00	40	40	40.0	29.5	1006.9	1.25	1796	2.7982	2.8203	0.0221	12

						24-Ho	our TSP	Monitor	ing Data fo	or ASR-3a					
DATE	SAMPLE NUMBER		APSED TI	ME	CHAI	RT REA	DING	AVG TEMP	AVG AIR PRESS		AIR VOLUME	FILTER V (g		DUST WEIGHT COLLECTED	24-Hr TSP (μg/m ³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m ³ /min)	(std m ³)	INITIAL	FINAL	(g)	
2 Jun 23	29532	18349.11	18373.11	1440.00	39	40	39.5	30.7	1004.8	1.26	1817	2.7889	2.8486	0.0597	33
8 Jun 23	29534	18373.11	18397.11	1440.00	39	40	39.5	29.4	1007.1	1.18	1706	2.7769	2.8960	0.1191	70
14 Jun 23	29454	18397.11	18421.11	1440.00	39	40	39.5	27.7	1004.9	1.19	1709	2.7516	2.7998	0.0482	28
19 Jun 23	29457	18421.11	18445.11	1440.00	39	40	39.5	29.1	1007.5	1.19	1707	2.7506	2.7913	0.0407	24
24 Jun 23	294799	18445.11	18469.11	1440.00	39	40	39.5	29.1	1007.1	1.18	1698	2.7058	2.8514	0.1456	86
29 Jun 23	29481	18469.11	18493.11	1440.00	40	40	40	29.5	1006.9	1.19	1718	2.7147	2.7622	0.0475	28



Noise

								Noise	Measu	rement	Results	(dB(A))	of CN-	1							
Date	Start Time	1 st Leq5min	L10	L90	2 nd Leq _{5min}	L10	L90	3 nd Leq _{5min}	L10	L90	4 th Leq _{5min}	L10	L90	5 th Leq _{5min}	L10	L90	6 th Leq _{5min}	L10	L90	Leq ₃₀ min	Façade Correction (*)
9 Jun 23	9:32	60.2	55.1	52.5	52.6	55.2	52.6	53.5	55.1	52.7	54.3	55.5	52.9	53.3	54.2	52.9	55.6	56.6	52.8	56	59
15 Jun 23	13:30	61.8	55.3	52.8	54.7	55.2	52.6	53.7	54.8	52.8	54.4	55.5	52.9	53.8	54.8	52.8	55.5	57.3	52.7	57	60
20 Jun 23	13:12	63.9	65.5	57.5	64.3	66.0	58.5	63.7	67.5	59.5	60.4	63.5	56.5	61.2	63.0	57.0	62.3	63.5	57.5	63	66
26 Jun 23	13:05	62.3	65.0	56.5	60.9	63.5	57.5	62.1	64.0	58.5	59.4	62.0	57.0	59.9	62.5	58.0	60.8	63.0	58.5	61	64

(*) A façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines.

								Noise	Measu	rement	Results ((dB (A))	of CN-2								
Date	Start Time	1 st Leq _{5min}	L10	L90	2 nd Leq _{5min}	L10	L90	3 nd Leq _{5min}	L10	L90	4 th Leq _{5min}	L10	L90	5 th Leq _{5min}	L10	L90	6 th Leq _{5min}	L10	L90	Leq ₃₀ min	Façade Correction (*)
9 Jun 23	13:06	63.4	62.0	52.7	60.1	62.3	51.7	60.5	64.0	53.0	56.8	61.2	51.7	66.2	62.8	51.9	60.5	64.1	50.9	62	65
15 Jun 23	14:04	65.5	62.5	53.2	61.7	63.6	52.8	60.7	64	53.1	57.7	61.7	51.7	64.4	63.3	50.9	60.8	64	50.8	63	66
20 Jun 23	13:50	54.8	65.0	52.5	55.7	63.0	52.0	56.5	63.5	52.0	54.2	60.5	50.0	55.4	60.0	50.5	56.8	62.0	52.0	56	59
26 Jun 23	13:41	60.3	64.5	54	58.6	63	53.5	58.4	64	55	56.8	61.5	52	58.3	62	52	60.3	62.5	55.5	59	62

(*) A façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines.

								Noise	Measu	rement	Results (dB(A))	of CN-3								
Date	Start Time	1 st Leq _{5min}	L10	L90	2 nd Leq _{5min}	L10	L90	3 nd Leq _{5min}	L10	L90	4 th Leq _{5min}	L10	L90	5 th Leq _{5min}	L10	L90	6 th Leq _{5min}	L10	L90	Leq ₃₀ min	Façade Correction (*)
9 Jun 23	10:40	53.8	57.2	47.5	52.2	57.3	46.3	53.5	57.5	46.2	50.6	54.3	45.6	52.3	56.0	46.3	53.0	56.8	47.2	53	56
15 Jun 23	14:38	53.3	56.5	47.7	52.2	56.9	46.2	53.1	57.1	45.5	50.9	54.2	45.6	52.3	56	46.5	53	56.8	46.9	53	56
20 Jun 23	14:27	58.6	62.5	55.0	59.3	63.0	55.0	59.6	63.5	56.0	63.2	65.0	59.0	61.8	63.5	58.5	59.7	62.0	55.5	61	64
26 Jun 23	14:18	55.4	57.5	48.5	56.5	58.5	49.5	52.3	55	50	56.8	60.5	53.5	54.2	58	48.5	57.4	60	54	56	59

(*) A façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines.

								Noise	Measu	rement	Results (dB(A))	of CN-4							
Date	Start Time	1 st Leq _{5min}	L10	L90	2 nd Leq _{5min}	L10	L90	3 nd Leq _{5min}	L10	L90	4 th Leq _{5min}	L10	L90	5 th Leq _{5min}	L10	L90	6 th Leq _{5min}	L10	L90	Leq _{30min}
9 Jun 23	11:16	63.3	65.3	62.2	64.3	66.6	62.1	63.3	63.8	62	63.5	65.2	62.1	63.7	64.8	62	63.6	65	61.7	64
15 Jun 23	15:12	62.5	65.3	61.8	64.2	67.1	62.0	63.3	63.7	62.0	63.6	65.8	62.1	63.8	64.4	62.0	63.5	65.5	61.7	64
20 Jun 23	15:09	60.8	64.5	56.5	59.6	64.5	56	58.7	63.5	55.5	60.7	65	57	61.6	64.5	57.5	62.2	66	58	61
26 Jun 23	14:57	61.5	65.0	60.0	61.2	64.0	55.5	59.8	62.5	56.5	61.6	65.0	58.0	62.2	65.0	58.0	60.9	65.5	59.0	61



Water Quality



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Water Quality Impact Monitoring Result for M1

2 Jun 23																	
Time	Depth (m)	Temp	0 (0C)	Flow V	elocity (m/s)	DO (1	mg/L)		(%)	Turbidi	ity (NTU)		Н	Salir	nity	SS(r	ng/L)
9:30	0.15	27.6 27.6	27.6	<0.1 <0.1	<0.1	7.15 7.14	7.15	95.3 95.2	95.3	6.17 6.09	6.1	7.76 7.76	7.8	0.05 0.05	0.05	8 7	7.5
5 Jun 23														_			
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)		mg/L)		(%)	Turbidi	ity (NTU)		H	Salir	nity	SS(r	ng/L)
10:05	0.14	28.6 28.6	28.6	<0.1 <0.1	<0.1	7.24 7.23	7.24	96.0 95.9	96.0	6.2 6.1	6.2	8.01 8.01	8.0	0.11 0.11	0.11	<u>8</u> 8	8.0
7 Jun 23																	
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)	DO (1	mg/L)	DO	(%)	Turbidi	ity (NTU)	р	Н	Salir	nity	SS(r	ng/L)
9:30	0.14	26.9 26.9	26.9	<0.1 <0.1	<0.1	7.16	7.15	95.5 95.2	95.4	6.67 6.68	6.7	7.93 7.93	7.9	0.11 0.11	0.11	<u>8</u> 7	7.5
9 Jun 23				_				-		-				-			
Time	Depth (m)	Тетр) (0C)		elocity (m/s)	,	mg/L)		(%)		ity (NTU)		Н	Salir	nity	SS(r	ng/L)
9:30	0.14	26.9 26.9	26.9	<0.1 <0.1	<0.1	7.28	7.27	96.2 95.8	96.0	2.014 2.08	2.0	7.52 7.52	7.5	0.06	0.06	<u>4</u> 5	4.5
12 Jun 23																	
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbidi	ity (NTU)	р	Н	Salir	nity	SS(r	ng/L)
9:30	0.13	27.7 27.7	27.7	<0.1 <0.1	<0.1	7.22	7.22	95.7 95.6	95.7	3.22 3.14	3.2	7.12	7.1	0.07 0.07	0.07	4 4	4.0
14 Jun 23																	
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)	DO (1	mg/L)	DO	(%)	Turbidi	ity (NTU)	р	Н	Salir	nity	SS(r	ng/L)
9:30	0.15	26.3 26.4	26.4	<0.1 <0.1	<0.1	7.23 7.22	7.23	93.5 93.4	93.5	6.88 6.89	6.9	7.15 7.14	7.1	0.07 0.07	0.07	8	8.0
16 Jun 23																	
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbidi	ity (NTU)	р	Н	Salir	nity	SS(r	ng/L)
10:35	0.15	26 26	26.0	<0.1 <0.1	<0.1	7.25	7.24	920 91.7	91.7	6.2 6.3	6.3	7.06	7.1	0.07 0.07	0.07	6	6.5



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Time	Depth (m)	Тетр) (oC)	Flow Ve	locity (m/s)	DO (1	mg/L)	DO	(%)	Turbidi	ity (NTU)	1	эΗ	Salinity	SS(mg/L)
0.20	0.15	26.3	26.3	< 0.1	<0.1	7.27	7.26	93.8	93.6	3.3	3.3	7.32	7.3	0.07 0.07	5	5.0
9:30	0.15	26.3	20.3	< 0.1	< 0.1	7.24	7.20	93.4	93.0	3.25	3.3	7.32	7.5	0.07	5	5.0
21 Jun 23																
Time	Depth (m)	Тетр) (0C)	Flow Ve	locity (m/s)	DO (1	mg/L)	DO	(%)	Turbidi	ity (NTU)	1	эΗ	Salinity	SS(mg/L)
9:45	0.14	27.5	27.5	< 0.1	< 0.1	7.01	7.01	92.3	92.3	3.44	3.4	7.74	7.7	0.07 0.07	4	3.5
9.45	0.14	27.5	21.5	< 0.1	<0.1	7	7.01	92.2	92.5	3.39	5.4	7.74	/./	0.07	3	5.5
23 Jun 23										-				-		
Time	Depth (m)	Тетр) (0C)	Flow Ve	locity (m/s)	DO (1	mg/L)	DO	(%)	Turbidi	ity (NTU)	I	эΗ	Salinity	SS(mg/L)
	0.15	27.8	27.8	< 0.1	< 0.1	7.14	7.14	96.2	96.2	3.3	3.3	7.49	7.5	0.07 0.07	4	3.5
10.15	0.15	27.8	27.8	< 0.1	<0.1	7.13	/.14	96.1	90.2	3.28	3.3	7.49	7.5	0.07	3	5.5
10:15																

Time	Depth (m)	Тетр	(0C)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbid	ity (NTU)	р	H	Sali	nity	SS(I	mg/L)
0.20	0.16	26.8	26.0	< 0.1	<0.1	7.3	7 27	95.0	94 7	6.5		7.60	76	0.08	0.00	4	4.0
9:30	0.16	26.8	26.8	< 0.1	<0.1	7.24	1.21	94.4	94./	6.66	0.0	7.60	/.6	0.08	0.08	4	4.0

28 Jun 23																	
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbid	ity (NTU)	р	Н	Sali	inity	SS(I	mg/L)
10.20	0.15	27.4	27.4	< 0.1	<0.1	7.06	7.07	94.3	94.3	6.99	()	7.72	77	0.08	0.09	7	7.0
10:20	0.15	27.4	27.4	< 0.1	< 0.1	7.07	7.07	94.3	94.5	6.89	0.9	7.72	1.1	0.08	0.08	7	7.0

30 Jun 23																	
Time	Depth (m)	Temp) (0C)	Flow V	elocity (m/s)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	p	Н	Sali	nity	SS(1	ng/L)
0.20	0.15	28.3	20.2	< 0.1	<0.1	7.17	7 17	96.0	05.0	5.06	5 1	7.56	7.6	0.07	0.07	4	4.5
9:30	0.15	28.3	28.3	< 0.1	<0.1	7.16	/.1/	95.8	95.9	5.17	3.1	7.56	/.0	0.07	0.07	5	4.5



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Water Quality Impact Monitoring Result for M2

Date	2 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	рН	Salinity	SS(mg/L)
M2	10:05	0.08	28.1 28.1 28.1	<u><0.1</u> <0.1	$\frac{7}{6.99}$ 7.00	<u>92.8</u> 92.8 92.8	<u>9.4</u> 9.5 9.5	7.37 7.4	$\begin{array}{c c} 0.1 \\ \hline 0.1 \end{array}$ 0.10	$\frac{11}{10}$ 10.5
Date	5 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(mg/L)
M2	10:45	0.08	28.9 28.9 28.9	<u><0.1</u> <0.1 <0.1	7.25 7.24 7.23 7.24	96.1 95.9 96.0	2.2 2.08 2.1	7.55 7.6 7.55 7.6	0.09 0.09 0.09	$\begin{array}{c c} 6 \\ \hline 7 \\ \hline 6.5 \\ \hline \end{array}$
Date	7 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pH	Salinity	SS(mg/L)
M2	10:05	0.08	<u>27.5</u> 27.5 27.5	$\frac{<0.1}{<0.1}$ <0.1		<u>97.7</u> 97.4 97.6	2.71 2.79 2.8	7.50 7.50 7.5	$\begin{array}{c} 0.09 \\ 0.09 \\ 0.09 \end{array} 0.09 $	$\frac{4}{3}$ 3.5
Date	9 Jun 23		· · ·			· · · ·	· · · · ·	· .		
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	рН	Salinity	SS(mg/L)
M2	10:10	0.08	27.5 27.5 27.5	<u><0.1</u> <0.1 <0.1	7.4 7.37 7.39	98.0 97.7 97.9	5.7 7.58 6.6	7.45 7.45 7.5	$ \begin{array}{c} 0.09 \\ 0.09 \end{array} 0.09 $	<u>5</u> 4 4.5
Date	12 Jun 23					-	-			
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	рН	Salinity	SS(mg/L)
M2	10:00	0.08	<u>28.2</u> 28.2 28.2	<u><0.1</u> <0.1 <0.1	7.32 7.31 7.32	<u>97.2</u> 97.1 97.2	<u>4.93</u> <u>4.9</u> 4.9	7.28 7.3	$ \begin{array}{c} 0.09 \\ 0.09 \end{array} 0.09 $	$\frac{4}{3}$ 3.5
Date	14 Jun 23					-	-			
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pH 7.13 7 1	Salinity	SS(mg/L)

Date	16 Jun 23																	
Location	Time	Depth (m)	Temp	(oC)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbid	lity (NTU)	р	Н	Sali	nity	SS(mg/L)
M2	10:55	0.09	26.1 26.1	26.1	<0.1 <0.1	<0.1	7.26 7.27	7.27	92.2 92.3	92.3	11.2 10.9	11.1	7.00	7.0	0.11 0.11	0.11	16 14	15.0



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Date	19 Jun 23																	
Location	Time	Depth (m)	Temp	(oC)	Flow V	elocity (m/s)	DO (I	ng/L)	DO	(%)	Turbid	ity (NTU)	р	Н	Sali	nity	SS(mg/L)
M2	10:15	0.09	26.7 26.7	26.7	<0.1 <0.1	<0.1	7.12 7.11	7.12	92.2 92.0	92.1	4.41 4.42	4.4	7.29 7.29	7.3	0.12 0.12	0.12	4 5	4.5

Date	21 Jun 23																	
Location	Time	Depth (m)	Тетр	(0C)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbid	lity (NTU)	р	Н	Sali	nity	SS(mg/L)
M2	10:30	0.08	28.5 28.5	28.5	<0.1 <0.1	<0.1	7.11 7.1	7.11	94.1 94.0	94.1	3.57 3.61	3.6	7.47 7.47	7.5	0.12 0.12	0.12	4	4.0

Date	23 Jun 23																	
Location	Time	Depth (m)	Temp	(oC)	Flow V	elocity (m/s)	DO (1	ng/L)	DO	(%)	Turbid	lity (NTU)	p	Н	Sali	nity	SS(mg/L)
M2	10:50	0.08	28 28	28.0	<0.1 <0.1	<0.1	6.88 6.87	6.88	93.7 93.7	93.7	6.32 6.26	6.3	7.42 7.42	7.4	0.12 0.12	0.12	4 4	4.0

Date	26 Jun 23																	
Location	Time	Depth (m)	Тетр	(oC)	Flow V	elocity (m/s)	DO (1	ng/L)	DO	(%)	Turbid	lity (NTU)	р	Н	Sali	nity	SS(mg/L)
M2	10:20	0.08	28.1 28.1	28.1	<0.1 <0.1	<0.1	6.83 6.79	6.81	89.0 88.6	88.8	21.3 21.5	21.4	7.46 7.46	7.5	0.07	0.07	26 25	25.5

Date	28 Jun 23																	
Location	Time	Depth (m)	Тетр	(0C)	Flow V	elocity (m/s)	DO (I	mg/L)	DO	(%)	Turbid	ity (NTU)	p	эΗ	Sali	nity	SS(mg/L)
M2	11:35	0.08	27.6 27.6	27.6	<0.1 <0.1	<0.1	6.79 6.78	6.79	89.7 89.6	89.7	18.4 18.8	18.6	7.61 7.61	7.6	0.1	0.10	26 25	25.5

Date	30 Jun 23																	
Location	Time	Depth (m)	Temp	(0C)	Flow V	elocity (m/s)	DO (r	ng/L)	DO	(%)	Turbid	ity (NTU)	р	Н	Sali	nity	SS(1	mg/L)
M2	10:11	0.08	29 29	29.0	<0.1 <0.1	#DIV/0!	7.08 7.02	7.05	92.7 92.1	92.4	17.5 16.9	17.2	7.24 7.24	7.2	0.05	0.05	21 23	22.0



Monthly Environmental Monitoring & Audit Report (No.59) - June 2023

Water Quality Impact Monitoring Result for M3

Date	2 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(mg/L)
M3	10:15	2.43	$\begin{array}{c c} 28 \\ \hline 28 \\ \hline 28 \\ \end{array} 28.0$	<u><0.1</u> <0.1 <0.1	6.57 6.56 6.57	87.4 87.3 87.4	<u>3.22</u> <u>3.26</u> 3.2	7.24 7.24 7.24	0.08 0.08 0.08	<u>3</u> <u>4</u> 3.5
Date	5 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pH	Salinity	SS(mg/L)
M3	10:55	2.39	$\begin{array}{c c} 28.5 \\ \hline 28.5 \\ \hline 28.5 \\ \end{array} 28.5$	<u><0.1</u> <0.1 <0.1	6.91 6.89 6.87 6.89	<u>92.1</u> 91.6 91.9	<u>4.2</u> <u>4.3</u> 4.3	7.21 7.21 7.2	0.03 0.03	$\frac{4}{3}$ 3.5
Date	7 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(mg/L)
M3	10:15	2.43	27.3 27.3 27.3	<u><0.1</u> <0.1 <0.1	6.55 6.52 6.54	87.5 8.7 48.1		7.48 7.48 7.5	0.03 0.03	$\frac{3}{4}$ 3.5
Date	9 Jun 23			•	-	•				
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(mg/L)
M3	10:20	2.41	27.6 27.6 27.6	<0.1 <0.1 <0.1	6.97 6.95 6.96	<u>95.0</u> 92.3 93.7	4.82 4.88 4.9	7.16 7.16 7.2	$\begin{array}{c c} 0.03 \\ \hline 0.03 \\ \hline 0.03 \\ \end{array} 0.03$	$\frac{4}{4}$ 4.0
			2770	011	0.70	72.0		,	0.00	
Date	12 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	рН	Salinity	SS(mg/L)
M3	10:10	2.40	$\begin{array}{c c} 28.1 \\ \hline 28.1 \\ \hline 28.1 \\ \end{array} 28.1$	<u><0.1</u> <0.1 <0.1	<u>6.77</u> <u>6.76</u> 6.77	89.6 89.5 89.6	<u>5.41</u> <u>5.38</u> 5.4	7.07 7.1	$\begin{array}{c c} 0.03 \\ \hline 0.03 \\ \hline \end{array} 0.03 \\ \end{array}$	$\frac{5}{4}$ 4.5
Date	14 Jun 23									
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(mg/L)
M3	10:10	2.43	$ \begin{array}{c c} 26.4 \\ 26.4 \end{array} $ 26.4	<u><0.1</u> <0.1 <0.1	7.32 7.32 7.31 7.32	<u>95.0</u> 94.9 95.0	$\begin{array}{c c} 4.3 \\ \hline 4.4 \end{array} \qquad 4.4 \end{array}$	7.15 7.2 7.15 7.2	0.02 0.02 0.02	$\frac{5}{5}$ 5.0
Date	16 Jun 23		· · ·							
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(mg/L)
M3	11:05	2.43	$\begin{array}{c c} 26 \\ \hline 26 \end{array} 26.0$	<u><0.1</u> <0.1 <0.1	7.12 7.12 7.11 7.12	90.5 90.4 90.5	5.54 5.5 5.55 5.5	7.16 7.2 7.16 7.2	0.02 0.02 0.02	$\begin{array}{c c} 6 \\ \hline 6 \\ \hline \end{array} 6.0 \end{array}$



Monthly Environmental Monitoring & Audit Report (No.59) – June 2023

Date	19 Jun 23																	
Location	Time	Depth (m)	Temp	(oC)	Flow Ve	locity (m/s)	DO (mg/L)	DO	(%)	Turbi	dity (NTU)	p	H	Sali	nity	SS(mg/L)
M3	10:25	2.43	26.4 26.4	26.4	<0.1 <0.1	<0.1	7.05 7.02	7.04	91.0 90.6	90.8	3.06 3.08	3.1	7.14	7.1	0.03	0.03	4 3	3.5

Date	21 Jun 23																	
Location	Time	Depth (m)	Temp	(oC)	Flow Ve	elocity (m/s)	DO (mg/L)	DO	(%)	Turbi	dity (NTU)	pl	H	Sali	nity	SS(mg/L)
	10:40	2.43	28.3 28.3	28.3	7.0 7.0	<0.1	7.02	7.02	92.3 92.2	92.3	3.04 2.98	3.0	7.26 7.26	7.3	0.03	0.03	3	3.0

Date	23 Jun 23																	
Location	Time	Depth (m)	Temp (o	oC)	Flow Ve	elocity (m/s)	DO (mg/L)	DO	(%)	Turbi	dity (NTU)	p	H	Sali	nity	SS(mg/L)
M3	11:00	2.43		27.9	<0.1 <0.1	<0.1	6.76 6.75	6.76	91.1 91.0	91.1	4.37 4.31	4.3	7.14	7.1	0.03	0.03	5 4	4.5

Date	26 Jun 23																	
Location	Time	Depth (m)	Temp	(0C)	Flow Ve	elocity (m/s)	DO (mg/L)	DO	(%)	Turbi	dity (NTU)	p]	H	Sali	nity	SS(1	mg/L)
M3	10:30	2.45	27.8 27.8	27.8	<0.1 <0.1	<0.1	5.87 5.84	5.86	76.8 76.4	76.6	5.52 5.49	5.5	7.23 7.23	7.2	0.03	0.03	6 6	6.0

Date	28 Jun 23																	
Location	Time	Depth (m)	Temp	(0C)	Flow Ve	locity (m/s)	DO (mg/L)	DO	(%)	Turbio	dity (NTU)	p	H	Sali	nity	SS(mg/L)
M3	11:45	2.45	27.5 27.5	27.5	<0.1 <0.1	<0.1	6.54 6.52	6.53	86.7 86.6	86.7	3.84 3.87	3.9	7.47 7.47	7.5	0.03	0.03	9 8	8.5

Date	30 Jun 23																	
Location	Time	Depth (m)	Temp	(0C)	Flow Ve	elocity (m/s)	DO (mg/L)	DO	(%)	Turbi	dity (NTU)	p]	H	Sali	nity	SS(mg/L)
M2	10.26	2.45	29.1	20.1	< 0.1	<0.1	6.46	6 41	84.4	027	5.35	5 2	7.48	75	0.03	0.02	9	0.0
M3	10:36	2.45	29.1	29.1	< 0.1	<0.1	6.35	0.41	82.9	83.7	5.31	5.5	7.48	7.5	0.03	0.03	9	9.0



Monthly Environmental Monitoring & Audit Report (No.59) - June 2023

Water Quality Impact Monitoring Result for M4

Date	2 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Veloc	city (m/s)	DO (I	ng/L)	DO	(%)	Turbid	lity (NTU)	р	H	Sali	nity	SS(1	ng/L)
M4	10.25	0.44	28.4	20.4	< 0.1	<0.1	5.38	5 20	72.1	72.1	3.9	2.0	7.08	7 1	0.06	0.00	3	2.0
M4	10:35	0.44	28.4	28.4	< 0.1	<0.1	5.37	5.38	72.0	/2.1	3.7	3.8	7.08	/.1	0.06	0.06	3	3.0

Date	5 Jun 23											
Location	Time	Depth (m)	Temp (oC)	Flow Velocity (m	n/s)	DO (mg/L)	DO (%)	Turbidity (NTU)	pН	Salinity	SS(n	ng/L)
M4	11:15	0.41	28.8 28.8 28.8	<0.1 <0.1 <0.	.1	5.37 5.32 5.35	71.6 71.3	2.9 2.9 2.9	7.22 7.23 7.2	0.06 0.06	32	2.5

Date	7 Jun 23																	
Location	Time	Depth (m)	Temp (o	C) Flo	low Veloc	ity (m/s)	DO (1	ng/L)	DO	(%)	Turbic	dity (NTU)	р	Н	Sali	nity	SS(1	mg/L)
M4	10:30	0.43	$\begin{array}{c} 27.7\\ 27.7\end{array}$ 2	1.1	<0.1 <0.1	<0.1	6.04 6.02	6.03	80.6 80.5	80.6	3.8 3.8	3.8	7.10 7.10	7.1	0.06	0.06	4	4.0

Date	9 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Veloc	city (m/s)	DO (I	ng/L)	DO	(%)	Turbic	lity (NTU)	p	Н	Sali	inity	SS(mg/L)
M 4	10.40	0.44	27.9	27.0	< 0.1	<0.1	6.41	6 30	894.8	490.5	4.7	4.7	7.02	7.0	0.06	0.06	4	15
M4	10:40	0.44	27.9	27.9	< 0.1	<0.1	6.36	0.39	84.2	489.5	4.6	4./	7.02	7.0	0.06	0.06	5	4.5

Date	12 Jun 23																	
Location	Time	Depth (m)	Тетр) (0C)	Flow Veloc	city (m/s)	DO (r	ng/L)	DO	(%)	Turbic	dity (NTU)	р	Н	Sali	nity	SS(1	mg/L)
M4	10:30	0.42	28.4 28.4	28.4	<0.1 <0.1	<0.1	6.34 6.32	6.33	84.1 83.9	84.0	3.5 3.5	3.5	7.13 7.13	7.1	0.06	0.06	4 4	4.0

Date	14 Jun 23																	
Location	Time	Depth (m)	Temp	(0C)	Flow Veloc	ty (m/s)	DO (I	ng/L)	DO	(%)	Turbic	dity (NTU)	р	H	Sali	nity	SS(r	ng/L)
M4	10:30	0.44	26.6 26.6	26.6	<0.1 <0.1	<0.1	7.35 7.32	7.34	94.9 94.6	94.8	5.3 5.4	5.4	6.95 6.95	7.0	0.08	0.08	3 5	4.0

Date	16 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Veloc	ity (m/s)	DO (1	ng/L)	DO	(%)	Turbio	lity (NTU)	p	Н	Sali	nity	SS(1	ng/L)
M4	11:25	0.44	26.3 26.3	26.3	<0.1 <0.1	<0.1	6.99 6.97	6.98	88.6 88.4	88.5	3.2 3.1	3.2	7.15 7.15	7.2	0.08	0.08	4	4.0



Monthly Environmental Monitoring & Audit Report (No.59) – June 2023

Date	19 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Velo	city (m/s)	DO (r	ng/L)	DO	(%)	Turbic	dity (NTU)	р	Н	Sali	nity	SS()	mg/L)
M4	10:45	0.45	26.6	26.6	< 0.1	<0.1	6.91	6.90	89.2	89.0	3.3	2.2	7.08	71	0.08	0.08	4	15
1014	10:43	0.43	26.6	20.0	< 0.1	<0.1	6.88	0.90	88.8	89.0	3.3	5.5	7.08	/.1	0.08	0.08	5	4.5

Date	21 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Veloc	city (m/s)	DO (I	ng/L)	DO	(%)	Turbic	lity (NTU)	p	Н	Sali	nity	SS(1	mg/L)
M4	11.00	0.42	28.8	200	< 0.1	<0.1	6.87	6 97	90.6	00.6	2.3	2.2	7.1	71	0.08	0.00	4	4.0
M4	11:00	0.43	28.8	28.8	< 0.1	<0.1	6.86	0.8/	90.5	90.6	2.3	2.3	7.1	/.1	0.08	0.08	4	4.0

Date	23 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Veloc	city (m/s)	DO (1	ng/L)	DO	(%)	Turbio	dity (NTU)	F	эΗ	Sali	nity	SS(1	mg/L)
M4	11:20	0.47	28.1 28.1	28.1	<0.1 <0.1	<0.1	6.71 6.7	6.71	90.4 90.3	90.4	3.0 3.0	3.0	7.14 7.14	7.1	0.08	0.08	4	4.0

Date	26 Jun 23																
Location	Time	Depth (m)	Temp) (0C)	Flow Veloc	city (m/s)	DO (mg/L)	DO	(%)	Turbic	lity (NTU)	p	Н	Sali	nity	SS(1	mg/L)
M4	10:50	0.47	28 28	28.0	<0.1 <0.1	<0.1	6.79 6.78 6.79	89.0 88.9	89.0	5.0 5.0	5.0	7.08 7.08	7.1	0.08	0.08	4 5	4.5

Date	28 Jun 23																	
Location	Time	Depth (m)	Temp) (0C)	Flow Velo	city (m/s)	DO (1	ng/L)	DO	(%)	Turbic	dity (NTU)	p	Н	Sali	nity	SS(I	mg/L)
M4	12:00	0.46	27.7	27.7	<0.1 <0.1	< 0.1	7.12	7.12	94.6 94.5	94.6	2.1	2.1	7.09 7.09	7.1	0.05	0.05	3	3.0

Date	30 Jun 23																	
Location	Time	Depth (m)	Temp	(0C)	Flow Veloc	city (m/s)	DO (r	ng/L)	DO	(%)	Turbic	lity (NTU)	р	Н	Sali	nity	SS(1	ng/L)
M4	9:45	0.46	28.8 28.8	28.8	<0.1 <0.1	<0.1	7.12 7.11	7.12	95.2 95.1	95.2	3.7 3.8	3.8	7.44 7.44	7.4	0.06	0.06	3 4	3.5

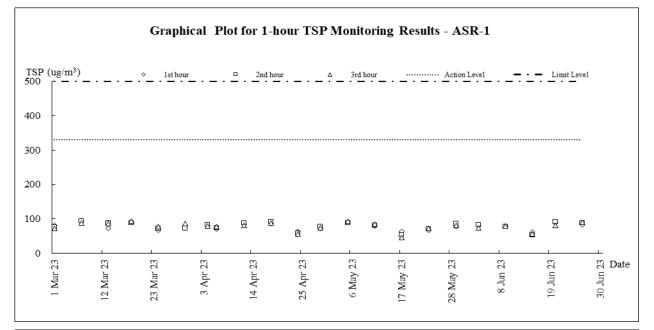


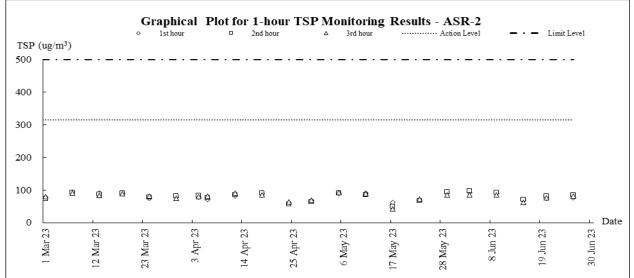
Appendix I

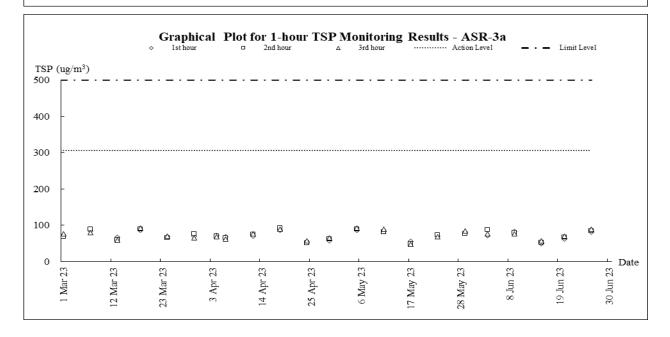
Graphical Plots of Air Quality, Noise and Water Quality



Air Quality Impact Monitoring – 1-hour TSP

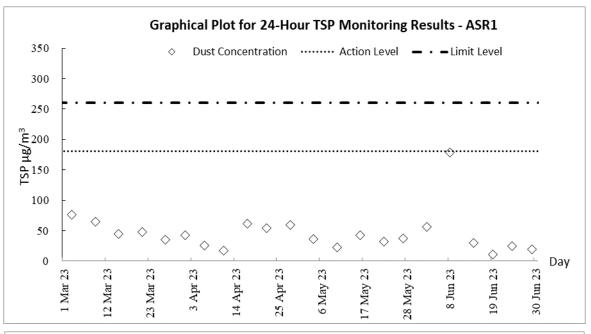


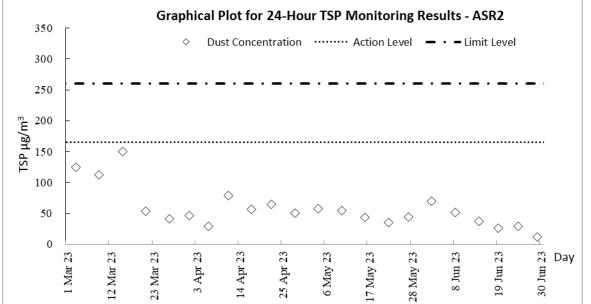


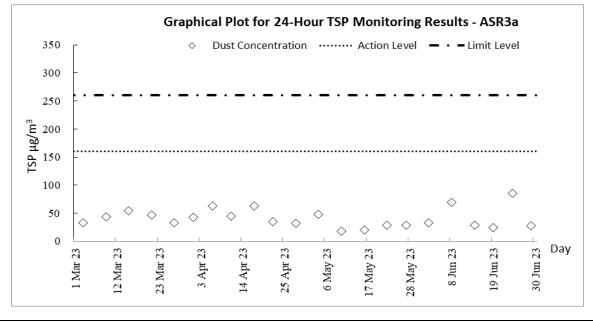








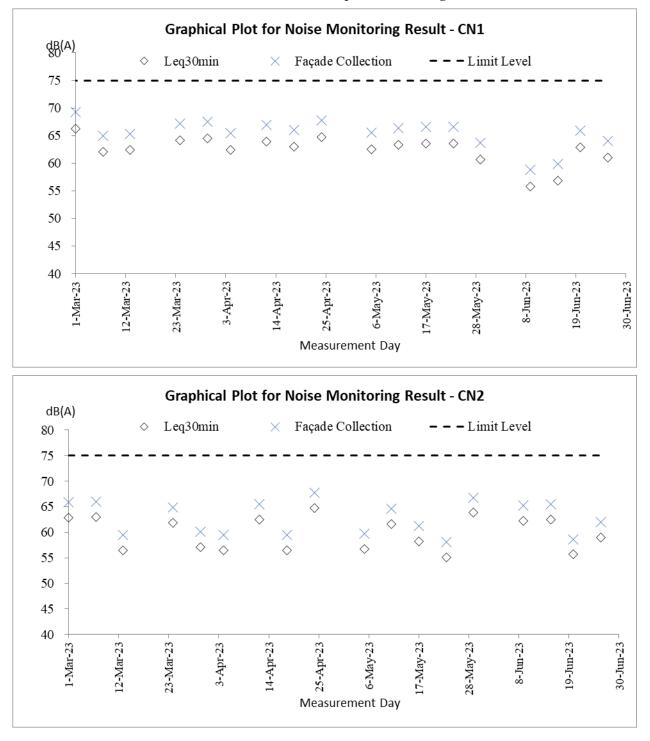




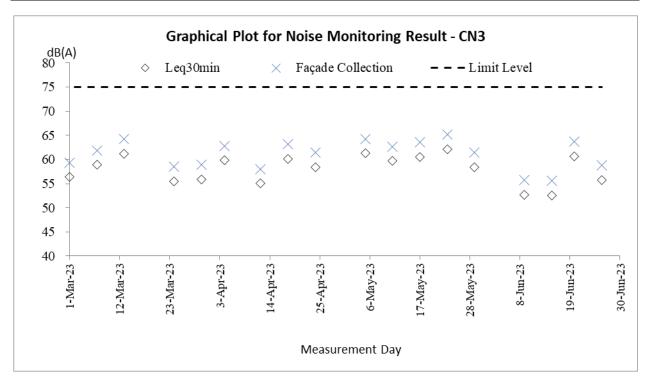
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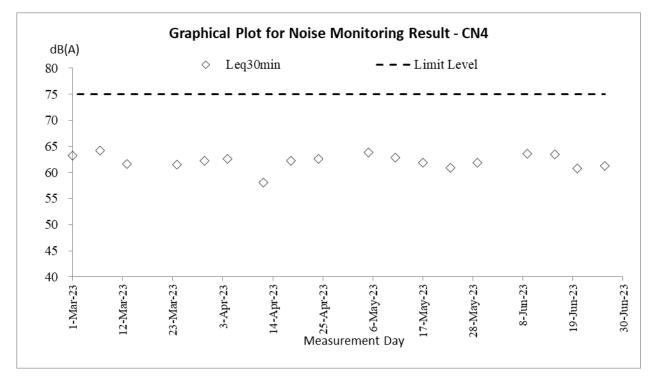


Construction Noise Impact Monitoring



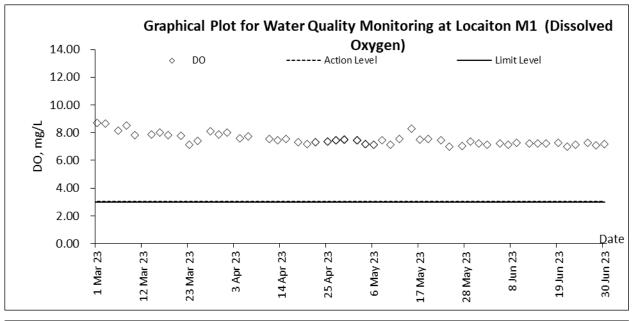


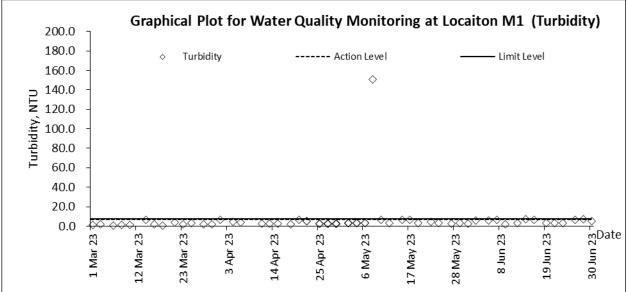


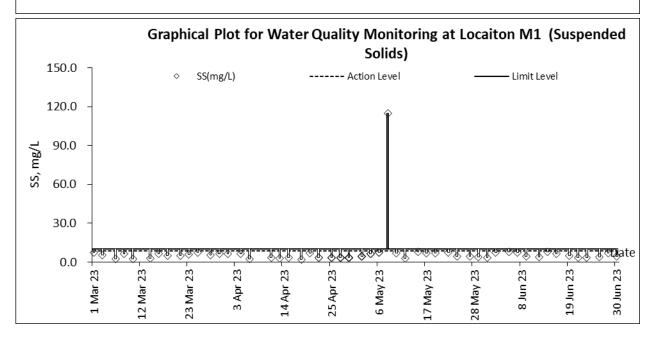




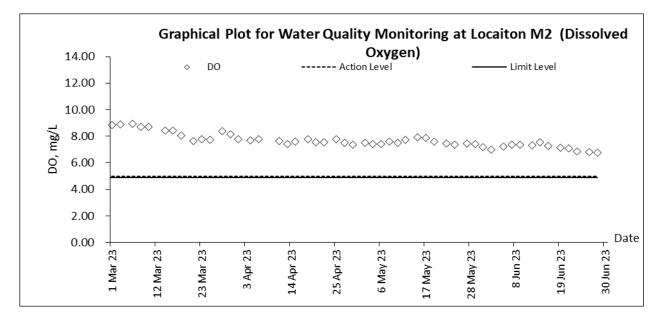
Water Quality Impact Monitoring

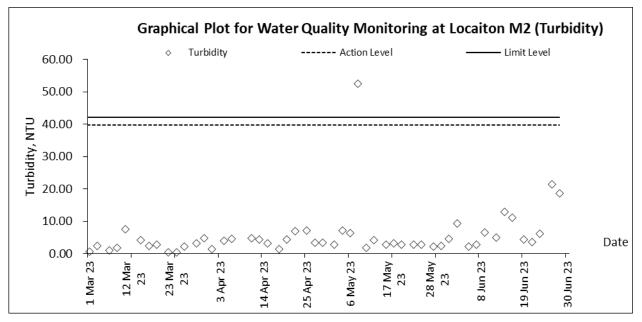


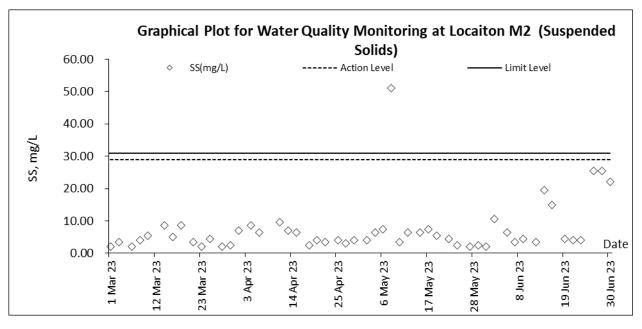




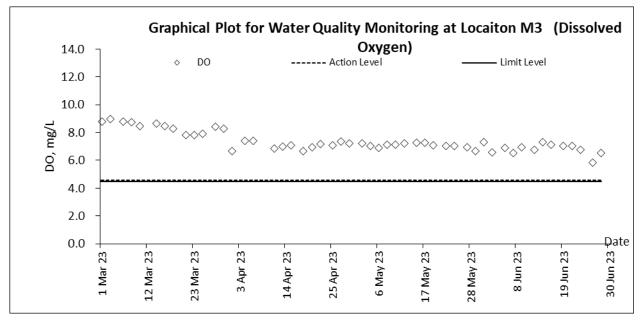


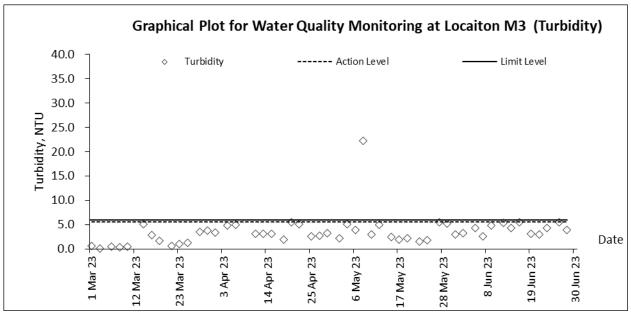


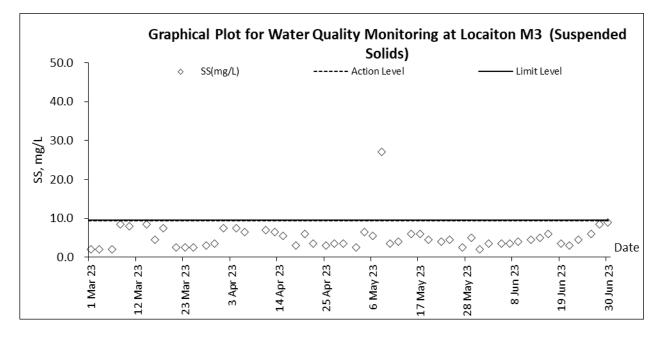




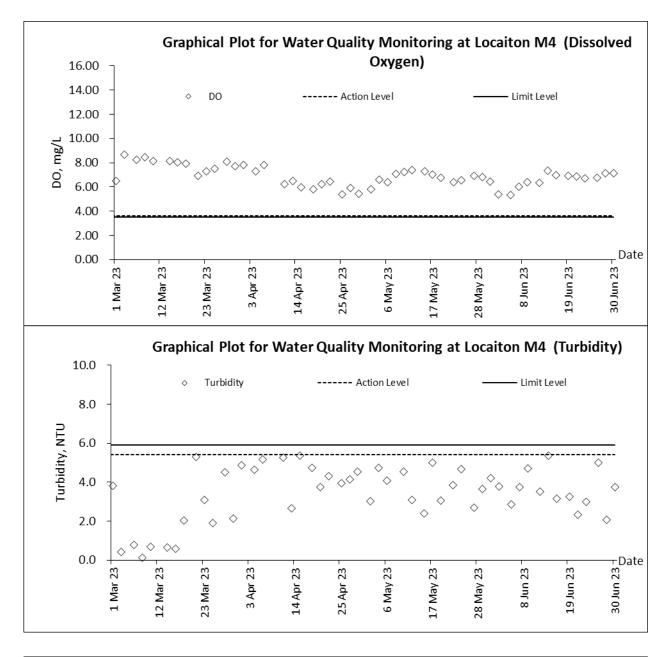


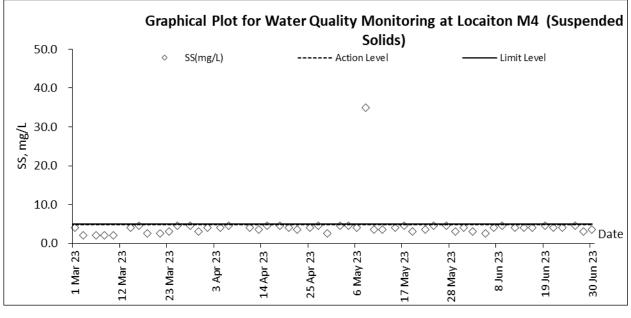














Appendix J

Meteorological Data of the Reporting Month



				,	Ta Kwu	Ling Statio	n
Date		Weather	Total Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Jun-23	Thu	Cloudy with showers.	6	28.7	11.2	80.0	W/SW
2-Jun-23	Fri	Mainly cloudy with a few showers	0	31.0	6.2	71.5	W/SW
3-Jun-23	Sat	Hot with sunny intervals	0.6	30.8	8	71.7	E/SE
4-Jun-23	Sun	A few squally thunderstorms at first.	5.1	30.2	11.2	75.5	E/SE
5-Jun-23	Mon	Moderate south to southeasterly winds, fresh at first.	4.8	29.6	13	79.0	E/SE
6-Jun-23	Tue	A few squally thunderstorms at first.	31.1	27.5	9	87.7	E/SE
7-Jun-23	Wed	Mainly cloudy with occasional showers.	27.1	28.7	9	85.0	S/SE
8-Jun-23	Thu	Moderate to fresh south to southwesterly winds.	2.6	29.5	7	80.0	SE
9-Jun-23	Fri	Hot with sunny intervals during the day.	16.8	Maintenan ce	6.5	Maintenan ce	E/SE
10-Jun-23	Sat	Mainly cloudy with a few showers	0.3	29.6	12.5	77.2	S/SE
11-Jun-23	Sun	Moderate to fresh south to southwesterly winds.	25.4	29.0	8.7	75.7	E/SE
12-Jun-23	Mon	Moderate to fresh south to southwesterly winds.	0.2	30.2	8	75.7	E/SE
13-Jun-23	Tue	A few squally thunderstorms at first.	31.8	29.8	10	79.0	S
14-Jun-23	Wed	Showers will be heavy at times with squally thunderstorms.	62.8	27.8	7	86.2	E/SE
15-Jun-23	Thu	Moderate south to southwesterly winds,	41.5	27.5	6.2	88.5	E/SE
16-Jun-23	Fri	Cloudy with showers.	41.7	26.5	6	92.2	S/SW
17-Jun-23	Sat	Mainly cloudy with a few showers	89.9	26.6	6.2	92.0	E/SE
18-Jun-23	Sun	Hot with sunny intervals	35.8	27.6	6.2	86.0	S/SW
19-Jun-23	Mon	Mainly cloudy with a few showers and isolated thunderstorms.	10.2	29.2	9	80.7	S/SW
20-Jun-23	Tue	Isolated thunderstorms at first.	2.3	29.5	9	80.0	S/SW
21-Jun-23	Wed	Moderate east to southeasterly winds.	1.9	29.9	7.5	80.0	S/SW
22-Jun-23	Thu	Moderate south to southwesterly winds	0.6	29.7	8.7	74.2	S/SW
23-Jun-23	Fri	Hot with sunny intervals during the day.	2.3	29.0	8.7	81.5	S/SW
24-Jun-23	Sat	Mainly cloudy with a few showers	8.2	27.4	6	91.5	E/SE
25-Jun-23	Sun	Isolated thunderstorms at first.	13	29.4	7.5	77.5	Е
26-Jun-23	Mon	Hot with sunny periods in the afternoon.	11.4	29.6	7.5	80.5	E/SE
27-Jun-23	Tue	Hot with sunny periods and a few showers	Trace	30.0	7.5	76.5	E/SE
28-Jun-23	Wed	Hot with sunny periods and a few showers.	5.4	27.9	8.7	88.7	E/SE
29-Jun-23	Thu	Isolated thunderstorms later.	0.9	29.6	7.5	80.0	E/SE
30-Jun-23	Fri	Moderate east to southeasterly winds.	11.2	29.6	7	79.5	S/SE



Appendix K

Ecological Survey Report

 $Z: \label{eq:loss} 2018 \ CV-2016-10) \ 600 \ EM\&A \ Report \ Submission \ Monthly \ Report \ 2023 \ 59th \ Month \ (June \ 2023) \ R0763v \ 2.doc \ 2.$



Ecological Survey Report for Contract CV/2016/10



Contract No. CV/2016/10 Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery

Monthly Report of Ecologically Sensitive Habitats Monitoring – June 2023

Revision Date of issue	0 5 July 2023	
Prepared by	Alan Lam	A
Reviewed by	Rachel Siu	Ps.
Verified by	Mike Leung	A



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1 INTRODUCTION

1.1 <u>BACKGROUND</u>

- 1.1.1 The main objective of the proposed site formation and associated infrastructural works for development of columbarium, crematorium (C&C) and related facilities at Sandy Ridge Cemetery is to increase the public cremation services and supply of public niches to meet the future demand.
- 1.1.2 The project includes site formation and associated works for development of C&C facilities at the Sandy Ridge Cemetery, road works within Sandy Ridge Cemetery, widening a section of Lin Ma Hang Road (from 6.5m to 7.3m), provision of off-site pick-up/drop-off points for shuttle buses as well as barging point at Siu Lam, Lok On Pai.
- 1.1.3 The Environmental Impact Assessment (EIA) report, including Environmental Monitoring and Audit Manual (EM&A Manual), was approved with conditions on 8 August 2016 (Register No.: AEIAR-198/2016). EPD issued an Environmental Permit (EP) for the Project (EP-534/2017) on 7 April 2017. A Further Environment Permit (FEP) for the Project (FEP-01/534/2017) was issued on 23 February 2018, variation of EP (EP-534/2017/A) and variation of FEP (FEP-01/534/2017/A) were issued on 24 December 2018.
- 1.1.4 According to Clause 3.1 of the FEP (FEP-01/534/2017/A), "The Permit Holder shall implement the EM&A programme in accordance with the procedures and requirements as set out in the EM&A Manual. Any changes to the programme shall be justified by the ET Leader and verified by the IEC as conforming to the information and requirements contained in the EM&A Manual before submission to the Director for approval".
- 1.1.5 This Ecologically Sensitive Habitats Monitoring Methodology articulates the protocol of monitoring the ecology of concerned habitats as specified in EM&A Manual.

1.2 <u>OBJECTIVE</u>

- 1.2.1 According to approved EIA report (AEIAR-198/2016), habitat types within project boundary comprise of watercourse, grassland, upland grassland, plantation, woodland and developed area. Natural habitats were of moderate ecological value in terms of species diversity, species rarity, species abundance, ecological linkage as well as nursery. Moreover, 0.3ha of wet woodland on the northern side of Sandy Ridge was deemed habitat with high ecological value. Four types of habitats were regarded as ecologically sensitive habitats, namely wet woodland, watercourses, upland grassland and woodland. Considering human disturbance in upcoming construction and operation phases, ecologically sensitive habitats shall be monitored in accordance with EM&A Manual.
- 1.2.2 The objective of ecologically sensitive habitats monitoring is to evaluate the effectiveness of measures to minimize impacts on concerned habitats from disturbance and pollution.



2 ECOLOGICALLY SENSITIVE HABITATS

2.1 DESCRIPTION OF HABITATS

2.1.1 In order to monitor the effectiveness of the measures to the minimise impact on ecologically sensitive habitats from disturbance and pollution, monthly monitoring during construction and operation phases is required as specified in EM&A Manual. Standard faunal transect and sampling surveys cover both wetland and non-wetland habitats:

Wetland habitats	Non-wetland habitats
Wet Woodland	Upland Grassland
Watercourses	Woodland

- 2.1.2 Wet woodland is small patch present on northwest of the project boundary, and is confined by the marsh area to the north and the secondary woodland to the east, south and south-west parts. A number of mature trees *Cleistocalyx nervosum* and *Acronychia pedunculata* form the tree canopy, with other self-sown shrubs (including *Psychotria asiatica, Ligustrum sinense* and *Glochidion lanceolarium*) and trees (*Aporosa dioica* and *Litsea monopetala*). Whilst botanically it comprises of naturally regenerated secondary woodland and ground level are a series of small braided streams and weep points which even during the dry season remain wet. This creates a rather uncommon habitat in Hong Kong offering suitable conditions for a good assemblage of common wetland species. The wet woodland provides a good assemblage of micro-habitats, which is relatively undisturbed and has good linkages to other natural habitats. Several species of conversation importance were recorded in EIA report from this habitat: East Asian Porcupine, Leopard Cat, Red Muntjac, Two-striped Grass Frog, Small Snakehead, *Somanniathelphusa zanklon*, Dancing Shadow-emerald.
- 2.1.3 Seasonal watercourse running west to east in the eastern part of the area inside the Project boundary is shallower in gradient than those running off the hillside. This seasonal watercourse is heavily vegetated with wetland-associated herbs including *Commelina diffusa*, *Polygonum chinense*, *Colocasia esculenta* and *Dracaena sanderiana*. A mature tree of *Aquilaria sinensis* was recorded at the bank of the seasonal watercourse to the west of the Sandy Ridge Cemetery Office. Seasonal watercourses are restricted to the steeper slopes within the project boundary and are characterised by being entirely dry for much of the dry season. However, endemic crab *S. zanklon* population is supported by ephemeral watercourses close to the project boundary.
- 2.1.4 Upland grassland is the major habitat within the project boundary. The semi-natural habitat is dominated by typical upland grassland species: fern *Dicranopteris pedata*, grass *Neyraudia reynaudiana*, *Miscanthus floridulus*, climbing vines *Smilax china*, *Smilax glabra*, and shrubs such as *Rhodomyrtus tomentosa*, *Breynia fruticosa* and *Helicteres angustifolia*. Approximately 30 flowering spikes of two orchid species Bamboo Orchid and Toothed Habenaria were recorded near the hill top in the northern part of this upland grassland. Golden-headed Cisticola, which is considered as Local Concern by Fellowes *et al.* (2002), was also recorded in upland grassland on Sandy Ridge, including a proved breeding record of fledged young in September 2013. In addition, numerous species of conservation interest were recorded in EIA report, such as East Asian Porcupine, Leopard Cat, Red Muntjac, Great Swift, Tamil Grass Dart, Small Three-ring and Small Grass Yellow.



2.1.5 Scattered patches of woodland are present throughout the assessment area, with the largest contiguous block located immediately to the east of the project boundary. These woodlands are relatively young with single-layered of canopy dominants (~10 – 15m tall) including *A. dioica*, *Bridelia tomentosa*, *Cinnamomum burmannii*, *Daphniphyllum calycinum*, *Litsea glutinosa*, *Rhus succedanea*, and *Zanthoxylum avicennae*. Such areas comprise secondary woodland which is largely derived from natural regeneration and colonisation of trees as a result of seed dispersal by birds and/or bats. A mature tree of *A. sinensis* is located at the woodland edge at the central part of the Project according to EIA report.

2.2 MONITORING MEASURES OF WETLAND HABITATS

- 2.2.1 Wetland habitats include wet woodland and watercourses. Monitoring surveys using standardised quantitative methodology will be conducted at fixed points. For seasonal watercourse, survey shall be conducted whenever the habitat appears.
- 2.2.2 Measures to respond to decreases in numbers of aquatic fauna using the wetland habitats and action and limit levels to trigger these measures are detailed in Table 1.

Action Level	Response	Limit Level	Response
Reduction in	Investigate cause and if	Reduction	Investigate cause and if
taxa diversity	cause identified as related	in taxa	cause identified as related
by 30%	to the project instigate	diversity	to the project instigate
	remedial action to remove	by 50%	remedial action.
	or reduce source of		
	disturbance.		

Table 1 Action and Limit Levels and Responses to Evidence of Declines in Aquatic Fauna

2.3 MONITORING MEASURES OF NON-WETLAND HABITATS

- 2.3.1 Non-wetland habitats consist of upland grassland and woodland. Monthly quantitative surveys of non-aquatic fauna will be conducted using standard route transect counts.
- 2.3.2 Measures to respond to decreases in numbers of non-aquatic fauna using the non-wetland habitats and action and limit levels to trigger these measures are detailed in Table 2.

Action Level	Response	Limit Level	Response
Reduction in	Investigate cause and if	Reduction	Investigate cause and if
species diversity	cause identified as related	in species	cause identified as related
by 30%	to the project instigate	diversity by	to the project instigate
	remedial action to remove	50%	remedial action.
	or reduce source of		
	disturbance.		

Table 2 Action and Limit Levels and Responses to Evidence of Declines in Non-Aquatic Fauna



3 METHODOLOGY

The ecological survey includes all taxa being investigated in EIA report. Table 3 summarizes schedule of faunal surveys.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mammals	\checkmark											
Birds (day)	\checkmark											
Birds (night)				\checkmark								
Herpetofauna				\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark			
Dragonflies			\checkmark									
Butterflies			\checkmark									
Aquatic fauna	\checkmark											

Table 3 Survey Schedule

3.1 MAMMAL SURVEY

3.1.1 Mammal surveys will be conducted along the transects shown in Appendix 1 during both daytime and night time periods. Along with direct observations, other field signs, such as scats and tracks, will be searched and recorded if present.

3.2 BIRD SURVEY

3.2.1 Bird surveys will be conducted along the transects shown in Appendix 1 during the surveys, species and their vocalizing individuals recorded will be enumerated and recorded according to the habitat(s) they are utilising.

3.3 HERPETOFAUNA SURVEY

3.3.1 Reptile and amphibian surveys will be conducted along transects shown in Appendix 1 during surveys careful searches of appropriate microhabitats and refugia for reptiles and their vocalizing individuals will be undertaken and all reptiles observed will be identified and counted.

3.4 DRAGONFLY SURVEY

3.4.1 Dragonfly surveys will be conducted along transects shown in Appendix 1 during surveys all dragonflies seen will be identified and counted as accurately as possible.



3.5 BUTTERFLY SURVEY

3.5.1 Butterfly surveys will be conducted along transects shown in Appendix 1 during surveys all butterflies seen will be identified and counted as accurately as possible.

3.6 AQUATIC FAUNA SURVEY

3.6.1 Freshwater fishes and macro-invertebrates will be recorded by direct observation. All species trapped/recorded will be enumerated and identified (to the lowest taxonomic level possible), and the species of conservation importance photographed.



4 RESULT

This monitoring survey started on 20^{th} June 2023, a sunny day. The day and night survey covered wetland and non-wetland areas. The survey was conducted by transect and at fixed points. All species seen would be identified and counted as accurately as possible.

Mammal

There was a total of 1 mammal individuals from 1 species recorded in the monitoring area.

Bird

There were a total of 60 birds individuals from 15 species recorded in the monitoring area. No Golden-headed Cisticola was observed during the bird survey. Four species of conservation interests were recorded in this survey: Black Kite (*Milvus migrans*) 黑鳶, Lesser Coucal (*Centropus bengalensis*) 小鴉鵑, Greater Coucal (*Centropus sinensis*) 褐翅 鴉鵑, White-throated Kingfisher (*Halcyon smyrnensis*) 白胸翡翠.

Herpetofauna

There was no reptile species recorded in the monitoring area. There were 2 amphibian species recorded in the monitoring area.

■ Butterfly

There were a total of 15 butterfly individuals from 4 species recorded in the monitoring area.

Dragonfly

There were a total of 20 dragonfly individuals from 4 species recorded in the monitoring area.

Freshwater communities

There was 1 species of freshwater carb recorded in the monitoring area.



Picture 1

Fejervarya limnocharis 澤蛙 Paddy Frog



Picture 2

Pycnonotus jocosus 紅耳鵯 Red-whiskered Bulbul





Table 4Result of Mammal in survey

Scientific Name	Common Name		Conservation Status	20/6/2023					
				Non- wetland		Wetland		ıd	
				UG	WL	MA	ww	WC	
Callosciurus erythraeus	Pallas's Squirrel	赤腹松鼠			1				

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 5Result of Avifauna in survey

				20/6/2023					
Scientific Name	Common Name	Chinese Name	Conservation Status	Non- wetland		v	Vetlan	d	
				UG	WL	MA	ww	WC	
Milvus migrans	Black Kite	黑鳶	Fellowes et al. (2002): RC; Appendix 2 of CITES	2					
Centropus bengalensis	Lesser Coucal	小鴉鵑	Class 2 Protected Animal of China;China Red Data Book Status: (Vulnerable)	3					
Centropus sinensis	Greater Coucal	褐翅鴉鵑	Class 2 Protected Animal of China;China Red Data Book Status: (Vulnerable)	2					
Caprimulgus affinis	Savanna Nightjar	林夜鷹		1					
Spilopelia chinensis	Spotted Dove	珠頸斑鳩		4					
Eudynamys scolopaceus	Asian Koel	噪鵑		1					
Hierococcyx sparverioides	Large Hawk Cuckoo	大鷹鵑		1					
Apus nipalensis	House Swift	小白腰雨燕		10					
Halcyon smyrnensis	White-throated Kingfisher	白胸翡翠	Fellowes et al. (2002): LC	1					
Corvus macrorhynchos	Large-billed Crow	大嘴烏鴉		2					
Pycnonotus jocosus	Red-whiskered Bulbul	紅耳鵯		3			10		
Pycnonotus sinensis	Chinese Bulbul	白頭鵯		5			2		
Pycnonotus aurigaster	Sooty-headed Bulbul	白喉紅臀鵯		4					
Prinia flaviventris	Yellow-bellied Prinia	黃腹鷦鶯		2			2		
Orthotomus sutorius	Common Tailorbird	長尾縫葉鶯		4			1		

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse



Table 6Result of Reptile in survey

Scientific Name				20/6/2023				
	Common Name	Chinese Name	Conservation Status	Non- wetland		Wetland		d
				UG	WL	Wetland	WC	
		N/A						

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 7Result of Amphibian in survey

Scientific Name	Common Name			20/6/2023					
			Conservation Status	Non- wetland		Wetland		d	
				UG	WL	MA	ww	WC	
Fejervarya limnocharis	Paddy Frog	澤蛙						+	
Polypedates megacephalus	Brown Tree Frog	斑腿泛樹蛙						+	

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse + Species appeared but uncountable

Table 8Result of Butterfly in survey

				20/6/2023					
Scientific Name	Common Name		Conservation Status	Non- wetland		Wetland		d	
				UG	lon- tland Wetland	WC			
Neopithecops zalmora	Quaker	一點灰蝶			1				
Papilio protenor	Spangle	藍鳳蝶		1	2				
Mycalesis mineus	Dark Brand Bush Brown	小眉眼蝶		2	2		1		
Abisara echerius	Plum Judy	蛇目褐蜆蝶		4			2		

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse



Table 9Result of Odonate in survey

	Common Name			20/6/2023					
Scientific Name			Conservation Status	Non- wetland		Wetland			
				UG	WL	MA	ww	WC	
Orthetrum pruinosum	Common Red Skimmer	赤褐灰蜻		2	2			1	
Tramea virginia	Saddlebag Glider	華斜痣蜻					1	1	
Rhyothemis variegata arria	Variegated Flutterer	斑麗翅蜻		2				2	
Pseudothemis zonata	Pied Skimmer	玉帶蜻					3	6	

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 10 Result of Freshwater Communities in survey

Scientific Name	Common Name		Conservation Status	20/6/2023				
		Chinese Name		Non- wetland		Wetland		
				UG	WL	MA	ww	WC
Somanniathelphusa zanklon		鐮刀束腰蟹						+

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

+ Species appeared but uncountable



5 DISCUSSION

Data analysis was carried out to compare with the biodiversity within the site boundary in the same month over years. General description of the ecological conditions is first revealed in terms of abundance as well as species richness, following by statistical analysis of the existing database. The result is considered as significant whenever the drop of diversity indexes exceeds the percentages mentioned in previous sections 2.2 and 2.3.

5.1

Total abundance and species richness in June over years were compared to show the trends. Figures 1 and 2 indicate the total species richness and total abundance within the site boundary respectively.

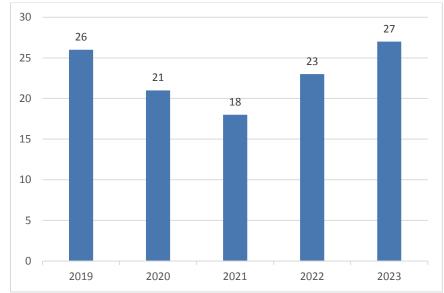


Figure 1: Bar chart showing the total species richness within site boundary from 2019 to 2023 (Actual quantity annotated at the top of each bar)

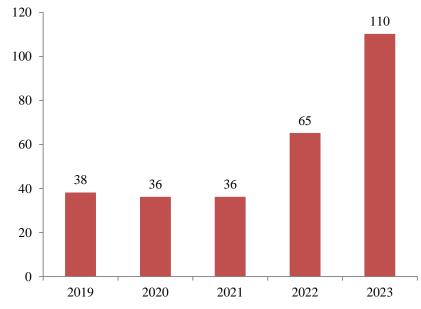
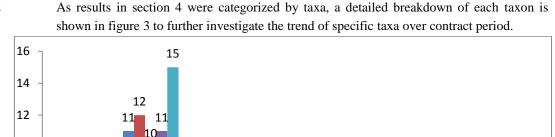


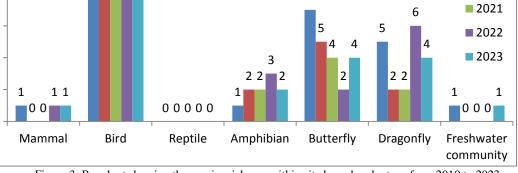
Figure 2: Bar chart showing the total abundance within site boundary from 2019 to 2023 (Actual quantity annotated at the top of each bar)



2019

2020





7

Figure 3: Bar chart showing the species richness within site boundary by taxa from 2019 to 2023 (Actual quantity annotated at the top of each bar)

5.3

According to EM&A Manual, monitoring measures was determined by the species diversity of types of sensitive habitats, i.e. non-wetland and wetland habitats. Abundance and species richness by habitat type in June over years were compared in Figures 4 and 5.

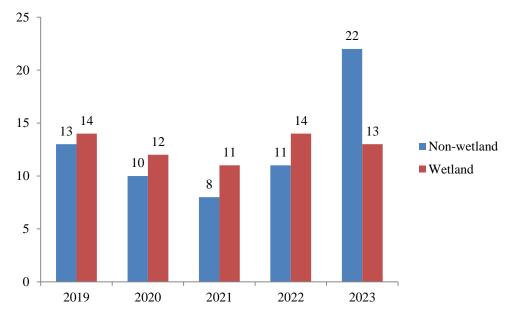


Figure 4: Bar chart showing the species richness based on habitat type from 2019 to 2023 (Actual quantity annotated at the top of each bar)

10

8

6

4

2

0



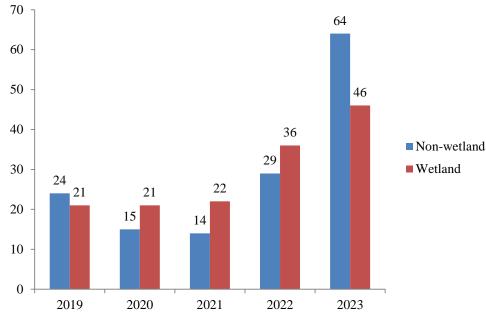


Figure 5: Bar chart showing the abundance based on habitat type from 2019 to 2023 (Actual quantity annotated at the top of each bar)

5.4

After analysing survey results in June from 2019 to 2023, a significant increase in both the species richness and abundance for Wetland and Non-wetland habitat are recorded in June 2023. This could be benefited by some positive factors such as the major construction works were completed and most of the PME has been removed from site. Besides, compensation planting works have been conducted in early Jan 2023. Therefore, disturbance to fauna species from construction works have been largely minimised. In addition, woodland compensation and grassland reinstatement would be implemented in the second and third quarter of 2023. Hence, the habitat of fauna species would be gradually recovered and expectation of increase in the species richness and abundance for wetland habitat is high.

Yet, good site practice during construction, with reference to EM&A Manual, is still required to prevent or alleviate environmental impacts. Continuous monitoring is also recommended to inspect any changes in species diversity.



Appendix I – Transect Routes for Contract CV/2016/10

1 Man Kam To Boundary Control Point Shenzhen River Station Boundary of Contract 1 Survey Transect for Contract 1 **Fixed Point for** Contract 1



Ecological Survey Report for Contract CV/2017/02



Contract No. CV/2017/02 Development of Columbarium at Sandy Ridge Cemetery – Infrastructural Works at Man Kam To Road and Lin Ma Hang Road

Monthly Report of Ecologically Sensitive Habitats Monitoring – June 2023

Revision	0	
Date of issue	5 July 2023	
Prepared by	Alan Lam	未
Reviewed by	Rachel Siu	Ps
Verified by	Mike Leung	N



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	from 2019 to 2023
Figure 5	Bar chart showing the abundance based on habitat type from
	2019 to 2023



1 INTRODUCTION

1.1 <u>BACKGROUND</u>

- 1.1.1 The main objective of the proposed site formation and associated infrastructural works for development of columbarium, crematorium (C&C) and related facilities at Sandy Ridge Cemetery is to increase the public cremation services and supply of public niches to meet the future demand.
- 1.1.2 The project includes site formation and associated works for development of C&C facilities at the Sandy Ridge Cemetery, road works within Sandy Ridge Cemetery, widening a section of Lin Ma Hang Road (from 6.5m to 7.3m), provision of off-site pick-up/drop-off points for shuttle buses as well as barging point at Siu Lam, Lok On Pai.
- 1.1.3 The Environmental Impact Assessment (EIA) report, including Environmental Monitoring and Audit Manual (EM&A Manual), was approved with conditions on 8 August 2016 (Register No.: AEIAR-198/2016). EPD issued an Environmental Permit (EP) for the Project (EP-534/2017) on 7 April 2017, variation of EP (EP-534/2017/A) were issued on 24 December 2018.
- 1.1.4 According to Clause 3.1 of the EP (EP-534/2017/A), "The Permit Holder shall implement the EM&A programme in accordance with the procedures and requirements as set out in the EM&A Manual. Any changes to the programme shall be justified by the ET Leader and verified by the IEC as conforming to the information and requirements contained in the EM&A Manual before submission to the Director for approval".
- 1.1.5 This Ecologically Sensitive Habitats Monitoring Methodology articulates the protocol of monitoring the ecology of concerned habitats as specified in EM&A Manual.

1.2 <u>OBJECTIVE</u>

- 1.2.1 According to approved EIA report (AEIAR-198/2016), habitat types within project boundary comprise of watercourse, grassland, upland grassland, plantation, woodland and developed area. Natural habitats were of moderate ecological value in terms of species diversity, species rarity, species abundance, ecological linkage as well as nursery. Moreover, 0.3ha of wet woodland on the northern side of Sandy Ridge was deemed habitat with high ecological value. Four types of habitats were regarded as ecologically sensitive habitats, namely wet woodland, watercourses, upland grassland and woodland. Considering human disturbance in upcoming construction and operation phases, ecologically sensitive habitats shall be monitored in accordance with EM&A Manual.
- 1.2.2 The objective of ecologically sensitive habitats monitoring is to evaluate the effectiveness of measures to minimize impacts on concerned habitats from disturbance and pollution.



2 ECOLOGICALLY SENSITIVE HABITATS

2.1 DESCRIPTION OF HABITATS

2.1.1 In order to monitor the effectiveness of the measures to the minimise impact on ecologically sensitive habitats from disturbance and pollution, monthly monitoring during construction and operation phases is required as specified in EM&A Manual. Standard faunal transect and sampling surveys cover both wetland and non-wetland habitats:

Wetland habitats	Non-wetland habitats
Wet Woodland	Upland Grassland
Watercourses	Woodland

- 2.1.2 Wet woodland is small patch present on northwest of the project boundary, and is confined by the marsh area to the north and the secondary woodland to the east, south and south-west parts. A number of mature trees *Cleistocalyx nervosum* and *Acronychia pedunculata* form the tree canopy, with other self-sown shrubs (including *Psychotria asiatica, Ligustrum sinense* and *Glochidion lanceolarium*) and trees (*Aporosa dioica* and *Litsea monopetala*). Whilst botanically it comprises of naturally regenerated secondary woodland and ground level are a series of small braided streams and weep points which even during the dry season remain wet. This creates a rather uncommon habitat in Hong Kong offering suitable conditions for a good assemblage of common wetland species. The wet woodland provides a good assemblage of micro-habitats, which is relatively undisturbed and has good linkages to other natural habitats. Several species of conversation importance were recorded in EIA report from this habitat: East Asian Porcupine, Leopard Cat, Red Muntjac, Two-striped Grass Frog, Small Snakehead, *Somanniathelphusa zanklon*, Dancing Shadow-emerald.
- 2.1.3 Seasonal watercourse running west to east in the eastern part of the area inside the Project boundary is shallower in gradient than those running off the hillside. This seasonal watercourse is heavily vegetated with wetland-associated herbs including *Commelina diffusa*, *Polygonum chinense*, *Colocasia esculenta* and *Dracaena sanderiana*. A mature tree of *Aquilaria sinensis* was recorded at the bank of the seasonal watercourse to the west of the Sandy Ridge Cemetery Office. Seasonal watercourses are restricted to the steeper slopes within the project boundary and are characterised by being entirely dry for much of the dry season. However, endemic crab *S. zanklon* population is supported by ephemeral watercourses close to the project boundary.
- 2.1.4 Upland grassland is the major habitat within the project boundary. The semi-natural habitat is dominated by typical upland grassland species: fern *Dicranopteris pedata*, grass *Neyraudia reynaudiana*, *Miscanthus floridulus*, climbing vines *Smilax china*, *Smilax glabra*, and shrubs such as *Rhodomyrtus tomentosa*, *Breynia fruticosa* and *Helicteres angustifolia*. Approximately 30 flowering spikes of two orchid species Bamboo Orchid and Toothed Habenaria were recorded near the hill top in the northern part of this upland grassland. Golden-headed Cisticola, which is considered as Local Concern by Fellowes *et al.* (2002), was also recorded in upland grassland on Sandy Ridge, including a proved breeding record of fledged young in September 2013. In addition, numerous species of conservation interest were recorded in EIA report, such as East Asian Porcupine, Leopard Cat, Red Muntjac, Great Swift, Tamil Grass Dart, Small Three-ring and Small Grass Yellow.



2.1.5 Scattered patches of woodland are present throughout the assessment area, with the largest contiguous block located immediately to the east of the project boundary. These woodlands are relatively young with single-layered of canopy dominants (~10 – 15m tall) including *A. dioica, Bridelia tomentosa, Cinnamomum burmannii, Daphniphyllum calycinum, Litsea glutinosa, Rhus succedanea,* and *Zanthoxylum avicennae*. Such areas comprise secondary woodland which is largely derived from natural regeneration and colonisation of trees as a result of seed dispersal by birds and/or bats. A mature tree of *A. sinensis* is located at the woodland edge at the central part of the Project according to EIA report.

2.2 MONITORING MEASURES OF WETLAND HABITATS

- 2.2.1 Wetland habitats include wet woodland and watercourses. Monitoring surveys using standardised quantitative methodology will be conducted at fixed points. For seasonal watercourse, survey shall be conducted whenever the habitat appears.
- 2.2.2 Measures to respond to decreases in numbers of aquatic fauna using the wetland habitats and action and limit levels to trigger these measures are detailed in Table 1.

Action Level	Response	Limit Level	Response
Reduction in	Investigate cause and if	Reduction	Investigate cause and if
taxa diversity	cause identified as related	in taxa	cause identified as related
by 30%	to the project instigate	diversity	to the project instigate
	remedial action to remove	by 50%	remedial action.
	or reduce source of		
	disturbance.		

Table 1 Action and Limit Levels and Responses to Evidence of Declines in Aquatic Fauna

2.3 MONITORING MEASURES OF NON-WETLAND HABITATS

- 2.3.1 Non-wetland habitats consist of upland grassland and woodland. Monthly quantitative surveys of non-aquatic fauna will be conducted using standard route transect counts.
- 2.3.2 Measures to respond to decreases in numbers of non-aquatic fauna using the non-wetland habitats and action and limit levels to trigger these measures are detailed in Table 2.

Action Level	Response	Limit Level	Response
Reduction in	Investigate cause and if	Reduction	Investigate cause and if
species diversity	cause identified as related	in species	cause identified as related
by 30%	to the project instigate	diversity by	to the project instigate
	remedial action to remove	50%	remedial action.
	or reduce source of		
	disturbance.		

Table 2 Action and Limit Levels and Responses to Evidence of Declines in Non-Aquatic Fauna



3 METHODOLOGY

The ecological survey includes all taxa being investigated in EIA report. Table 3 summarizes schedule of faunal surveys.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mammals	\checkmark											
Birds (day)	\checkmark											
Birds (night)				\checkmark								
Herpetofauna				\checkmark								
Dragonflies			\checkmark									
Butterflies			\checkmark									
Aquatic fauna	\checkmark											

Table 3 Survey Schedule

3.1 MAMMAL SURVEY

3.1.1 Mammal surveys will be conducted along the transects shown in Appendix 1 during both daytime and night time periods. Along with direct observations, other field signs, such as scats and tracks, will be searched and recorded if present.

3.2 BIRD SURVEY

3.2.1 Bird surveys will be conducted along the transects shown in Appendix 1 during the surveys, species and their vocalizing individuals recorded will be enumerated and recorded according to the habitat(s) they are utilising.

3.3 HERPETOFAUNA SURVEY

3.3.1 Reptile and amphibian surveys will be conducted along transects shown in Appendix 1 during surveys careful searches of appropriate microhabitats and refugia for reptiles and their vocalizing individuals will be undertaken and all reptiles observed will be identified and counted.

3.4 DRAGONFLY SURVEY

3.4.1 Dragonfly surveys will be conducted along transects shown in Appendix 1 during surveys all dragonflies seen will be identified and counted as accurately as possible.



3.5 BUTTERFLY SURVEY

3.5.1 Butterfly surveys will be conducted along transects shown in Appendix 1 during surveys all butterflies seen will be identified and counted as accurately as possible.

3.6 AQUATIC FAUNA SURVEY

3.6.1 Freshwater fishes and macro-invertebrates will be recorded by direct observation. All species trapped/recorded will be enumerated and identified (to the lowest taxonomic level possible), and the species of conservation importance photographed.



4 RESULT

This monitoring survey started on 20^{th} June 2023, a sunny day. The day and night survey covered wetland and non-wetland areas. The survey was conducted by transect and at fixed point. All species seen would be identified and counted as accurately as possible.

Mammal

There was no mammal recorded in the monitoring area.

Bird

There were total of 16 bird individuals from 5 species recorded in the monitoring area. No Golden-headed Cisticola was observed during the bird survey.

Herpetofauna

There was no reptile recorded in the monitoring area. There was no amphibian recorded in the monitoring area.

■ Butterfly

There were total of 7 butterfly individuals from 4 species recorded in the monitoring area.

Dragonfly

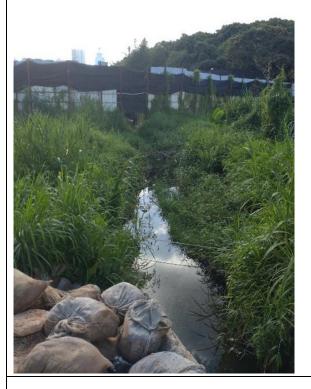
There were a total of 8 dragonfly individuals from 4 species recorded in the monitoring area.

Freshwater communities

There were 2 species of freshwater fish recorded in the monitoring area.



Picture 1 Watercourse in monitoring area.



Picture 2 Monitoring area.





Table 4Result of mammal in survey

Scientific Name	Common Name		Conservation Status	20/6/2023					
				UG	WL	MA	ww	WC	
N/A									

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 5Result of Avifauna in survey

Scientific Name	Common Name	Chinese Name	Conservation Status	20/6/2023					
			Status	UG	WL	MA	WW	WC	
Spilopelia chinensis	Spotted Dove	珠頸斑鳩		4					
Amaurornis phoenicurus	White-breasted Waterhen	白胸苦惡鳥				1			
Pycnonotus jocosus	Red-whiskered Bulbul	紅耳鵯		4			2		
Prinia flaviventris	Yellow-bellied Prinia	黃腹鷦鶯		1		2			
Orthotomus sutorius	Common Tailorbird	長尾縫葉鶯			2				

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 6Result of reptile in survey

Scientific Name	Common Name		Conservation Status	20/6/2023					
			~	UG	WL	MA	ww	WC	
N/A									

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 7Result of amphibian in survey

Scientific Name	Common Name		se Conservation Status	20/6/2023							
				UG	WL	MA	ww	WC			
N/A											

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

+ Species appeared but uncountable



Table 8Result of butterfly in survey

Scientific Name	Common Name	Chinese Name	Conservatio n Status	20/6/2023					
				UG	WL	MA	WW	WC	
Udaspes folus	Grass Demon	薑弄蝶				2			
Papilio polytes	Common Mormon	玉帶鳳蝶		1					
Eurema hecabe	Common Grass Yellow	寬邊黃粉蝶				2			
Pieris canidia	Indian Cabbage White	東方菜粉蝶			2				

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 9Result of Odonate in survey

Scientific Name	Common Name	Chinese Name	Conservation Status	20/6/2023					
				UG	WL	MA	ww	WC	
Anax guttatus	Pale-spotted Emperor	斑偉蜓				1			
Copera marginipes	Yellow Featherlegs	黃狹扇蟌				1			
Pseudothemis zonata	Pied Skimmer	玉帶蜻				2			
Pantala flavescens	Wandering Glider	黃蜻				4			

*UG: Upland Grassland | WL: Woodland | MA: Marsh | WW: Wet Woodland | WC: Watercourse

Table 10Result of freshwater communities in survey

Scientific Name	Common Name		Conservatio n Status		20/6/2023			
				UG	WL	MA	ww	WC
Gambusia affinis	Mosquito fish	食蚊魚						+
Puntius semifasciolatus	Chinese Barb	五線無鬚鮑						+

 $* UG: \ Upland \ Grassland \ | \ WL: \ Woodland \ | \ MA: \ Marsh \ | \ WW: \ Wet \ Woodland \ | \ WC: \ Watercourse$

+ Species appeared but uncountable



5 DISCUSSION

Data analysis was carried out to compare with the biodiversity within the site boundary in the same month over years. General description of the ecological conditions is first revealed in terms of abundance as well as species richness, following by statistical analysis of the existing database. The result is considered as significant whenever the drop of diversity indexes exceeds the percentages mentioned in previous sections 2.2 and 2.3.

5.1

Total abundance and species richness in June over years were compared to show the trends. Figures 1 and 2 indicate total species richness and total abundance within the site boundary respectively.

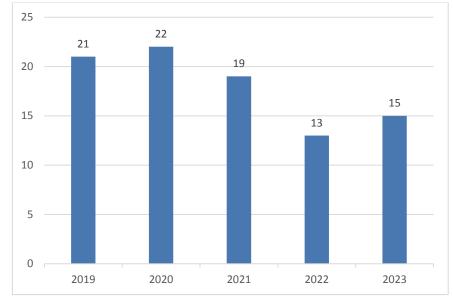


Figure 1: Bar chart showing the total species richness within site boundary from 2019 to 2023 (Actual quantity annotated at the top of each bar)

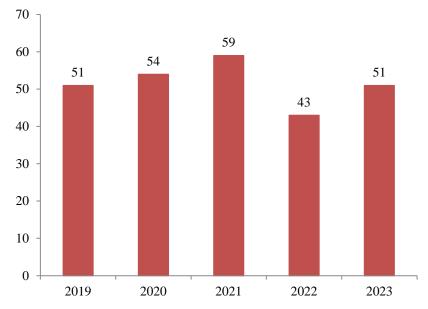
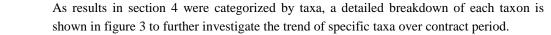


Figure 2: Bar chart showing the total abundance within site boundary from 2019 to 2023 (Actual quantity annotated at the top of each bar)





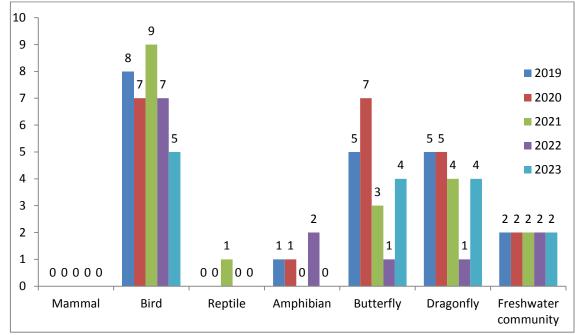


Figure 3: Bar chart showing the species richness within site boundary by taxa from 2019 to 2023 (Actual quantity annotated at the top of each bar)

5.3 According to EM&A Manual, monitoring measures was determined by the species diversity of types of sensitive habitats, i.e. non-wetland and wetland habitats. Abundance and species richness by habitat type in June over years were compared in figures 4 and 5.

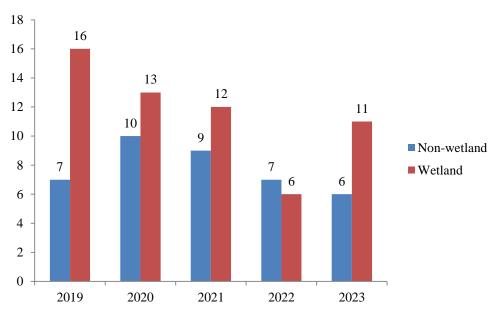
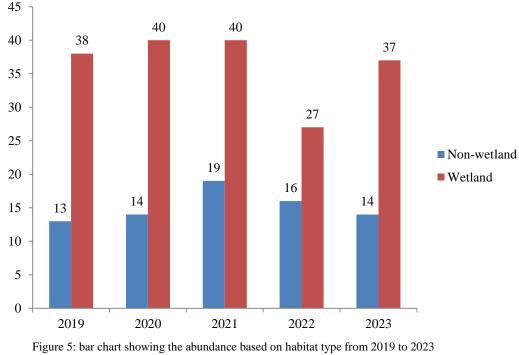


Figure 4: bar chart showing the species richness based on habitat type from 2019 to 2023 (Actual quantity annotated at the top of each bar)

5.2





(Actual quantity annotated at the top of each bar)

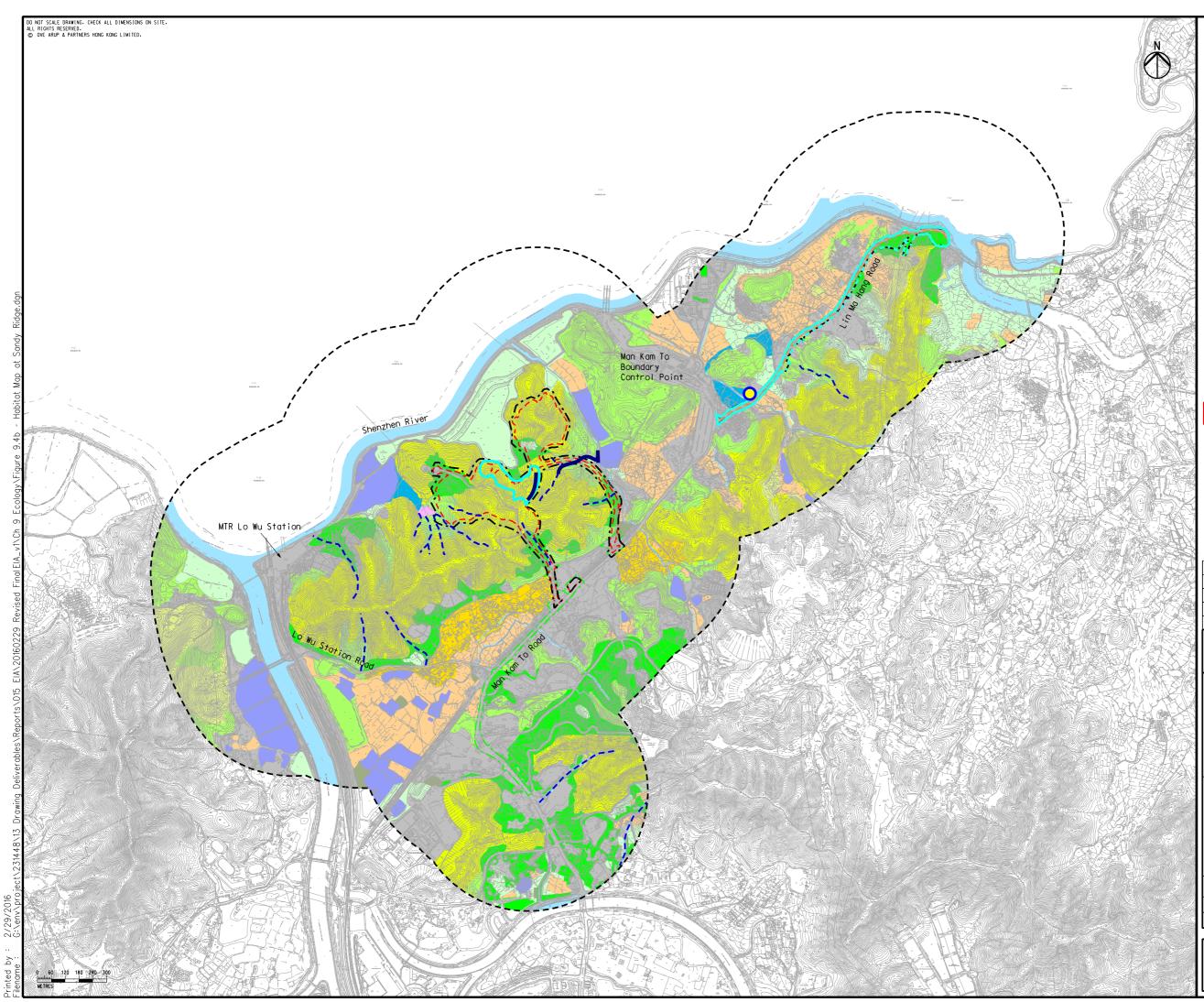
After analysing survey results in June from 2019 to 2023, records in species richness and abundance for wetland and non-wetland habitats are unstable, this may due to natural fluctuation. According to the recent on-site observation, there are new built workshops by others situated on both sides of Lin Ma Hang Road so the disturbance to fauna species from construction works could be increased. Due to the cause was not related to this project, remedial action to remove or reduce source of disturbance is limited.

Nevertheless, the situation could be benefited by some positive factors such as the major construction works in this contract were completed and most of the PME has been removed from site. Besides, compensation planting works have been conducted in early Jan 2023. Therefore, disturbance to fauna species from construction works have been largely minimized internally. In addition, woodland compensation and grassland reinstatement would be implemented in the second and third quarter of 2023. Hence, the habitat of fauna species would be gradually recovered and expectation of increase in the species richness and abundance for wetland habitat is high.

Still, a good site practice during construction, with reference to EM&A Manual, is required to prevent or alleviate environmental impacts. For instance, the size of work areas should be minimized and disturbed areas should be reinstated immediately after completion of construction works. In addition, implementing proper waste disposal is necessary to reduce contamination to water and soil. Continuous monitoring is also recommended to inspect any significant decrease in species diversity.



Appendix I – Transect Routes for Contract CV/2017/02



egeno	ť
::2	Project Boundary
	Utilities Construction
111	Sandy Ridge Works Area
11	Lin Ma Hang Road Works Area
	500m Assessment Area
	Watercourse
	Seasonal Watercourse
	Pond
	Developed Area
	Agricultural Land
	Marsh
	Wasteland
	Grassland
	Upland Grassland
	Shrubland
	Plantation
	Woodland
	Wet Woodland
	Village Area
_	Site boundary of Contract 2
	Survey Transect for Contract 2
0	Fixed Point for Contract 2

G	SEVENTH ISSUE	GL	02/16							
F	SIXTH ISSUE	GL	01/16							
Ε	FIFTH ISSUE	GL	12/15							
D	FOURTH ISSUE	GL	10/15							
Rev	Description	By	Date							
C	Generalized									

ARUP

Contract No. and Title:

Agreement No. CE 1/2013(CE)

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery - Design and Construction

Drawing tit

Habitat	Мар	at	Sandy	Ridge						
Drowing no. Figure 9.4b										
	ote 2/16	E	hecked L	Approved ST						
Scole AS SHO	#N	s	PREL I	MINARY						
	COPYRI	GHT RE	ESERVED							
CEDD L 木 ⊥ 程 拓 展 署 Civil Engineering and Development Department										



Appendix L

Landscape & Visual Inspection Checklist



Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery Landscape and Visual Impact Assessment Checklist for Site Audit

Date/ Time: 30/06/2023 15:30 Weather: Fine/ Overcast/ Rain/ Windy

Item	Mitigation Measures	Im	pleme	itation	Actions/ Remarks		
		Yes		N/A			
1	Landscape and Visual	1			1		
1.1	Is the construction period become shortened?			\checkmark	Under review.		
1.2	Is the work site confined within site boundaries and without encroaching into the landscape resources offsite?	~					
1.3	Is the site kept clean and tidy (E.g. storage of materials, location and appearance of site accommodation being well positioned)	~					
1.4	Is the construction site screened properly by hoardings or noise barriers in visually unobstructed colours?	~					
1.5	Is the erosion and dust control for exposed soil well performed during excavation work? (E.g. Exposed soil shall be covered or "camouflaged" and watered frequently. Areas that are expected to be left with bare soil for a long period of time should be hydro seeded and / or covered with suitable protective fabrics.)	~					
1.6	Are the woodland, plantation and other vegetation being protected and preserved in accordance with DEVB TC(W) No. 07/2015(E.g. Set up Tree Protection Zone)?	~					
1.7	Are the trees which are in direct conflict with the development proposal being transplanted as far as practical in accordance with and DEVB TC(W) No. 07/2015?	~					
1.8	Are compensatory planting for trees being provided to compensate the trees felled in accordance with DEVB TC(W) No. 07/2015?			~	Tree planting works have not yet been commenced.		
1.9	Are precautionary control measures to protect natural streams and rivers from adverse impact being implemented in accordance with ETWWB TCW No. 5/2005? (E.g. Construction debris and spoil should be covered up and properly disposed)	~					
1.10	Is light and glare control such as hooding being implemented during construction and operation to minimize light pollution and night time glare? (E.g. All security floodlights for construction sites should be equipped with adjustable shield, frosted diffusers and reflective covers)	~					

Summary / Remarks:



Follow up actions taken by Contractor for previous comments:

N/A

New observation:

N/A

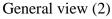
Reminders:

- 1. Contractor is reminded to set up TPZ of proper size and with appropriate material around retain trees according to approved method statement.
- 2. Contractor is reminded to prevent the construction material pile within TPZ and ensure no works is allowed within the TPZ.
- 3. Transplanted trees T2465 and T2928 were in fair health condition with normal foliage color and density. Contractor is reminded to provide proper maintenance according to approved method statement.

Photo Record:



General view (1)





General view (3)

General view (4)





Transplanted tree (T-2465)



Transplanted tree (T-2928)



Contract No. CV/2017/02 Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery Development of Columbarium at Sandy Ridge Cemetery – Infrastructural Works at Man Kam To Road and Lin Ma Hang Road Landscape and Visual Impact Assessment Checklist for Site Audit

Date/ Time: 30/06/2023 16:30 Weather: Fine/ Overcast/ Rain/ Windy

Item	Mitigation Measures	Im	olemei	ntation	Actions/ Remarks		
	5	Yes	No	N/A			
1	Landscape and Visual	1					
1.1	Is the construction period become shortened?			\checkmark	Under review		
1.2	Is the work site confined within site boundaries and without encroaching into the landscape resources offsite?	~					
1.3	Is the site kept clean and tidy (E.g. storage of materials, location and appearance of site accommodation being well positioned)	✓					
1.4	Is the construction site screened properly by hoardings or noise barriers in visually unobstructed colours?	~					
1.5	Is the erosion and dust control for exposed soil well performed during excavation work? (E.g. Exposed soil shall be covered or "camouflaged" and watered frequently. Areas that are expected to be left with bare soil for a long period of time should be hydro seeded and / or covered with suitable protective fabrics.)	~					
1.6	Are the woodland, plantation and other vegetation being protected and preserved in accordance with DEVB TC(W) No. 07/2015(E.g. Set up Tree Protection Zone)?	~					
1.7	Are the trees which are in direct conflict with the development proposal being transplanted as far as practical in accordance with and DEVB TC(W) No. 07/2015?			~			
1.8	Are compensatory planting for trees being provided to compensate the trees felled in accordance with DEVB TC(W) No. 07/2015?			~			
1.9	Are precautionary control measures to protect natural streams and rivers from adverse impact being implemented in accordance with ETWWB TCW No. 5/2005? (E.g. Construction debris and spoil should be covered up and properly disposed)			~			
1.10	Is light and glare control such as hooding being implemented during construction and operation to minimize light pollution and night time glare? (E.g. All security floodlights for construction sites should be equipped with adjustable shield, frosted diffusers and reflective covers)			~			

Summary / Remarks:



Follow up actions taken by Contractor for previous comments:

N/A

New Observation:

N/A

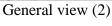
Reminders:

1. Contractor is reminded to set up TPZ of proper size and with appropriate material around retain trees according to approved method statement. Contractor should prevent any construction material pile within TPZ and ensure no works is allowed within the TPZ.

Photo Record:



General view (1)





General view (3)

General view (4)



Signature:

Recorded by	Registered Landscape Architect	Signatures HEGS ROG SIGNATURES SHIUL	au Bun 张 就 -142 3704 2023
Checked by	Environmental Team Leader	Am	11 Jul 2023
	Independent Environmental Checker	h	11 Jul 2023



Appendix M

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for 2023

 Department:
 Civil Engineering and Development Department
 Contract No.:
 CV/2016/10

 Contract Title:
 Site Formation and Assoicated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

 Commencement Date:
 15-Dec-2017
 Estimated completion Date
 22-Dec-2023
 Estimated Contract Sum:
 780M

		Actual Quantitie	s of Inert C&D N	Iaterials Generated	l Monthly			Actual Quantities	s of C&D Wastes	Generated Monthly	7
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0.340	0.000	0.000	0.000	0.340	0.000	0.000	0.000	0.000	0.000	0.020
Feb	0.300	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.015
Mar	0.157	0.000	0.000	0.000	0.157	0.000	0.000	0.000	0.000	0.000	0.015
Apr	0.120	0.000	0.000	0.000	0.120	0.000	0.000	0.000	0.000	0.000	0.010
May	0.160	0.000	0.000	0.000	0.160	0.000	0.000	0.000	0.000	0.000	0.015
June	0.100	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.010
Sub-total	1.177	0.000	0.000	0.000	1.177	0.000	0.000	0.000	0.000	0.000	0.085
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	1.177	0.000	0.000	0.000	1.177	0.000	0.000	0.000	0.000	0.000	0.085

Notes: (1) The waste flow table should cover the whole construction period of the Contract.

(2) The original estimates of the C&D materials should be the estimates at contract commencement and should not be altered during construction.

(3) Inert C&D materials that are specified in the Contract to be imported for use at the Site shall be separately indicated.

(4) The yearly estimates of the C&D materials should be updated as appropriate taking into account the latest works programme etc.

(5) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(6) Broken concrete for recycling into aggregates.

Name of Department: CEDD

	А	ctual Quantities	of Inert C&D N	Iaterials Gener	rated Monthl	у	Actual Q	uantities of C	C&D Wastes	Generated	Monthly
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in Litre)	(in '000kg)
JAN	191.800	0.000	0.000	0.000	191.800	0.000	0.000	0.000	0.000	0.000	5.800
FEB	356.600	0.000	0.000	0.000	356.600	0.000	0.000	0.000	0.000	0.000	9.600
MAR	352.230	0.000	0.000	0.000	352.230	0.000	0.000	0.000	0.000	0.000	4.640
APRIL	87.490	0.000	0.000	0.000	87.490	0.000	0.000	0.000	0.000	0.000	2.090
MAY	135.790	0.000	0.000	0.000	135.790	0.000	0.000	0.000	0.000	0.000	3.330
JUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.130
Sub Total	1123.910	0.000	0.000	0.000	1123.910	0.000	0.000	0.000	0.000	0.000	32.590
JUL											
AUG											
SEP											
OCT											
NOV											
DEC											
Total	1123.910	0.000	0.000	0.000	1123.910	0.000	0.000	0.000	0.000	0.000	32.590

Monthly Summary Waste Flow Table for 2023

Notes: * estimated quantity (pending from EPD NENT (soil) to update the actual quantity)

Name of Department: CEDD

	Fore	cast of Total Qu	antities of C&	D Materials	to be Generat	ed from the	Contract (see	e Note 4)		
Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metal	Paper / cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
0	0	0	0	0	0	0	0	0	1	0

Notes:

(1) The performance targets are given in PS clause 6(14) above.

(2) The waste flow table shall also include C&D materials that are specified in the Contractor to be imported for use at the Site.

(3) Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature

- Hard Rocks and Large Broken Concrete = Cannot be defined at this stage
- Imported Fill = Estimated by the Contractor
- Metal = Estimated by the Contractor
- Paper/cardboard packaging = Estimated by the Contractor
- Plastics = Estimated by the Contractor

- Chemical Waste = Estimated by the Contractor (Spent lubricating oil, assume density 0.9kg/L)

- Other, e.g. general refuse = Estimated by the Contractor



Appendix N

Complaint Log



			Complaint Log I	of Contract	1	
Log ref.	Date of complaint	Complaint route	Reference no.	Complaint nature	Investigation fining	Status
1	15-Apr-21	EPD	EPD Ref.: EP3/N07/RN/8770-21	Air Quality	Non-project related	Interim IR was submitted to EPD on 22 April 2021 and included in EM&A Report – Apr 2021
2	11-Feb-22	EPD	EPD Ref.: EP3/N07/RN/03921-22	Noise	Non-project related	Interim IR was submitted to EPD on 25 Feb 2022 and included in EM&A Report – Feb 2021

Complaint Log for Contract 1

Complaint Log for Contract 2

Log ref.	Date of complaint	Complaint route	Reference no.		Investigation fining	Status
1	4-Sep-20	EPD	EPD Ref.: EP/RN/419300	Water quality	Non-project related	Interim IR was submitted to EPD on 14 Sep 2020 and included in EM&A Report – Sep 2020
2	15-Apr-21	EPD	EPD Ref.: EP3/N07/RN/8770-21	Air Quality	Non-project related	Interim IR was submitted to EPD on 22 April 2021 and Included in EM&A Report – Apr 2020
3	11-Feb-22	EPD	EPD Ref.: EP3/N07/RN/03921-22	Noise	Non-project related	Interim IR was submitted to EPD on 25 Feb 2022 and included in EM&A Report – Feb 2021
4	14-July-22	EPD	EPD Ref.: N07/RN/00014141-22	Soil/muddy water	Non-project related	Interim IR was submitted to EPD on 19 Aug 2022 and included in EM&A Report – Aug 2022
5	23-9-22	EPD	EPD Ref.: N07/RN/00020415-22	Air Quality	Non-project related	Interim IR was submitted to EPD on 30 Sep 2022 and included in EM&A Report – Sep 2022



Appendix O

Implementation Schedule for Environmental Mitigation Measures

	Environmental Mitigation Implementation Schedule	on Implementatior	Т	Sandy Ridge			
EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
Common A	Common Mitigation Measures (Applicable to ALL Project Components, including DPs and Non-DPS)	(Sa					
Constructi	Construction Dust Impact						
S4.4.5.2	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO criteria	Implemented.
S4.4.5.3	Water spraying every hour for all active works area.	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO APCO To control the dust impact to meet HKAQO and TM-EIAO criteria	Implemented. *2 nos. of water truck were running on haul road for sufficient water spraying
	 impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones; The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels; When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoarding sare properly maintained throughout the construction site than 2.4m high should be kept clear of dusty materials on the networks. 	at the nearby sensitive receivers		construction sites	phase	• To control the dust impact to meet HKAQO and TM-EIAO criteria	Implemented Implemented Implemented Implemented Implemented Implemented
	 a dust suppression chemical continuously; Any area that involves demolition activities should be sprayed with water or a 						

EIA Ref.	Recommended Mitigation Measures	Objectives of the	Implementation	Location /	Implementation	Requirements	Implementation
		Recommended Measures & Main Concerns to address	Agent	Timing	Stage	and / or standards to be achieved	status and remark*
	dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;						Implemented
	 Any skip hoist for material transport should be totally enclosed by impervious sheeting; 						Implemented
	• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA)						
	should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;						Implemented
	• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA						
	should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution						Implemented
	control system;						
	Exposed earth should be properly treated by compaction, turfing, hydroseeding,						
	vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on						Implemented
	the construction site or part of the construction site where the exposed earth lies.						
S4.4.5.1	Implement regular dust monitoring under $EM\&A$ programme during the construction	Monitoring of dust	Contractor	Selected	Construction	• TM-EIAO	Implemented.
	stage.	impact		representative	phase		3 dust
				dust			monitoring
				monitoring			stations were Implemented
S4.4.5.3	 All road surface within the barging facilities will be paved. 	Minimise dust impact	Contractor	Barging point	Construction	• TM-EIAO	No Applicable.
	 Dust enclosures will be provided for the loading ramp, installation of 3- sided 	at the nearby sensitive		at Siu Lam	phase		* Barging point
	screen with top cover and the provision of water sprays at the discharge point	receivers					at Siu Lam is not in
	would be provided.						used.
	 Vehicles will be required to pass through designated wheel wash facilities. 						
	 Continuous water spray at the loading point. 						
Construction Noise							
<i>с.с.с.</i> сс	 Implement the following good site management practices: only well-maintained plant should be operated on-site and plant should be 	Control construction noise	Contractor	All construction	Construction phase	• Annex 3, 1M-EIAO	Implemented
	serviced regularly during the construction programme;			sites	4		4
	 machines and plant (such as trucks, cranes) that may be in intermittent use should 						Implemented
	be shut down between work periods or should be throttled down to a minimum;						
	 plant known to emit noise strongly in one direction, where possible, be orientated 						Implemented
	so that the noise is directed away from nearby NSRs;						
	 silencers or mufflers on construction equipment should be properly fitted and 						Implemented
	maintained during the construction works;						
	 mobile plant should be sited as far away from NSRs as possible and practicable; 						Implemented
	 material stockpiles, mobile container site office and other structures should be effectively utilised where macricable to screen noise from onsite construction 						Implemented

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
	activities.						
S5.5.5	Adopt quiet plants during the construction of viaduct, widening of Sha Ling Road, construction of platform for crematorium and widening of Lin Ma Hang Road. The quiet plants should be made reference to the PME listed in the TM or the QPME/ other commonly used PME listed in EPD web pages or taken from BS5228: Part 1: 2009 Noise Control on Construction and Open Sites as far as possible.	Reduce the noise levels of plant items	Contractor	Works area for construction of viaduct, widening of Sha Ling Road, construction of platform for crematorium and widening of Lin Ma Hang Road	Construction phase	• Amex 5, TM-EIAO	Implemented * Quiet plants were in used.
S5.5.5.6	Install temporary noise barriers (in the form of site hoardings, approx. 2.4m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction phase	Annex 5, TM-EIAO	Implemented where necessary. * Temporary noise barriers are not practicable due to site constraint.
\$5.5.5.7 - \$5.5.5.12	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered upper portion of superficial density no less than $7kg/m2$ on a skid footing with $25mm$ thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressors, generators etc.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction phase	Annex 5, TM-EIAO	Implemented where necessary. * Movable noise barriers are not practicable due to site constraint.
S5.5.5.13	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction noise	Contractor	All construction sites where practicable	Construction phase	Amex 5, TM-EIAO	Implemented

Neuronest Main Agen Long Monitor the contractor Selected Construction construction noise nonitoring phase levels at the selected construction noise nonitoring locations contractor Selected Construction locations noise from representative phase noise from Figures of the Project for road traffic 5.6.13 representative noise from S.6.9 - ceisting	EIA Ref.	Recommended Mitigation Measures	Objectives of the	Implementation	Location /	Implementation Store	Requirements	Implementation
Informed to a first of indication under EN&A programme. Montion Contraction Contraction Addret Abord Traffic Noted Addret Abord Traffic Noted Exected Exected <th></th> <th></th> <th>Measures & Main Concerns to address</th> <th>Agent</th> <th>20</th> <th>0 0 0</th> <th>anu / or stanuarus to be achieved</th> <th></th>			Measures & Main Concerns to address	Agent	20	0 0 0	anu / or stanuarus to be achieved	
Provide a series of noise miligition measures including absorptive noise burries and here noise consist and might measures including absorptive noise burries and before operation of the proposed project for existing and pland typestentiate to before operation of the proposed project for existing and pland typestentiate by the project for the project for the moise of noise miligition measures are stard as following: Locations of noise miligition measures are stard as following: Each contractor Refer to 5.6.3 Prior to operation of the EIA proposed project for existing and NMD; A prov. 1.2 mo (noise miligition measures are stard as following: Read (AMD); A prov. 2.1 mo (noise) milition for a proper at a long Sha Ling Read (AMD); S (A) = existing and (AMD); Proper the Properation of the project for existing and (AMD); Proper the Properation of Properation of Properation of Properation of the project food mean Sha Ling Read (AMD); Proper the Properation of Properation of Proprot and Ling (AMM);	S13.2.1.1 - S13.4.1.2	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction phase	TM-EIAO	Implemented. * 4 noise monitoring stations were Implemented.
Provide a series of noise miligation measures including absorptive noise burners Reduce operation Provide a series of noise miligation measures including absorptive noise burner Provide a series of noise miligation measures are stated as following: Provide a series of molecular and such and solar ling keed Provide a series of molecular and such and solar ling keed Provide a series of molecular and solar ling keed Provide a series of molecular and solar ling keed Provide a series of molecular and solar ling keed Provide a series of molecular and solar ling keed Provide a series and solar ling keed Provide a series S stating a series of molecular and solar ling keed Provide a series S stating a series of molecular and solar ling keed Provide a series S stating a series of molecular and solar ling keed Provide a series S stating a series of molecular and solar ling keed Provide a series S stating series S stating a series	Operation	al Noise (Road Traffic Noise)						
road traffic 5.69 - existing 5.613 representative of the EIA NSRs. While Report planned representative NSRs, it shou constructed planned representative NSRs.	S5.6.6.4	Provide a series of noise mitigation measures including absorptive noise barriers and low noise road surfacing materials along Lin Ma Hang Road and Sha Ling Road	Reduce operation noise from	Contractor	Refer to Figures	Prior to operation of the Project for	• TM-EIAO	Shall be implemented Prior
S.6.13 representative level along Sha Ling of the EIA NSRs. While level along Sha Ling Report barriers to protiplanted representative NSRs, it shot constructed vel along Project Road Project Road representative vel along Project Road NSRs, it shot NSRs, it shot vel along Project Road Project Road representative vel along Lin Ma Hang NSRs. NSRs.		before operation of the proposed project for existing and planned representative NSRs.	road traffic		5.6.9 -	existing		0
oilse barrier 2.5m above road level along Sha Ling of the EIA NRRs. While oilse barrier 2.5m above road level along Sha Ling noise barrier 2.5m above road level along Sha Ling barriers to prot oilse barrier 2.5m above road level along Sha Ling noise barrier 2.5m above road level along Project Road barriers to prot oilse barrier 3.m above road level along Project Road noise barrier 3m above road level along Lin Ma Hang NSRs, it shot oilse barrier 4m above road level along Lin Ma Hang NSRs, it shot NSRs, it shot oilse barrier 4m above road level along Lin Ma Hang NSRs, it shot NSRs, it shot oilse barrier 4m above road level along Lin Ma Hang NSRs, it shot NSRs, it shot oilse barrier 4m above road level along Lin Ma Hang NSRs, it shot NSRs, it shot oilse barrier 4m above road level along Lin Ma Hang NSRs, it shot NSRs, it shot f(f) NSR NSR NSRs, it shot f(f) NOPO NOPO NSR f(f) NOPO NOPO		Locations of noise mitigation measures are stated as following:			5.6.13			Project.
Approx. 12m of absorptive noise barrier 2.5m above road level along Sha Ling keport Road (MM1); Approx. 20m of absorptive noise barrier 2.5m above road level along Sha Ling keport Approx. 20m of absorptive noise barrier 2.5m above road level along Sha Ling keport keport Approx. 21m of absorptive noise barrier 7.5m above road level along Project Road keport keport Approx. 25m of absorptive noise barrier 7m above road level along Project Road keport keport Approx. 25m of absorptive noise barrier 7m above road level along Lin Ma Hang keport keport Approx. 25m of absorptive noise barrier 4m above road level along Lin Ma Hang keport keport Approx. 25m of absorptive noise barrier 4m above road level along Lin Ma Hang keport keport Road near San Uk Ling (MM6); Approx. 14m of absorptive noise barrier 4m above road level along Lin Ma Hang keport Road near San Uk Ling (MM6); Approx. 14m of absorptive noise barrier 4m above road level along Lin Ma Hang kead near San Uk Ling (MM7); Approx. 14m of absorptive noise barrier 4m above road level along Lin Ma Hang kead near San Uk Ling (MM7); Approx. 15m of absorptive noise barrier 4m above road level along Lin Ma Hang Road near San Uk Ling (MM7); Approx. 18m of absorptive noise barrier 4m above road level along temporary kead near San Uk Ling		For existing representative NSRs			of the EIA	NSRs. While for		
la l					Keport	barriers to protect planned		
bove road level along Project Road bove road level along Project Road bove road level along Lin Ma Hang bove road level along Lin Ma Hang		• Approx. 92m of absorptive noise barrier 2.5m above road level along Sha Ling				representative		
bove road level along Project Road bove road level along Lin Ma Hang bove road level along Lin Ma Hang		Road (MM2);				NSRs, it should		
bove road level along Project Road bove road level along Lin Ma Hang bove road level along Lin Ma Hang		Approx. 28m of absorptive noise barrier 3m above road level along Project Road				cted		
bove road level along Lin Ma Hang bove road level along Lin Ma Hang		near Sha Ling Road (MM3);				intake		
bove road level along Lin Ma Hang bove road level along Lin Ma Hang is along Lin Ma Hang bove road level along Lin Ma Hang		 Approx. 51m of absorptive noise barrier 3m above road level along Project Road near Sha Ling Road (MM4); 				planned representative		
 Read near San Uk Ling (MM5); Approx. 21 mo f absorptive noise barrier 4m above road level along Lin Ma Hang Road near San Uk Ling (MM6); Approx. 14 mo f absorptive noise barrier 4m above road level along Lin Ma Hang Road near San Uk Ling (MM7); Approx. 18 m of absorptive noise barrier 4m above road level along Lin Ma Hang Road near San Uk Ling (MM8); Approx. 18 m of absorptive noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM8); Approx. 18 m of absorptive noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM9); Approx. 32 m of absorptive noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM10); Approx. 18 m of now noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36 m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (MM11); Approx. 36 m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (M11); Approx. 36 m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (M11); Approx. 36 m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (M11); Approx. 36 m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (M11); 		• Approx. 25m of absorptive noise barrier 4m above road level along Lin Ma Hang				NSRs.		
 Approx. 21m of absorptive noise barrier 4m above road level along Lin Ma Hang Road near San Uk Ling (MM6); Approx. 14m of absorptive noise barrier 4m above road level along Lin Ma Hang Road near San Uk Ling (MM7); Approx. 18m of absorptive noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM9); Approx. 42m of absorptive noise barrier 3m above road level along temporary pullover space opposite San Uk Ling (MM9); Approx. 93m of absorptive noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of now noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road opposite San Uk Ling (MM11); Cpr planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road deposite San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu NM12); 		Road near San Uk Ling (MM5);						
 Approx. 14m of absorptive noise barrier 4m above road level along Lin Ma Hang Raad near San Uk Ling (MMT); Approx. 18m of absorptive noise barrier 3m above road level along Lin Ma Hang Raad near San Uk Ling (MMB); Approx. 42m of absorptive noise barrier 3m above road level along temporary pullover space opposite San Uk Ling (MM9); Approx. 93m of absorptive noise barrier 3m above road level along temporary pullover space opposite San Uk Ling (MM10); Approx. 185m of how noise surfacing materials along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Nuk Wu Nga Yiu (MM112); 		 Approx. 21m of absorptive noise barrier 4m above road level along Lin Ma Hang Road near San UR 1 ino (MM6). 						
 Road near San Uk Ling (MM7); Approx. 18m of absorptive noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM8); Approx. 42m of absorptive noise barrier 3m above road level along temporary pullover space opposite San Uk Ling (MM9); Approx. 33m of absorptive noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 56m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); 		Approx. 14m of absorptive noise barrier 4m above road level along Lin Ma Hang						
 Approx. 18m of absorptive noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM8); Approx. 42m of absorptive noise barrier 3m above road level along temporary pullover space opposite San Uk Ling (MM9); Approx. 93m of absorptive noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near NW kU Nga Yiu (MM12); 		Road near San Uk Ling (MM7);						
 Road near San Uk Ling (MM8); Approx. 42m of absorptive noise barrier 3m above road level along temporary pullover space opposite San Uk Ling (MM10); Approx. 93m of absorptive noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Arran of the Nu Nga Yiu (MM12); 		• Approx. 18m of absorptive noise barrier 3m above road level along Lin Ma Hang						
 Approx. 4211 of absorptive noise barrier 3m above road level along Lin Ma Hang pullover space opposite San Uk Ling (MM10); Approx. 185m of low noise barrier 3m above road level along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Nuk Wu Nga Yiu (MM12); 		 Road near San Uk Ling (MM8); Annow ADm Af observatives makes how is a phone routed a long term content of the second land of the second lan						
 Approx. 93m of absorptive noise barrier 3m above road level along Lin Ma Hang Road opposite San Uk Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); Account Arrow of Action absorptive noise barrier for the above road level along Lin Ma Hang 		Approx. +2111 of absorptive fiolse barrier J111 above foat fevet arong tentpotary millover ensee onnocite San LILE I ing (MMO).						
 Road opposite San UK Ling (MM10); Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); Account of the content of the planned level along Lin Ma Hang 		Approx. 93m of absorptive noise barrier 3m above road level along Lin Ma Hang						
 Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); Association of the planned level along Lin Mo Lines 		Road opposite San Uk Ling (MM10);						
 San Uk Ling (MM11); For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); Access of the character of house house road long lober 1 in Mo Hang 		 Approx. 185m of low noise surfacing materials along Lin Ma Hang Road near 						
 For planned representative NSRs Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); Ansert ATTL of Above road level along Lin Ma Hang 		San Uk Ling (MM11);						
 Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM12); Ammer A Transfer and an and a provide along Lin Ma Units 		 For planned representative NSRs 						
• Amount Mark Wu Nga Yiu (MMI2);		• Approx. 36m of absorptive noise barrier 5m above road level along Lin Ma Hang						
		 Koad near Muk Wu Nga Yiu (MIM12); Amnox 47m of absorntive noise barrier 5m above road level along 1 in Ma Hang 						

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
	 Road near Muk Wu Nga Yiu (MM13); Approx. 31m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM14); Approx. 31m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM15); Approx. 41m of absorptive noise barrier 5m above road level along Lin Ma Hang Road near Muk Wu Nga Yiu (MM16); Approx. 340m of low noise barrier 5m above road level along Lin Ma Hang Nuk Wu Nga Yiu (MM16); 						
Water Qua	Water Quality (Construction Phase)						
S6.4.4.1 - S6.4.4.3	ac nst nst	To minimise water quality impact from construction site runoff and general	Contractor	All construction sites where applicable	Construction phase	Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO	
	 At the start of site establishment, perimeter cut-off drains to direct offisite water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction; 	construction activities				• TM-DSS	Implemented
	 Diversion of natural stormwater should be avoided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimise polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 ms capacities are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped: 						Implemented
	• The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the						Implemented
	 The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction; Construction works should be programmed to minimise surface excavation works during the evicy construction (Ansil to Construction). 						Implemented Implemented

EIA Ref.	Recommended Mitigation Measures	Objectives of the	Implementation	Location /	Implementation	Requirements	Implementation
		Recommended	Agent	Timing	Stage	and / or standards to	status and remark*
		Measures & Main				be achieved	
		Concerns to address					
	completed and vegetated as soon as possible after earthworks have been						
	completed. If excavation of soil cannot be avoided during the rainy season, or at						
	any time of year when rainstorms are likely, exposed slope surfaces should be						
	• If the excavation of trenches in wet periods is necessary, it should be dug and						Implemented
	backfilled in short sections wherever practicable. Water pumped out from						
	trenches or foundation excavations should be discharged into storm drains via silt						
	removal facilities;						
	All drainage facilities and erosion and sediment control structures should be						Implemented
	regularly inspected and maintained to ensure proper and efficient operation at all						
	times and particularly following rainstorms. Deposited silt and grit should be						
	removed regularly and disposed of by spreading evenly over stable, vegetated						
	areas;						
	All open stockpiles of construction materials (for example, aggregates, sand and						
	fill material) of more than 50m3 should be covered with tarnaulin or similar fabric						Implemented
	during rainctorms. Measures chould be taken to nevent the washing away of						
	 Manholes (including newly constructed ones) should always be covered and 						
	temporarily sealed so as to prevent silt, construction materials or debris being						Implemented
	washed into the drainage system and storm runoff being directed into foul						
	sewers;						
	Precautions be taken at any time of year when rainstorms are likely, actions to be						
	taken when a rainstorm is imminent or forecasted, and actions to be taken during						Implemented
	or after rainstorms are summarised in Amendix A2 of ProPFCC PN 1/94						
	Derricular attention chould be need to the control of eith curface mucht during						
	a arreation arreated or parts to fail to the control of the second second solutions and the						
							-
	ensure no earth, mud, debris and the like is deposited by them on roads. An						Implemented
	adequately designed and sited wheel washing facilities should be provided at						
	Wash-water should have sand and silt settled out and removed at least on a						
	weekly basis to ensure the continued efficiency of the process. The section of						Implemented
	access road leading to, and exiting from, the wheel-wash bay to the public road						
	should be paved with sufficient backfall toward the wheel-wash bay to prevent						
	vehicle tracking of soil and silty water to public roads and drains;						
	Oil interceptors should be provided in the drainage system downstream of any						
	oil/fuel pollution sources. The oil interceptors should be emptied and cleaned						Implemented
	regularly to prevent the release of oil and grease into the storm water drainage						
	system after accidental spillage. A bypass should be provided for the oil						
	interceptors to prevent flushing during heavy rain;						

EIA Kef.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main	Implementation Agent	Location / Timing	Implementation Stage	Kequirements and / or standards to be achieved	Implementation status and remark*
		Concerns to address					
	Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts;						Implemented
	All thet tarks and storage areas should be provided with locks and shed on search areas, within bunds of a capacity equal to 110% of the storage capacity of the brock tool to measure traillad field field field from modeling trader consisting reading						Implemented
	 Regular environmental audit on the construction site should be carried out in 						
	order to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into						Implemented
	the water bodies, marsh and ponds;Adopt best management practices.						Terra Journand
S6.4.4.4	Sewage from workforce	To minimise water	Contractor	All	Construction	Water Pollution	minipitati
	 Portable chemical toilets and sewage holding tanks are recommended for 	quality from		construction	nhase	Control Ordinance	Implemented
S6.4.4.5	handling the construction sewage generated by the workforce. A licensed	sewage effluent		sites where	Sound	• TM-DSS	
	contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance;			practicable			
	 Notices should be posted at conspicuous locations to remind the workers not to 						
	discharge any sewage or wastewater into the nearby environment during the						Implemented
	 Construction phase of the Project; Regular environmental audit on the construction site should be conducted in order 						
	to provide an effective control of any malpractices and achieve continual						
	improvement of environmental performance on site.						Implemented
S6.4.4.6	Operation of Barging Point at Siu Lam	To minimise water	Contractor	All	Construction	• Water Pollution	No Applicable.
	 All barges should be fitted with tight bottom seals to prevent leakage of materials 	quality from		construction	phase	Control Ordinance	* Barging point
		operation of barging		sites where		• TM-DSS	at Siu Lam is not in
	 Barges or hoppers should not be filled to a level that will cause overflow of 	point at Siu		practicable			used.
	materials or polluted water during loading or transportation;	Lam					
	vessels and the seabed in all tide conditions, to ensure that undue turbidity is not						
	generated by turbulence from vessel movement or propeller wash; and						
	 Loading of barges and hoppers should be controlled to prevent splashing of 						
	material into the surrounding water.						
	 Mitigation measures for land-based activities as outlined in Section 6.4.4 should 						
	be applied to minimise water quality impacts from site runoff and open stockpile						
C m	bouns at the proposed barging rachines where appropriate.						
Water Uuu	Water Quality (Operational Phase)						

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
S6.5.4.1 - S6.5.4.6	 The following mitigation measures during operational phase are recommended: Sewage and wastewater discharge should be connected to foul sewerage system; Proper drainage systems with silt traps and oil interceptors should be installed; The design of road gullies with silt traps should be incorporated especially for the catchment leading to the existing wet woodland area located at the north of the site; The silt traps and oil interceptors should be cleaned and maintained regularly, especially before peak seasons of the visitors in Ching Ming Festival and Chung Yeung Festival; Energy dissipaters should be installed at the seasonally wet watercourses to reduce the magnitude of the first flush in order to minimise the erosion impact to the wet woodland. 	To minimise the road runoff, wastewater discharge and erosion of seasonal watercourse during the operational phase	Highways Department /Contractors	Whole alignment	Construction / Operational Phase	• Water Pollution Control Ordinance • TM-DSS	For Operational phase
Waste Mar	Waste Management (Construction Waste)						
S7.3.3.8	Construction & Demolition Material Management Plan (C&DMMP) • A C&DMMP shall be submitted to the Public Fill Committee for approval in the case of C&D materials disposal exceeding 50,000ms.	To enhance the management of construction and demolition (C&D) material including rock in public works projects	Contractor	All construction sites	Construction phase	• Project Administrative Handbook for Civil Engineering Works, 2012 Edition	
S7.3.4.2	 Good Site Practice The following good site practices are recommended throughout the construction activities: nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; provision of sufficient waste disposal points and regular collection for disposal; appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; a Waste Management Plan (WMP) should be prepared by the contractor and exhisted code a contracter and code and co	Minimise waste generation during construction	Contractor	All construction sites	Phase	• Waste Disposal Ordinance	Implemented Implemented Implemented Implemented Implemented

ETA DAF	Docommondad Mittaation Monomoo	Obioatives of the	Tumlomontotion	I addion /	Importation	Dominomonto	Imulamontation
	veconnicueu o trugadon iveasures	Recommended	Agent	Timing	Stage	and / or standards to	status and remark*
		Measures & Main Concerns to address				be achieved	
S7.3.4.3		Reduce waste generation	Contractor	All construction	Construction phase	• Waste Disposal Ordinance	
	ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction:			sites			Implemented
	 segregate and store different types of waste in different containers, skip or 						4
	 stockpiles to enhance reuse or recycling of materials and their proper disposal; proper storage and site practices to minimise the notential for damage and 						Implemented
	contamination of construction materials;						Implemented
	 plan and stock construction materials carefully to minimise amount of waste 						
	 generated and avoid unnecessary generation of waste; sort out demolition debris and excavated materials from demolition works to 						Implemented
	recover reusable/recyclable portions (i.e. soil, broken concrete metal etc.);						Implemented
	 provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 						
S7.3.4.5	Storage of Waste	Good site practice to	Contractor	All	Construction	• Land	
	The following recommendation should be implemented to minimise the	minimise the		construction	phase	(Miscellaneous	
	impacts:	waste generation and		sites		Provisions)	
	 non-inert C&D materials such as soil should be handled and stored well to ensure 	recycle the				Ordinance	Implemented
	secure containment;	C&D materials as far				 Waste Disposal 	
	spraying system to	as				Ordinance	Implemented
	prevent materials from wind-blown or being washed away;	practicable so as to				• ETWB TCW No.	
	 different locations should be designated to stockpile each material to enhance 	reduce the				19/2005	Implemented
	reuse;	amount for final disposal					
S7.3.4.6	Collection and Transportation of Waste	Minimise waste	Contractor	All	Construction	 Waste Disposal 	
	The following recommendation should be implemented to minimise the	impacts from		construction	phase	Ordinance	
	impacts:	storage		sites			
	 remove waste in timely manner; 						Implemented
	 employ the trucks with cover or enclosed containers for waste transportation; 						Implemented
	• obtain relevant waste disposal permits from the appropriate authorities; and						Implemented
C7 2 1 0	disposal of waste should be done at licensed waste disposal facilities.	Minimico wooto	Contractor	× 11	Constantotion	• I and	Implemented
0.+.0.10	staniolo charuld ha carmanatad fram athan wortao ta avaid	MILLING WASIC	CUIIII ACIUI	All	CUISUACIOI	• Lanu	
_ S7.3.4.15	whetever practications, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public filling areas or reclamation sites. The	excavated and C&D		sites	putase	(Intractions) Provisions)	
		materials				Ordinance	
	implemented in handling the excavated and C&D materials:					 Waste Disposal 	
	 maintain temporary stockpiles and reuse excavated fill material for backfilling; 					Ordinance	Implemented
	 carry out on-site sorting; make provisions in the Contract documents to allow and promote the 						Implemented Implemented
		_					

EIA Ref.	Recommended Mitigation Measures	Objectives of the	Implementation	Location /	Implementation	Requirements	Implementation
		Recommended Measures & Main Concerns to address	Agent	Timing	Stage	and / or standards to be achieved	status and remark*
	 use of recycled aggregates where appropriate; and implement a recording system for the amount of waste generated, recycled and disposed of for checking. The recommended C&D materials handling should include: On-site sorting of C&D materials; Reuse of C&D materials; and Use of Standard Formwork and Planning of Construction Material purchasing. 						Implemented Implemented Implemented Implemented Implemented Implemented
S7.3.4.17 - S7.3.4.18	<u>Chemical Waste</u> If chemical Waste If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producer. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste Contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction phase	 Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	Implemented
S7.3.4.19	 <u>General Refuse</u> General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. A reputable waste collector should be employed to remove general refuse on a daily basis. 	Minimise production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	• Waste Disposal Ordinance	Implemented Implemented Implemented
S7.3.4.20	 <u>Sewage</u> The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. Regularly collection by licensed collectors should be arranged to minimise potential environmental impacts. 	Minimise production of sewage impacts	Contractor	All construction sites	Construction phase	• Waste Disposal Ordinance	Implemented Implemented
Waste Man S7.4.4.1	Waste Management (Operational Waste) S7.4.4.1 General Refuse A reputable waste collector should be employed to remove general refuse on a daily basis.	Remove general refuse during routine road cleaning activities on the roads network and avoid odour, pest and litter impacts	Highways Department /Contractor	Roads network for the C&C facilities and Lin Ma Hang Road	Operational phase	Waste Disposal Ordinance	Implemented

EIA Ref.	Recommended Mitigation Measures	Objectives of the	Implementation	Location /	Implementation	Requirements	Implementation
		Recommended Measures & Main Concerns to address	Agent	Timing	Stage	and / or standards to be achieved	status and remark*
Land Contamination	mination						
S8.9.1.1	Re-appraisal of the potentially contaminated site (SRC-1)	Identify any hot spots for SI within the southeast and western portions of SRC-1	Project Proponent / Detailed Design Consultant	Potentially contaminated site (SRC-1)	Once the works area for the Project is confirmed and site access is available (e.g. after land resumption)	 Annex 19 of the TM-EIAO, Guidelines for Assessment of Impact On Sites of Cultural Heritage and Other Impacts (Section 3 : Potential Contaminated Land Issues); Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management; Guidance Notes for Contaminated Land Management; Guidance Notes for Contaminated Land Assessment and Remediation of Remediation of Remediation and Remediation of Remediation and Remediation and Remediation and Remediation and Remediation of Contaminated Land Assessment and Health Risk Assessment 	Implemented
S8.11.1.1	Preparation and submission of Contamination Assessment Plan (CAP) to EPD for review and approval, if required	Present the findings of the reappraisal and strategy of the recommended SI, if required	Project Proponent / Detailed Design Consultant	Potentially contaminated site (SRC-1)	After land resumption and prior to the construction phase	Ditto	Implemented
S8.11.1.2	Preparation and submission of Contamination Assessment Report (CAR) to EPD for review and approval, if required	Present the findings of SI, if any, and evaluate the level and extent of potential contamination	Project Proponent / Detailed Design Consultant	Potentially contaminated site (SRC-1)	Prior to the construction phase	Ditto	Implemented
S8.11.1.2	Preparation and submission of Remediation Action Plan (RAP) to EPD for review and approval if contamination is identified	Recommend appropriate mitigation	Project Proponent	Potentially contaminated	Prior to the construction	Ditto	Not required as no contamination is

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
		measures for the contaminated soil and groundwater identified in the assessment if remediation is required	Detailed Design Consultant	site (SRC-1)	phase		identified.
S8.11.1.2	Preparation and submission of Remediation Report (RR) to EPD for review and approval following the completion of any necessary remediation works	Demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP	Project Proponent / Detailed Design Consultant	Potentially contaminated site (SRC-1)	Prior to the construction phase	Ditto	Not required as no contamination is identified.
Ecology (C	Ecology (Construction Phase)		_	-	-		
S9.7.2.3	Preparation and submission of Upland Grassland Reinstatement Plan to EPD for agreement.	An Upland Grassland Reinstatement Plan will be prepared by a qualified ecologist/botanist with full details of the findings of a baseline grassland survey, the practical details and methodology of the physical excavation, transport and storage or turves/topsoil and their subsequent treinstatement once the receptor sites have been established, along with an implementation programme of reinstatement, post- reinstatement monitoring and maintenance programme. A contingency plan	Project Proponent/ Detailed Design Consultant (qualified ecologist/ botanist) for Upland Grassland Reinstatement Plan	Engineered slopes Of Crematorium Indicative locations for Grassland Reinstatement should be referred to Figure 9.11 of the EIA Report	Prior to construction phase	Reinstatement and establishment requirements to be detailed in Upland Grassland Reinstatement Plan TM-EIAO TM-EIAO	Implemented *Upland Grassland Reinstatement Plan was submitted to EPD.

EIA Ref.	Recommended Mitigation Measures	Objectives of the	Implementation	Location /	Implementation	Requirements	Implementation
		Recommended	Agent	Timing	Stage	and / or standards to	status and remark*
		Measures & Main Concerns to address				be achieved	
		should be proposed in					
		The Grassland					
		as to describe the					
		action and limit					
		levels and the action					
		plan if certain					
		performance criteria					
		breferred habitat) are					
		not met during the					
		monitoring and					
		maintenance period.					
S9.7.2.5	Preparation and submission of a Vegetation Survey Report and	The Vegetation Survey	Project Proponent/	Within the	Prior to	 Survey findings and 	Implemented
I	Transplantation Proposal (if needed as concluded in the Vegetation Survey Report) to	will report the	Detailed Design	Project	construction	transplantation	* Vegetation Survey
S9.7.2.6	EPD for agreement.	presence, as well as	Consultant	Area where	phase	methodology to be	Report and
		update the conditions,	(qualified	applicable		detailed in Vegetation	Transplantation
		number, locations and	ecologist/			Survey Report and	Proposals for
		habitat types of any	botanist) for			Transplantation Plan	Contract 1 and
		identified floral	Vegetation Survey			respectively.	Contract 2 were
		species of	Report and			• TM-EIAO.	submitted to EPD.
		conservation	Transplantation				
		importance to be	Proposal.				
		impacted by the					
		development, and					
		evaluate suitability					
		and/or practicality of					
		transplantation.					
		The Transplantation					
		Proposal will					
		recommend locations					
		of the receptor site(s),					
		transplantation					
		methodology,					
		implementation					
		programme of					
		transplantation and					
		post-transplantation					
		monitoring			_		

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
		and maintenance programme.					
S9.7.5.3 S9.7.5.5, S9.8.1.6	Preparation and submission of Enhancement Woodland Proposal to EPD for agreement.	Recommend appropriate enhancement planting programme, planting and post-transplantation monitoring methodology, action plan for monitoring the enhancement planting and maintenance programme.	Project Proponent/ Detailed Design Consultant (qualified ecologist/ botanist) for Wooded Area Proposal.	Filled slope west of the platform, and north west of the platform in the valley below MacIntosh Fort Indicative locations for Enhancement Woodland should be referred to Figure 9.11 of the EIA Report	Prior to construction phase	• Enhancement planting and establishment requirements to be detailed in Wooded Enhancement Proposal. • TM-EIAO	Implemented *Woodland compensation plan was submitted to EPD.
S9.7.3.1 - S9.7.3.3	Indirect impacts due to potential changes in water quality, hydrology and sedimentation could occur to a series of downstream watercourses and wetland systems (including the wet woodland, marsh and mitigation ponds) during both the construction (for the Platform and LMHR widening works) and operational stages. Generally, indirect water impact to any aquatic fauna during the construction phase should easily be avoided by implementing water control measures (ETWB TCW No. 5/2005) to avoid direct or indirect impacts any watercourses and good site practices (further details are discussed in Section 6 of the EIA Report). In addition, construction phase impacts on the watercourses, riparian corridor and fauna using these areas will be minimised by erection of a 2m high, solid, dull green site boundary fence on the edge of any active works area, 30m from the watercourse. Where this is not practicable due to site constraints, demarcation fencing will need to be erected to prevent unauthorised encroachment into the riparian corridor by constructions works and traffic. Detailed mitigation measures will be designed at the detailed design stage.	Minimise the indirect impacts to Water Quality and Hydrology	Contractor /detailed design consultant.	On the edge of any active works area, 30m from The watercourse	Prior to commencement and during construction phase	• ETWB TCW No. 5/2005 • TM-EIAO	Implemented.

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
S9.7.3.4 - S9.7.3.6	Mitigation for noise disturbance (details refer to S5.5.5 to S5.6.6 of this table). Site formation and construction are tentatively proposed to cover a 65-month period from mid 2017 to late 2022. As a precautionary approach, consideration should be given at the detailed design stage to avoid the use of highly reflective materials in the design and implementing the use of opaque materials, fritting, breaking up external reflections with stickers or plastic wrap and/or any other birdfriendly design for noise barriers. Works will be restricted to daytime and any construction lighting should be designed and positioned as to not impact on adjacent ecologically sensitive areas.	The construction work and site formation will be phased in order to reduce overall noise disturbance impacts in particular areas. Collisions usually occurs as a result of birds perceiving a clear path through an object that is transparent or appears to be transparent at some distance, or if the noise barrier is highly reflective which would appear to be composed of the adjacent natural vegetation. Furthermore, mitigation measures to control noise disturbance during this phase will involve the selection of quieter plant, use of movable noise barriers and erection of phoundary to demarcate the site boundary	Project Proponent	All construction sites	Prior to commencement and during phase phase	• TM-EIAO.	
.9.7.3.7	 In order to demonstrate ecological awareness and to minimise the risk of indirect impacts from water pollution and hill fires, a series of good site practices should be adopted by site staff throughout the construction phase at each works site. These are as follows: Put up signs to alert site staff about any locations which are ecologically sensitive and measures to prevent accidental impacts; Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering 	Minimise impacts on hydrological condition and water quality of hillside watercourses and reduce chances of hillfires.	Contractor	All construction sites	Prior to commencement and during construction phase	• TM-EIAO.	Implemented Implemented

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
	 watercourses; Prohibition of soil storage against trees or close to waterbodies; Delineation of works site to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value; No smoking, hot works or sources of fire close to upland grassland; No on-site burning of waste; and Waste and refuse in appropriate receptacles. 						Implemented Implemented Implemented Implemented Implemented
S.9.7.3.9	Precautionary checks by a suitably experienced ecologist of the vegetation for the presence of nesting birds should be carried out in the breeding season (February to July) before vegetation clearance. These impacts can be avoided by conducting vegetation clearance during the non-breeding season (tentatively August-January) and phased through the project period to minimise impacts.	Minimise the impacts to breeding birds within the works areas.	Contractor	All construction sites	Prior to site clearance	• TM-EIAO • WAPO	Implemented during breeding season.
Ecology (0	Ecology (Operational Phase)						
S9.7.2	Establishment, maintenance and monitoring of a Upland Grassland Reinstatement Area	Reinstatement of upland grassland and to maintain connectivity in Sandy Ridge. Ridge.	Project Proponent/ Contractor / Maintenance Authority	Engineered slopes of Crematorium Indicative locations for Grassland Reinstatement should be referred to Figure 9.11 of the EIA Report	Operational phase	 Monitoring methodology and successfulness of survival of upland grassland should follow Upland Grassland Reinstatement Plan. TM-EIAO. 	Upland Grassland Reinstatement Area will be implemented by other contract.
S9.7.5.3 - S9.7.5.6	Establishment, maintenance and monitoring of an enhancement woodland	Recommend appropriate enhancement planting programme, planting and post-transplantation monitoring methodology, action plan for monitoring the enhancement planting and	Project Proponent/ Detailed Design Consultant (qualified ecologist/ botanist) for Wooded Area Proposal.	Filled slope west of the platform, and north west of the platform in the valley below MacIntosh Fort	Operational phase	 Enhancement planting and establishment requirements to be detailed in Wooded Area Proposal. TM-EIAO. 	

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
		maintenance programme.		Indicative locations for Enhancement Woodland should be referred to Figure 9.11 of the EIA Report			
S9.7.4.1 - S9.7.4.5	Mitigation for Impacts to Water Ouality and Hydrology (Operational Phase) • Stormwater drainage system will be further developed in detailed design stage to collect dusty materials from water collected from the platform and associated road system. Silt traps will be installed to ensure removal of dusty materials. Regular cleaning will be conducted to avoid debris entering downstream rivers during first flush; and • The proposed small diameter bore pile system at the foundation of the proposed platform structure.	Specific mitigation measures will be implemented to prevent indirect impacts wetland habitats and fauna. Mitigation measures are to be further developed in the detailed design stage to address any water quality impacts due to the drainage from the proposed platform, and any erosion issues due to the drainage from the proposed platform. The surface runoff collected on the platform will be further developed at the detailed design stage. The proposed small diameter bore pile system at the foundation of the	Detailed Design Consultant	Wet woodland (and further down mitigation ponds) and the seasonal watercourse to the Project boundary	Detailed Design phase/Operational phase	• TM-EIAO	Implemented before Operational phase

ELA Ref.	Recommended Mitigation Measures	Ohiectives of the	Imnlementation	Location /	Imnlementation	Requirements	Imnlementation
		Recommended	Agent	Timing	Stage	and / or standards to	status and remark*
		Measures & Main	I	1		be achieved	
		Concerns to address					
		proposed platform					
		structure would allow					
		a notional free area of					
		about $87 - 91\%$ for					
		groundwater to pass					
		through.					
S9.7.4.6	Minimise the potential indirect light disturbance on the Street Lighting on	Reduce light pollution	Detailed Design/	The whole	Detailed Design	• TM-EIAO	Implemented before
Ι	fireflies surrounding the Project Site during operational phase	and impact on the	Consultant/	Project	phase/Operational		Operational phase
S9.7.4.7	• It is considered that at the detailed design stage, street lighting of similar lux/light	nearby habitats and	Operator	area	phase		
	intensity as to what is currently present is utilised.	their associated					
	Furthermore, as a precautionary measure, it is suggested that deflectors are fixed to	wildlife groups,					
	the back of the street lights to prevent additional light reaching the marsh and	particularly nocturnal					
	causing adverse impacts to fireflies.	fireflies.					
S9.7.4.9	The increase in visitors to the columbarium allows greater public access to the upland	Minimise the risk of	Detailed Design/	The whole	Detailed Design	• TM-EIAO	Implemented before
I	grassland of Sandy Ridge and in turn, the potential for hill fires is also increased. Fires	hill fires.	Consultant/	Project	phase/Operational		Operational phase
S9.7.4.9	may emanate from discarded cigarettes and from specific practices during festivals or		Operator	area	phase		
	grave-sweeping.						
	In order to reduce the risk of hill fires, sufficient educational signage should be						
	displayed throughout the columbarium warning people of the risks of fire and strictly						
	prohibits practices that could cause hill fires.						
	This will require input in the detailed design phase.						
Fisheries							
S10.5.1.1	No loss of fish ponds is anticipated and no <i>in situ</i> mitigation is required.			1	1		Not applicable
	However, mitigation measures for water quality (S6.4.4 - S6.5.4 in this						
	table) proposed are also pertinent in ensuring that fisheries impacts of the						
	Project do not occur downstream of the Project area either locally or in						
	Inner Deep Bay.						
Landscape & Visual	e & Visual						
S11.8.1.3	CM1 - The construction area and contractor's temporary works areas should be	Minimise landscape	Funded by CEDD	Work site/	Construction		Implemented.
, Table	minimised to avoid impacts on adjacent landscape, and the reliance on off-site	impact and	and	during	phase		
11.9	construction.	visual impact	implemented by	construction			
			Contractor				

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
S11.8.1.3 , Table 11.9	CM3 – Screening of construction works by hoardings/noise barriers around works area in visually unobtrusive colours and to screen construction works. It is proposed that screening be compatible with the surrounding environment and non-reflective, recessive colours be used. Hoarding should be taken down at the end of the construction period.	Minimise visual impact	Funded by CEDD and implemented by Contractor	Work site/ during construction	Construction phase	-	Implemented.
S11.8.1.3 , Table 11.9	CM4 – Dust and Erosion Control for Exposed Soil - Excavation works anddemolition of existing building blocks shall be well planned with precautions to suppress dust. Exposed soil shall be covered or watered often. Areas that are expected to be left with bare soil for a long period of time after excavation shall be properly covered with suitable protective fabric. Suitable drainage shall be provided around construction sites to avoid discharge of contaminants and sediments into sensitive water-based habitat.	Minimise indirect landscape impact	Funded by CEDD and implemented by Contractor	Work site/ during construction	Construction phase		Implemented.
S11.8.1.3 , Table 11.9	CM5 – Control night-time lighting and glare by hooding all lights.	Minimise visual impact	Funded by CEDD and implemented by Contractor	Work site/ during construction	Construction phase		Implemented.
11.8.1.3, Table 11.9	CM6 – Tree Protection and Preservation – Woodland, plantation and other vegetation within the Study Area will be protected and preserved as far as possible in accordance with ETWB TCW No. 29/2004 - Registration of Old and Valuable Trees, and Guidelines for their Preservation and DEVB TCW No.07/2015 – Tree Preservation. Detailed Design Considerations are made to avoid impacts to trees, e.g. proper viaduct/ bridge design routing to avoid majority of the woodland, locating the columbarium buildings in areas with less trees and ensuring design of the buildings has as small a footprint as practical.	Minimise landscape impact and visual impact	Funded by CEDD and implemented by Contractor	Work site/ during construction	phase	• DEVB TC(W) 07/2015 • Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DevB	Implemented.
S11.8.1.3 , Table 11.9	CM7 - Tree Transplantation - Tree(s) will be affected according to the Tree Preservation and Removal Proposal to be carried out in a later stage. Established trees of value are to be re-located where practically feasible.	Minimise landscape and visual impact	Funded by CEDD and implemented by Contractor	Work site/ during construction	Design and Construction phase	 Guidelines for Tree Risk Management And Assessment Arrangement on an Arrae Basis and on a Tree Basis', issued January 2011, Greening, Landscape and Tree Management 	Implemented.

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
						(GLTM) Section, DevB • Latest recommended horticultural practices from GLTM Section, DevB	
S11.8.1.3 , Table 11.9	CM8 - Implementing precautionary control measures during construction stage accordingly to ETWB TCW No. 5/2005 – Protection of natural streams/rivers from adverse impacts arising from construction works to avoid direct or indirect impacts any watercourses and good site practices.	Minimize landscape impact	Funded by CEDD and implemented by Contractor	Work site/ during construction	Design and Construction phase	• ETWB TCW No. 5/2005 – Protection of natural streams/rivers from adverse impacts arising from construction works	Implemented.
S11.8.1.3 , Table 11.9	OM1 – Compensatory Woodland Planting - The arrangement of compensatory planting (e.g. areas of woodland to be compensated and space to be allowed within the Project Site) will be subject to detailed engineering design, landscape design and planting plan, and is recommended to be implemented prior to the construction activities as far as practical.	Compensate the loss of landscape greenery and enhance the overall visual value of the site.	Funded by CEDD and implemented by Contractor	Within Project Site	Prior to Construction phase	 DEVB TC(W) 07/2015 - Tree Preservation Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DevB DEVB TCW No. 06/2015 - Maintenance of Vegetation and Hard Landscape Features 	Implemented
S11.8.1.3 , Table 11.9	OM2 – Compensatory Tree Planting for Plantation and Other Vegetated Areas - Compensatory planting should be provided in accordance with DEVB TCW No. 07/2015 to compensate for those trees felled. According to the preliminary design, compensatory trees will be planted on the cut/fill slopes, along new roads and in car parks. The selection of planting species shall be made with reference to the species identified in the future Detailed Tree Survey and be native to Hong Kong or the South China region.	Compensate the loss of landscape greenery and enhance the overall visual value of the site.	Funded by CEDD and implemented by Contractor	Within Project Site	Construction phase	 DEVB TC(W) 07/2015 - Tree Preservation Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DevB DEVB TCW No. 	Implemented

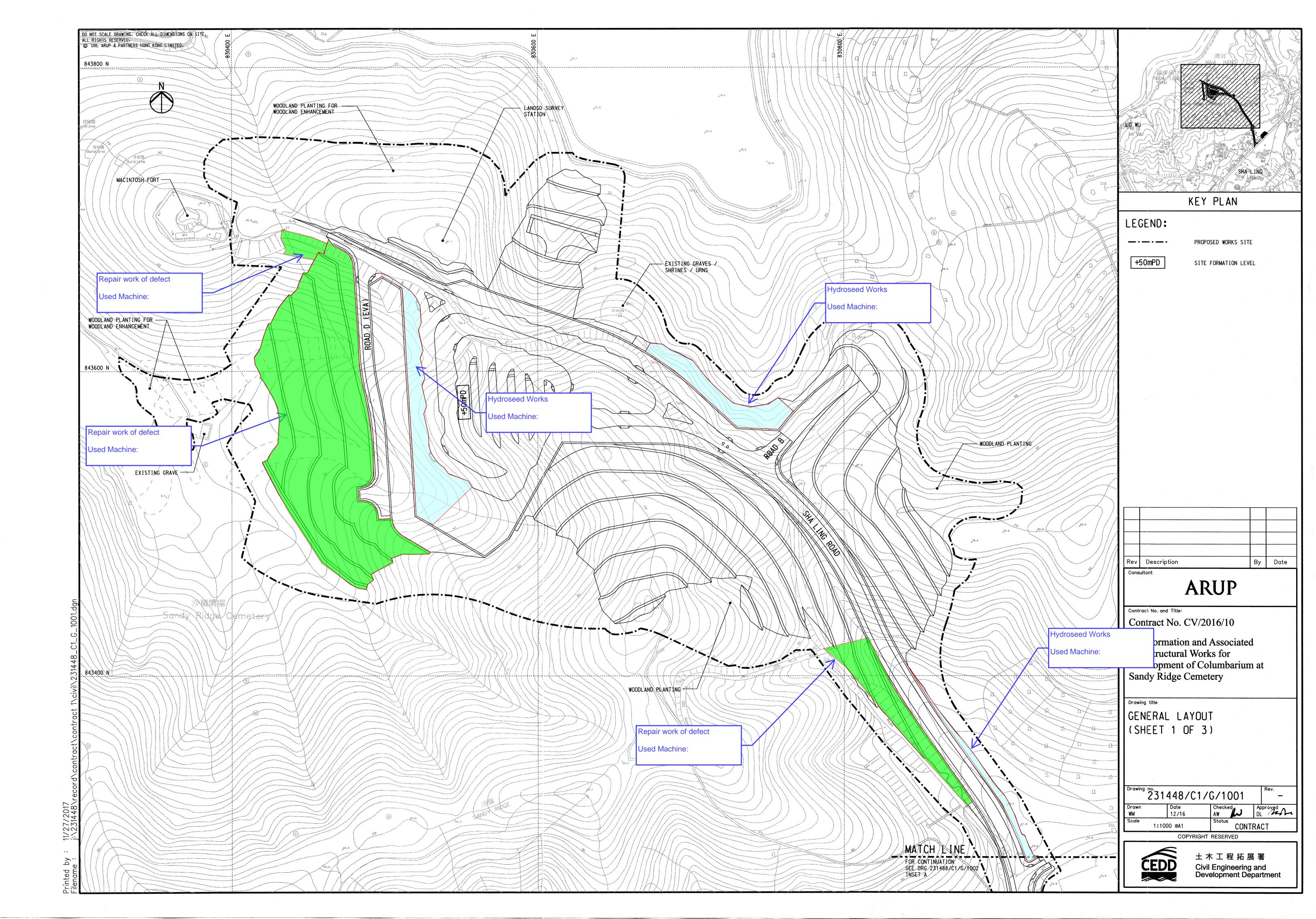
EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
						Maintenance of Vegetation and Hard Landscape Features	
S11.8.1.3 , Table 11.9	OM3 – Amenity Planting and aesthetic streetscape design of hard landscaping for Pedestrian Walkway, Roadside - Roadside amenity planting should be provided along Sha Ling Road, Lin Ma Hang Road, as well as the internal road within Sandy Ridge columbarium and crematorium site; to enhance the landscape quality of the existing and proposed transport routes. Climbers are proposed to cover vertical, hard surfaces of the piers of the proposed viaducts, and also the newly formed retaining wall within the site. Shade tolerant plants will be planted, where light is sufficient, to improve aesthetic value of areas under viaducts.	Minimise visual impact and also enhance landscape.	Funded by CEDD and implemented by Contractor	Within Project Site	Construction phase	 Guidelines on Greening of Noise Barriers, issued April 2012, GLTMS, DevB DEVB TCW No. 06/2015 – Maintenance of Vegetation and Hard Landscape Features 	Implemented
S11.8.1.3 , Table 11.9	OM4 – Greening Works and Contour Grading Works on Cut/ Fill Slopes - Greening works such as hydroseeding/ terraces of shrub or tree planting will be provided where slope gradient allows, according to Geotechnical Engineering Office (GEO) Publication No.1/2011 Technical Guidelines on Landscape Treatment for Slopes.	Minimise landscape and visual impact	Funded by CEDD and implemented by Contractor	Within Project Site	Construction phase	Geotechnical Engineering Office (GEO) Publication No.1/2011 Technical Guidelines on Landscape Treatment for Slopes.	Implemented
S11.8.1.3 , Table 11.9	OM5 – Landscape design treatment to be provided by relevant government department.	Mitigate the loss of greenery and enhance the overall landscape and visual value	Funded by FEHD and implemented by Contractor	Within Project Site	After handover to the relevant department		Implemented after handover to the relevant department
S11.8.1.3 , Table 11.9	OM6 – Architectural and chromatic treatment of the hard architectural and engineering structures and facilities.	Mitigate the loss of greenery and enhance the overall landscape and visual value	Funded by FEHD and implemented by Contractor	Within Project Site	After handover to the relevant department		Implemented after handover to the relevant department
S11.8.1.3 , Table 11.9	OM7 – Aesthetic design of the proposed noise barriers.	Mitigate the visual impact	Funded by CEDD and implemented by Contractor	Along Sha Ling Road and Lin Ma Hang Road	Construction phase	 WBTC No. 36/2004 ACABAS - submission is required to ACABAS for approval of any bridges and associated structures within the public highway 	Implemented

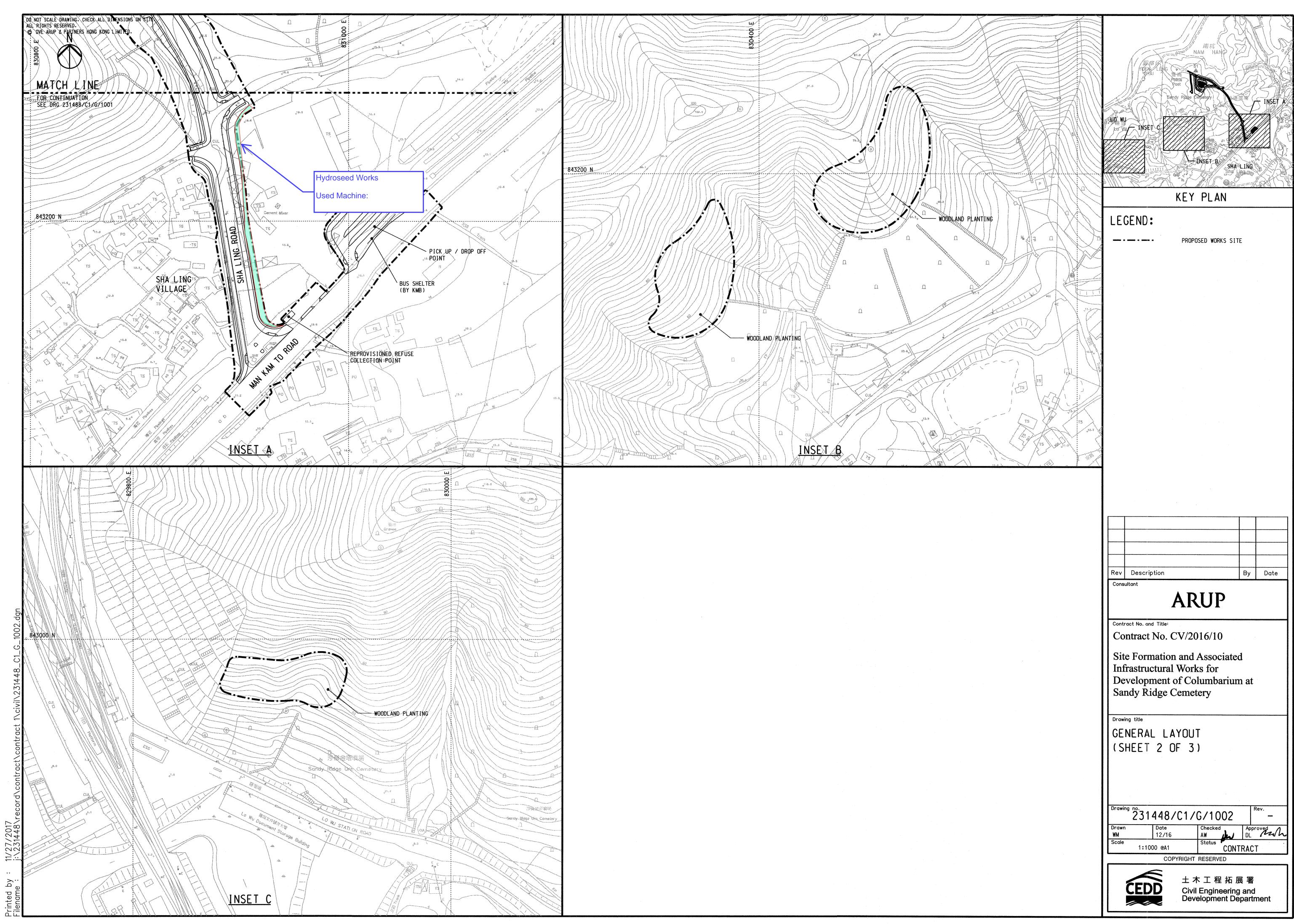
EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved	Implementation status and remark*
						system.	
S11.8.1.3 , Table 11.9	OM8 - Silt traps should also be incorporated into design of road gulfies for the natural water stream(s).	Minimise the landscape impact on natural stream	Funded by CEDD and implemented by Contractor	Within Project Site	Construction Phase		Implemented
Notes: (a) A deta (b) Wood (c) Contra	A detailed Tree Survey Report showing all identified valuable trees and OVT will be undertaken in a separate Tree Preservation and Removal Proposal. Wood resulting from tree removal should be recycled as mulch or soil conditioner for re-use within the Project or in other projects as far as possible e.g. for the construction of soft landscape work, were practical. Contractor is responsible for landscaping during the agreed establishment and maintenance period. Other designated management and maintenance agents to take up maintenance and management of landscaping after end of agreed	n a separate Tree Preservation and Removal Proposal. n the Project or in other projects as far as possible e.g. Other designated management and maintenance ager	tion and Removal Pro rojects as far as possil sment and maintenand	oposal. ble e.g. for the cons ce agents to take up	truction of soft lands()	cape work, were practical. nagement of landscaping <i>z</i>	after end of agreed
perrou (d) Highw:	periou Highways Department (HyD) is responsible for maintenance and management of landscaping of public road side slope, Leisure and Cultural Services Department (LCSD) is responsible for the management and maintenance of soft	ublic road side slope, Leis	ure and Cultural Serv	vices Department (1	CCSD) is responsible	for the management and m	naintenance of soft
— .	andscapes along non-expressway public roads outside Country Park and Food and Environmental Hygiene Department (FEHD) is responsible for maintenance and management of landscaping of other areas allocated to FEHD.	Hygiene Department (FE	(HD) is responsible fo	or maintenance and	management of lands	caping of other areas alloc	ated to FEHD
(e) The la	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	rks:					
- Aest	- Aesthetic landscape treatment including both soft and hard landscape features shall be provided.						
- Vert	- Vertical greening shall be provided as far as practicable.						
- At-g - Arch	 - At-grade tree planting shall be provided as far as possible while planting space is allowed, to enhance the overall environment. - Architectural design shall blend in with the surrounding environment. 	ance the overall environm	rent.				
- Ovei	- Overall greening ratio shall comply with TC(W) No.3/2012 Site coverage of Greenery for Government Building Projects	nment Building Projects.					
EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	1 Requirements and / or standards to be achieved	Implementation status and remark*
The comper- will be agre	The compensatory woodland planting shall be included woodland mixed whips, seeding, and shrubs. The principle of the location shall be the extension of the existing woodland, as well as the original lost woodland location. The proposal will be agreed with AFCD, the woodland enhancement planting shall refer to Chapter 9.	e principle of the location	shall be the extensio	n of the existing w	oodland, as well as th	e original lost woodland lc	cation. The proposal
EM&A Project	iject						
S13.1.1.1 , S13.2.1.2	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Highways Department	All construction sites	Construction phase	EIAO Guidance Note No.4/2010 TM-EIAO	Implemented
S13.2.1.1	1	Perform	Highways	All	Construction	EIAO Guidance	Implemented
- S13.4.1.2	 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are 	environmental monitoring & auditing	Department / Contractor	construction sites	phase	Note No.4/2010 • TM-EIAO	
	fully complied with.						



Appendix P

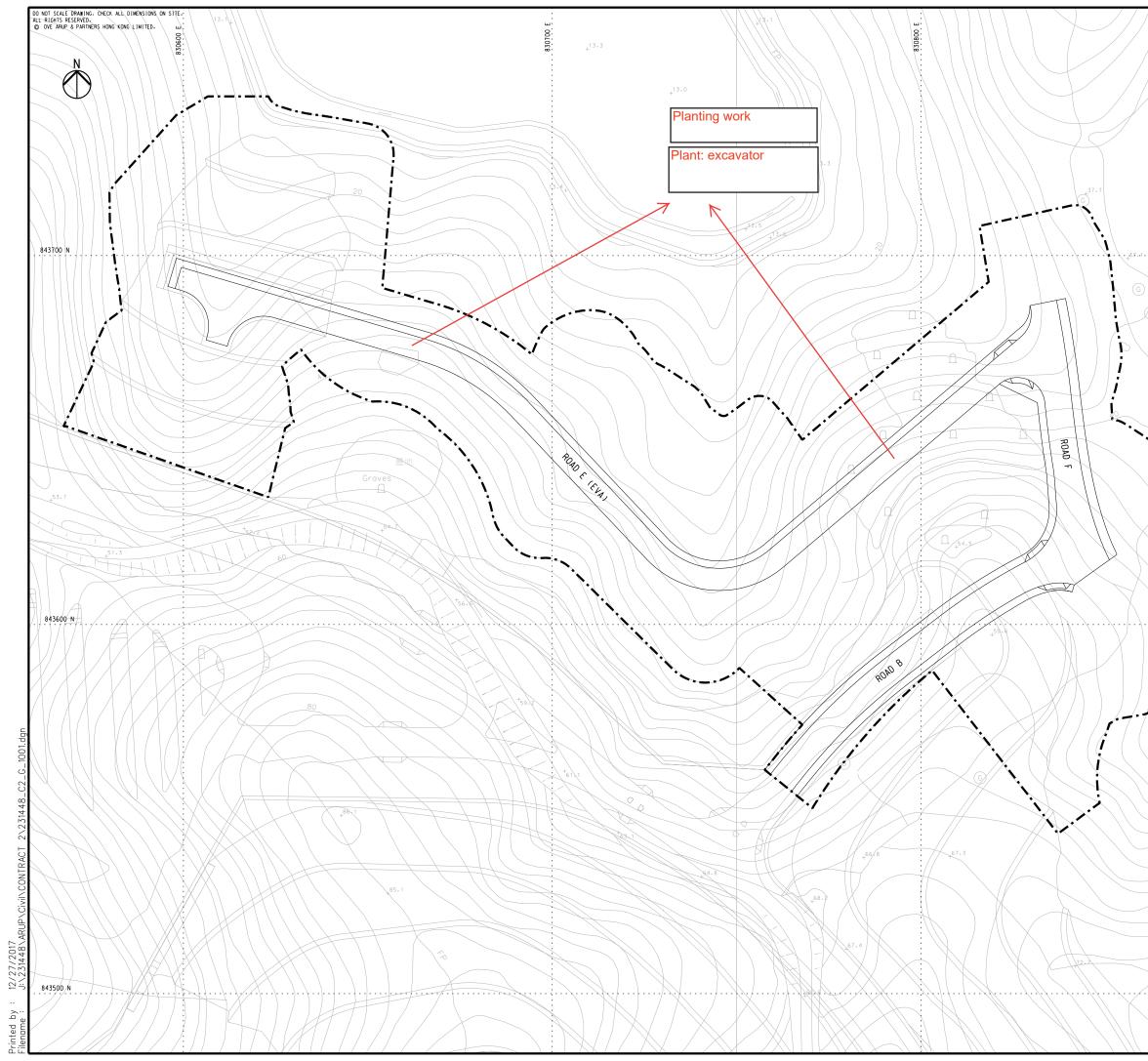
Illustrations of Site Activities





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