JOB NO.: TCS00975/18

CEDD CONTRACT AGREEMENT NO. EDO/04/2018 - ENVIRONMENTAL TEAM FOR CROSS BAY LINK, TSEUNG KWAN O

MONTHLY ENVIRONMENTAL MONITORING & AUDITING REPORT OF THE PROJECT – JANUARY 2025

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
13 February 2025	TCS00975/18/600/R0892v2		
		Martin Li (Environmental Consultant)	Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	12 February 2025	First Submission
2	13 February 2025	Amended as per IEC's comments

Acuity Sustainability Consulting Limited
Nature & Technologies (HK) Limited
Joint Venture

Our ref: PL-202502027

AECOM Asia Company Limited
8/F., Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, New Territories, Hong Kong

Attention: Mr. Conrad NG

13 February 2025

Dear Sir,

Contract No. NE/2017/07 & NE/2017/08
Cross Bay Link, Tseung Kwan O
Monthly EM&A Report for January 2025

I refer to the email of the ET concerning the Monthly EM&A Report for January 2025 (Version 2) with Ref. No. TCS00975/18/600/R0892v2. We have no adverse comment on it and verify the captioned monthly report according to Conditions 1.9 and 4.4 of Environmental Permit with No. EP-459-2013.

Yours faithfully,

Li Wai Ming Kevin
Independent Environmental Checker

cc. Mr. T.W. TAM (ETL)
Ms. Sheri S.Y. LEUNG (CEDD)

EXECUTIVE SUMMARY

ES01 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").

ES02 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 - Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.

ES03 To facilitate management, the proposed Works of the project was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08).* The date for commencement of Contract 1 was ***3rd December 2018*** while the date for commencement of Contract 2 was ***17th January 2019***.

ES04 According to the Approved Environmental Monitoring & Audit (EM&A) Manual, air quality, noise and water quality monitoring are required to be conducted during the construction phase of the Project. As part of the EM&A programme, baseline monitoring shall undertake before the Project construction work commencement to determine the ambient environment condition. The baseline air quality, background noise and water quality monitoring has been carried out between ***21st September 2018*** and ***13th November 2018*** at the designated and interim locations. The baseline monitoring report under the EP-459/2013 has been compiled by the ET and verified by Independent Environmental Checker (hereinafter the "IEC') prior submitted to EPD on ***19th November 2018*** for endorsement.

ES05 This is the **74th** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from ***1*** to ***31 January 2025*** (hereinafter 'the Reporting Period').

CONSTRUCTION WORKS CONDUCTED AT THE REPORTING MONTH

ES06 The major construction activities of Contract 1 (Contract No. NE/2017/07) undertaken in this Reporting Period are:-

- Establishment defect rectification works

ES07 The major construction activities of Contract 2 (Contract No. NE/2017/08) undertaken in this Reporting Period are:-

- No construction work was undertaken in the reporting period.

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES08 Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

Table ES-4 Summary Environmental Monitoring Activities Undertaken in the Reporting Period

Issues	Environmental Monitoring Parameters / Inspection	Sessions
Air Quality	1-Hour TSP	45
	24-Hr TSP	10
Construction Noise	Leq (30min) Daytime	20
	Leq (5min) Evening(Note 1)	0
	Leq (5min) Night(Note 1)	0

Issues	Environmental Monitoring Parameters / Inspection		Sessions
Water Quality	Marine Water Sampling(Note 2) (Note 3)		0
Inspection / Audit	Contract 1	ET Regular Environmental Site Inspection	5
		Joint site audit with Project Consultant and IEC	1
	Contract 2	ET Regular Environmental Site Inspection	5
		Joint site audit with Project Consultant and IEC	1

Note 1 Total sessions are counted by every 3 consecutive Leq5min
Note 2 Total sessions are counted by monitoring days
Note 3 Since the marine construction works that requires marine water quality monitoring as stated in the EM&A Manual were completed, the impact water quality monitoring was ceased with effect from 1 May 2020.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES09 No air quality and construction noise monitoring exceedance was recorded in this Reporting Period. The statistics of environmental exceedance and investigation of exceedance are summarized in the following table.

Table ES-5 Summary Environmental Monitoring Parameter Exceedance in the Reporting Period

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action	
				Investigation Results	Corrective Actions
Air Quality	1-Hour TSP	0	0	--	--
	24-Hr TSP	0	0	--	--
Construction Noise	Leq_{30min} Daytime	0	0	--	--
	Leq_{5min} Evening	0	0	--	--
	Leq_{5min} Night	0	0	--	--
Water Quality (Marine Water)	DO	0	0	--	--
	Turbidity	0	0	--	--
	SS	0	0	--	--

ENVIRONMENTAL COMPLAINT

ES10 In the reporting period, no environmental complaints were recorded for the Project. The statistics of environmental complaint are summarized in the following table.

Table ES-6 Summary Environmental Complaint Records in the Reporting Period

Reporting Period	Contract	Environmental Complaint Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 January 2025	1	0	33	NA	NA
	2	0	26	NA	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES11 No environmental summons or prosecutions was received in this Reporting Period for the Project. The statistics of environmental summons or prosecutions are summarized in the following tables.

Table ES-7 Summary Environmental Summons Records in the Reporting Period

Reporting Period	Contract	Environmental Summons Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 January 2025	1	0	0	NA	NA
	2	0	0	NA	NA

Table ES-8 Summary Environmental Prosecutions Records in the Reporting Period

Reporting Period	Contract	Environmental Prosecution Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 January 2025	1	0	0	NA	NA
	2	0	0	NA	NA

REPORTING CHANGE

ES12 No report change is made in the reporting period

FUTURE KEY ISSUES

ES13 Although there will be no construction work to be carried out in the coming month, the Contractor was reminded to pay attention to the management of general waste generated from housekeeping works and the potential water quality impact from any unmanaged site runoff.

ES14 Although opening of Cross Bay Link was held in early December 2022, construction noise from the remaining work of the Project would be the key environmental issue as the work areas are located near Lohas Park. Noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully 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 (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").

1.1.2 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 - Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.

1.1.3 To facilitate management, the proposed Works of ***Cross Bay Link, Tseung Kwan O*** (hereinafter called "the Project') was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08).* The details of each contract Works are summarized below and the delineation of each contract is shown in ***Appendix A***.

Contract 1 (Contract No. NE/2017/07)

(i) 400m section of marine viaducts of steel deck sections including the Eternal Arch Bridge;
(ii) 600m section of marine viaducts of concrete deck sections;
(iii) An E&M Plantroom and associated building services; and
(iv) E&M provisions.

Contract 2 (Contract No. NE/2017/08)

(i) Elevated deck structures along Road D9;
(ii) A 210m section of cycle track and footpath ramp bridge;
(iii) A 630m section of noise semi-enclosure covering the entire length of Road D9, and;
(iv) Lift, staircase, modification of existing seawall along Road D9, landscaping and miscellaneous works.

1.1.4 The date for commencement of Contract 1 is ***3rd December 2018*** while the date for commencement of Contract 2 is ***17th January 2019***.

1.1.5 As part of the EM&A programme, baseline monitoring shall be undertaken before the Project construction work commencement to determine the ambient environmental condition. The baseline air quality, background noise and water quality monitoring has been carried out between ***21st September 2018*** and ***13th November 2018*** at the designated and interim locations. The baseline monitoring report under the EP-459/2013 has been compiled by the ET and verified by Independent Environmental Checker (hereinafter the "IEC') prior submitted to EPD on ***19th November 2018*** for endorsement.

1.1.6 This is the **74th** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from ***1*** to ***31 January 2025*** (hereinafter 'the Reporting Period').

1.2 REPORT STRUCTURE

1.2.1 The Environmental Monitoring and Audit (EM&A) Monthly Report is structured into the following sections:-

Section 1 *Introduction*
Section 2 *Project Organization and Construction Progress*
Section 3 *Summary of Impact Monitoring Requirements*
Section 4 *Air Quality Monitoring*
Section 5 *Construction Noise Monitoring*

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS AND SUBMISSION

2.1 PROJECT ORGANIZATION

2.1.1 The project organization is shown in ***Appendix B***. The responsibilities of respective parties are:

The Project Consultant

2.1.2 The Project Consultant (hereinafter "the Consultant") is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the Consultant with respect to EM&A are:

- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
- Monitor Contractors', ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
- Facilitate ET's implementation of the EM&A programme
- Participate in joint site inspection by the ET and IEC
- Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
- Adhere to the procedures for carrying out complaint investigation

The Contractor(s) of Works Contract(s)

2.1.3 There will be one contractor for each individual works contract. The Contractor(s) should report to the Consultant. The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

Environmental Team (ET)

2.1.4 ET shall not be in any way an associated body of the Contractor(s) and employed by the Permit Holder (i.e., CEDD) to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitable qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. ET shall report to the Project Proponent and the duties shall include:

- Conduct baseline monitoring, impact monitoring and post-construction monitoring and the associated in-situ and laboratory tests to monitor various environmental parameters as required in the EM&A Manual and the EP
- Analyze the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
- Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
- Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications
- Audit environmental conditions on site

- Report on the environmental monitoring and audit results to EPD, the Consultant, the IEC and Contractor(s) or their delegated representatives
- Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans
- Liaise with the IEC on all environmental performance matters and timely submit all relevant EM&A proforma for approval by IEC
- Advise the Contractor(s) on environmental improvement, awareness, enhancement measures etc., on site
- Adhere to the procedures for carrying out complaint investigation
- Set up a dedicated web site where the project information, all environmental monitoring and audit data and reports described in Condition 5.2 of the EP, and all finalized submissions and plans required under the EP are to be placed for public inspection
- Upload the environmental monitoring results to the dedicated web site in accordance with requirements of the EP and EM&A Manual
- To carry out the Operational Phase Landfill Gas monitoring during effluent drainage system maintenance for one year

Independent Environmental Checker (IEC)

2.1.5 IEC will be employed for this Project. The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor(s) or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 7 years' experience in EM&A and have relevant professional qualifications. The duty of IEC should be:

- Provide proactive advice to the Project Consultant and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction
- Review and audit all aspects of the EM&A programme implemented by the ET
- Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
- Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
- Check compliance with the agreed Event / Action Plan in the event of any exceedance
- Check compliance with the procedures for carrying out complaint investigation
- Check the effectiveness of corrective measures
- Feedback audit results to ET by signing off relevant EM&A proforma
- Check that the mitigation measures are effectively implemented
- Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the Project Consultant and Project Proponent on a monthly basis

2.2 CONSTRUCTION PROGRESS

2.2.1 3-month rolling construction program of the each Works Contract is enclosed in ***Appendix C***; and the major construction activities undertaken in the Reporting Period is presented in below sub-sections.

Contract 1 (Contract No. NE/2017/07)

2.2.2 The major construction activities of Contract 1 undertaken in this Reporting Period are:-

- Establishment defect rectification works

Contract 2 (Contract No. NE/2017/08)

2.2.3 The major construction activities of Contract 2 undertaken in this Reporting Period are:-

- No construction work was undertaken in the reporting period.

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 The required documents list below shall be to submit to EPD for retention:

Table 2-1 Documents Submission under Environmental Permit Requirement

EP condition	Submission to EPD	Requirement	Situation
1.11	Commencement date of construction of the Project	no later than 1 month prior to the commencement of construction of the Project	• Contract 1 notified EPD on 19 Oct 2018 • Contract 2 notified EPD on 12 Dec 2018
2.3	The date of setting up the Community Liaison Group (CLG), the membership, the terms of reference and the contact details	At least 1 month before the commencement of construction of the Project	• CLG setting has submitted to EPD on 9 Oct 2018
2.4	Management Organization of Main Construction Companies	No later than 2 weeks before the commencement of construction of the Project	• Management Organization of Contract 1 was submitted to EPD on 2 October 2018 • Management Organization of Contract 2 was submitted to EPD on 12 December 2018
2.5	Waste Management Plan (WMP)	No later than 1 month before commencement of construction of the Project	• WMP of Contract 1 was submitted to EPD in 11 October 2018 • WMP of Contract 2 was submitted to EPD in 14 December 2018
2.6	Landscape Mitigation Plan (LSMP)	No later than 1 month before commencement of construction of the Project	• LSMP was submitted on 1 Nov 2018
2.7	Detailed Qualitative Landfill Gas Hazards Assessment (QLGHA)	No later than 1 month before commencement of construction of the Project	• QLGHA of the Project was submitted to EPD on 1 November 2018

2.3.2 Upon completed baseline monitoring, a Baseline Monitoring Report was verified by IEC on 19 November 2018 and submitted to EPD on that day for endorsement.

2.3.3 The notification of Project dedicated web site to EPD was made on 9 January 2019 (http://www.envcbltko.hk/).

2.3.4 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project are presented in ***Table 2-2***.

Table 2-2 Status of Environmental Licenses and Permits of the Project Works (Contract 1)

Item	Description	License/Permit Status			
		Permit no./ Account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	--	--	--	Notified on 11 July 2018
2	Water Pollution Control Ordinance - Discharge License	WT10003584-2024	26 Jul 2024	31 Jul 2029	Valid until 31 July 2029
3	Billing Account for Disposal of Construction Waste	7031412	24 Jul 2018	N/A	--
4	Construction Noise Permit	GW-RE1672-24	1 Jan 2025	1 Mar 2025	--

Table 2-3 Status of Environmental Licenses and Permits of the Project Works (Contract 2)

Item	Description	License/Permit Status			
		Permit no./ Account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	--	--	--	Notified on 31 October 2018
2	Chemical Waste Producer Registration	5213-839-B2500-04	22 Nov 2018	N/A	Surrendered on 1 June 2023
3	Water Pollution Control Ordinance - Discharge License	WT00034244-2019	8 Jul 2019	31 Jul 2024	Surrendered on 1 June 2023
4	Billing Account for Disposal of Construction Waste	7032702	8 Nov 2018	N/A	--

3. SUMMARY OF ENVIRONMENTAL MONITORING PROGRAMMES AND REQUIREMENTS

3.1 GENERAL

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

3.2 MONITORING PARAMETERS

3.2.1 Monitoring parameters of air quality, noise and water quality are summarized in ***Table 3-1***.

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	• 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler
Noise	• Leq (30min) in six consecutive Leq(5 min) between 07:00-19:00 on normal weekdays • Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
Water Quality	• In-situ measurement – Dissolved Oxygen (DO) concentration (mg/L) & saturation (%), pH, Salinity (mg/L), Temperature (ºC) and Turbidity (NTU); and • Laboratory analysis – SS (mg/L)

3.3 MONITORING LOCATIONS

Air Quality and Construction Noise

3.3.1 According to the Approved EM&A Manual Section 5.4 and Section 6.3, three (3) representative air sensitive receivers (ASR) and four (4) representative noise sensitive receivers were designated as monitoring stations. The designated air quality and noise monitoring locations are listed in ***Table 3-2*** and ***Table 3-3,*** and illustrated in ***Appendix D***.

Table 3-2 Designated Air Quality Monitoring Location recommended in EM&A Manual

ID	Location in the EM&A Manual	Currently Situation
AM1	Tung Wah Group of Hospitals Aided Primary School & Secondary School	Not yet construct
AM2	Lohas Park Stage 2 (Planned Development in Area 86)	Available for resident occupation in February 2021
AM3	Lohas Park Stage 3 (Planned Development in Area 86)	Available for resident occupation in April 2024

Table 3-3 Designated Construction Noise Monitoring Location recommended by EM&A Manual

ID	Location	Currently Situation
CNMS-1	Lohas Park Stage 1(Planned Development in Area 86, Package 4) (Southeast facade)	Available for resident occupation in November 2019
CNMS-2	Lohas Park Stage 1 (Planned Development in Area 86, Package 6) (Southeast facade)	Available for resident occupation in February 2021
CNMS-3	Lohas Park Stage 3 (Planned Development in Area 86, Package 11) (West facade)	Available for resident occupation in April 2024
CNMS-4	Tung Wah Group of Hospitals Aided Primary School & Secondary School (Southwest facade)	Not yet construct

3.3.2 As observed and confirmed by ET and IEC during the joint site visit on 29th August 2018, the designated air quality and noise monitoring locations are under construction or yet to construct. It is considered that these designated locations are not appropriate to perform air quality and noise monitoring. In this regard, alternative locations were proposed as interim arrangement to carry out air quality and noise monitoring before occupation of the designated monitoring location. A letter enclosed with the alternative location proposal and IEC verification (Our Ref: TCS00975/18/300/L0038) was sent to EPD on 19th October 2018 and the proposal was agreed by EPD. Therefore, air quality and construction noise impact monitoring would be performed at the agreed alternative locations until the designated sensitive receivers occupied and granted the premises.

3.3.3 Construction noise monitoring for Lohas Park Phase 4 was commenced in November 2019 while 1-Hour TSP air quality and construction noise monitoring for Lohas Park Phase 6 were commenced in February 2021 regarding the handover of residential units to purchasers. Since power supply is not available from Lohas Park Phase 6 and is only available near the site office after Cross Bay Link opened in December 2022, an interim alternative monitoring location AM2b was proposed for the 24-Hour TSP monitoring of Lohas Park Phase 6 due to the limitation on the power supply for the HVS.

3.3.4 Upon the handover of residential units of Lohas Park Phase 10 to purchasers, access permission for 1-Hour & 24-Hour TSP air quality and construction noise monitoring were requested. 1-Hour TSP air quality and construction noise monitoring for Lohas Park Phase 10 were commenced on 8 April 2024 upon approved by the Property Management Office of Lohas Park Phase 10 while installation of HVS for 24-Hour TSP monitoring was rejected by Property Management Office of Lohas Park Phase 10.

3.3.5 The designated and interim alternative monitoring location for impact air quality and noise monitoring in the Reporting Period are summarized in Table 3-4 and illustrated in ***Appendix D***.

Table 3-4 Designated and interim alternative location for air quality and noise monitoring in the Reporting Period

Location ID	Monitoring Parameter	Location
AM2	1-Hour TSP Air Quality	Lohas Park Phase 6
AM2b	24-Hour TSP Air Quality	Near Lohas Park Phase 6
AM3	1-Hour TSP Air Quality	Lohas Park Phase 10
AM4	1-Hour TSP Air Quality	Podium of Lohas Park Phase 2A (Le Prestige)
AM5	24-Hour TSP Air Quality	Boundary of Site Office near Junction of Wan Po Road and Wan O Road
CNMS-1	Noise (L_{eq}, L_{10} & L_{90})	Podium of Lohas Park Package 4
CNMS-2	Noise (L_{eq}, L_{10} & L_{90})	Lohas Park Package 6
CNMS-3	Noise (L_{eq}, L_{10} & L_{90})	Lohas Park Phase 10
CNMS-5	Noise (L_{eq}, L_{10} & L_{90})	Podium of Lohas Park Phase 2A (Le Prestige)

Remark: Since 24-Hour TSP Air Quality monitoring is not granted at AM4 Lohas Park Phase 2A, the 24-Hour TSP monitoring was therefore proposed at AM5 which is located at the boundary of the project site office.

Water Quality

3.3.6 According to Table 7.1 of the approved EM&A Manual Section 7.4, two Control Stations (C3 & C4), six (6) sensitive receivers (CC1, CC2, CC3, CC4, CC13 & SWI1) and one (1) Gradient station (I1) are recommended to perform water quality monitoring. Details and coordinate of these water quality monitoring stations are described in ***Table 3-5*** and the locations is shown in ***Appendix D.***

Table 3-5 Location of Water Quality Monitoring Station

Station	Coordinates		Description
	Easting	Northing	
CC1	843201	816416	**Sensitive Receiver** – Coral Sites at Chiu Keng Wan
CC2	844076	817091	**Sensitive Receiver** – Coral Sites at Junk Bay
CC3	844606	817941	**Sensitive Receiver** – Coral Sites at Junk Island
CC4	845444	815595	**Sensitive Receiver** – Coral Sites at Fat Tong Chau West
CC13	844200	817495	**Sensitive Receiver** – Coral Sites at Junk Bay near Chiu Keng Wan
SWI1	845512	817442	**Sensitive Receiver** – Tseung Kwan O Salt Water Intake
C3	843821	816211	**Control Station** (Ebb Tide) – within Junk Bay
C4	844621	815770	**Control Station** (Flood Tide) – within Junk Bay
I1	844602	817675	**Gradient Station** – in between Lam Tin Tunnel (LTT) and CBL

3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 To according with the approved *EM&A Manual*, impact monitoring requirements are presented as follows.

Air Quality Monitoring

3.4.2 Air quality impact monitoring frequency is as follows:

- Once every 6 days of 24-hour TSP and 3 times of 1-hour TSP monitoring; during course of works throughout the construction period

Construction Noise Monitoring

3.4.3 Construction noise monitoring frequency is as follows:

- One set of $Leq_{(30min)}$ measurements in a weekly basis between 07:00 and 19:00 hours on normal weekdays during course of works as throughout the construction period
- If construction works are extended to include works during the hours of 1900-0700, additional weekly impact monitoring shall be carried out during evening and night-time works. Applicable permits under the NCO shall be obtained by the Contractor.

Water Quality (Marine Water) Monitoring

3.4.4 Marine water impact monitoring frequency is as follows:

- Three days a week, at mid ebb and mid flood tides during course of pile excavation works for the bridge pier foundations underway. Moreover, the intervals between 2 consecutive sets of monitoring day shall not be less than 36 hours.

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50),* and Appendix *B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to prove that the instrument is capable of achieving a comparable results to the HVS. The instrument should be calibrated regularly, and the 1-hour sampling shall be determined on yearly basis by the HVS to check the validity and accuracy of the results measured by direct reading method. The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory. The equipment used for air quality monitoring is listed in ***Table 3-6***.

Table 3-6 Air Quality Monitoring Equipment

Equipment		Model
24-hour TSP	High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
	Calibration Kit	TISCH Model TE-5025A (S/N: 1941)
1- hour TSP	Portable Dust Meter	Laser Dust Monitor Sibata LD-3B Laser Dust Monitor (S/N: 3Y7139, 3Y7140, 3Y7141, 3Y7142)

Noise Monitoring

3.5.2 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}. Noise equipment will be used for impact monitoring is listed in ***Table 3-7***.

Table 3-7 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-52A (S/N:00620665)
Calibrator	Rion NC-75 (S/N:34680623)
Portable Wind Speed Indicator	Anemometer AZ Instrument 8908

Water Quality Monitoring

3.5.3 For water quality monitoring, the equipment should fulfill the requirement under the Approved *EM&A Manual Section 7.2*. The requirement is summarized below:

- ***Dissolved Oxygen and Temperature Measuring Equipment*** – The instrument should be a portable, weatherproof dissolved oxygen measuring instrument completed with cable, sensor, comprehensive operation manuals, and should be operable from a DC power source. It should be capable of measuring: dissolved oxygen levels in the range of 0-20 mg/L and 0-200% saturation; and a temperature of 0-45 degrees Celsius. It should have a membrane electrode with automatic temperature compensation complete with a cable of not less than 35 m in length. Sufficient stocks of spare electrodes and cable should be available for replacement where necessary.
- ***Turbidity Measurement Equipment*** – The instrument shall be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment shall use a DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.
- ***Salinity Measurement Instrument*** – A portable salinometer capable of measuring salinity in the range of 0-40 ppt should be provided for measuring salinity of the water at each monitoring location.
- ***Water Depth Detector*** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. A detector affixed to the bottom of the works boat, if the same vessel is to be used throughout the monitoring programme, is preferred.
- ***Positioning Device*** – hand-held or boat-fixed type digital Global Positioning System (GPS) with way point bearing indication or other equipment instrument of similar accuracy, should be provided and used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- ***Water Sampling Equipment*** – A water sampler, consisting of a transparent PVC or glass cylinder of not less than two liters, which can be effectively sealed with cups at both ends, should be used. The water sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

3.5.4 Equipment used for water quality impact monitoring is listed in ***Table 3-8***.

Table 3-8 Water Monitoring Equipment

Equipment	Model
A Digital Global Positioning System	GPS12 Garmin
Water Depth Detector	Eagle Sonar CUDA 300
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends
Thermometer & DO meter	YSI ProDSS Digital Sampling System Water Quality Meter
pH meter	
Turbidimeter	
Salinometer	
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box with Ice pad

3.6 MONITORING PROCEDURES

Air Quality

1-hour TSP

3.6.1 The 1-hour TSP monitor was a brand named "*Sibata LD-3 Laser Dust monitor Particle Mass Profiler & Counter*" which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:

(a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;

(b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and

(c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

24-hour TSP

3.6.2 The equipment used for 24-hour TSP measurement is TISCH, Model TE-5170 TSP High Volume Air Sampler, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:

(a.) An anodized aluminum shelter;

(b.) A 8"x10" stainless steel filter holder;

(c.) A blower motor assembly;

(d.) A continuous flow/pressure recorder;

(e.) A motor speed-voltage control/elapsed time indicator;

(f.) A 7-day mechanical timer, and

(g.) A power supply of 220v/50 Hz

3.6.3 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between 0.6m^3/min and 1.7m^3/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-

- A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.

3.6.4 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal.

3.6.5 The HVS used for 24-hour TSP monitoring will be calibrated in two months interval for in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m^3/min. Motor brushes of HVS will be regularly replaced. The calibration certificates of the air quality monitoring equipment used for the impact monitoring and the HOKLAS accredited certificate of laboratory was provided in Appendix G.

Noise Monitoring

3.6.6 As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters 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. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

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

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

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

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

3.6.11 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The calibration certificates of noise monitoring equipment used for the impact monitoring was provided in Appendix G.

Marine Water Quality

3.6.12 Marine water quality monitoring would be conducted at all designated locations in accordance with Table 7.1 of the approved EM&A Manual. The procedures of water sampling, in-situ measurement and chemical analysis are described as below:

- A Global Positioning System (GPS) will be used to ensure that the correct location was selected prior to sample collection. A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.
- The marine water sampler will be lowered into the water body at a predetermined depth. The trigger system of the sampler is activated with a messenger and opening ends of the sampler are closed accordingly then the sample of water is collected.
- During the sampling, the sampling container will be rinsed to use a portion of the marine water sample before the water sample is transferred to the container. Upon sampling

completion, the container will be sealed with a screw cap.

- Before the sampling process, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring will be recorded on the monitoring field data sheet.
- In-situ measurement including water temperature, turbidity, dissolved oxygen, salinity, pH and water depth will be recorded at the identified monitoring station and depth. At each station, marine water samples will be collected at three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. Samples at 1m below water surface and 1m above sea bottom will be collected when the water depth is between 3m and 6m. And sample at mid-depth will be taken when the water depth is below 3m.
- For the in-situ measurement, two consecutive measurements of sampling depth, temperature, dissolved oxygen, salinity, turbidity and pH concentration will be measured at the sea. The YSI ProDSS Multifunctional Meter will be retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set is more than 25% of the value of the first reading, the reading is discarded and further readings is taken.
- Marine water sample will be collected by using a water sampler. The high-density polythene bottles will be filled after the water sample collected from the sea. Before the water sample being fills into the sampling bottles, the sampling bottles will be pre-rinsed with the same water sample. The sampling bottles will then be packed in cool-boxes (cooled at $4^{O}C$ without being frozen), and delivered to HOKLAS accredited laboratory for the chemical analysis as followed APHA *Standard Methods for the Examination of Water and Wastewater* 19ed 2540D, unless otherwise specified.

3.6.13 Before each round of monitoring, the dissolved oxygen probe will be calibrated by wet bulb method; a zero check in distilled water will be performed with the turbidity and salinity probes. The turbidity probe also will be checked with a standard solution of known NTU and known value of the pH standard solution were used to check the accuracy of pH value before each monitoring day. Moreover, all in-situ measurement equipment used marine water monitoring will be calibrated at three months interval.

Laboratory Analysis

3.6.14 All water samples included the duplicate samples, was tested with chemical analysis as specified in the EM&A Manual by a HOKALS accredited laboratory - ALS Technichem (HK) Pty Ltd. The chemicals analysis method and reporting limit show ***Table 3-9***.

Table 3-9 Testing Method and Reporting Limit of the Chemical Analysis

Parameter	ALS Method Code	In-house Method Reference (1)	Reporting Limit
Total Suspended Solids	EA025	APHA 2540D	1 mg/L

Note:

1. The exact method shall depend on the laboratory accredited method. APHA = Standard Methods for the Examination of Water and Wastewater by the American Public Health Association.

3.6.15 The determination works will start within 24 hours after collection of the water samples or within the holding time as advised by the laboratory.

Meteorological Information

3.6.16 The meteorological information including wind direction, wind speed, humidity and temperature etc. of impact monitoring is extracted from the closest Tseung Kwan O Hong Kong Observatory Station. Moreover, the data of rainfall and air pressure would be extracted from King's Park Station.

3.6.17 For marine water quality monitoring, tidal information would be referred to tide gauge at Tai Miu Wan.

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

3.7.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. A summary of the Action/Limit (A/L) Levels for air quality, construction noise and water quality are shown in ***Tables 3-10***, ***3-11*** and ***3-12*** respectively.

Table 3-10 Action & Limit Levels of Air Quality (1-Hour & 24-Hr TSP)

Monitoring Station	Action Level (μg /m³)		Limit Level (μg/m³)	
	1-Hour TSP	24-Hr TSP	1-Hour TSP	24-Hr TSP
AM2	278	NA	500	NA
AM2b	NA	190	NA	260
AM3	278	NA	500	NA
AM4	278	NA	500	NA
AM5	NA	190	NA	260
Note: 1-Hour & 24-Hr TSP of Action Level = (Average Baseline Results × 1.3 + Limit level)/2				

Table 3-11 Action and Limit Levels for Construction Noise, dB(A)

Monitoring Location	Action Level	Limit Level
CNMS-1 **CNMS-2** **CNMS-3** **CNMS-5**	**Time Period: 0700-1900 hours on normal weekdays (Leq30min)**	
	When one or more documented complaints are received	***75*** dB(A)
	Time Period: 1900-2300 hours on all days (Leq15min)	
	When one or more documented complaints are received	***55*** dB(A)

Remarks:

1. *Construction noise monitoring will be resumed at the designated locations CNMS-2, CNMS-3 and CNMS4 once they are available and permission are granted;*
2. *The designated locations CNMS-2 and CNMS-3 are located at residential building which are still under construction, Limit Level of 75dB(A) will be adopted until they are occupied;*
3. *The designated location CNMS-4 is located at planned school and still not yet to construction. When the school occupied and operated, Limit Level of 70dB(A) should be adopted and should be reduced to 65dB(A) during examination period; and*
4. *If construction works are required during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority shall be followed.*

Table 3-12 Action and Limit Levels for Water Quality

Monitoring Station	Depth Average of SS (mg/L)			
	Action Level		Limit Level	
CC1	7.8	**OR** 120% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide), whichever is higher	9.3	**OR** 130% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher
CC2	9.0		9.2	
CC3	8.2		9.0	
CC4	13.8		15.4	
CC13	8.9		10.3	
SWI1	8 mg/L		10 mg/L	

Monitoring Location	Dissolved Oxygen (mg/L)			
	Depth Average of Surface and Mid-depth		Bottom	
	Action Level	Limit Level	Action Level	Limit Level
CC1	5.8	5.7	5.3	5.2
CC2	5.8	5.7	5.3	5.1
CC3	5.5	5.4	4.9	4.7
CC4	5.7	5.7	5.5	5.4
CC13	5.6	5.5	5.3	5.2
SWI1	5.4	4.8	5.1	5.0

Monitoring Location	Depth Average of Turbidity (NTU)			
	Action Level		Limit Level	
CC1	5.8	**OR** 120% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher	6.0	**OR** 130% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher
CC2	4.6		5.5	
CC3	4.8		5.4	
CC4	6.1		7.1	
CC13	6.0		6.3	
SWI1	6.1		7.1	

3.7.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in ***Appendix E.***

3.8 DATA MANAGEMENT AND DATA QA/QC CONTROL

3.8.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.

3.8.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4. AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 In the Reporting Period, 1-Hour TSP monitoring was performed at designated monitoring locations AM2 & AM3 and interim alternative monitoring locations AM4, and 24-Hr TSP of air quality monitoring was performed at interim alternative monitoring locations AM2b and AM5. The air quality monitoring schedule is presented in ***Appendix F***.

4.1.2 Valid calibration certificates of monitoring equipment are shown in ***Appendix G*** and the monitoring results are summarized in the following sub-sections

4.2 RESULTS OF AIR QUALITY MONITORING IN THE REPORTING MONTH

4.2.1 During the Reporting Period, ***45*** sessions of 1-hour TSP and ***10*** sessions of 24-hours TSP monitoring were carried out and the monitoring results are summarized in ***Table 4-1, Table 4-2*** and ***Table 4-3***. The detailed 24-hour TSP monitoring data are presented in ***Appendix H*** and the relevant graphical plots are shown in ***Appendix I***.

Table 4-1 1-Hour TSP Air Quality Impact Monitoring Results for AM4 and 24-Hour TSP Air Quality Impact Monitoring Results for AM5

AM5		AM4				
24-Hr TSP (μg/m³)		1-Hour TSP (μg/m³)				
Date	Meas. Result	Date	Start Time	1st Meas.	2nd Meas.	3rd Meas.
4-Jan-25	44	3-Jan-25	8:30	48	42	46
10-Jan-25	56	9-Jan-25	15:00	50	67	65
16-Jan-25	101	15-Jan-25	15:10	49	47	53
22-Jan-25	63	21-Jan-25	10:03	51	56	62
28-Jan-25	100	27-Jan-25	15:02	60	64	59
Average (Range)	**73 (44 – 101)**	Average (Range)		**55 (42 – 67)**		

Table 4-2 1-Hour TSP Air Quality Impact Monitoring Results for AM2 and 24-Hour TSP Air Quality Impact Monitoring Results for AM2b

AM2b		AM2				
24-Hr TSP (μg/m³)		1-Hour TSP (μg/m³)				
Date	Meas. Result	Date	Start Time	1st Meas.	2nd Meas.	3rd Meas.
4-Jan-25	63	3-Jan-25	10:30	57	63	53
10-Jan-25	66	9-Jan-25	13:40	38	44	56
16-Jan-25	85	15-Jan-25	13:50	50	60	62
22-Jan-25	70	21-Jan-25	10:12	46	52	59
28-Jan-25	47	27-Jan-25	13:00	58	61	55
Average (Range)	**66 (47 – 85)**	Average (Range)		**54 (38 – 63)**		

Table 4-3 1-Hour TSP Air Quality Impact Monitoring Results for AM3

Date	Start Time	1st Meas.	2nd Meas.	3rd Meas.
3-Jan-25	9:30	55	52	54
9-Jan-25	13:00	48	40	43
15-Jan-25	13:10	35	33	39
21-Jan-25	10:28	43	49	52
27-Jan-25	13:20	47	56	51
Average (Range)		**46 (33 – 56)**		

4.2.2 As shown in ***Table 4-1, Table 4-2*** and ***Table 4-3***, all the 1-hour TSP and 24-hour TSP monitoring results were below the Action / Limit Levels. No Notification of Exceedance (NOE) was issued

in this Reporting Period.

4.2.3 The meteorological data during impact monitoring period is summarized in ***Appendix J***.

5. CONSTRUCTION NOISE MONITORING

5.1 GENERAL

5.1.1 In the Reporting Period, construction noise quality monitoring was performed at designated monitoring location **CNMS-1, CNMS-2 & CNMS-3,** and interim alternative monitoring location **CNMS-5**. The construction noise monitoring schedule is presented in ***Appendix F***.

5.1.2 Valid calibration certificates of monitoring equipment is shown in ***Appendix G*** and the construction noise monitoring results are summarized in the following sub-sections:

5.2 RESULTS OF NOISE MONITORING

5.2.1 ***20*** sessions of daytime construction noise monitoring were performed at both the designated monitoring location CNMS-1, CNMS-2 & CNMS-3 and the interim alternative location CNMS-5 in the reporting period. The daytime noise monitoring results are summarized in ***Table 5-1*** to ***Table 5-4.*** The detailed noise monitoring data are presented in ***Appendix H*** and the relevant graphical plots are shown in ***Appendix I***.

Table 5-1 Daytime Construction Noise Impact Monitoring Results at CNMS-1

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
3-Jan-25	11:10	62.3	NA
9-Jan-25	14:15	61.1	NA
15-Jan-25	14:25	62.1	NA
21-Jan-25	11:22	62.1	NA
27-Jan-25	15:15	62.5	NA

Table 5-2 Daytime Construction Noise Impact Monitoring Results at CNMS-2

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
3-Jan-25	10:30	61.0	NA
9-Jan-25	13:40	62.5	NA
15-Jan-25	13:50	60.4	NA
21-Jan-25	11:58	59.5	NA
27-Jan-25	14:40	62.1	NA

Table 5-3 Daytime Construction Noise Impact Monitoring Results at CNMS-3

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
3-Jan-25	9:30	57.6	NA
9-Jan-25	13:00	58.5	NA
15-Jan-25	13:10	59.5	NA
21-Jan-25	10:30	60.0	NA
27-Jan-25	13:05	61.1	NA

Table 5-4 Daytime Construction Noise Impact Monitoring Results at CNMS-5

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
3-Jan-25	8:30	62.8	NA
9-Jan-25	15:00	61.9	NA
15-Jan-25	15:10	62.4	NA
21-Jan-25	12:50	60.1	NA
27-Jan-25	13:40	59.5	NA

5.2.2 As shown in ***Table 5-1*** to ***Table 5-4***, all the measured results were below 75dB(A) of the acceptance criteria. No adverse weather condition which may affect the monitoring result was encountered during the course of noise monitoring in the reporting period.

6. WATER QUALITY MONITORING

6.1 GENERAL

6.1.1 According to the approved EM&A Manual Section 7.6.1, the impact marine water quality monitoring work shall be carried out during the CBL piling and pile excavation works (marine construction activity) of the Project. Impact marine water quality monitoring was commenced in December 2018 when CBL piling and pile excavation works started.

6.1.2 As confirmed, all the marine piling and piling excavation work were completed in January 2020 and all pile cap installation work was completed in mid-March 2020. Due to the marine construction works that requires marine water quality monitoring as stated in the EM&A Manual were completed, the impact water quality monitoring was ceased with effect from 1 May 2020 and IEC has no particular comment on this arrangement.

6.1.3 No impact water quality monitoring was therefore carried out in the reporting period.

7. WASTE MANAGEMENT

7.1 GENERAL WASTE MANAGEMENT

7.1.1 Waste management would be carried out by an on-site Environmental Officer or an Environmental Consultant from time to time.

7.2 RECORDS OF WASTE QUANTITIES

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

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

7.2.2 According to the information provided by Contractor of Contract 1 and Contract 2, waste disposal was made in the Reporting period are summarized in ***Tables 7-1*** and ***7-2***.

Table 7-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Contract 1		Contract 2	
	Quantity	Disposal Location	Quantity	Disposal Location
Total C&D Materials (Inert) ('000m^3)	0	-	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	TKO-137	0	-
Imported Fill ('000m^3)	0	-	0	-

Table 7-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract 1		Contract 2	
	Quantity	Disposal Location	Quantity	Disposal Location
Recycled Metal ('000kg)	0	-	0	-
Recycled Paper / Cardboard Packing ('000kg)	0.230	-	0	-
Recycled Plastic ('000kg)	0	-	0	-
Chemical Wastes ('000kg)	0	-	0	-
General Refuses ('000m^3)	0.021	NENT	0.005	-

7.2.3 The Monthly Summary Waste Flow Table of the Contracts 1 and Contract 2 are shown in ***Appendix K***.

8. SITE INSPECTION

8.1 REQUIREMENTS

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

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

Contract 1

8.2.1 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 1* was carried out by the Project Consultant, ET and the Contractor on ***2, 8, 16, 20, 28 January 2025.*** Moreover, the Independent Environmental Checker (IEC) monthly site inspection was conducted on ***16 January 2025.***

8.2.2 The findings / deficiencies of ***Contract 1*** that observed during the weekly site inspection are listed in ***Table 8-1*** and the site layout plan was provided in **Appendix A**.

Table 8-1 Site Observations of the Contract 1 (Contract No. NE/2017/07)

Date	Findings / Deficiencies	Follow-Up Status
2 January 2025	• No environmental issue was observed during site inspection.	• NA
8 January 2025	• No environmental issue was observed during site inspection.	• NA
16 January 2025	• No environmental issue was observed during site inspection.	• NA
20 January 2025	• No environmental issue was observed during site inspection.	• NA
28 January 2025	• No environmental issue was observed during site inspection.	• NA

Contract 2

8.2.3 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 2* were carried out by the Project Consultant, ET and the Contractor on ***2, 8, 16, 20, 28 January 2025.*** Moreover, the Independent Environmental Checker (IEC) monthly site inspection was conducted on ***16 January 2025.***

8.2.4

8.2.5 The findings / deficiencies of ***Contract 2*** that observed during the weekly site inspection are listed in ***Table 8-2*** and the site layout plan was provided in **Appendix A**.

Table 8-2 Site Observations of the Contract 2 (Contract No. NE/2017/08)

Date	Findings / Deficiencies	Follow-Up Status
2 January 2025	• No environmental issues was observed during site inspection.	• NA
8 January 2025	• No environmental issue was observed during site inspection.	• NA
16 January 2025	• No environmental issue was observed during site inspection.	• NA
20 January 2025	• No environmental issue was observed duriing site inspection.	• NA
28 January 2025	• No environmental issue was observed during site inspection.	• NA

8.3 IMPLEMENTATION STATUS OF SURFACE RUNOFF MITIGATION MEASURES

8.3.1 During the inspection of the reporting month, implementation of surface runoff mitigation measures were observed in both Contracts. The surface runoff mitigation measures observed

during the weekly site inspection of Contract 1 and Contract 2 are summarized below and the photo recorded was provided in **Appendix L**.

Contract 1 (Contract No. NE/2017/07)

8.3.2 The surface runoff mitigation measures of Contract 1 implemented in this Reporting Period are:-

- Treatment facilities was installed at site to treat the site generated water prior discharge.

Contract 2 (Contract No. NE/2017/08)

8.3.3 The surface runoff mitigation measures of Contract 2 implemented in this Reporting Period are:-

- No fill material was stored at work area to avoid muddy runoff generation.

8.3.4 Overall, the surface runoff mitigation measures of Contract 1 and Contract 2 observed during the inspection of the reporting period are efficient. No discharge made by Contractor in the reporting period.

8.4 MONITORING OF PLANTING WORKS DURING ESTABLISHMENT PERIOD

8.4.1 Monitoring of the planting plants and planting areas condition should be carried out during the 24-month establishment period according to the EM&A Manual. The inspection during establishment period should be carried out bi-monthly to ensure the establishment of planting work is complied with the EMIS requirement.

8.4.2 According to RSS, the soft landscape works within Cross Bay Link were completed in April 2023. The establishment period monitoring for the planting area within the Project boundary was proposed commenced on 1 May 2023.

8.4.3 No inspection for the planting plants and planting areas during the establishment period was carried out in the reporting period. The inspection was scheduled in the next reporting period and inspection checklist will be provided accordingly.

9. LANDFILL GAS MONITORING

9.1 GENERAL REQUIREMENT

9.1.1 Pursuant to Section 13 of the Project's EM&A Manual, landfill gas monitoring shall perform during excavation work within the 250m Consultation Zone of Tseung Kwan O Stage II & III Landfill. For landfill gas monitoring requirements, pre entry and routine measurement shall be undertaken in accordance with the *Factories and Industrial Undertaking (Confined Spaces) Regulation*.

9.1.2 According to Environmental Mitigation Implementation Schedule (EMIS) S14.7.6, portable monitoring equipment can be used to conduct landfill gas monitoring. Moreover, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person.

9.2 LIMIT LEVELS AND EVENT AND ACTION PLAN

9.2.1 In event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG. In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The Limit levels and relevant Action Plans for landfill gas detected in utilities and any on-site areas following construction is listed in ***Table 9-1***.

Table 9-1 Actions in the Event of Landfill Gas Being Detected in Excavations

Parameter	Limit Level	Actions
Methane	>10% LEL (i.e. >0.5% by volume)	• Post "No Smoking" signs • Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. >1% by volume)	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon dioxide	>0.5%	• Ventilate to restore carbon dioxide to <0.5%
	>1.5%	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore carbon dioxide to <0.5%
Oxygen	<19%	Ventilation to restore oxygen >19%
	<18%	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%

9.2.2 In the event of the trigger levels specified in Table 9-1 being exceeded, the Safety Officer shall be responsible for dealing with any emergency which may occur due to landfill gas.

9.3 LANDFILL GAS MONITORING

9.3.1 In the Reporting Period, no landfill gas monitoring was conducted as all the excavation work of Contract 2 was completed.

10. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

10.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

10.1.1 In the Reporting Period, no environmental complaint was received for the Project. Besides, no summons and prosecution under the EM&A Programme was lodged for the project.

10.1.2 The statistical summary table of environmental complaint is presented in ***Tables 10-1, 10-2*** and ***10-3***.

Table 10-1 Statistical Summary of Environmental Complaints

Reporting Period	Contract	Environmental Complaint Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 January 2025	1	0	33	NA	NA
	2	0	26	NA	NA

Table 10-2 Statistical Summary of Environmental Summons

Reporting Period	Contract	Environmental Summons Statistics		
		Frequency	Cumulative	Summons Nature
1 – 31 January 2025	1	0	0	NA
	2	0	0	NA

Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract	Environmental Prosecution Statistics		
		Frequency	Cumulative	Prosecution Nature
1 – 31 January 2025	1	0	0	NA
	2	0	0	NA

11. IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.1 GENERAL REQUIREMENTS

11.1.1 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 and they are summarized presented in ***Appendix M.***

11.1.2 The Contractors had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by the Contractors in this Reporting Month are summarized in ***Table 11-1*** and photo record of water mitigation measure was provided in **Appendix L**.

Table 11-1 Environmental Mitigation Measures in the Reporting Month

Issues	Environmental Mitigation Measures
Construction Noise	• Regularly to maintain all plants, so only the good condition plants were used on-site ; • If possible, all mobile plants onsite operation has located far from NSRs; • When machines and plants (such as trucks) were not in using, it was switched off; • Wherever possible, plant was prevented oriented directly the nearby NSRs; • Provided quiet powered mechanical equipment to use onsite; • Weekly noise monitoring was conducted to ensure construction noise meet the criteria.
Air Quality	• Stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • The construction plants regularly maintained to avoid the emissions of black smoke; • The construction plants switched off when it not in use; • Water spraying on haul road and dry site area was provided regularly; • Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting; and • Before any vehicle leaving the works site, wheel watering has been performed.
Water Quality	• Debris and refuse generated on-site collected daily; • Oils and fuels were stored in designated areas; • The chemical waste storage as sealed area provided; • Site hoarding with sealed foot were provided surrounding the boundary of working site to prevent wastewater or site surface water runoff get into public areas; and • Portable chemical toilets were provided on-site. A licensed contractor was regularly disposal and maintenance of these facilities. • Silt curtain was installed and maintained in accordance with EP condition
Waste and Chemical Management	• Excavated material reused on site as far as possible to minimize off-site disposal. • Scrap metals or abandoned equipment should be recycled if possible; • Waste arising kept to a minimum and be handled, transported and disposed of in a suitable manner; • Disposal of C&D wastes to any designated public filling facility and/or landfill followed a trip ticket system; and • Chemical waste handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	• The site is generally kept tidy and clean. • Mosquito control is performed to prevent mosquito breeding on site.

11.2 NOISE MITIGATION MEASURE DURING OPERATION OF THE PROJECT

11.2.1 According to Environmental Permit EP-459/2013 Condition 3.4, noise mitigation measures such as low noise surfacing and semi-enclosure noise barrier shall be implemented at CBL main bridge and Road D9 to mitigate traffic noise impact arising from the operation of Project. The details of the mitigation measures are shown in Table 11-2. An as-built drawing of the low noise surfacing and semi-enclosure noise barrier at CBL main bridge Road D9 was shown in **Appendix O**. All the locations and dimensions of the required mitigation measures are complied with Table 1 and Figure 2 of the EP.

Table 11-2 Noise Mitigation Measures during Operation of the Project

No.	Required Mitigation Measures	Actual Mitigation Measures Implemented
N1	Approx. 300m long low noise surfacing	400m long low noise surfacing
N2	Approx. 960m long low noise surfacing	1060m long low noise surfacing
N3	Approx. 220m long 6m height + 17m width semi-enclosure	220m long 6.6m height + 17m width semi-enclosure
N4	Approx. 245m long 6m height + 10.5m width semi-enclosure	245m long 6.3m height + 10.7m width semi-enclosure
N5	Approx. 22m long 6m height +13.2m width semi-enclosure	22m long 6.3m height + 13.7m width semi-enclosure
N6	Approx. 33m long 6m height + 17.4m width semi-enclosure	33m long 6.3m height + 17.4m width semi-enclosure
N7	Approx. 90m long 6m height + 13.5m width semi-enclosure	90m long 6.3m height + 13.7m width semi-enclosure
N8	Approx. 55m long low noise surfacing	55m long low noise surfacing

11.3 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

11.3.1 Tentative activities to be undertaken in **February 2025** should be included:-

Contract 1

- No construction work will be undertaken.

Contract 2

- No construction work will be undertaken.

11.4 IMPACT FORECAST

11.4.1 Potential environmental impacts arising from the works of the Contracts 1 and Contract 2 include:

- General waste generated from housekeeping works
- Potential water quality impact from unmanaged site runoff.

11.4.2 Environmental mitigation measures shall be properly implemented and maintained as per the Mitigation Implementation Schedule in **Appendix M** to ensure site environmental performance is acceptable.

12. CONCLUSIONS AND RECOMMENDATIONS

12.1 CONCLUSIONS

12.1.1 This is the monthly EM&A report as presented the monitoring results and inspection findings for the reporting period from ***1*** to ***31 January 2025***

12.1.2 In this Reporting Period, no 1-Hour TSP and 24-Hr TSP air quality monitoring, and no construction noise monitoring exceedance was recorded. No NOE or the associated corrective actions were therefore issued.

12.1.3 In the Reporting Period, no environmental complaint was recorded for the Project.

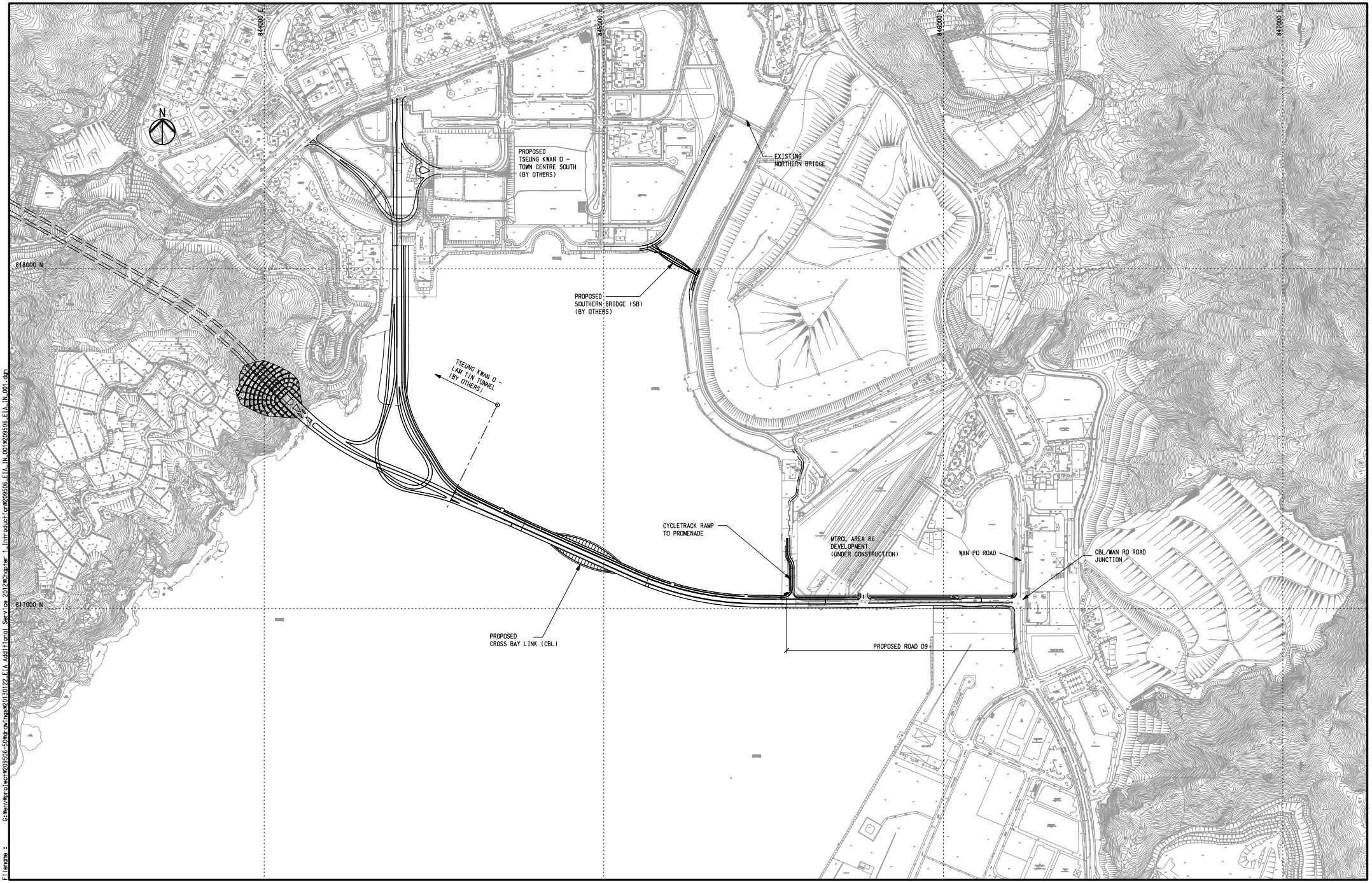
12.2 RECOMMENDATIONS

12.2.1 Although there will be no construction work to be carried out in the coming month, the Contractor was reminded to pay attention to the management of general waste generated from housekeeping works and the potential water quality impact from any unmanaged site runoff.

12.2.2 Although opening of Cross Bay Link was held in early December 2022, construction noise from the remaining work of the Project would be the key environmental issue as the work areas are located near Lohas Park. Noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented in accordance with the EM&A requirement.

Appendix A

Project Layout Plan



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土木工程拓展署 Civil Engineering and Development Department	ARUP Ove Arup & Partners Hong Kong Limited

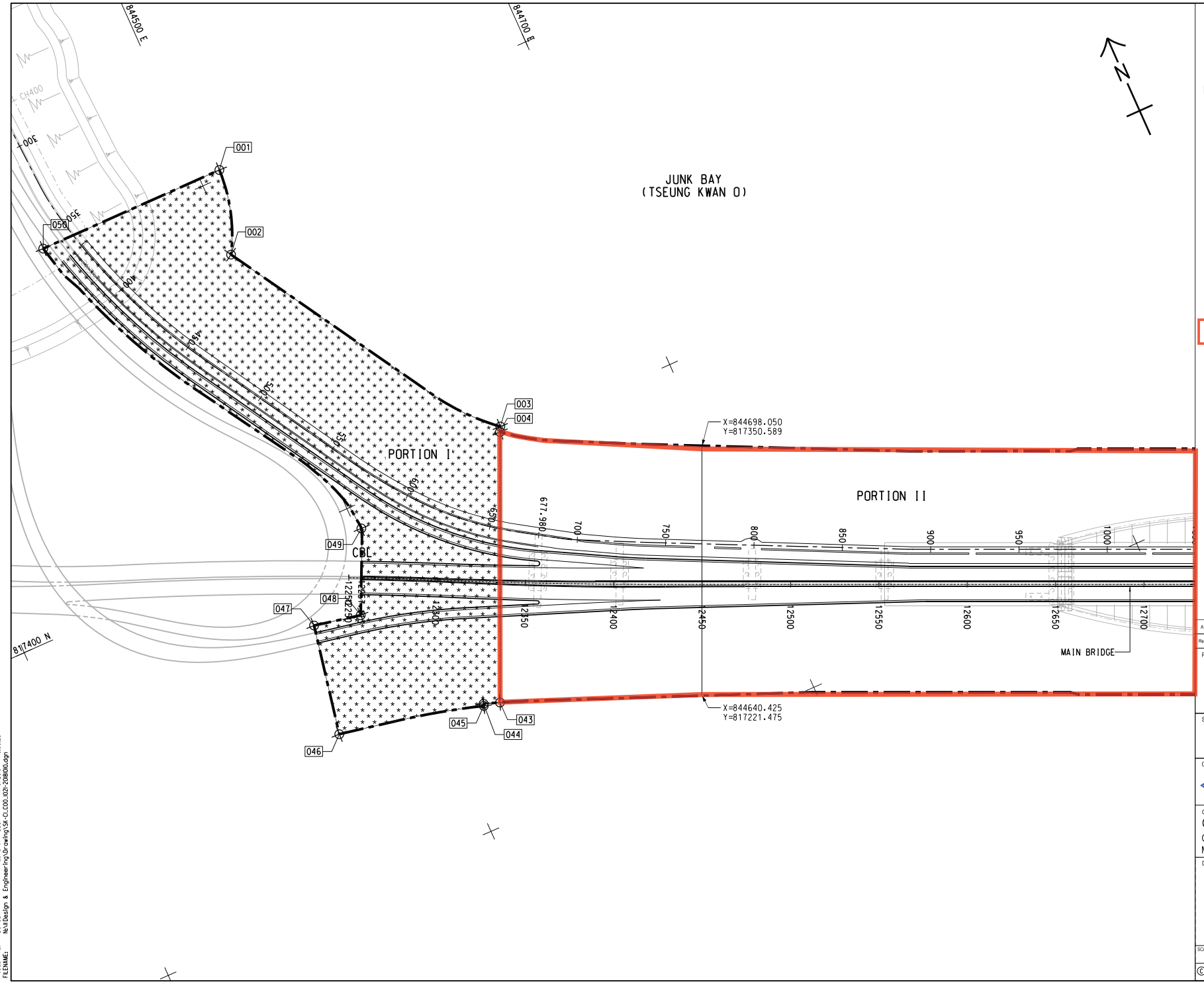
Job Title
Agreement No. CE 43/2008(HY)
Cross Bay Link, Tseung Kwan O – Investigation

Drawing Title
GENERAL LAYOUT PLAN

Rev.	Description	Date
B	SECOND ISSUE	01/13
A	FIRST ISSUE	07/11

Drawn	GL	Date	01/13
Checked	JP	Approved	ST
Scale	1:5000 on A1 & 1:10000 on A3		
Status	FINAL	Rev.	B

Drawing No.
209506/EIA/IN/001



NOTES:

1. ALL SETTING OUT POINTS SHOWN ON THIS SET OF DRAWINGS ARE FOR REFERENCE ONLY. THE EXACT LIMIT OF SITE BOUNDARY SHALL BE VERIFIED AND DETERMINED BY THE CONTRACTOR ON SITE.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/C00/1022 AND 1023.

LEGEND:

- SITE BOUNDARY
- PORTION I
- PORTION II
- PORTION III
- PORTION IV
- PORTION V
- PORTION VI
- PORTION VII
- WORKS AREA A
- WORKS AREA B

Works area under Contract 1

Rev	Amendment	By	Chk.	App.	Date
A	FIRST ISSUE	HK	KN	AC	19/09/18

PROJECT MANAGER:

CEDD 土木工程拓展署 Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

中國路橋工程有限責任公司 China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1 1 : 1000

DRAWING NO:

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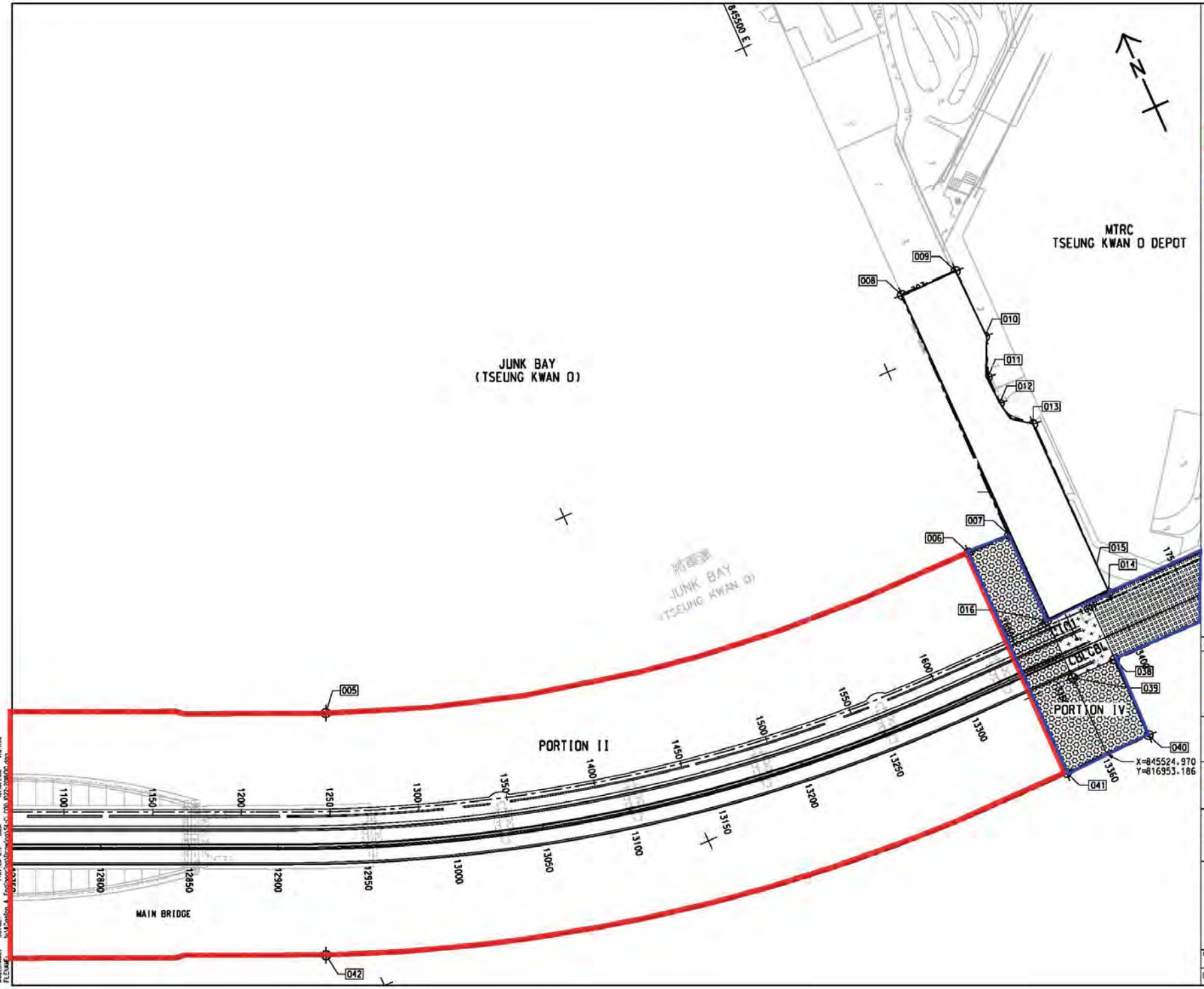


NOTE:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 603293391/C1/C00/1021 AND 1023.

LEGEND:

Works area under Contract 1

Works area under Contract 2

No.	Amendment	By	Chk.	App.	Date

PROJECT MANAGER: CEDD 土木工程拓展署 Civil Engineering and Development Department

PROJECT MANAGER:

SUPERVISOR: AECOM

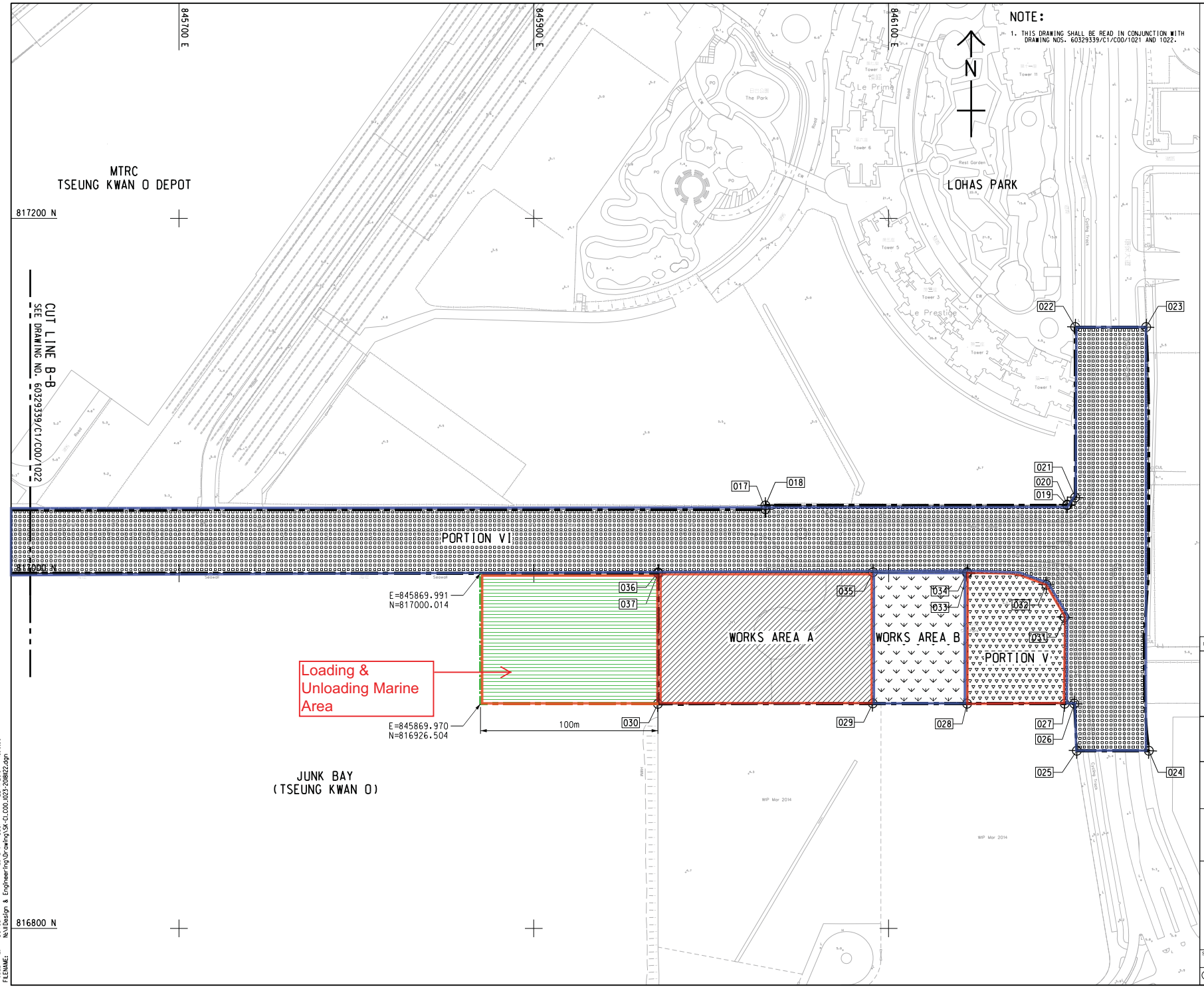
CONTRACTOR: 中國路橋工程有限責任公司 China Road and Bridge Corp.

CONTRACT NO. AND TITLE:
Contract No. NE/2017/07
CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A3

DRAWING NO:



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Rev	Amendment	By	Chk.	App.	Date

PROJECT MANAGER:

PROJECT MANAGER:

CEDD 土木工程拓展署 Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

RB 中國路橋工程有限責任公司 China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07
CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

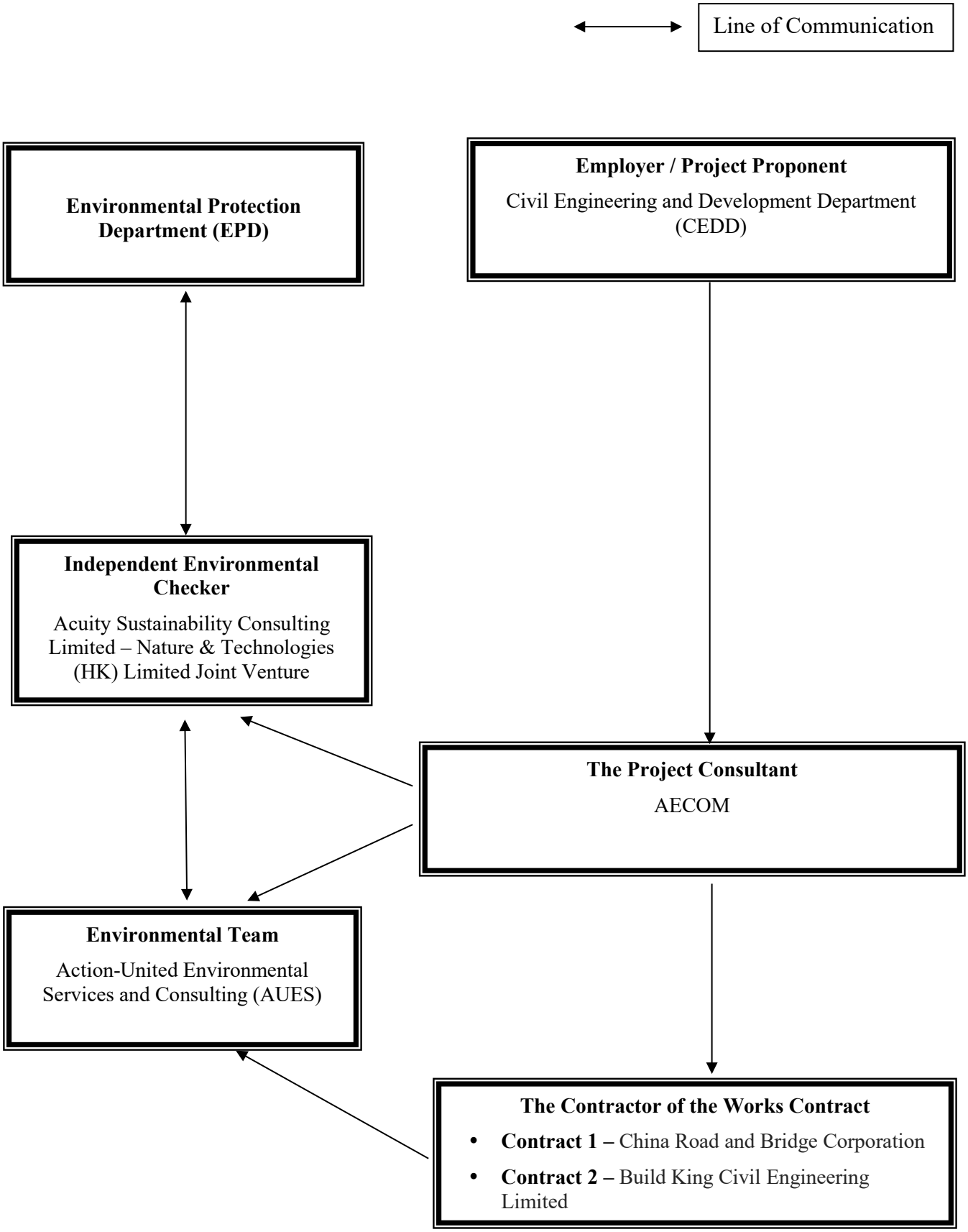
SCALE @ A1

DRAWING NO:

Appendix B

Project Organization Chart & Contact Details of Key Personnel for the Project

Project Organization Structure



Contact Details of Key Personnel for the Project

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Project Proponent	CK Lam	2301 1398	2714 5174
CEDD	Project Proponent	Sheri Leung	2301 1398	2714 5174
ASC – N&T JV	Independent Environmental Checker (IEC)	Kevin Li	2698 6833	2698 9383
ASC – N&T JV	IEC Team Member	Toby Wan	2698 6833	2698 9383
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Martin Li	2959 6059	2959 6079
CRBC	Site Agent	Raymond Suen	9779 8871	2283 1689
CRBC	Environmental Officer	Joe Wong	6182 0351	2283 1689
Build King	Site Agent	Stephen Leung	9071 7657	NA
Build King	Environmental Officer	Louisa Fung	9271 5370	NA

Legend:

CEDD (Employer) – Civil Engineering and Development Department

AECOM (Project Consultant) – AECOM Asia Co. Ltd.

ASC – N&T JV (IEC) – Acuity Sustainability Consulting Limited – Nature & Technologies (HK) Limited Joint Venture

AUES (ET) – Action-United Environmental Services & Consulting

CRBC (the Main Contractor of the Works Contract 1) – China Road and Bridge Corporation

Build King (the Main Contractor of the Works Contract 2) - Build King Civil Engineering Limited

Appendix C

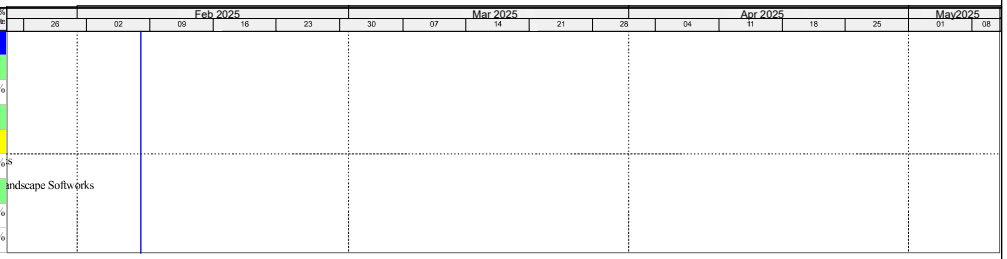
3-Month Rolling Construction Programme

Contract 1

Data Date : 06 Jan 2025
Sheet 1 of 1

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Physical % Complete
Cross Bay Link,Tseung Kwan O Main Bridge and Associated Works		515	0	19-Apr-23 A	17-Apr-24 A	
Project Commencement and Completion		0	0	17-Apr-24 A	17-Apr-24 A	
PCC1050	Completion Date of Establishment	0	0		17-Apr-24 A	100%
Planned Key Dates and Section of the Works		0	0	17-Apr-24 A	17-Apr-24 A	
Planned Section of the Works		0	0	17-Apr-24 A	17-Apr-24 A	
KDS1180	Section 4 of the Works-Establishment Works for all of landscape softworks	0	0		17-Apr-24 A	100%
Section 4 of the Works-Comprises the Establishment Works for All of Landscape Softworks		485	0	19-Apr-23 A	17-Apr-24 A	
S4-EW2000	Establishment works	365	0	19-Apr-23 A	17-Apr-24 A	100%
S4-EW2020	Completion of Section 4 of the Works	0	0		17-Apr-24 A	100%



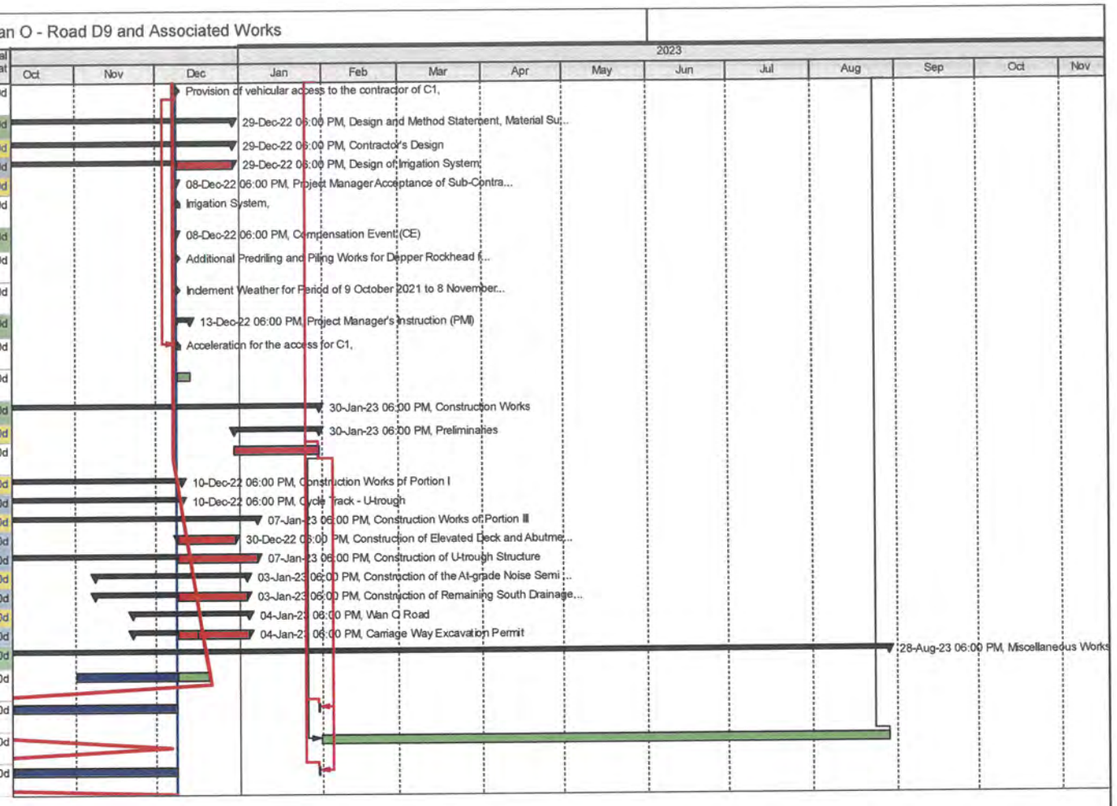
Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Three Month Rolling Programme (Apr 2024 - Jul 2024)

Date	Revision	Checked	Approved
08-Apr-24	3MRP (Apr 24 - Jul 24)		

Contract 2

Activity ID	Activity Name	Calendar	Original Duration	Actual Duration	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float
HO1020	Provision of vehicular access to the contractor of C1	NE/2017/08(6days)	0.0d	0.0d	0.0d		08-Dec-22 06:00 PM		15-Dec-21 06:00 PM	-290.0d
Design and Method Statement, Material Submissions		NE/2017/08(7days)	50.0d	109.0d	21.0d	22-Aug-2	29-Dec-22	19-Jul-21	18-Sep-2	-102.0d
Contractor's Design		NE/2017/08(7days)	21.0d	109.0d	21.0d	22-Aug-2	29-Dec-22	29-Aug-2	18-Sep-2	-102.0d
Design of Irrigation System		NE/2017/08(7days)	21.0d	109.0d	21.0d	22-Aug-2	29-Dec-22	29-Aug-2	18-Sep-2	-102.0d
Project Manager Acceptance of Sub-Contractors		NE/2017/08(7days)	0.0d	0.0d	0.0d	08-Dec-2	08-Dec-22	19-Jul-21	19-Jul-21	-507.0d
SC1230	Irrigation System	NE/2017/08(7days)	0.0d	0.0d	0.0d		08-Dec-22 06:00 PM*		19-Jul-21 06:00 PM	-507.0d
Compensation Event (CE)		NE/2017/08(6days)	0.0d	0.0d	0.0d	08-Dec-2	08-Dec-22	17-Oct-2	17-Oct-2	252.0d
CE088	Additional Predriling and Piling Works for Depper Rockhead for Elevated Deck, Abutment 2A and	NE/2017/08(6days)	0.0d	0.0d	0.0d		08-Dec-22 06:00 PM		17-Oct-23 06:00 PM	252.0d
CE087	Inclement Weather for Period of 9 October 2021 to 8 November 2021	NE/2017/08(6days)	0.0d	0.0d	0.0d		08-Dec-22 06:00 PM		17-Oct-23 06:00 PM	252.0d
Project Manager's Instruction (PMI)		NE/2017/08(6days)	4.0d	0.0d	4.0d	08-Dec-2	13-Dec-22	15-Dec-2	17-Oct-2	248.0d
PMI113	Acceleration for the access for C1	NE/2017/08(6days)	0.0d	0.0d	0.0d		08-Dec-22 06:00 PM*		15-Dec-21 06:00 PM	-290.0d
PMI108	Engaging a HOKLAS Accredited Independent Laboratory for Impact Resistance Test .. for uPVC pipes	NE/2017/08(6days)	4.0d	0.0d	4.0d	09-Dec-22 08:00 AM	13-Dec-22 06:00 PM	13-Oct-23 08:00 AM	17-Oct-23 06:00 PM	248.0d
Construction Works		NE/2017/08(6days)	201.0d	183.0d	39.0d	03-May-2	30-Jan-23	19-Sep-2	17-Oct-2	213.0d
Preliminaries		NE/2017/08(5days)	23.0d	0.0d	23.0d	30-Dec-2	30-Jan-23	19-Sep-2	17-Oct-2	-84.0d
PREL1240	Laying of Irrigation (Portion I, II, III)	NE/2017/08(6days)	23.0d	0.0d	23.0d	30-Dec-22 08:00 AM	30-Jan-23 06:00 PM	19-Sep-22 08:00 AM	17-Oct-22 06:00 PM	-84.0d
Construction Works of Portion I		NE/2017/08(6days)	48.0d	183.0d	2.0d	03-May-2	10-Dec-22	16-Oct-2	17-Oct-2	250.0d
Cycle Track - U-trough		NE/2017/08(6days)	48.0d	183.0d	2.0d	03-May-2	10-Dec-22	16-Oct-2	17-Oct-2	250.0d
Construction Works of Portion III		NE/2017/08(6days)	96.0d	89.0d	23.0d	24-Aug-2	07-Jan-23	21-Sep-2	17-Oct-2	229.0d
Construction of Elevated Deck and Abutment 2B		NE/2017/08(6days)	17.0d	0.0d	17.0d	09-Dec-2	30-Dec-22	28-Sep-2	19-Oct-2	-60.0d
Construction of U-trough Structure		NE/2017/08(6days)	96.0d	89.0d	23.0d	24-Aug-2	07-Jan-23	21-Sep-2	17-Oct-2	229.0d
Construction of the At-grade Noise Semi Enclosures		NE/2017/08(6days)	45.0d	27.0d	19.0d	08-Nov-2	03-Jan-23	26-Sep-2	19-Oct-2	-62.0d
Construction of Remaining South Drainage (SMH203 to SMH216)		NE/2017/08(6days)	45.0d	27.0d	19.0d	08-Nov-2	03-Jan-23	26-Sep-2	19-Oct-2	-62.0d
Wan O Road		NE/2017/08(6days)	20.8d	15.0d	20.0d	22-Nov-2	04-Jan-23	22-Sep-2	17-Oct-2	-65.0d
Carriage Way Excavation Permit		NE/2017/08(6days)	20.8d	15.0d	20.0d	22-Nov-2	04-Jan-23	22-Sep-2	17-Oct-2	-65.0d
Miscellaneous Works (Portion I, II and III)			1324.0d	1113.0d	211.0d	09-Mar-1	28-Aug-2	17-Oct-2	17-Oct-2	41.0d
MISC4040	Overall Road Paving Works and Street Furniture	NE/2017/08(6days)	49.8d	33.0d	10.0d	01-Nov-22 08:00 AM	20-Dec-22 06:00 PM	06-Oct-23 08:00 AM	17-Oct-23 06:00 PM	242.0d
MISC4010	Landscape works	NE/2017/08(7days)	321.0d	457.0d	0.8d	08-Sep-21 08:00 AM	30-Jan-23 06:00 PM	17-Oct-22 10:00 AM	17-Oct-22 06:00 PM	-105.0d
MISC4020	Establishment works	NE/2017/08(7days)	210.0d	0.0d	210.0d	31-Jan-23 08:00 AM	28-Aug-23 06:00 PM	22-Mar-23 08:00 AM	17-Oct-23 06:00 PM	50.0d
MISC4030	Tree Preservation and Protection Works	NE/2017/08(6days)	939.0d	1113.0d	1.0d	09-Mar-19 08:00 AM	30-Jan-23 06:00 PM	19-Oct-22 08:00 AM	19-Oct-22 06:00 PM	-82.0d



Actual Work
Remaining Work
Critical Remaining Work
Start Constraint
Finish C...
Milestone
summary

CEDD 土木工程拓展署 Civil Engineering and Development Department

Contract No.: NE/2017/08
Cross Bay Link, Tseung Kwan O
Road D9 and Associated Road

Build King

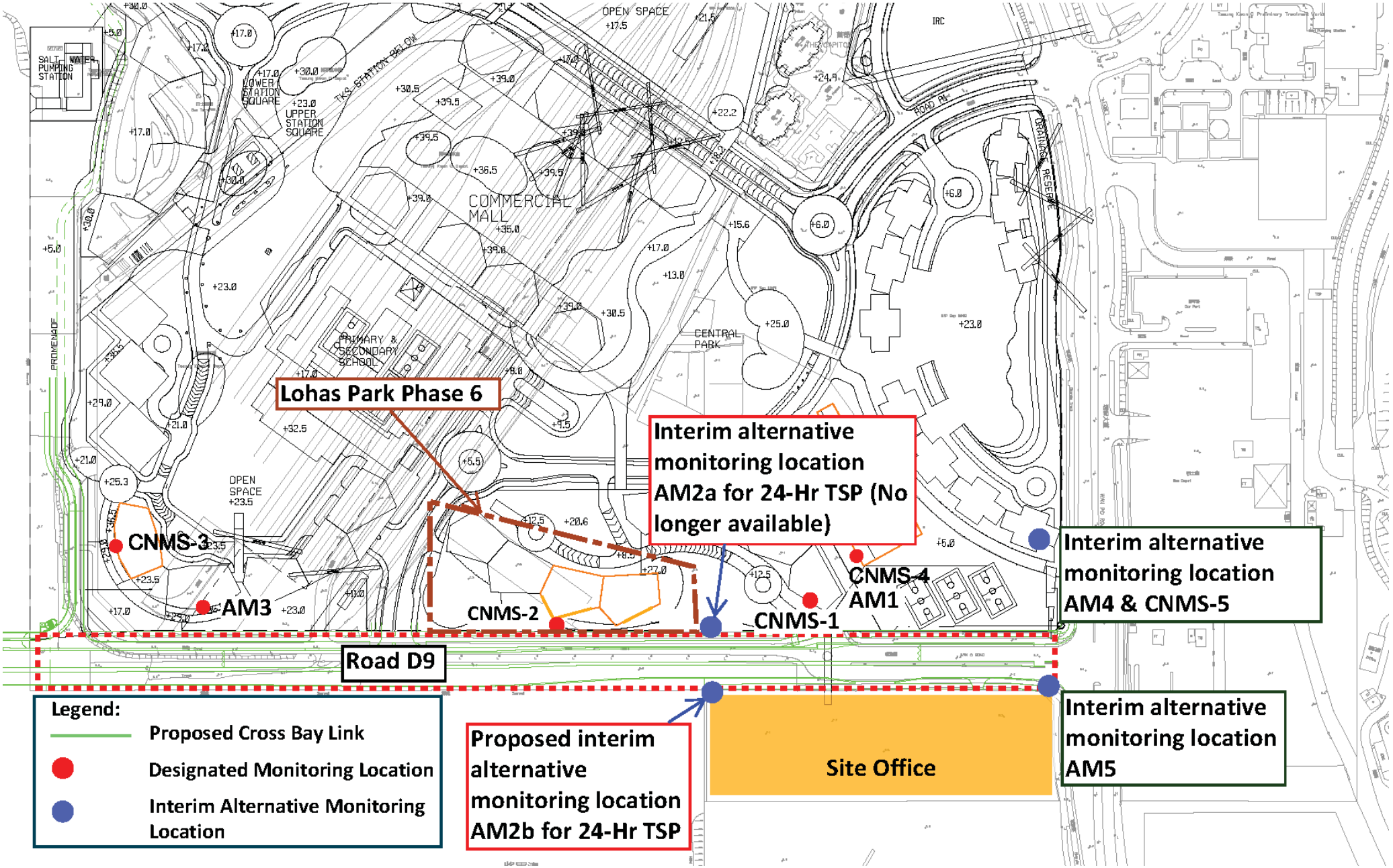
Date	Revision	Checked	Approved
08-Dec-22 06:00 ...	Monthly Programme Update (December 2022) R2	CKT	StL
	Executive Summary		

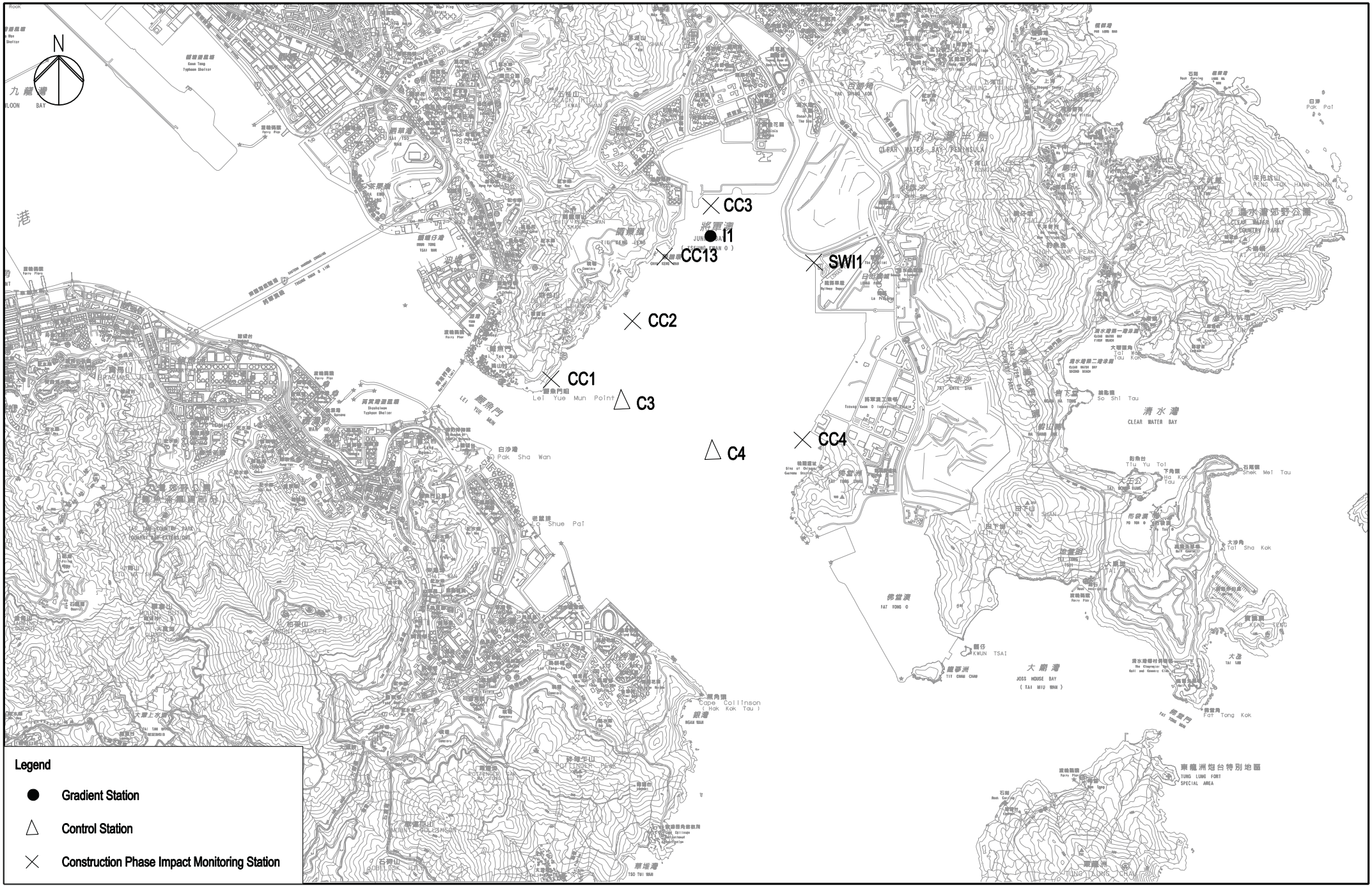
Appendix D

Monitoring Location
(Air Quality, Noise and Water Quality)

CEDD Contract Agreement No. EDO/04/2018 -
Environmental Team for Cross Bay Link, Tseung Kwan O
Designated and Interim Alternative Air Quality and Noise Monitoring Location

AUES





CEDD 土木工程拓展署 Civil Engineering and Development Department

ARUP Ove Arup & Partners Hong Kong Limited

Job Title
Agreement No. CE 43/2008(HY)
Cross Bay Link, Tseung Kwan O - Investigation

Drawing Title
Locations of Water Quality Monitoring Stations

Rev.	Description	Date
C	THIRD ISSUE	03/13
B	SECOND ISSUE	01/13
A	FIRST ISSUE	03/11

Drawn: GL | Date: 03/13
Checked: JP | Approved: ST
Scale: 1:30000 (A3)
Drawing No.: 209506/EMA/WQ/001
Status: FINAL | Rev.: C

Appendix E

Event and Action Plan

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
ACTION LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and Project Consultant; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and Project Consultant; 3. Advise the Project Consultant on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and Project Consultant; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Project Consultant, Contractor, IEC and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Project Consultant informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the Project Consultant on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; 4. Amend proposal if appropriate.

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

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

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
Action level being exceeded by one sampling day at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC and contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. If exceedance occurs at WSD salt water intake, inform WSD; 6. Discuss mitigation measures with IEC and Contractor; 7. Repeat measurement on next day of exceedance.	1. Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC; 2. Make agreement on the mitigation proposal.	1. Inform the Project Consultant and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Amend working methods if appropriate; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Project Consultant; 6. Implement the agree mitigation measures.
Action level being exceeded by two or more consecutive sampling days at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC and contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are	1. Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC; 2. Make agreement on the mitigation proposal; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Project Consultant and confirm notification of the noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and propose mitigation measures to IEC and Project Consultant within 3 working

EVENT	ACTION			
	Environmental Team (ET)	Independent Environmental Checker (IEC)	Project Consultant	Contractor
	implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.			days; 5. Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC, contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. If exceedance occurs at WSD salt water intake, inform WSD. 8. ET should contact AFCD if the limit level is exceeded by one sampling day or two or more consecutive sampling days at water sensitive receiver(s).	1.Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Project Consultant and confirm notification of the noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures.
Limit level being exceeded by two or more	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the	1. Discuss mitigation measures with ET and Contractor;	1. Discuss proposed mitigation measures with IEC, ET and Contractor;	1. Inform the Project Consultant and confirm notification of the

EVENT	ACTION			
	Environmental Team (ET)	Independent Environmental Checker (IEC)	Project Consultant	Contractor
consecutive sampling days at water sensitive receiver(s)	control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC, contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.	2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures; 6. As directed by the Engineer, to slow down or to stop all or part of the construction activities.

Appendix F

Impact Monitoring Schedule of the Reporting Month and Coming Month

Impact Monitoring Schedule for the reporting month – January 2025

Date		Noise Monitoring (L_{eq}30min)	Air Quality Monitoring	
			1-Hour TSP	24-Hour TSP
Wed	1-Jan-25			
Thu	2-Jan-25			
Fri	3-Jan-25	✓	✓	
Sat	4-Jan-25			✓
Sun	5-Jan-25			
Mon	6-Jan-25			
Tue	7-Jan-25			
Wed	8-Jan-25			
Thu	9-Jan-25	✓	✓	
Fri	10-Jan-25			✓
Sat	11-Jan-25			
Sun	12-Jan-25			
Mon	13-Jan-25			
Tue	14-Jan-25			
Wed	15-Jan-25	✓	✓	
Thu	16-Jan-25			✓
Fri	17-Jan-25			
Sat	18-Jan-25			
Sun	19-Jan-25			
Mon	20-Jan-25			
Tue	21-Jan-25	✓	✓	
Wed	22-Jan-25			✓
Thu	23-Jan-25			
Fri	24-Jan-25			
Sat	25-Jan-25			
Sun	26-Jan-25			
Mon	27-Jan-25	✓	✓	
Tue	28-Jan-25			✓
Wed	29-Jan-25			
Thu	30-Jan-25			
Fri	31-Jan-25			

✓	Monitoring Day
	Sunday or Public Holiday

Impact Monitoring Schedule for the coming month – February 2025

Date		Noise Monitoring (L_{eq}30min)	Air Quality Monitoring	
			1-Hour TSP	24-Hour TSP
Sat	1-Feb-25		✓	
Sun	2-Feb-25			
Mon	3-Feb-25			✓
Tue	4-Feb-25			
Wed	5-Feb-25			
Thu	6-Feb-25	✓	✓	
Fri	7-Feb-25			
Sat	8-Feb-25			✓
Sun	9-Feb-25			
Mon	10-Feb-25			
Tue	11-Feb-25			
Wed	12-Feb-25	✓	✓	
Thu	13-Feb-25			
Fri	14-Feb-25			✓
Sat	15-Feb-25			
Sun	16-Feb-25			
Mon	17-Feb-25			
Tue	18-Feb-25	✓	✓	
Wed	19-Feb-25			
Thu	20-Feb-25			✓
Fri	21-Feb-25			
Sat	22-Feb-25			
Sun	23-Feb-25			
Mon	24-Feb-25	✓	✓	
Tue	25-Feb-25			
Wed	26-Feb-25			✓
Thu	27-Feb-25			
Fri	28-Feb-25			

✓	Monitoring Day
	Sunday or Public Holiday

Appendix G

Calibration Certificates of Equipment and Accreditation Laboratory Certificate

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Near Lohas Park Phase 6 — Date of Calibration: 3-Jan-25
Location ID : AM2b — Next Calibration Date: 3-Mar-25
Name and Model: TISCH HVS Model TE-5170 — Technician: Gary

CONDITIONS

Sea Level Pressure (hPa)	1019.8	Corrected Pressure (mm Hg)	764.85
Temperature (°C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Serial # ->	4064		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.80	5.80	11.6	1.656	59	60.45	Slope = 43.9607
13	4.70	4.70	9.4	1.491	53	54.30	Intercept = -11.2631
10	3.50	3.50	7.0	1.288	46	47.13	Corr. coeff. = 0.9972
7	2.40	2.40	4.8	1.068	35	35.86	
5	1.30	1.30	2.6	0.788	22	22.54	

Calculations :

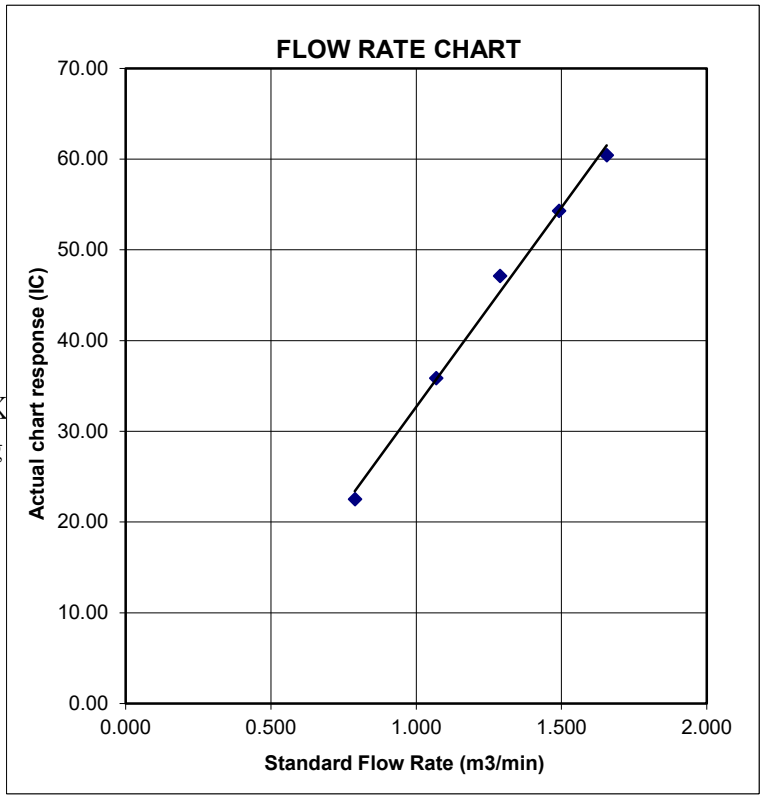
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Junction of Wan Po Road and Wan O Road Date of Calibration: 3-Jan-25
Location ID : AM5 Next Calibration Date: 3-Mar-25
Name and Model: TISCH HVS Model TE-5170 Technician: Gary

CONDITIONS

Sea Level Pressure (hPa)	1019.8	Corrected Pressure (mm Hg)	764.85
Temperature (°C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Serial # ->	4064		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.60	5.60	11.2	1.627	57	58.40	Slope = 42.7959
13	4.60	4.60	9.2	1.475	51	52.25	Intercept = -10.6056
10	3.70	3.70	7.4	1.324	46	47.13	Corr. coeff. = 0.9982
7	2.30	2.30	4.6	1.046	34	34.83	
5	1.40	1.40	2.8	0.818	23	23.56	

Calculations :

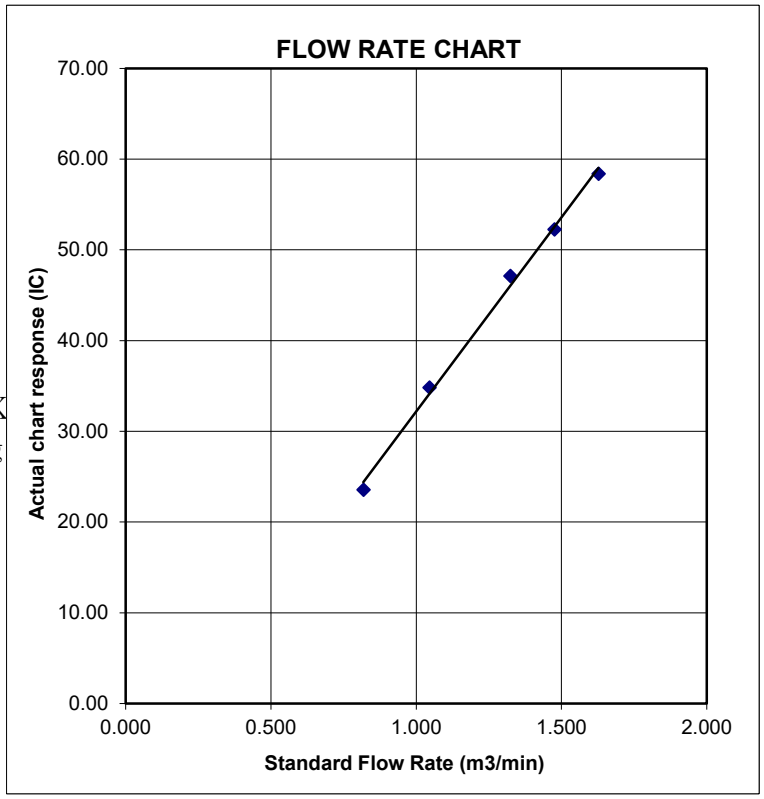
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Near Lohas Park Phase 6 — Date of Calibration: 4-Nov-24
Location ID : AM2b — Next Calibration Date: 4-Jan-25
Name and Model: TISCH HVS Model TE-5170 — Technician: Gary

CONDITIONS

Sea Level Pressure (hPa)	1016.9	Corrected Pressure (mm Hg)	762.675
Temperature (°C)	26.2	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13163
Model->	5025A	Qstd Intercept ->	-0.03523
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.70	5.70	11.4	1.600	58	57.87	Slope = 38.4982
13	4.80	4.80	9.6	1.470	53	52.88	Intercept = -3.3461
10	3.60	3.60	7.2	1.275	47	46.89	Corr. coeff. = 0.9988
7	2.30	2.30	4.6	1.022	36	35.92	
5	1.20	1.20	2.4	0.743	25	24.94	

Calculations :

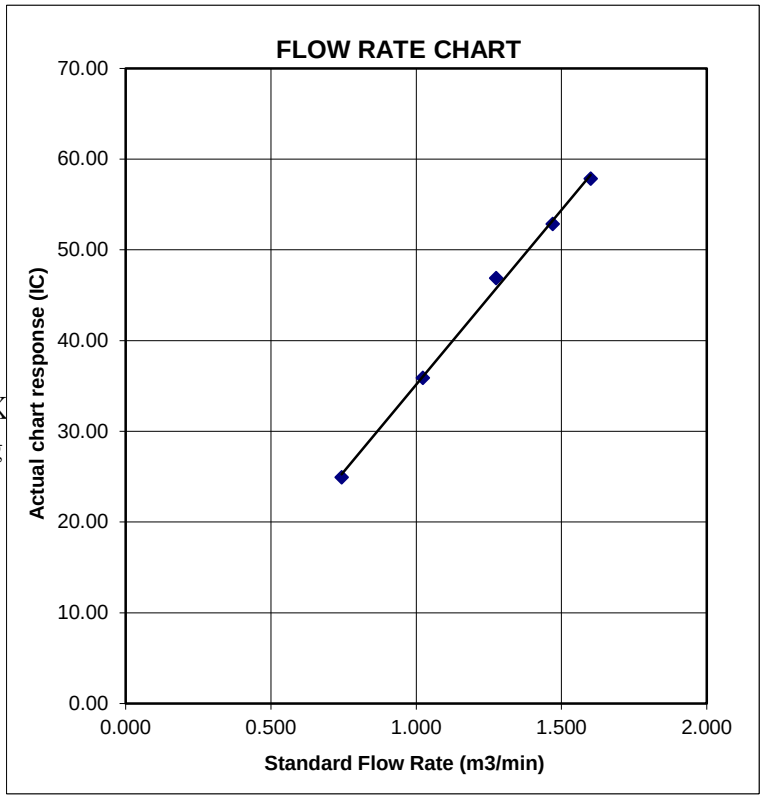
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Junction of Wan Po Road and Wan O Road Date of Calibration: 4-Nov-24
Location ID : AM5 Next Calibration Date: 4-Jan-25
Name and Model: TISCH HVS Model TE-5170 Technician: Gary

CONDITIONS

Sea Level Pressure (hPa)	1016.9	Corrected Pressure (mm Hg)	762.675
Temperature (°C)	26.2	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13163
Model->	5025A	Qstd Intercept ->	-0.03523
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.80	5.80	11.6	1.614	59	58.87	Slope = 42.7771
13	4.70	4.70	9.4	1.454	53	52.88	Intercept = -10.0955
10	3.80	3.80	7.6	1.309	45	44.90	Corr. coeff. = 0.9989
7	2.40	2.40	4.8	1.044	35	34.92	
5	1.30	1.30	2.6	0.773	23	22.95	

Calculations :

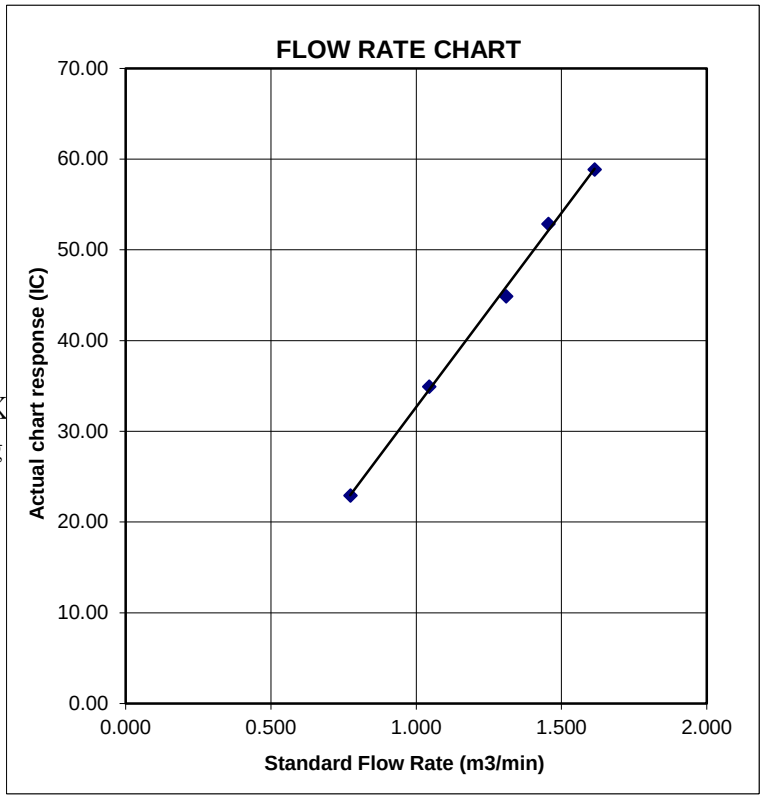
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: **HK2410660**
CLIENT	: **ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 14-MAR-2024
		DATE OF ISSUE	: 21-MAR-2024
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

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

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Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK2410660
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2410660-001	S/N: 3Y7139	AIR	14-Mar-2024	S/N: 3Y7139

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-5R
Serial No.	3Y7139
Equipment Ref:	EQ121

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	16 February 2024

Equipment Verification Results:

Verification Date: 7 & 8 March 2024

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)
7-Mar-24	2hr01mins	09:26 ~ 11:27	18.7	1016.6	49.9	2956	24.4
7-Mar-24	2hr02mins	11:34 ~ 13:36	18.7	1016.6	41.2	2547	20.8
7-Mar-24	2hr02mins	13:45 ~ 15:47	18.7	1016.6	53.1	2867	23.4
8-Mar-24	2hr01mins	10:22 ~ 12:23	18.8	1018.8	34.3	2027	16.8
8-Mar-24	2hr14mins	12:44 ~ 14:58	18.8	1018.8	49.1	3005	22.4

Sensitivity Adjustment Scale Setting (Before Calibration) 584 (CPM)

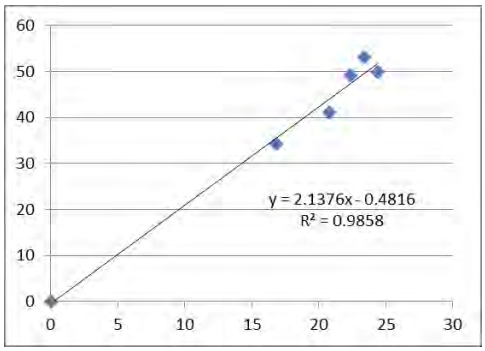
Sensitivity Adjustment Scale Setting (After Calibration) 588 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.1376 (µg/m^3)/CPM

Correlation Coefficient (R) 0.9928

Date of Issue 13 March 2024



Remarks:

1. Strong Correlation (R>0.8)
2. Factor 2.1376 (µg/m^3)/CPM should be apply for TSP monitoring

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

Operator : Martin Li Signature : Date : 13 March 2024

QC Reviewer : Ben Tam Signature : Date : 13 March 2024

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration: 16-Feb-24
Location ID :	Calibration Room - TISCH Higher Volume Sampler (Model TE-5170) S/N:1260 (HVS 018)	Next Calibration Date: 16-May-24

CONDITIONS

Sea Level Pressure (hPa)	1019	Corrected Pressure (mm Hg)	764.25
Temperature (°C)	20.4	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13163
Model->	5025A	Qstd Intercept ->	-0.03523
Calibration Date->	15-Dec-23	Expiry Date->	15-Dec-24

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.631	54	54.57	Slope = 31.3860
13	4.7	4.7	9.4	1.470	47	47.50	Intercept = 2.3377
10	3.6	3.6	7.2	1.289	42	42.45	Corr. coeff. = 0.9976
8	2.4	2.4	4.8	1.055	35	35.37	
5	1.2	1.2	2.4	0.751	26	26.28	

Calculations :

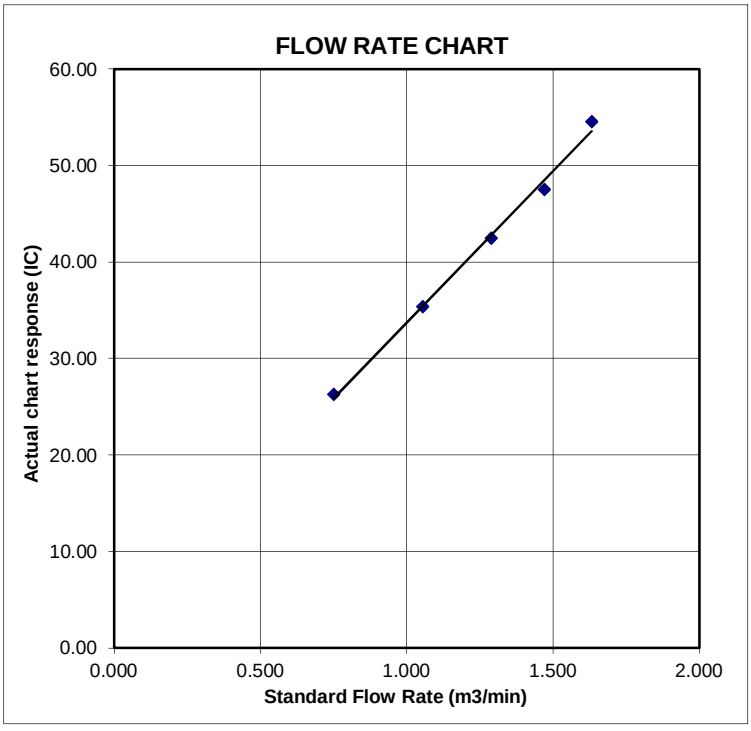
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TISCH Environmental

RECALIBRATION DUE DATE:
December 15, 2024

Certificate of Calibration

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

Tisch Environmental, Inc.
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FAX: (513)467-9009

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: **HK2410661**
CLIENT	: **ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 14-MAR-2024
		DATE OF ISSUE	: 21-MAR-2024
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

- **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. The result(s) is/are related only to the item(s) tested.**
- **Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.**
- **Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.**

Signatories

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

Signatories	*Position*
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
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER	: HK2410661
SUB-BATCH	: 1
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT	: ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2410661-001	S/N: 3Y7140	AIR	14-Mar-2024	S/N: 3Y7140

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-5R
Serial No.	3Y7140
Equipment Ref:	EQ122

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	16 February 2024

Equipment Verification Results:

Verification Date: 7 & 8 March 2024

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)
7-Mar-24	2hr01mins	09:26 ~ 11:27	18.7	1016.6	49.9	2892	23.9
7-Mar-24	2hr02mins	11:34 ~ 13:36	18.7	1016.6	41.2	2613	21.3
7-Mar-24	2hr02mins	13:45 ~ 15:47	18.7	1016.6	53.1	3083	25.2
8-Mar-24	2hr01mins	10:22 ~ 12:23	18.8	1018.8	34.3	1983	16.4
8-Mar-24	2hr14mins	12:44 ~ 14:58	18.8	1018.8	49.1	2859	21.3

Sensitivity Adjustment Scale Setting (Before Calibration) 713 (CPM)

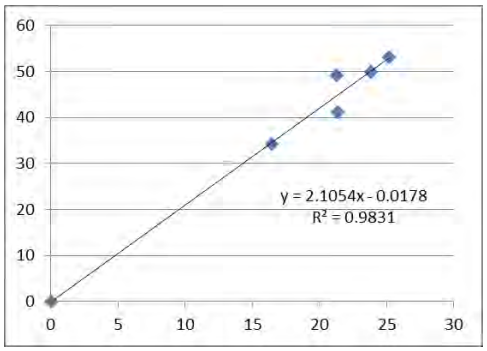
Sensitivity Adjustment Scale Setting (After Calibration) 714 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.1054 (µg/m^3)/CPM

Correlation Coefficient (R) 0.9915

Date of Issue 13 March 2024



Remarks:

1. Strong Correlation (R>0.8)
2. Factor 2.1054 (µg/m^3)/CPM should be apply for TSP monitoring

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

Operator : Martin Li Signature : Date : 13 March 2024

QC Reviewer : Ben Tam Signature : Date : 13 March 2024

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration: 16-Feb-24
Location ID :	Calibration Room - TISCH Higher Volume Sampler (Model TE-5170) S/N:1260 (HVS 018)	Next Calibration Date: 16-May-24

CONDITIONS

Sea Level Pressure (hPa)	1019	Corrected Pressure (mm Hg)	764.25
Temperature (°C)	20.4	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13163
Model->	5025A	Qstd Intercept ->	-0.03523
Calibration Date->	15-Dec-23	Expiry Date->	15-Dec-24

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.631	54	54.57	Slope = 31.3860
13	4.7	4.7	9.4	1.470	47	47.50	Intercept = 2.3377
10	3.6	3.6	7.2	1.289	42	42.45	Corr. coeff. = 0.9976
8	2.4	2.4	4.8	1.055	35	35.37	
5	1.2	1.2	2.4	0.751	26	26.28	

Calculations :

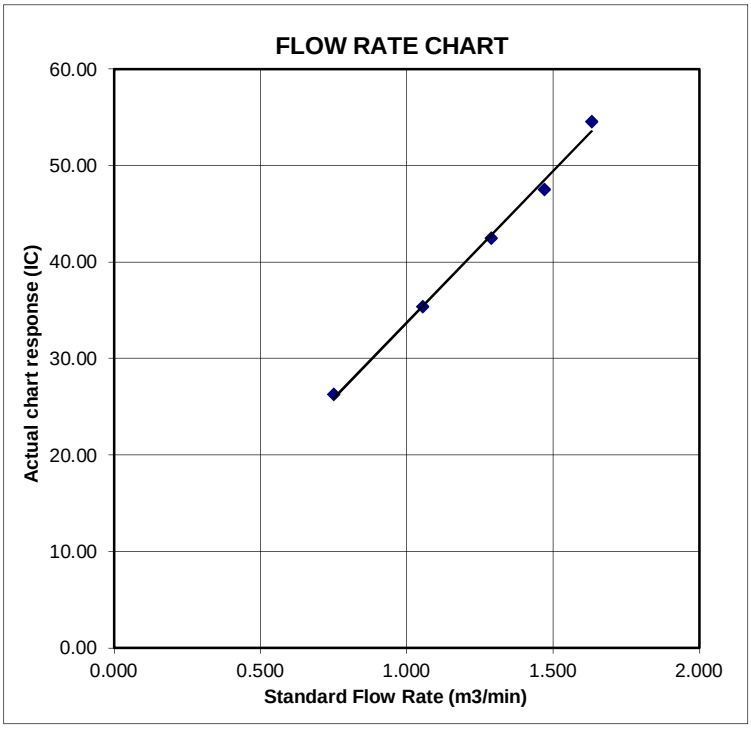
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TISCH Environmental

RECALIBRATION DUE DATE:
December 15, 2024

Certificate of Calibration

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

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ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: **HK2410662**
CLIENT	: **ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 14-MAR-2024
		DATE OF ISSUE	: 21-MAR-2024
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

- **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. The result(s) is/are related only to the item(s) tested.**
- **Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.**
- **Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.**

Signatories

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

Signatories	*Position*
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.

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Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK2410662
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2410662-001	S/N: 3Y7141	AIR	14-Mar-2024	S/N: 3Y7141

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-5R
Serial No.	3Y7141
Equipment Ref:	EQ123

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	16 February 2024

Equipment Verification Results:

Verification Date: 7 & 8 March 2024

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)
7-Mar-24	2hr01mins	09:26 ~ 11:27	18.7	1016.6	49.9	2994	24.7
7-Mar-24	2hr02mins	11:34 ~ 13:36	18.7	1016.6	41.2	2605	21.3
7-Mar-24	2hr02mins	13:45 ~ 15:47	18.7	1016.6	53.1	3126	25.5
8-Mar-24	2hr01mins	10:22 ~ 12:23	18.8	1018.8	34.3	2072	17.2
8-Mar-24	2hr14mins	12:44 ~ 14:58	18.8	1018.8	49.1	2998	22.3

Sensitivity Adjustment Scale Setting (Before Calibration) 609 (CPM)

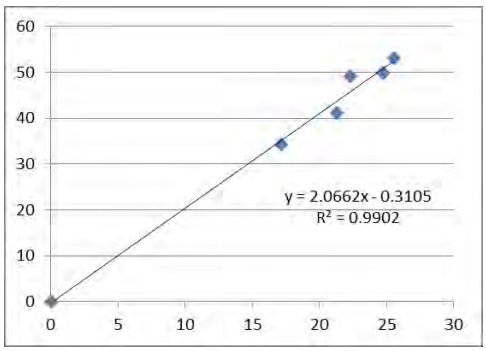
Sensitivity Adjustment Scale Setting (After Calibration) 605 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.0662 (µg/m^3)/CPM

Correlation Coefficient (R) 0.9951

Date of Issue 13 March 2024



Remarks:

1. Strong Correlation (R>0.8)
2. Factor 2.0662 (µg/m^3)/CPM should be apply for TSP monitoring

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

Operator : Martin Li Signature : Date : 13 March 2024

QC Reviewer : Ben Tam Signature : Date : 13 March 2024

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration: 16-Feb-24
Location ID :	Calibration Room - TISCH Higher Volume Sampler (Model TE-5170) S/N:1260 (HVS 018)	Next Calibration Date: 16-May-24

CONDITIONS

Sea Level Pressure (hPa)	1019	Corrected Pressure (mm Hg)	764.25
Temperature (°C)	20.4	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13163
Model->	5025A	Qstd Intercept ->	-0.03523
Calibration Date->	15-Dec-23	Expiry Date->	15-Dec-24

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.631	54	54.57	Slope = 31.3860
13	4.7	4.7	9.4	1.470	47	47.50	Intercept = 2.3377
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8	2.4	2.4	4.8	1.055	35	35.37	
5	1.2	1.2	2.4	0.751	26	26.28	

Calculations :

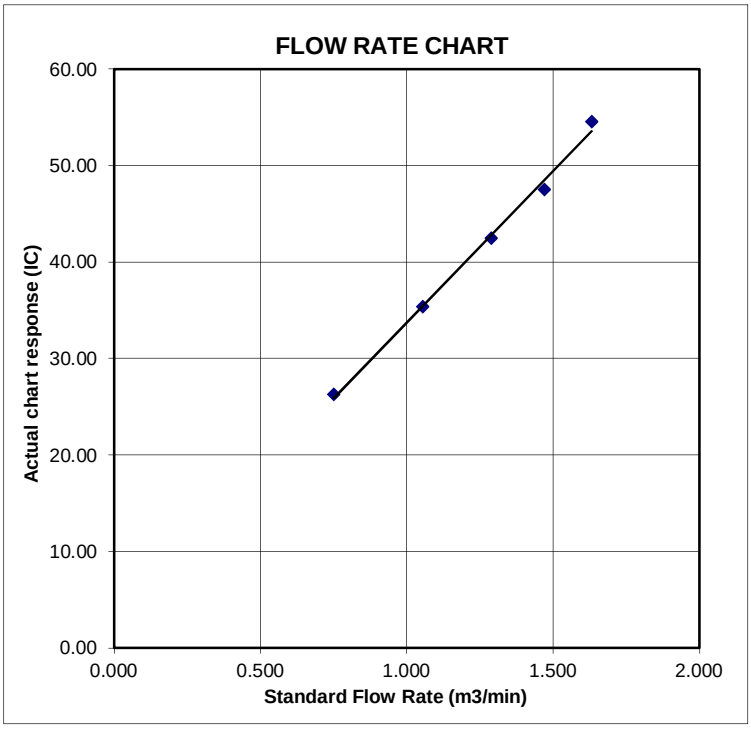
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TISCH Environmental

RECALIBRATION DUE DATE:
December 15, 2024

Certificate of Calibration

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

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

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
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US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

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ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: **HK2410664**
CLIENT	: **ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 14-MAR-2024
		DATE OF ISSUE	: 21-MAR-2024
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

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- **Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.**

Signatories

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Signatories	*Position*
Richard Fung	Managing Director

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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
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK2410664
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2410664-001	S/N: 3Y7142	AIR	14-Mar-2024	S/N: 3Y7142

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-5R
Serial No.	3Y7142
Equipment Ref:	EQ124

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	16 February 2024

Equipment Verification Results:

Verification Date: 7 & 8 March 2024

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)
7-Mar-24	2hr01mins	09:26 ~ 11:27	18.7	1016.6	49.9	3029	25.0
7-Mar-24	2hr02mins	11:34 ~ 13:36	18.7	1016.6	41.2	2601	21.3
7-Mar-24	2hr02mins	13:45 ~ 15:47	18.7	1016.6	53.1	3097	25.3
8-Mar-24	2hr01mins	10:22 ~ 12:23	18.8	1018.8	34.3	2079	17.2
8-Mar-24	2hr14mins	12:44 ~ 14:58	18.8	1018.8	49.1	2966	22.1

Sensitivity Adjustment Scale Setting (Before Calibration) 503 (CPM)

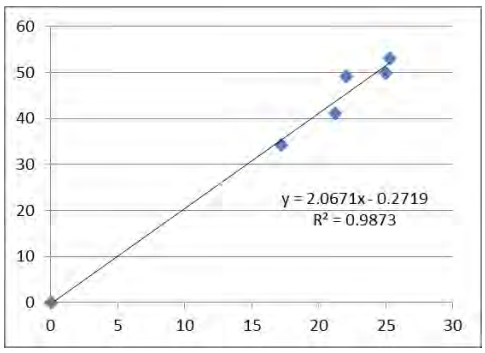
Sensitivity Adjustment Scale Setting (After Calibration) 501 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.0671 (µg/m^3)/CPM

Correlation Coefficient (R) 0.9936

Date of Issue 13 March 2024



Remarks:

1. Strong Correlation (R>0.8)
2. Factor 2.0671 (µg/m^3)/CPM should be apply for TSP monitoring

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

Operator : Martin Li Signature : Date : 13 March 2024

QC Reviewer : Ben Tam Signature : Date : 13 March 2024

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration: 16-Feb-24
Location ID :	Calibration Room - TISCH Higher Volume Sampler (Model TE-5170) S/N:1260 (HVS 018)	Next Calibration Date: 16-May-24

CONDITIONS

Sea Level Pressure (hPa)	1019	Corrected Pressure (mm Hg)	764.25
Temperature (°C)	20.4	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13163
Model->	5025A	Qstd Intercept ->	-0.03523
Calibration Date->	15-Dec-23	Expiry Date->	15-Dec-24

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.631	54	54.57	Slope = 31.3860
13	4.7	4.7	9.4	1.470	47	47.50	Intercept = 2.3377
10	3.6	3.6	7.2	1.289	42	42.45	Corr. coeff. = 0.9976
8	2.4	2.4	4.8	1.055	35	35.37	
5	1.2	1.2	2.4	0.751	26	26.28	

Calculations :

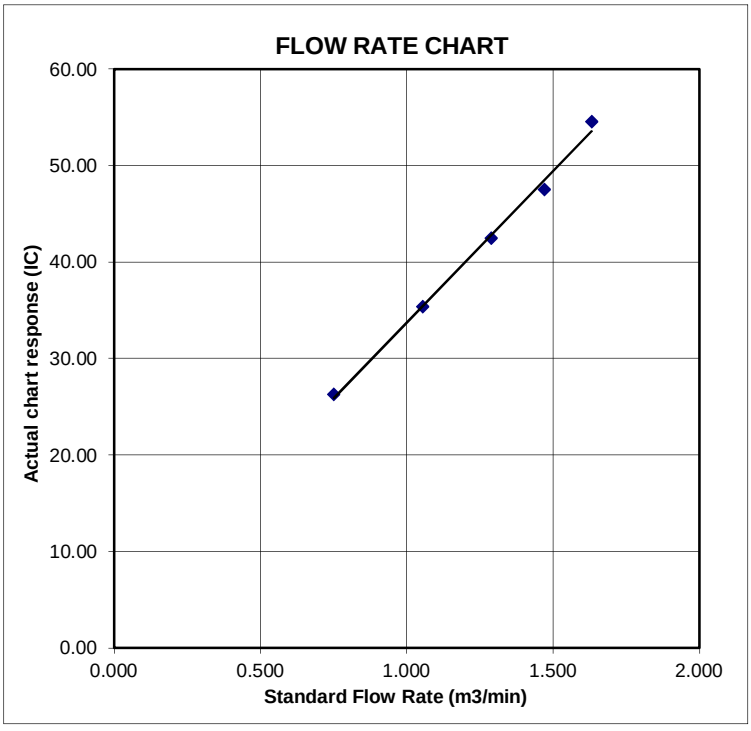
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



TISCH Environmental

RECALIBRATION DUE DATE:
December 15, 2024

Certificate of Calibration

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

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

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

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

Certificate of Calibration
校正證書

Certificate No. : C242241
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC24-0561) Date of Receipt / 收件日期 : 28 March 2024

Description / 儀器名稱 : Sound Level Meter (EQ020)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52A
Serial No. / 編號 : 00620665
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 April 2024

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Hottinger Brüel & Kjær Calibration Laboratory, Denmark
- 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 : 22 April 2024

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

Certificate of Calibration
校正證書

Certificate No. : C242241
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	C240212
CL281	Multifunction Acoustic Calibrator	CDK2302738

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.9	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.9 (Ref.)
				104.00		103.9
				114.00		113.9

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.9	Ref.
			Slow			93.9	± 0.3

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

Certificate of Calibration
校正證書

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證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.6	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.6	-3.2 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	94.9	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					16 kHz	85.9	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.5
					250 Hz	93.8	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					16 kHz	84.0	-8.5 (+3.5 ; -17.0)

Certificate of Calibration
校正證書

Certificate No. : C242241
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 21625

- Mfr's Limit : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

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

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

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

Certificate of Calibration
校正證書

Certificate No. : C242239
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC24-0561) Date of Receipt / 收件日期 : 28 March 2024

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 April 2024

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Hottinger Brüel & Kjær Calibration Laboratory, Denmark
- 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 : 22 April 2024

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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Certificate of Calibration
校正證書

Certificate No. : C242239
證書編號

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

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C233799
CL281	Multifunction Acoustic Calibrator	CDK2302738
TST150A	Measuring Amplifier	C241879

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Limit (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.05	± 0.25	± 0.20

5.2 Frequency Accuracy

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

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

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

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

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

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：

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

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L001934

Appendix H

Database of Monitoring Results

Air Quality – 24 Hour TSP

24-hour TSP Monitoring Data for AM2b

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
4-Jan-25	20983	29761.72	29785.72	1440.00	43	43	43	17.6	1020.5	1.25	1800	2.8163	2.9303	0.1140	63
10-Jan-25	20986	29785.72	29809.72	1440.00	43	43	43	15.1	1027.7	1.26	1812	2.8105	2.9298	0.1193	66
16-Jan-25	20990	29809.72	29833.72	1440.00	42	42	42	16.2	1024.9	1.23	1773	2.8152	2.9658	0.1506	85
22-Jan-25	20607	29833.72	29857.72	1440.00	42	42	42	18.6	1017.2	1.22	1762	2.7627	2.8852	0.1225	70
28-Jan-25	21195	29857.72	29881.72	1440.00	42	42	42	15.1	1024.4	1.23	1776	2.8040	2.8883	0.0843	47

24-hour TSP Monitoring Data for AM5

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
4-Jan-25	20984	20153.10	20177.10	1440.00	48	48	48.0	17.6	1020.5	1.39	1998	2.8154	2.9024	0.0870	44
10-Jan-25	20985	20177.10	20201.10	1440.00	48	48	48.0	15.1	1027.7	1.40	2011	2.8154	2.9272	0.1118	56
16-Jan-25	20989	20201.10	20225.10	1440.00	48	48	48.0	15.5	1024.9	1.39	2008	2.8126	3.0160	0.2034	101
22-Jan-25	21136	20225.10	20249.10	1440.00	48	48	48.0	18.6	1017.2	1.38	1993	2.8038	2.9295	0.1257	63
28-Jan-25	21197	20249.10	20273.10	1440.00	48	48	48.0	15.1	1024.1	1.39	2008	2.8088	3.0090	0.2002	100

Construction Noise

Daytime Noise Measurement Results (dB) at CNMS1

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
3-Jan-25	11:10	63	64.7	60.3	62.7	65.1	60.2	62.1	64.5	59.8	61.5	63.2	59.4	61	62.9	58.3	63.3	66.2	59.4	62.3
9-Jan-25	14:15	61.2	65.4	53.7	61.8	62.9	54.2	60.9	63.7	55.8	60.4	63.5	55.6	60.9	64.1	54.7	61.1	63.8	55	61.1
15-Jan-25	14:25	62.7	64.6	54	61.9	63.7	54.1	61	64.2	54.9	61.4	62.9	54.7	63.3	66	56.1	62	64.5	55.8	62.1
21-Jan-25	11:22	60.3	63.5	53.1	60.9	63.7	55.9	61.8	65.1	56.7	60.3	63.4	54.2	62.8	66.5	56.9	64.7	67.3	58.1	62.1
27-Jan-25	15:15	58.5	59.7	53.3	59.6	60.9	56.2	64.8	67.9	56.3	62	66.2	53.6	64.6	67.5	56	62.1	65.2	54.5	62.5

Daytime Noise Measurement Results (dB) at CNMS2

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
3-Jan-25	10:30	63.1	64.9	55.3	58.7	61.2	55	62.3	63.5	53.8	58.5	61.1	55.6	60.3	63.7	54.5	61.2	63.3	54.7	61.0
9-Jan-25	13:40	62.1	65.3	56.3	62.8	66.2	56.5	63.7	66	55.3	61.2	63.3	55	63.5	66.2	55.6	60.7	63.3	56.8	62.5
15-Jan-25	13:50	62.8	64.7	56.5	61.2	63.6	56.9	58.7	61.2	54.9	58	61.7	54.7	59.8	61	55.2	60.1	62.5	56.3	60.4
21-Jan-25	11:58	59	63.4	52.2	59.6	62.6	51.8	59.3	62.8	52.7	59.1	62.2	52.8	60	63.8	52.6	59.8	63.7	51.9	59.5
27-Jan-25	14:40	61.7	62.9	60.7	62.3	63.5	60.9	61.3	64.8	55.4	61.2	64.5	55.3	64.9	65.6	56	59.5	62.4	53.9	62.1

Daytime Noise Measurement Results (dB) at CNMS3

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
3-Jan-25	9:30	58.3	61.8	52.6	58.2	61.6	53.7	57.9	60.4	53.0	57.8	63.2	54.1	56.6	59.4	55.0	56.3	58.1	53.3	57.6
9-Jan-25	13:00	57.1	60.4	53.5	57.5	59.8	54.2	57.9	60.0	55.3	59.9	61.3	53.7	58.0	60.7	55.8	59.7	62.2	54.9	58.5
15-Jan-25	13:10	60.4	64.3	57.1	58.6	60.2	55.3	59.5	63.7	56.4	58.2	62.9	56.0	60.5	63.3	57.5	59.1	61.7	56.3	59.5
21-Jan-25	10:30	60.5	61.0	56.5	59.8	61.4	56.0	59.1	60.9	56.2	59.5	61.4	55.9	60.2	61.8	57.0	60.9	62.7	57.2	60.0
27-Jan-25	13:05	59.5	62.4	53.9	56.1	57.9	53.7	58.2	60.5	53.0	61.3	64.8	55.4	61.2	64.5	55.3	64.9	65.6	56.0	61.1

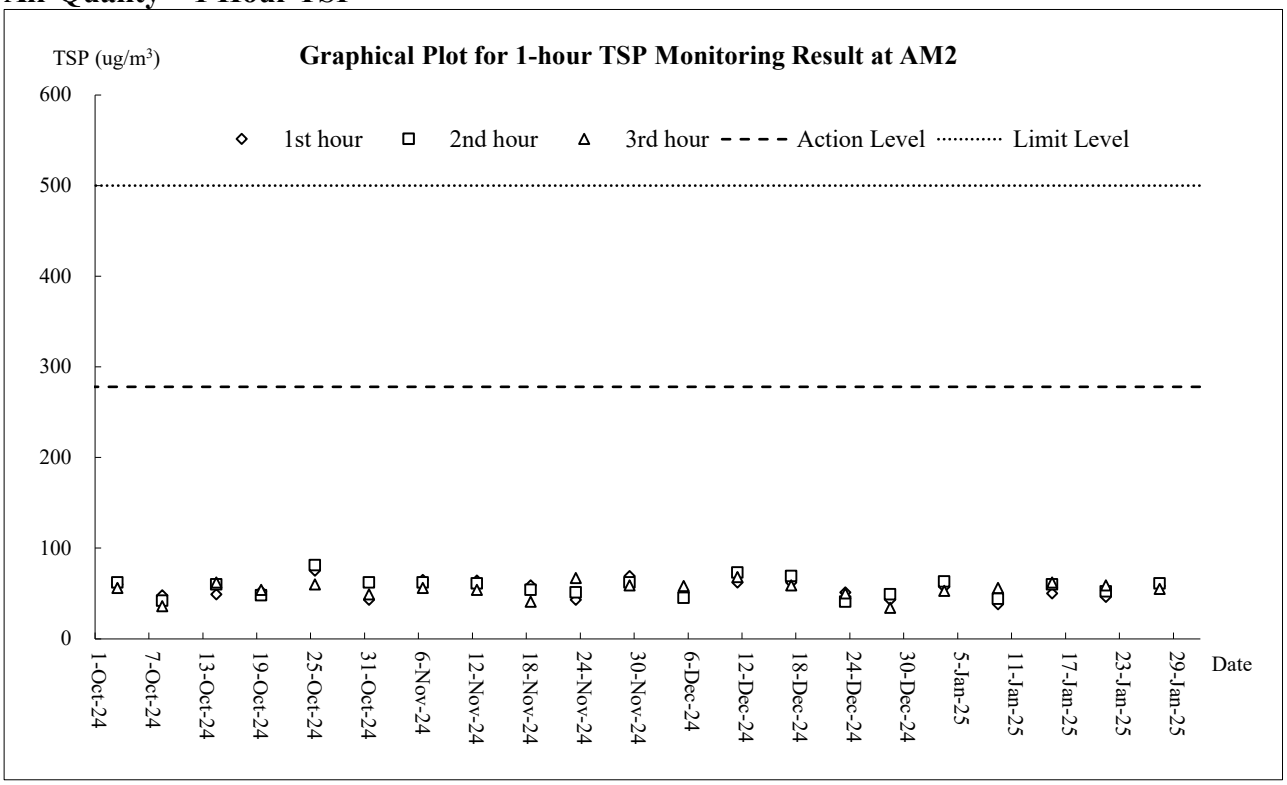
Daytime Noise Measurement Results (dB) at CNMS5

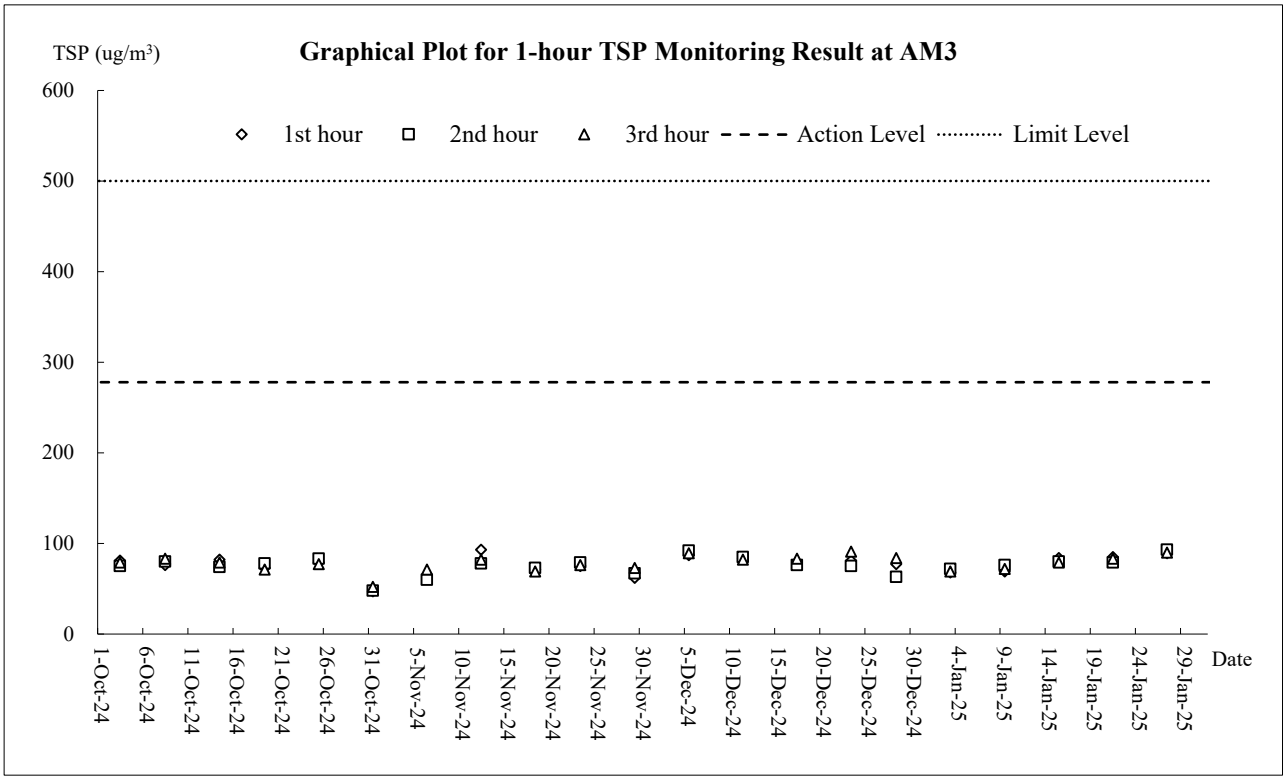
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
3-Jan-25	8:30	64.7	65.4	59.2	61.8	63.2	58.9	62.1	64.6	58.0	63.9	65.0	59.7	61.2	63.1	58.6	62.3	64.4	59.5	62.8
9-Jan-25	15:00	61.7	63.2	59.5	62.5	64.4	58.1	61.3	63.5	59.0	61.6	62.8	59.8	62.5	64.3	59.6	61.9	63.6	58.1	61.9
15-Jan-25	15:10	62.4	63.7	60.5	62.6	63.0	60.8	63.2	64.5	60.1	61.5	62.3	60.0	61.8	63.4	60.3	62.7	64.6	59.7	62.4
21-Jan-25	12:50	59.6	61.5	56.5	58.9	61.1	56.3	61.1	63.9	57.8	59.0	60.5	55.8	60.2	62.0	57.1	61.0	63.6	57.9	60.1
27-Jan-25	13:40	59.0	60.7	56.8	59.8	61.3	57.9	60.8	61.4	57.8	59.3	61.1	57.1	58.6	60.4	56.7	59.0	60.7	56.8	59.5

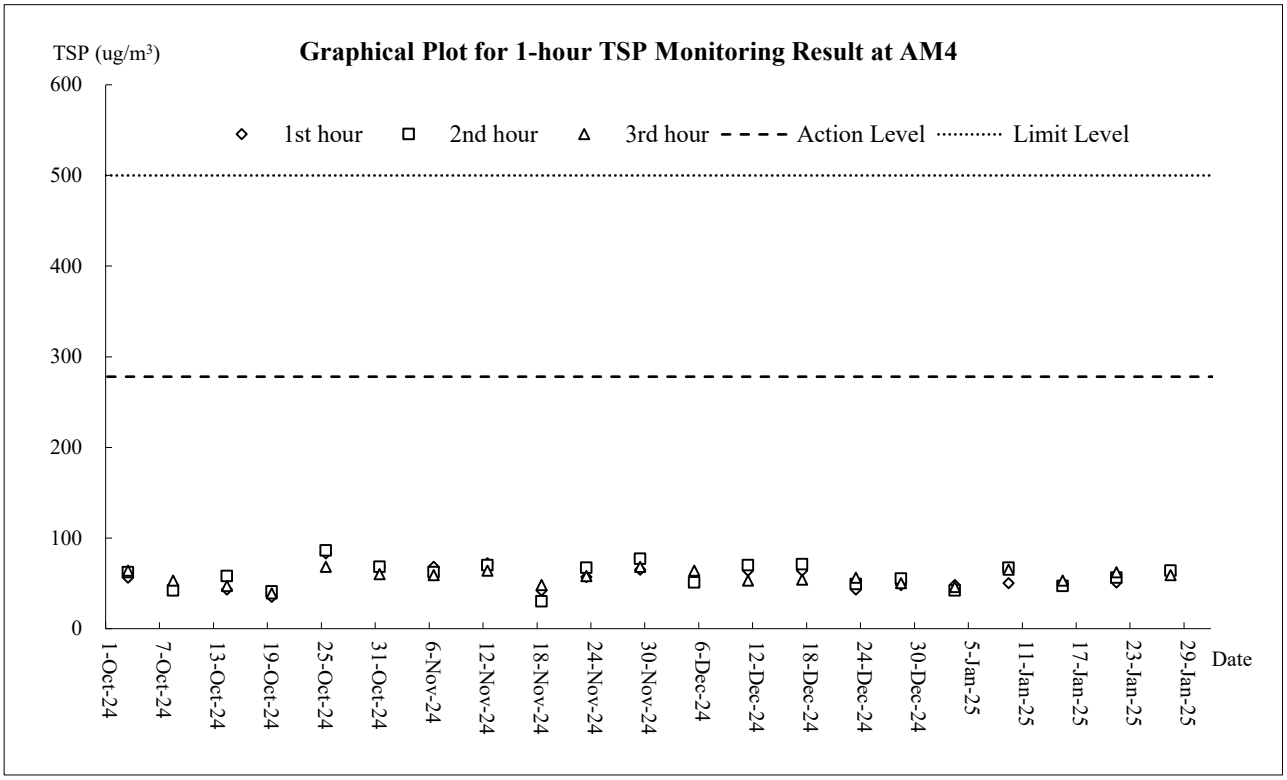
Appendix I

Graphical Plots of Monitoring Results

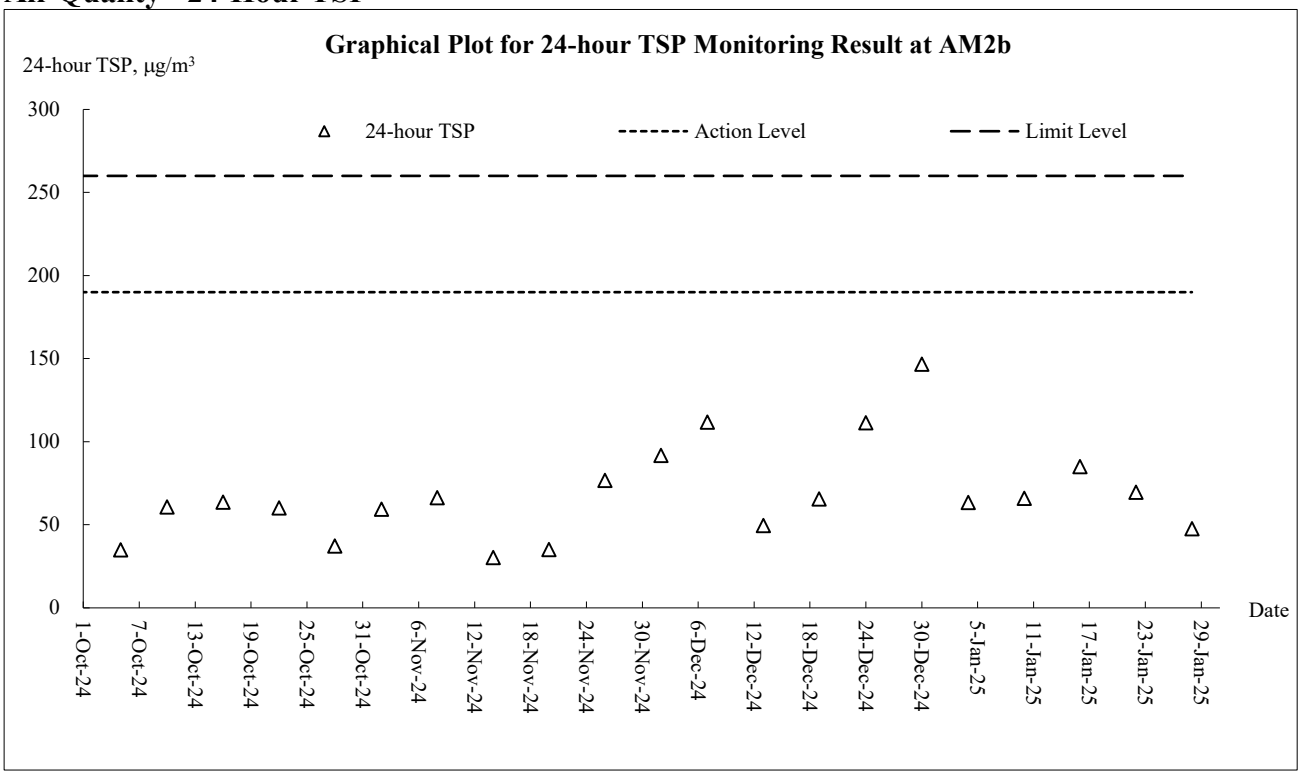
Air Quality – 1 Hour TSP

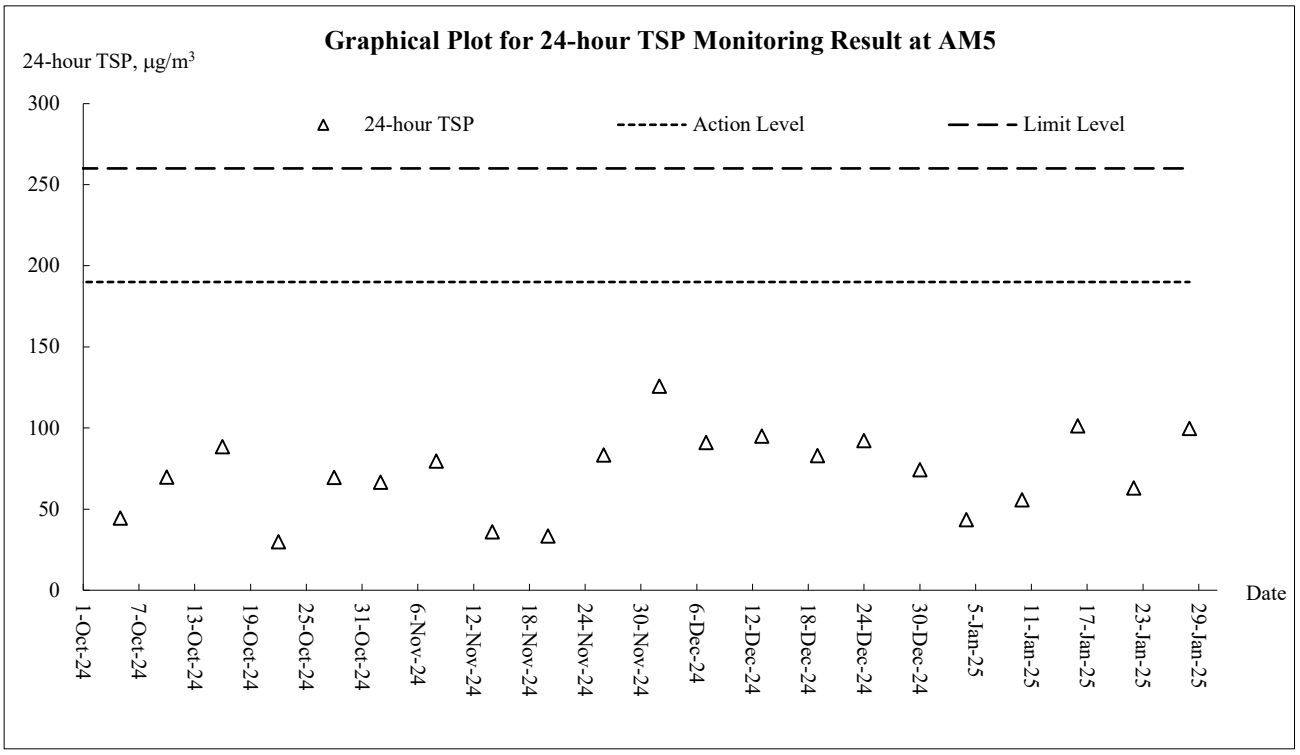




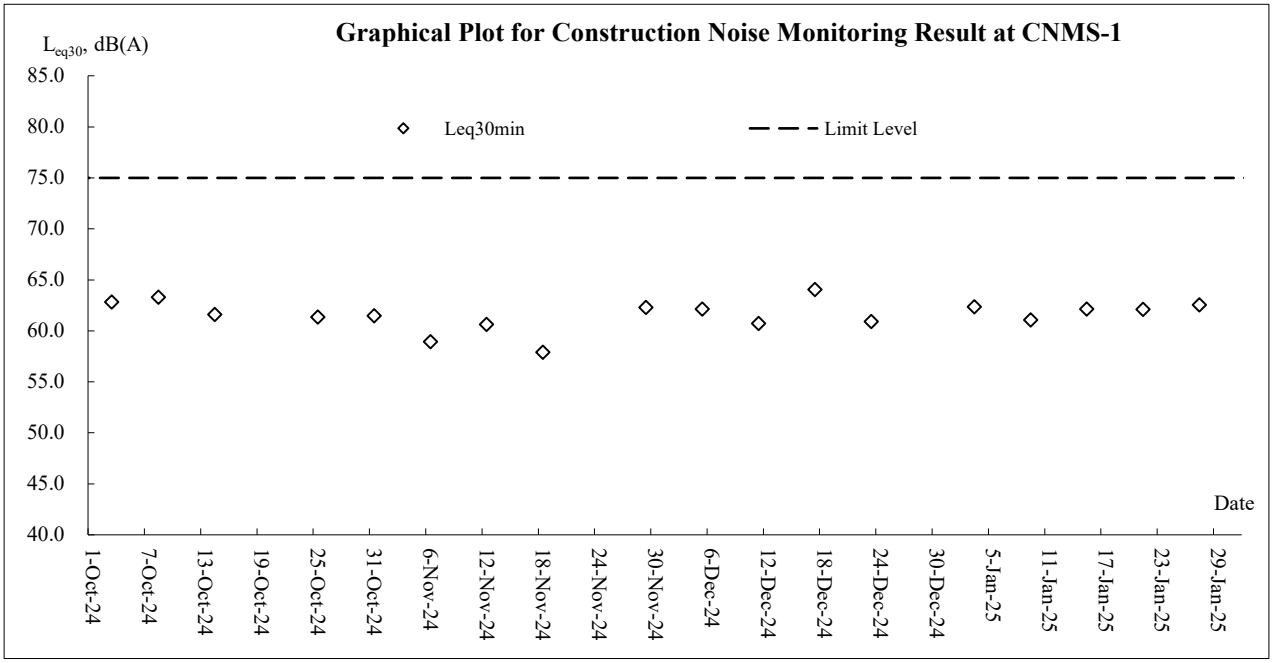

Graphical Plot for 1-hour TSP Monitoring Result at AM4
TSP (ug/m³)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
1-Oct-24
7-Oct-24
13-Oct-24
19-Oct-24
25-Oct-24
31-Oct-24
6-Nov-24
12-Nov-24
18-Nov-24
24-Nov-24
30-Nov-24
6-Dec-24
12-Dec-24
18-Dec-24
24-Dec-24
30-Dec-24
5-Jan-25
11-Jan-25
17-Jan-25
23-Jan-25
29-Jan-25
Date

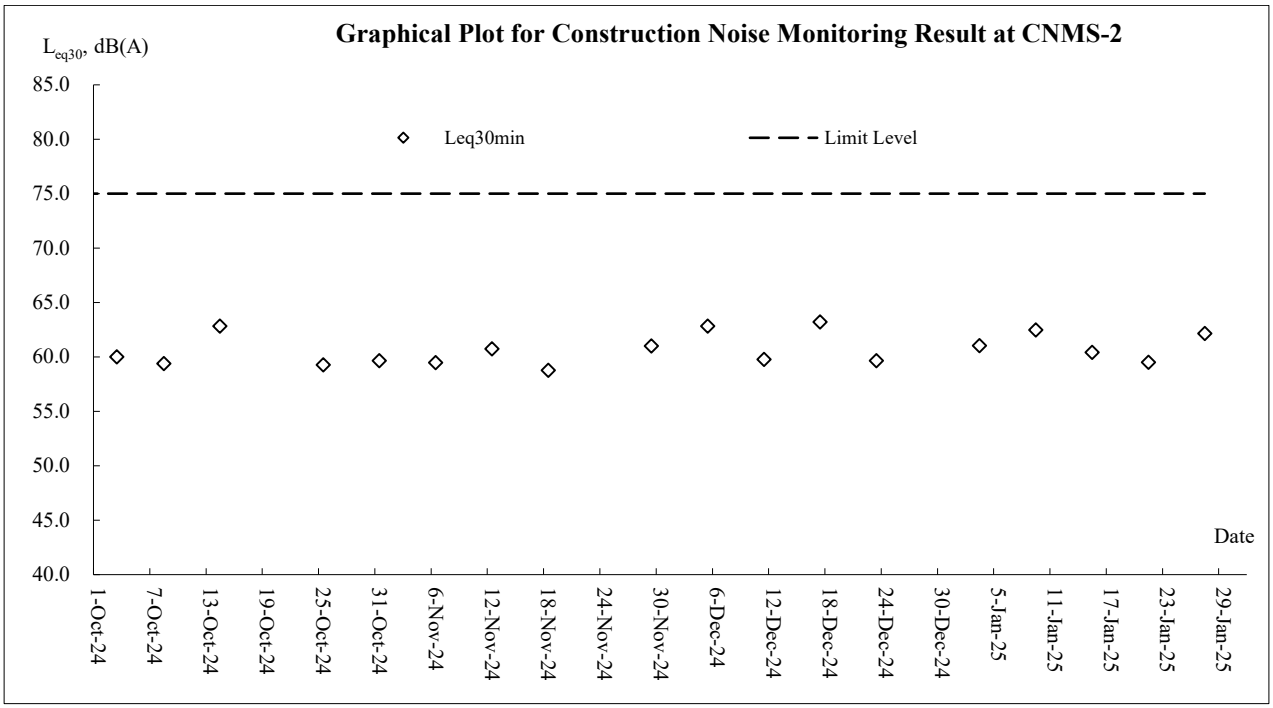
Air Quality - 24-Hour TSP

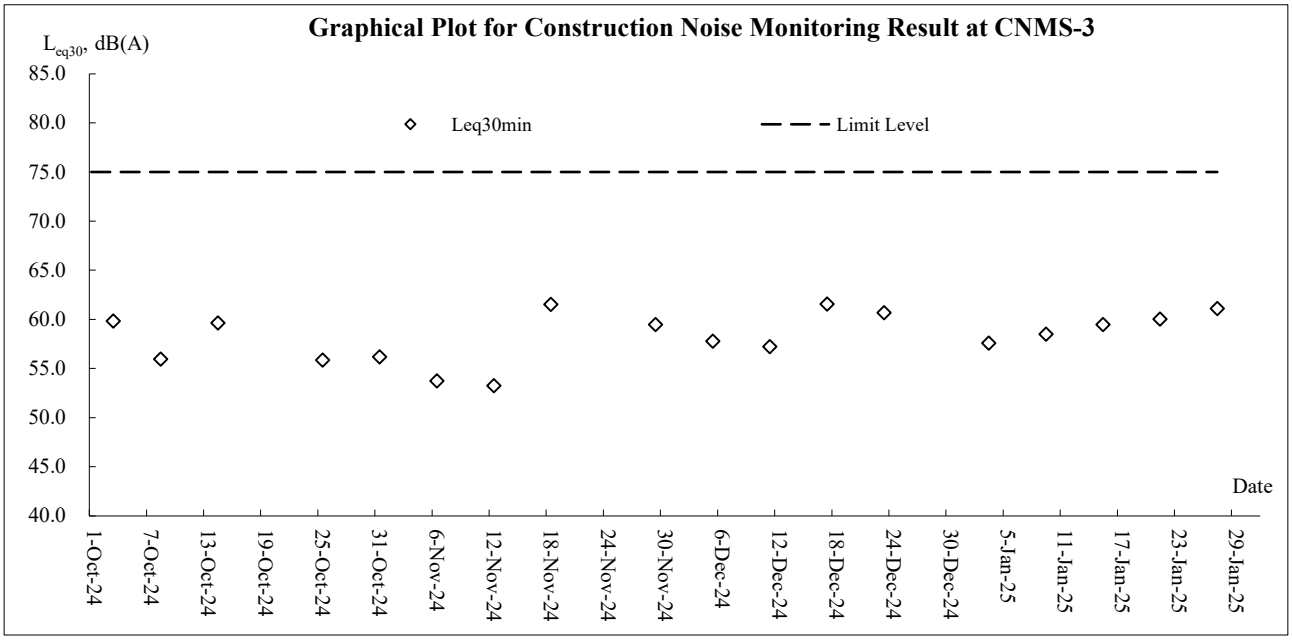




Construction Noise






Graphical Plot for Construction Noise Monitoring Result at CNMS-3
L_{eq30}, dB(A)
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
Leq30min
Limit Level
Date
1-Oct-24
7-Oct-24
13-Oct-24
19-Oct-24
25-Oct-24
31-Oct-24
6-Nov-24
12-Nov-24
18-Nov-24
24-Nov-24
30-Nov-24
6-Dec-24
12-Dec-24
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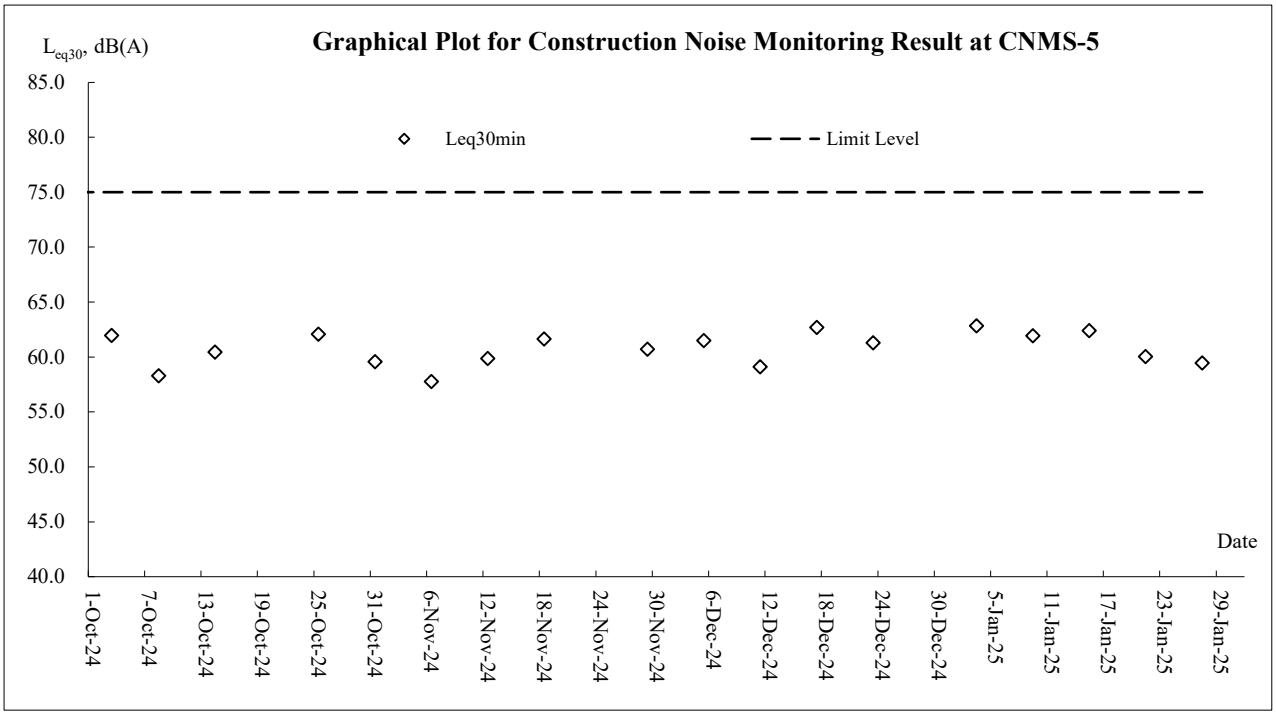
5-Jan-25
11-Jan-25
17-Jan-25
23-Jan-25
29-Jan-25


Graphical Plot for Construction Noise Monitoring Result at CNMS-5
L_{eq30}, dB(A)
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
Leq30min
Limit Level
Date
1-Oct-24
7-Oct-24
13-Oct-24
19-Oct-24
25-Oct-24
31-Oct-24
6-Nov-24
12-Nov-24
18-Nov-24
24-Nov-24
30-Nov-24
6-Dec-24
12-Dec-24
18-Dec-24
24-Dec-24
30-Dec-24
5-Jan-25
11-Jan-25
17-Jan-25
23-Jan-25
29-Jan-25

Appendix J

Meteorological Data

Date		Weather	Total Rainfall (mm)	Tseung Kwan O Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction (degree)
1-Jan-25	Wed	Fine. Very dry	Trace	17.5	6.7	73.5	N/NE
2-Jan-25	Thu	Moderate to fresh northerly winds	Trace	19.6	6.7	67.0	E/NE
3-Jan-25	Fri	Moderate to fresh easterly winds.	0	18.1	9	66.0	NE
4-Jan-25	Sat	Fine. Very dry	Trace	17.0	7.5	67.5	NE
5-Jan-25	Sun	Light to moderate northerly winds	Trace	18.2	6.2	60.0	E/NE
6-Jan-25	Mon	Fine. Very dry in the afternoon.	0	17.8	7.5	52.5	E
7-Jan-25	Tue	Dry with sunny periods	0	17.0	8	71.7	E/NE
8-Jan-25	Wed	Mainly fine and dry	0	18.5	8	62.2	E/NE
9-Jan-25	Thu	Mainly fine and dry.	0	17.1	9.2	73	E/NE
10-Jan-25	Fri	Very dry during the day.	0	15.0	12.5	47	E/NE
11-Jan-25	Sat	Moderate to fresh north to northeasterly winds	0	14.0	10	38.7	E/NE
12-Jan-25	Sun	Moderate to fresh east to northeasterly winds	0	14.7	6.2	50.0	E/NE
13-Jan-25	Mon	Dry with sunny periods.	0	15.0	7.5	60.0	E/NE
14-Jan-25	Tue	Mainly cloudy with a few light rain	0	18.2	10.0	58.2	NE
15-Jan-25	Wed	Mainly fine and dry.	Trace	18.9	7.5	59.2	E/NE
16-Jan-25	Thu	Moderate east to northeasterly winds	0	16.2	9.5	50.0	E/NE
17-Jan-25	Fri	Mainly fine and dry.	0	15.1	7.5	55.0	E
18-Jan-25	Sat	Mainly cloudy.	0	16.2	7.7	56.1	E
19-Jan-25	Sun	Sunny periods during the day	0	16.8	8	57.0	E
20-Jan-25	Mon	Moderate easterly winds	0	17.2	6.2	61.5	NE
21-Jan-25	Tue	Mainly cloudy.	0.6	17.3	8.7	60.0	NE
22-Jan-25	Wed	Sunny periods during the day	1	18.7	10	74.0	NE
23-Jan-25	Thu	Mainly fine and dry.	1.2	19.4	5.5	81.2	E/NE
24-Jan-25	Fri	Mainly cloudy with a few light rain	0	18.4	10.7	77.5	NE
25-Jan-25	Sat	Moderate east to northeasterly winds	Trace	18.5	10	78.0	N/NE
26-Jan-25	Sun	Fine and very dry.	0.2	14.4	10	74.0	N
27-Jan-25	Mon	Moderate north to northeasterly winds.	0	14.2	12	43.5	E/NE
28-Jan-25	Tue	Fine and very dry.	0	14.6	7.5	40.0	E/NE
29-Jan-25	Wed	Mainly fine.	0	14.8	8	57	NE
30-Jan-25	Thu	Dry in the afternoon.	0	16.2	11.5	72.5	NE
31-Jan-25	Fri	Moderate east to northeasterly winds.	1.2	17.9	7.7	74.2	N/NE

Appendix K

Waste Flow Table

Contract 1

Monthly Summary Waste Flow Table for 2025 (year)

Name of Person completing the record: Joe Wong (EO)

Project : Cross Bay Link, TKO, Main Bridge and Associated Works Contract No.: NE/2017/07

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.230	0.000	0.000	0.021
Feb											
Mar											
Apr											
May											
Jun											
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.230	0.000	0.000	0.021
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.230	0.000	0.000	0.021

Note:

1. For non-inert portion of C&D material, assume the density of 1 m^3 general refuse is equal to 200 kg.
2. For inert portion of C&D material, assume 6 m^3 per each full-filled dump truck.
3. All values are round off to the third decimal places.

Contract 2

Monthly Summary Waste Flow Table for 2025 Year

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity [in '000m^3]	Hard Rock and [in '000m^3]	Reused in the [in '000m^3]	Reused in other [in '000m^3]	Disposal as [in '000m^3]	Imported Fill [in '000m^3]	Metals [in '000kg]	Paper / [in '000kg]	Plastics [in '000kg]	Chemical Waste [in '000kg]	Other, e.g. [in '000m^3]
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
Feb											
Mar											
Apr											
May											
June											
SUB-TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005

Note: **Conversion to 1000m^3 for general refuse is weight in 1000kg multiply by 0.002**
Conversion to 1000m^3 for Inert C&D is weight in 1000kg multiply by 0.0005
Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material
Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material
Assume the loaded volume of a dump truck for internal inert waste transfer is 17.9 m^3

Appendix L

Implementation Record of Water Mitigation Measures in the Reporting Month

Water Quality Mitigation Measures under NE/2017/07 (Contract 1)	
 Treatment facilities was installed at site to treat the site generated water prior discharge.	

Water Quality Mitigation Measures under NE/2017/08 (Contract 2)	
 No fill material was stored at work area to avoid muddy runoff generation.	

Appendix M

Implementation Schedule for Environmental Mitigation Measures

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
Dust Impact (Contraction Phase)						
S5.5.5.1	Regular watering under good site practice shall be adopted. In accordance with the "Control of Open Fugitive Dust Sources" (USEPA AP-42), watering once per hour on exposed worksites and haul road is recommended to achieve dust removal efficiency of 91.7%.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.3	The following dust suppression measures shall also be incorporated by the Contractor to control the dust nuisance throughout the construction phase: • Any excavated or stockpiled dusty material shall be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads; • A stockpile of dusty material shall not extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site shall be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet shall be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high shall be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading to the construction site that is within 30m of a vehicle entrance or exit shall be kept clear	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	of dusty materials; • Surfaces where any pneumatic or power driven drilling, cutting, polishing or other mechanical breaking operation takes place shall be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities shall be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting shall be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport shall be totally enclosed by impervious sheeting; • Exposed earth shall 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 the construction site or part of the construction site where the exposed earth lies.					
S5.5.5.4	For the barging facilities at the site compound, the following good site practice is required: • All road surfaces within the barging facilities shall be paved. • Vehicles should pass through designated wheel wash facilities. • Continuous water spray shall be installed at the loading point.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	Site compound	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.5	An audit and monitoring programme during the construction phase should be implemented by the Contractor to ensure that the construction dust impacts are controlled to within the HKAQO. Detailed requirements for the audit and monitoring programmes are given separately in the EM&A manual.	Monitor the 1-Hour and 24-Hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period	Selected representative dust monitoring station (**Drawing no. 209506/EMA/ AIR/001**)	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
Noise Impact (Contraction Phase)						

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
S6.6.4.3	Good site practice and noise management techniques: • Only well-maintained plant shall be operated on-site and the plant shall be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that are in intermittent use shall be shut down between work periods or throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, shall be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment shall be properly fitted and maintained during the construction works; • Mobile plant shall be sited as far away from NSRs as possible and practicable; and • Material stockpiles, site office and other structures shall be effectively utilised, where practicable, to screen noise from on-site construction activities.	To minimize construction noise impact arising from the Project on the affected NSRs	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.5-6	Use of quiet powered mechanical equipment and working methods	Reduce noise levels of plant items	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.7	Install site hoarding at the site boundaries between noisy construction activities and NSRs	Reduce the construction noise levels at low-level zone of NSRs through partial screening	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.8-11	Use of temporary or movable noise barriers and full enclosure for relatively fixed plant source	Screen the noisy plant items to be used at all construction sites	For plant items listed in Table 6.7 and Appendix 6.1 of the EIA report at all construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
	Implement a noise monitoring programme under the EM&A manual	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring stations (**Drawing no. 209506/EMA/NS/001** & **209506/EMA/NS/002**)	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.7.3.1	Partial enclosures along Road D9 and application of low noise surfacing material along CBL and Road D9	To minimize road traffic noise impact arising from the CBL and Road D9 on the affected NSRs	CBL and Road D9 (**Drawing no. 209506/EMA/NS/003**)	CEDD/ Contractor	During operational stage	• Annex 5, TM-EIAO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
Water Quality Impact (Contraction Phase)						
S8.6.4.3	Marine Piling and Pile Excavation Works Marine piling and pile excavation works shall be undertaken in such a manner as to minimize re-suspension of sediments. Standard good practice measures shall be implemented, including the following requirements: • All marine piling and pile excavation works shall be conducted within a floating single silt curtain. • Mechanical closed grabs (with a size of5m3) shall be designed and maintained to avoid spillage and should seal tightly while being lifted. • Barges shall have tight fitting seals to their bottom openings to prevent leakage of material. • Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes. • Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water. Barges shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation. • Excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved. • Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action. • All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. • The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	To control potential impacts from marine piling and pile excavation works	During marine piling and pile excavation works	Contractor	Construction stage	• TM-EIAO; and • WPCO
S8.6.4.4	Construction Site Runoff In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures, where appropriate, shall include the following: • The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The	Control potential water quality impacts from construction site run-off	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction; • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 shall be covered with tarpaulin or similar fabric during rainstorms. Measures shall be taken to prevent the washing away of construction materials, soil, silt or debris into any marine water bodies; • All vehicles and plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities shall be provided at every construction site exit where practicable. Wash-water shall have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road shall be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains; • Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly to avoid water quality impacts; • All fuel tanks and storage areas shall be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby; and • Regular environmental audit on the construction site shall be carried out in order to prevent any malpractices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds.					
S8.6.4.6	Sewage from workforce • Portable chemical toilets and sewage holding tanks shall be provided for handling the construction sewage generated by the workforce; • A licensed contractor shall be employed to provide appropriate and adequate portable toilets and be responsible	Control potential water quality impacts from sewage	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	for appropriate disposal and maintenance.					
	Monitoring Implement a marine water quality monitoring programme under the EM&A on level of suspended solids (SS) / turbidity and dissolved oxygen (DO) shall be carried out.	Control potential water quality impacts from marine piling and pile excavation works	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction station	• TM-EIAO; and • WPCO
S8.7.3.2	**Operational phase – Runoff from road surface** Proper drainage systems with silt traps and oil interceptors shall be installed, maintained and cleaned at regular intervals.	Control potential water quality impacts from road surface runoff	CBL and Road D9	Contractor	Construction and operational stage	• TM-EIAO; and • WPCO
Waste Management (Contraction Phase)						
S9.5.2	**Good Site Practices** Recommendations for good site practices: • Nomination of an approved personnel to be responsible for the implementation of good site practices, arrangements for collection and effective deposal to an appropriate facility of all wastes generated at the site; • Training of site personnel in proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Implementation of a recording system for the amount of wastes generated/recycled and disposal sites.	Good site practices which ensure waste generated during construction phase is properly managed	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
S9.5.4	**Waste Reduction Measures** Recommendations for achieving waste reduction include: • On-site reuse of any material excavated as far as practicable; • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal; • Collection of aluminum cans and waste paper by individual collectors during construction should be encouraged. Separately labelled recycling bins should also be provided to segregate these wastes from other general refuse by the workforce; • Recycling of any unused chemicals and those with remaining functional capacity as far as possible; • Prevention of the potential damage or contamination to the construction materials though proper storage and good site practices; • Planning and stocking of construction materials should be made carefully to minimize amount of waste generated avoid unnecessary generation of waste; and • Training on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling should be provided to workers.	To reduce amount of waste generated during construction phase	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005
S9.5.5-6	**Storage, Collection and Transportation of Waste** Recommendations for proper storage include: • Waste such as soil should be handled and stored well to ensure secure containment; • Stockpiling area should be provided with covers and water spraying system to prevent materials from being washed away and to reduce wind-blown litter; and • Different locations should be designated to stockpile each material to enhance reuse. With respect to the collection and transportation of waste from the construction works, the following is recommended: • Remove waste in a timely manner; • Employ trucks with cover or enclosed containers for waste transportations; • Obtain relevant waste disposal permits from the appropriate	To reduce the environmental implications of improper storage	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
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	authorities; and • Disposal of waste should be done at licensed waste disposal facilities.					
S9.5.8-11	**C&D Materials** The following mitigation measures shall be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; • Disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation; • Standard formwork or pre-fabrication order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage; and • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005 • ETWB TCW No. 06/2010
S9.5.13	**Excavated Marine Sediments** During transportation and disposal of the excavated marine sediments, the following measures shall be taken to minimize potential environmental impacts: • Bottom opening of barges should be fitted with tight fitting	To minimize potential impacts on water quality	All construction sites where applicable	Contractor	Construction stage	• ETWBTC (Works) No. 34/2002

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation; • Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP; and • Barges should not be filled to a level that would cause the overflow of materials or sediment-laden water during loading or transportation.					
S9.5.14-17	For those processes which generate chemical waste, the Contractor shall identify any alternatives that generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste. If chemical waste is produced at the construction site, the Contractor is required to register with EPD as chemical waste producers. Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. Containers used for storage of chemical wastes shall: • Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; • Have a capacity of less than 450 L unless the specification have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. The storage area for chemical wastes shall: • Be clearly labelled and used solely for the storage of chemical wastes; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;	To ensure proper management of chemical waste	All construction sites	Contractor	Construction stage	• Waste Disposal (Chemical Waste) (General) Regulation; • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	• Have adequate ventilation; • Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and • Be arranged so that incompatible materials are adequately separated. Disposal of chemical waste shall: • Be via a licensed waste collector; and • Be to a facility licensed to receive chemical waste, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or • Be to a re-user of the waste, under approval from EPD.					
S9.5.18	**Sewage** An adequate number of portable toilets shall be provided for the on-site construction workers. Any waste shall be transferred to a sewage treatment works by a licensed collector.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)
S9.5.19	**General Refuse** General refuse generated on-site shall be stored in enclosed bins or compaction units separately from construction and chemical wastes. Recycling bins shall also be provided to encourage recycling. A reputable waste collector shall be employed by the Contractor to remove general refuse from the site on a daily basis separately from the construction and chemical wastes. Burning of refuse on construction sites is prohibited by law.	Minimize production of general refuse and avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)
S10.7.2.4	Good Site Practices – The integrity and effectiveness of all silt curtains shall be regularly inspected. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimize potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S10.7.2.5	Site runoff control – For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff into marine waters is minimized.	To minimize potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S10.9.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the marine communities inside Junk Bay.	To minimize potential impacts on water quality and protect marine	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
		communities within Junk Bay				
S11.6.2.2	Good Site Practices: – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring shall be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimize potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S11.6.2.3	Site runoff control - For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff is minimized.	To minimize potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S11.8.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the fishery resources.	To minimize potential impacts on water quality and protect fishery resources	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction stage	• TM-EIAO; and • WPCO
Landscape and Visual						
S13.8.1.2	The following mitigation measures should be implemented in the construction stage • CM1 – The construction area and contractor's temporary works areas should be minimized to avoid impacts on adjacent landscape. • CM2 – Reduction of construction period to practical minimum. • CM3 – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate. • CM4 – Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	Minimize effects of landscape and visual impacts	Work site/during construction	Funded and implemented by CEDD	Construction stage	

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	• CM5 – Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. • CM6 – Advance screen planting to proposed roads and associated structures. • CM7 – hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone). • CM8 – Screening of construction works by hoardings/noise barriers around works area in visually unobtrusive colours, to screen Works. • CM9 – Control night-time lighting and glare by hooding all lights. • CM10 – Ensure no run-off into water body adjacent to the Project Area. • CM11 – Avoidance of excessive height and bulk of buildings and structures					
S13.8.1.2	OM1 – Compensatory tree planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006.	Minimize effects of landscape and visual impacts	Within the site boundary of the proposed works	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stages	
S13.8.1.2	The following mitigation measures should be implemented in the operational stage: • OM2 – A continuous belt of screen planting along the roads. Planting of the belt of trees shall be carried out as advance works ahead of other site formation and building works. • OM3 – Maximise soft landscape of the site, where space permits, roadside berms /slope treatment works should be created. • OM4 – During detailed design, refine structure layout to create a planting strips along the roads to enhance greenery. • OM5 – Use appropriate (visually unobtrusive and	Minimize effects of landscape and visual impacts	CBL and Road D9/during construction and operation	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stages	

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	non-reflective) building materials and colours, and aesthetic design in built structures. • OM6 – Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimizes potential negative landscape and visual impacts. Lighting units should be directional and minimize unnecessary light spill. • OM7 – Avoidance of excessive height and bulk of buildings and structures					
Landfill Gas						
S14.7.5	Precautionary measures The following guidance has been extracted from the EPD's Landfill Gas Hazard Assessment Guidance Note Guidance to ensure a robust and comprehensive set of measures to protect workers are provided. • During all works, safety procedures shall be implemented to minimize the risks of fires and explosions, asphyxiation of workers (especially in confined space) and toxicity effects resulting from contact with contaminated soils and groundwater. • Safety officers who are specifically trained with regard to LFG and leachate related hazards and the appropriate actions to take in adverse circumstances shall be present on all worksites throughout the works. • All personnel who work on site and all visitors to the site shall be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it. • Those staff who work in, or have responsibility for "at risk" areas, including all excavation workers, supervisors and engineers working within the consultation zone, shall receive appropriate training on working in areas susceptible to LFG hazards. • Enhanced personal hygiene practices including washing thoroughly after working and eating only in "clean" areas shall be adopted where contact may have been made with any groundwater which is thought to be contaminated with	Health and safety of the workers	Construction sites within 250m Consultation Zone (**Drawing no. 209506/EMA/LFG/001**)	Contractor	Construction stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	leachate. • Ground level construction plant shall be fitted with vertical exhausts at least 0.6m above ground level and with spark arrestors. • During piping assembly or ducting construction, all valves/seals shall be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping /ducting shall be capped at the end of each working day. • Mobile offices, equipment stores, mess rooms etc. shall be located on an area which has been proven to be gas free (by survey with portable gas detectors) and ongoing monitoring shall be carried out to ensure that these areas remain gas free. Alternatively, such buildings shall be raised clear of the ground. If buildings are raised clear of the ground, the minimum, clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) shall be 500mm. However, in this case, it is highly recommended that all the site offices, equipment stores and mess rooms should be located outside the 250m Consultation Zone. • Smoking and naked flames shall be prohibited within confined spaces. “No Smoking” and “No Naked Flame” notices in Chinese and English shall be posted prominently around the construction site. Safety notices shall be posted warning of the potential hazards. • Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a “permit to work” procedure, properly authorized by the Safety Office. The permit to work procedure shall set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure shall also require the presence of an appropriately qualified person who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of					

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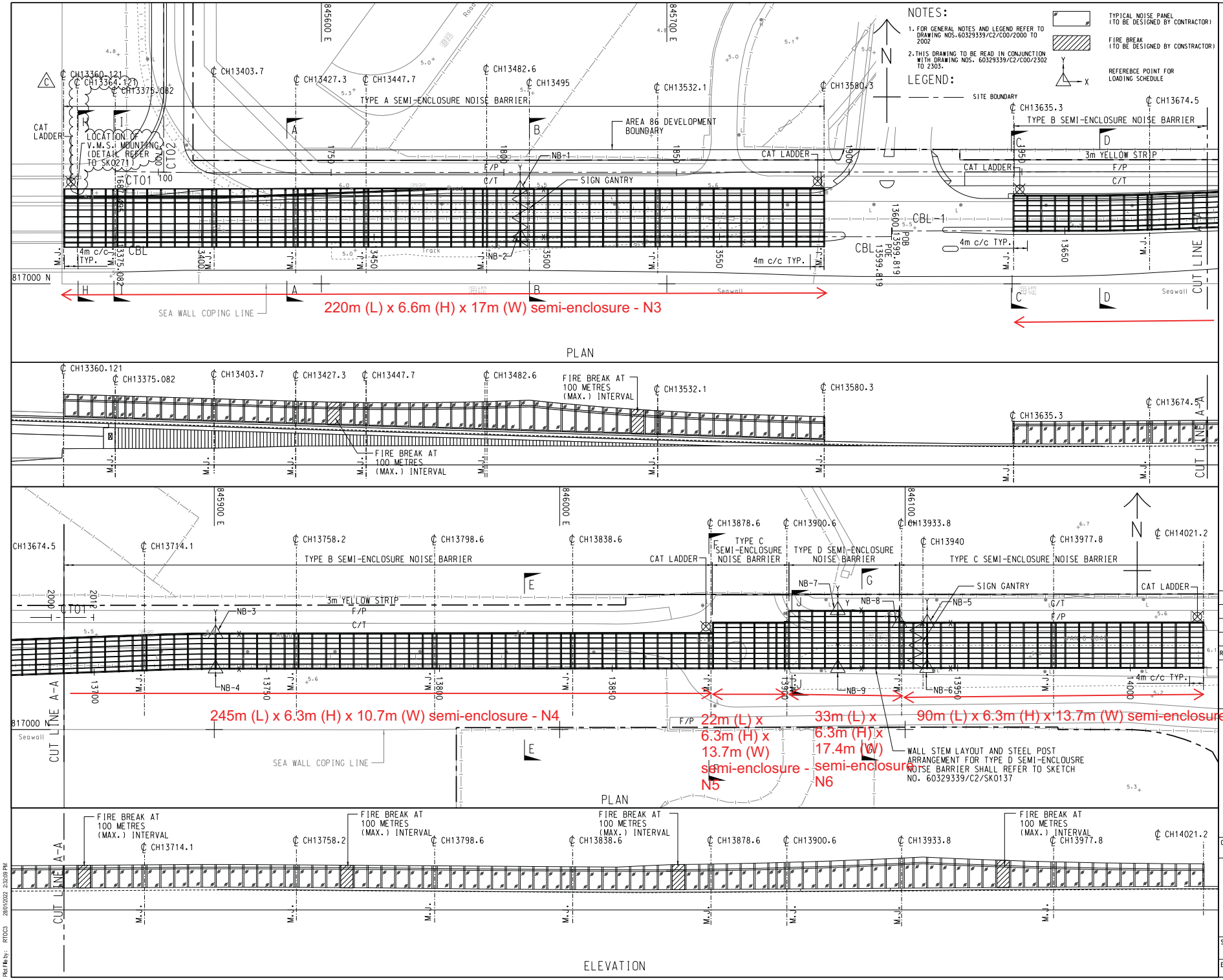
	unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise shall be permitted to carry out hot works in confined areas. • During the construction works, adequate fire extinguishers and breathing apparatus sets shall be made available on site and appropriate training given in their use.					
S14.7.6	**Landfill gas monitoring** The following monitoring shall be undertaken when construction works are carried out in confined space within the 250m Consultation Zone: • The works area shall be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's Guidance Note shall be followed. The monitoring frequency and areas to be monitored shall be set down prior to commencement of the works. Depending on the results of the measurements, actions required will vary. As a minimum these shall encompass the actions specified in Table 14.6 of the EIA report. • When portable monitoring equipment is used, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person. • All measurements shall be made with the monitoring tube located not more than 10mm from the surface. • A standard form, detailing the location, time of monitoring and equipment used together with the gas concentrations measured, shall be used when undertaking manual monitoring to ensure that all relevant data are recorded. • If methane (flammable gas) or carbon dioxide concentrations are in excess of the trigger levels or that of oxygen is below the level specified in the Emergency Management in the following section, then evacuation shall be initiated.	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S14.7.8-9	**Emergency management** In the event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG. In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas.					Guidance Note (EPD/TR8/97)
S14.7.16	**Protection measures – Operational phase** • An assumed presence of landfill gas shall be adopted at all times by maintenance workers; • all maintenance workers inspecting any manhole shall be fully trained in the issue of LFG hazard; • any manhole which is large enough to permit to access to personnel shall be subject to entry safety procedure; • Code of Practice on Safety and Health at Work in Confined Spaces shall be followed to ensures compliance with the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance; • a strictly regulated "work permit procedure" shall be implemented and the relevant safety procedures must be rigidly followed; and • Adequate communication with maintenance staff shall be maintained with respect to LFG.	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and • Code of Practice on Safety and Health at Work in Confined Space
S14.7.17	**General recommended precautionary & protection measures – Operational phase** LGF surveillance exercise shall be undertaken by the utility companies at the utility manholes/inspection chambers. The surveillance exercise shall be undertaken for the duration of the site occupancy, or until such time that EPD agree that surveillance is no longer required and this shall be based on all the available monitoring data for methane, carbon dioxide and oxygen.	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and • Code of Practice on Safety and Health at Work in Confined Space

Appendix O

As-built Drawing of the Low Noise Surfacing and Semi-Enclosure Noise Barrier



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A	04-MAY-20	PMI-013B PMI-044A	BLK	SW	TWC	PT
-	17-MAR-20	PMI-013A	BLK	SW	CHW	PT

AECOM

KEY PLAN

CONTRACT NO. NE/2017/08

CROSS BAY LINK, TSEUNG KWAN O ROAD D9 AND ASSOCIATED WORKS

SEMI-ENCLOSURE NOISE BARRIER STRUCTURAL PLAN

SKETCH NO. 60329339/C2/SK0073 REV. C

EXTRACTED FROM DRG. NO. 60329339/C2/C00/2301B SCALE 1:1000(A3)

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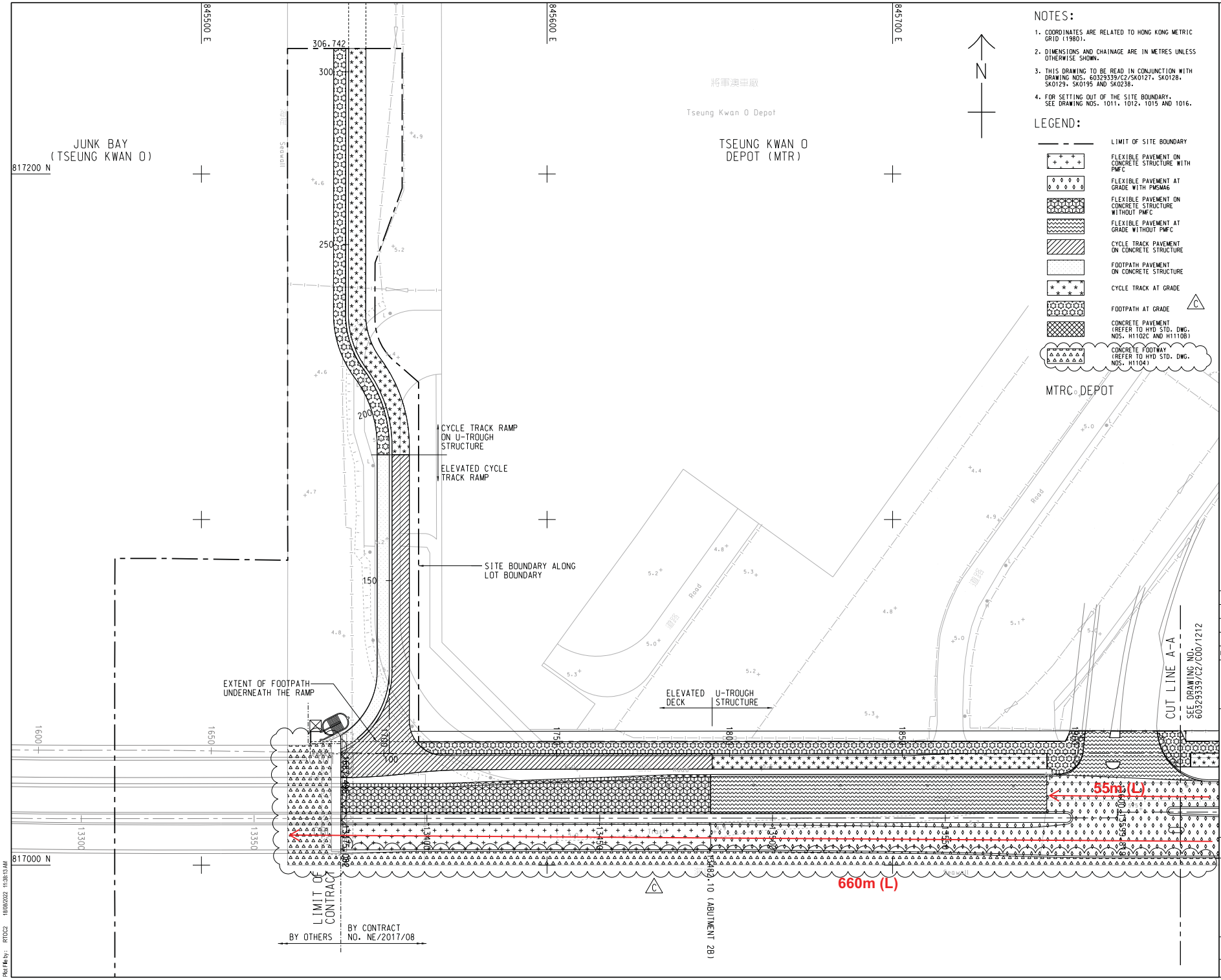

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A	27-AUG-20	FOR CONSTRUCTION	KFC	JOE	CCL	PT
-	24-APR-20	FOR CONSTRUCTION	BLK	JOE	CCL	PT

AECOM

KEY PLAN

CONTRACT NO. NE/2017/08

CROSS BAY LINK, TSEUNG KWAN O
ROAD D9 AND ASSOCIATED WORKS

ROAD PAVEMENT LAYOUT

SHEET 1 OF 3

SKETCH NO. 60329339/C2/SK0126 REV. C

EXTRACTED FROM DRG. NO. 60329339/C2/C00/1211A

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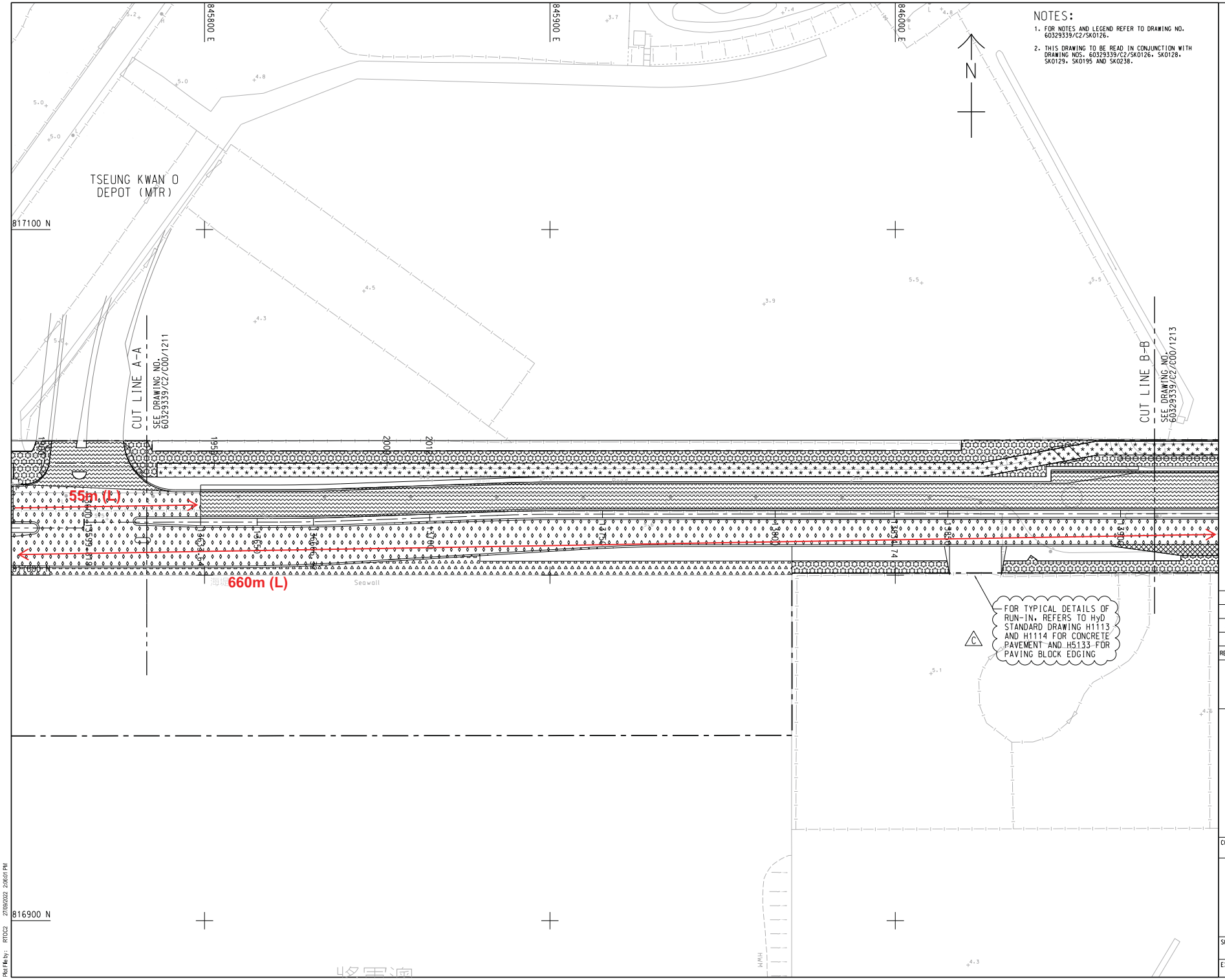

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
C	27-SEP-22	FOR CONSTRUCTION	MS	VL	-	JC
B	18-AUG-22	FOR CONSTRUCTION	MS	VL	-	JC
A	23-SEP-21	FOR CONSTRUCTION	BLK	JOE	CCL	PT
-	24-APR-20	FOR CONSTRUCTION	BLK	JOE	CCL	PT

AECOM

KEY PLAN

CONTRACT NO. NE/2017/08

CROSS BAY LINK, TSEUNG KWAN O ROAD D9 AND ASSOCIATED WORKS

ROAD PAVEMENT LAYOUT

SHEET 2 OF 3

SKETCH NO. 60329339/C2/SK0127 | REV. C

EXTRACTED FROM DRG. NO. 60329339/C2/C00/1212A | SCALE 1:1000 (A3)

Plot File by: RTOC2 27/09/2022 2:05:01 PM

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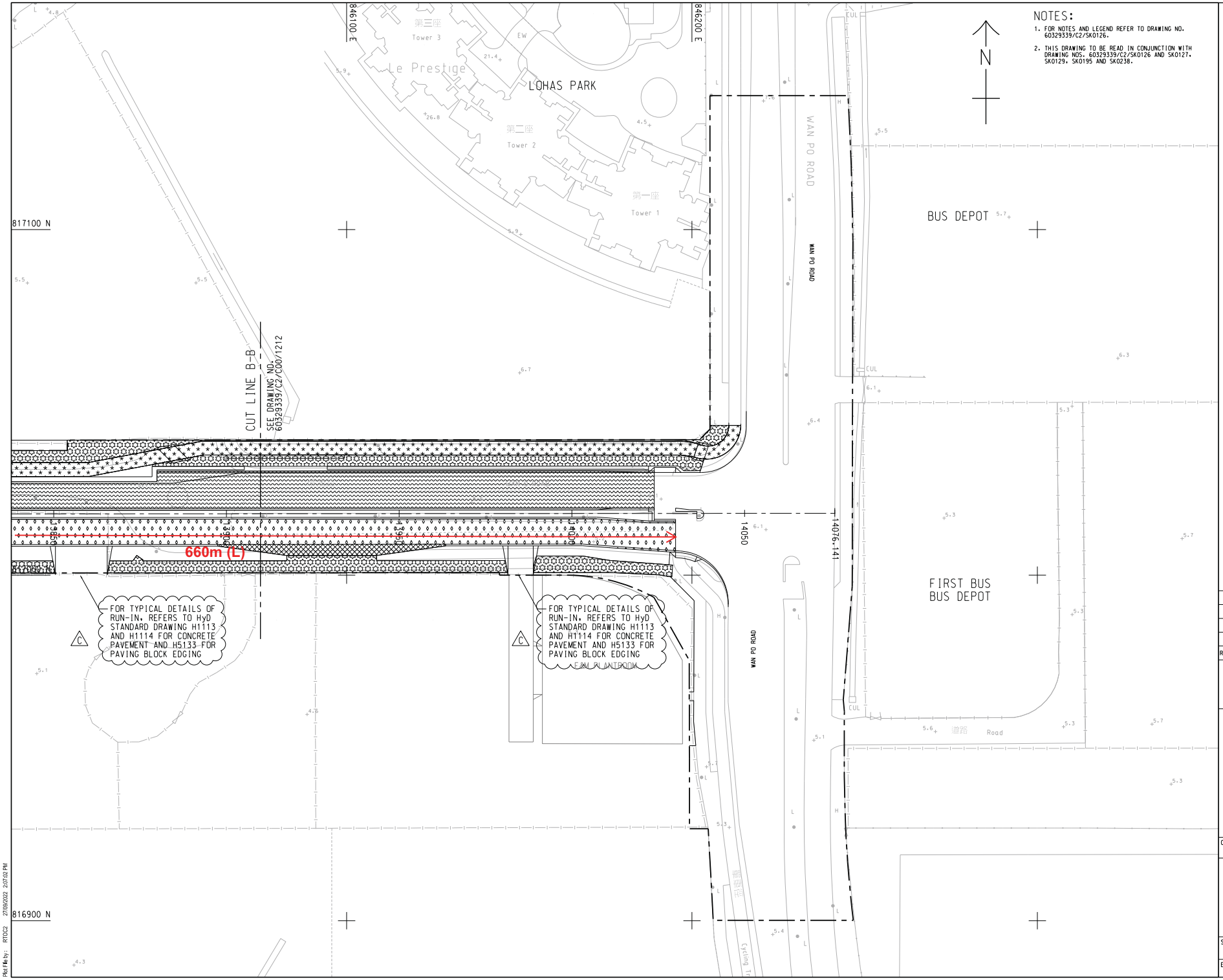

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
C	27-SEP-22	FOR CONSTRUCTION	MS	VL	-	JC
B	28-JAN-22	FOR CONSTRUCTION	BLK	JOE	TWC	PT
A	23-SEP-21	FOR CONSTRUCTION	BLK	JOE	CCL	PT
-	24-APR-20	FOR CONSTRUCTION	BLK	JOE	CCL	PT

AECOM

KEY PLAN

CONTRACT NO. NE/2017/08

CROSS BAY LINK, TSEUNG KWAN O ROAD D9 AND ASSOCIATED WORKS

ROAD PAVEMENT LAYOUT

SHEET 3 OF 3

SKETCH NO. 60329339/C2/SK0128 REV. C

EXTRACTED FROM DRG. NO. 60329339/C2/C00/1213A SCALE 1:1000 (A3)

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Appendix P

Establishment Inspection Checklist for Planting plants and Planting area
(To be reported in the next Reporting Period)