

JOB No.: TCS00975/18

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

**QUARTERLY ENVIRONMENTAL MONITORING AND
AUDIT (EM&A) SUMMARY REPORT
(SEPTEMBER TO NOVEMBER 2023)**

**PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
(CEDD)**

Date	Reference No.	Prepared By	Certified By
19 December 2023	TCS00975/18/600/R0805v1	 Martin Li (Environmental Consultant)	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	19 December 2023	First Submission



Our ref: PL-202401028

AECOM Asia Company Limited
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Shatin, New Territories, Hong Kong

Attention: Mr. Conrad NG

12 January 2024

Dear Sir,

Contract No. NE/2017/07 & NE/2017/08
Cross Bay Link, Tseung Kwan O
Quarterly EM&A Report for September to November 2023

I refer to the email of the ET concerning the Quarterly EM&A Report for September to November 2023 (Version 1) with Ref. No. TCS00975/18/600/R0805v1. I have no adverse comment on it and verify the captioned report according to section 1.9 of Environmental Permit with No. EP-459-2013.

Yours faithfully,



Li Wai Ming Kevin
Independent Environmental Checker

cc. Mr. T.W. TAM (ETL)
Mr. Wilson CHUNG (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 This is the 20th Quarterly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1 September 2023** to **30 November 2023** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES04 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		96
	24-Hr TSP		32
Construction Noise	Leq (30min) Daytime		39
	Leq (5min) Evening ^(Note 1)		0
	Leq (5min) Night ^(Note 1)		0
Water Quality	Marine Water Sampling ^(Note 2) ^(Note 3)		0
Inspection / Audit	Contract 1	ET Regular Environmental Site Inspection	13
		Joint site audit with Project Consultant and IEC	3
	Contract 2	ET Regular Environmental Site Inspection	13
		Joint site audit with Project Consultant and IEC	3

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

- ES05 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

ES06 No environmental complaints were recorded in this Reporting Period 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 September – 30 November 2023	1	0	33	NA	NA
	2	0	26	Noise	No

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES07 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 September – 30 November 2023	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 September – 30 November 2023	1	0	0	NA	NA
	2	0	0	NA	NA

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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 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.

1.1.4 This is the **20th** Quarterly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1 September 2023** to **30 November 2023** (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	<i>Introduction</i>
Section 2	<i>Project Organization and Construction Progress</i>
Section 3	<i>Summary of Impact Monitoring Requirements</i>
Section 4	<i>Impact Monitoring Results</i>
Section 5	<i>Waste Management</i>
Section 6	<i>Site Inspections</i>
Section 7	<i>Landfill Gas Monitoring</i>
Section 8	<i>Environmental Complaints and Non-Compliance</i>
Section 9	<i>Implementation Status of Mitigation Measures</i>
Section 10	<i>Conclusions and Recommendations</i>

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 can be referred to Monthly Report.

2.2 CONSTRUCTION PROGRESS

- 2.2.1 3-month rolling construction program of 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:-

- E&M SAT Work
- E&M Installation Pier Head Lighting
- E&M Pre-handover inspection
- E&M 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:-

- SENB rectification at At-Grade Road and Wan O Road
- SENB rectification at Portion III, U-trough and Elevated Deck
- Footpath and cycle track paving work
- Drainage CCTV Work

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.3.1 All the documents required under Environmental Permit No. EP-459/2013 were submitted within the required timeframe. The details can be referred to the Monthly Report.
- 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/>).

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 L₁₀ and L₉₀ shall also be obtained for reference.
Water Quality	- In-situ measurement – Dissolved Oxygen (DO) concentration (mg/L) & saturation (%), pH, Salinity (mg/L), Temperature (°C) 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)	Under Construction

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 5) (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)	Under Construction
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 was 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 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
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-5	Noise (L_{eq} , L_{10} & L_{90})	Podium of Lohas Park Phase 2A (Le Prestige)

Remark:

1. 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

- 3.3.5 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 DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.5.1 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 3-6, 3-7 and 3-8** respectively.

Table 3-6 Action & Limit Levels of Air Quality (1-Hour & 24-Hr TSP)

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-Hour TSP	24-Hr TSP	1-Hour TSP	24-Hr TSP
AM2	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 $\times$ 1.3 + Limit level)/2

Table 3-7 Action and Limit Levels for Construction Noise, dB(A)

Monitoring Location	Action Level	Limit Level (Leq_{30min})
	Time Period: 0700-1900 hours on normal weekdays	
CNMS-1 CNMS-2 CNMS-5	When one or more documented complaints are received	75 dB(A)
	Time Period: 1900-2300 hours on all days (Leq_{15min})	
	When one or more documented complaints are received	55 dB(A)

Remarks:

- Construction noise monitoring will be resumed at the designated locations CNMS-3 and CNMS4 once they are available and permission are granted;
- The designated locations CNMS-3 is located at residential building which is still under construction, Limit Level of 75dB(A) will be adopted until they are occupied;
- 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
- 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 3-8 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	

- 3.5.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan as stated EM&A Manual.

4. IMPACT MONITORING RESULT

4.1 RESULTS OF AIR QUALITY MONITORING IN THE REPORTING MONTH

4.1.1 24-Hour TSP impact monitoring for Lohas Park Phase 6 (LP6) was originally carried out at interim alternative impact monitoring location AM2a where power supply was provided by the Contractor. Upon the opening of Cross Bay Link on 10 December 2022, power supply is no longer available for AM2a from Contractor. Therefore a new interim alternative impact monitoring location AM2b was proposed and was commenced immediately to resume 24-Hour TSP monitoring for LP6.

4.1.2 In the Reporting Period, 1-Hour TSP monitoring was performed at designated monitoring location AM2 and interim alternative monitoring locations AM4, and 24-Hr TSP of air quality monitoring was performed at interim alternative monitoring locations AM2b and AM5.

4.1.3 During the Reporting Period, **96** sessions of 1-hour TSP and **32** sessions of 24-hours TSP monitoring were carried out and the monitoring results are summarized in **Table 4-1**. The relevant graphical plots are shown in **Appendix E**.

Table 4-1 Summary of Air Quality Impact Monitoring Results

Monitoring Location	1-hour TSP ($\mu\text{g}/\text{m}^3$)			24-hour TSP ($\mu\text{g}/\text{m}^3$)		
	Min	Max	Average	Min	Max	Average
AM2	38	85	62			
Record Date	29-Nov-23	20-Oct-23	48 events			
AM2b				24	100	62
Record Date				14-Sep-23	20-Nov-23	16 events
AM4	20	88	59			
Record Date	29-Nov-23	14-Oct-23	48 events			
AM5				36	113	71
Record Date				14-Sep-23	20-Nov-23	16 events

4.1.4 As shown in **Table 4-1**, 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.

4.1.5 No adverse impact due to weather condition on the monitoring result was observed in reporting quarter. The summary of meteorological information for the Reporting Period is shown in **Appendix F**.

4.2 RESULTS OF CONSTRUCTION NOISE MONITORING

4.2.1 **13** sessions of daytime construction noise monitoring were performed at the designated location CNMS-1, CNMS-2 and interim alternative monitoring location CNMS-5 respectively in the reporting period. The daytime noise monitoring results at designated location CNMS-1 and CNMS-2, and interim alternative monitoring location CNMS-5 are summarized in **Table 4-2**. The relevant graphical plots are shown in **Appendix E**.

Table 4-2 Summary of Daytime Construction Noise Impact Monitoring Results

Monitoring Location	Leq, 30min (dB(A))		
	Min	Max	Average
CNMS-1	59.2	67.5	62.5
Record Date	17-November-23	23-November-23	13 sessions
CNMS-2	59.3	68.1	62.9
Record Date	17-November-23	14-October-23	13 sessions
CNMS-5	59.4	62.7	60.6
Record Date	29-November-23	23-November-23	13 sessions

4.2.2 All the measured daytime construction noise results were below 75dB(A) of the limit level acceptance criteria.

4.3 RESULTS OF WATER QUALITY MONITORING

4.3.1 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.

4.3.2 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.

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

5. WASTE MANAGEMENT

5.1 GENERAL WASTE MANAGEMENT

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

5.2 RECORDS OF WASTE QUANTITIES

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

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

5.2.2 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 5-1** and **5-2**.

Table 5-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Contract No	Quantity			Disposal Location
		September 2023	October 2023	November 2023	
Total Generated C&D Materials (Inert) (in '000m ³)	1	0	0	0	-
	2	0	0	0	
Reused in this Project (Inert) (in '000m ³)	1	0	0	0	-
	2	0	0	0	-
Reused in other Projects (Inert) (in '000m ³)	1	0	0	0	-
	2	0	0	0	-
Disposal as Public Fill (Inert) (in '000m ³)	1	0	0	0	-
	2	0	0	0	
Imported Fill ('000m ³)	1	0	0	0	-
	2	0	0	0	-

Table 5-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract No	Quantity			Disposal Location
		September 2023	October 2023	November 2023	
Recycled Metal ('000kg)	1	0	0	0	-
	2	0	0	0	
Recycled Paper / Cardboard Packing ('000kg)	1	0.17	0.215	0.225	Licensed collector
	2	0	0	0	
Recycled Plastic ('000kg)	1	0	0	0	-
	2	0	0	0	
Chemical Wastes ('000kg)	1	0	0	0	-
	2	0	0	0	
General Refuses ('000m ³)	1	0.067	0.067	0.043	NENT
	2	0.032	0	0.005	

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

6. SITE INSPECTION

6.1 REQUIREMENTS

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

6.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

Contract 1

- 6.2.1 In this Reporting Period, **13** events of weekly joint site inspection was carried out for Contract 1 to evaluate site environmental performance. The summaries of the findings during site inspection are presented in **Table 6-1** and the details of site inspection can be found in relevant EM&A monthly report.

Table 6-1 Summary of Site Observations of the Contract 1

Reporting Period	Date of site inspection	Nos. of Findings/ Deficiencies	Follow-Up Status
September 2023	6, 14, 20 and 27 September 2023	2	Completed
October 2023	4, 11, 18, 25 and 31 October 2023	0	Completed
November 2023	8, 17, 22 and 29 November 2023	0	Completed

- 6.2.2 In the Reporting Period, no non-compliance was recorded for Contract 1; however, **2** observations were recorded during the site inspections and the major findings were related to dust control and chemical management mitigation measures. Details of the findings of the inspection in the reporting period can be referred to the Monthly EM&A Report. The findings found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Contract 2

- 6.2.3 In this Reporting Period, **13** events of weekly joint site inspection was carried out for Contract 2 to evaluate site environmental performance. The summaries of the findings during site inspection are presented in **Table 6-2** and the details of site inspection can be found in relevant EM&A monthly report.

Table 6-2 Summary of Site Observations of the Contract 2

Reporting Period	Date of site inspection	Nos. of Findings/ Deficiencies	Follow-Up Status
September 2023	6, 13, 20 and 27 September 2023	0	Completed
October 2023	4, 11, 18, 25 and 31 October 2023	0	Completed
November 2023	8, 17, 22 and 29 November 2023	1	Completed

- 6.2.4 In the Reporting Period, no non-compliance was recorded for Contract 2; however, **1** observation were recorded during the site inspections and the major findings were related to dust control, general housekeeping and chemical management mitigation measures. Details of the findings of the inspection in the reporting period can be referred to the Monthly EM&A Report. The findings found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

7. LANDFILL GAS MONITORING

7.1 GENERAL REQUIREMENT

7.1.1 Pursuant to Section 13 of the Project's EM&A Manual, Landfill gas monitoring shall perform during construction activities 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*.

7.1.2 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.

7.2 LIMIT LEVELS AND EVENT AND ACTION PLAN

7.2.1 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 7-1**.

Table 7-1 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%

7.2.2 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.

7.3 LANDFILL GAS MONITORING

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

8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

8.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

- 8.1.1 In the Reporting Period, no environmental complaint was received for the Project. Besides, no summon and prosecution under the EM&A Programme was lodged for the project. The statistical summary table of environmental complaint is presented in *Tables 8-1, 8-2 and 8-3*. A summarized record of all complaints received was provided in *Appendix H*.

Table 8-1 Statistical Summary of Environmental Complaints

Reporting Period	Contract	Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	1	0	33	NA
1 – 31 October 2023		0	33	NA
1 – 30 November 2023		0	33	NA
1 – 30 September 2023	2	0	26	NA
1 – 31 October 2023		0	26	NA
1 – 30 November 2023		0	26	NA

Table 8-2 Statistical Summary of Environmental Summons

Reporting Period	Contract	Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	1	0	0	NA
1 – 31 October 2023		0	0	NA
1 – 30 November 2023		0	0	NA
1 – 30 September 2023	2	0	0	NA
1 – 31 October 2023		0	0	NA
1 – 30 November 2023		0	0	NA

Table 8-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract	Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
1 – 30 September 2023	1	0	0	NA
1 – 31 October 2023		0	0	NA
1 – 30 November 2023		0	0	NA
1 – 30 September 2023	2	0	0	NA
1 – 31 October 2023		0	0	NA
1 – 30 November 2023		0	0	NA

9. IMPLEMENTATION STATUS OF MITIGATION MEASURES

9.1 GENERAL REQUIREMENTS

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

9.1.2 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 9-1](#).

Table 9-1 Environmental Mitigation Measures in the Reporting Period

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.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 CONCLUSIONS

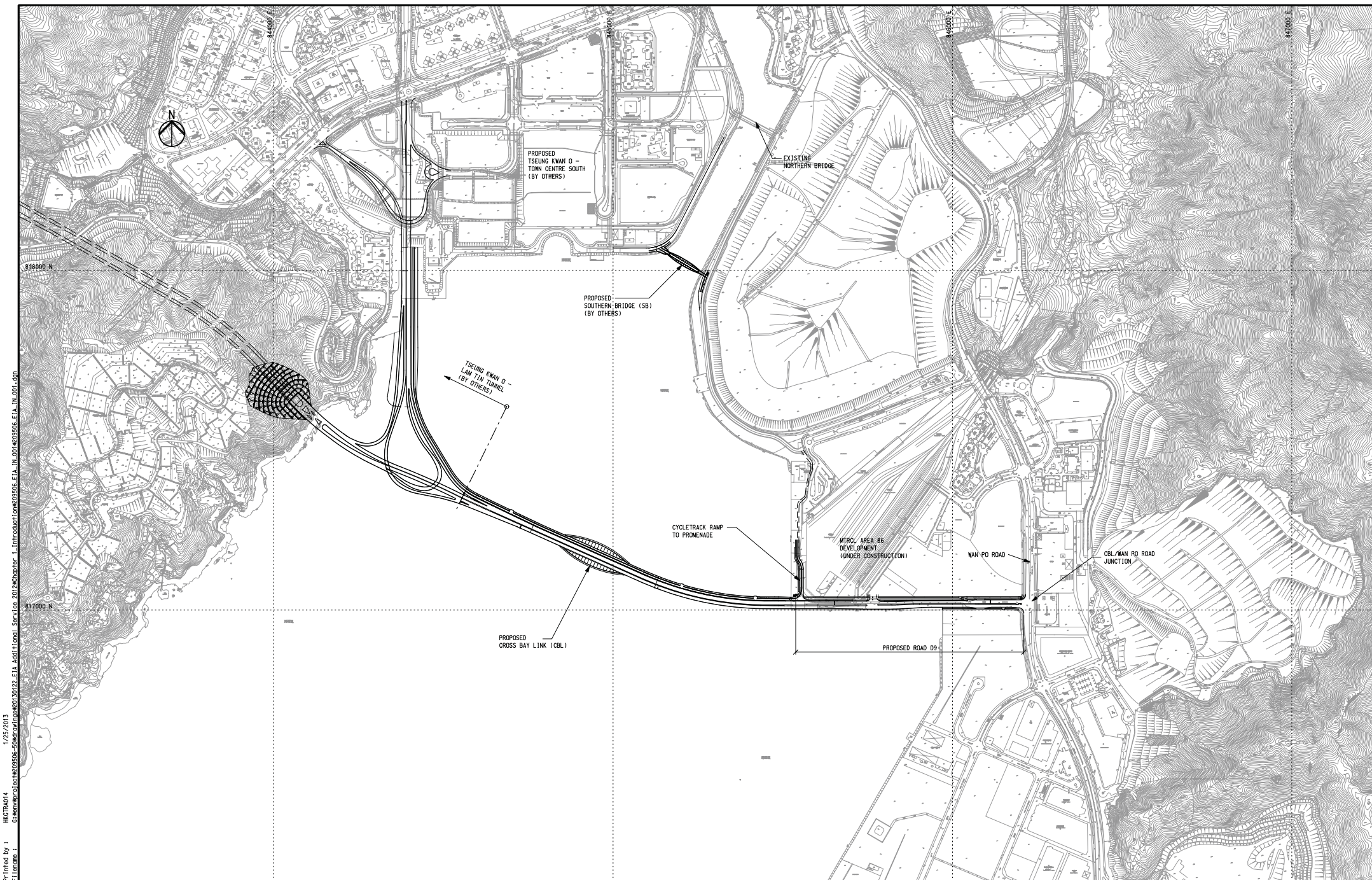
- 10.1.1 This is the **20th** Quarterly EM&A report as presented the monitoring results and inspection findings for the reporting period from **1 September 2023** to **30 November 2023**.
- 10.1.2 In this Reporting Period, no 1-Hour TSP or 24-Hr TSP air quality monitoring exceedance, and no construction noise monitoring exceedance was recorded. No NOE or the associated corrective actions were therefore issued.
- 10.1.3 No water quality monitoring was carried out in the reporting period.
- 10.1.4 In the Reporting Period, no environmental complaint was recorded for the Project. No notification of summon or prosecution was received and recorded for the Project.

10.2 RECOMMENDATIONS

- 10.2.1 Due to dry and windy season has approached, the Contractor was reminded that all the works being undertaken must fulfill environmental statutory requirements, especially construction dust come from working sites of the Project.
- 10.2.2 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.

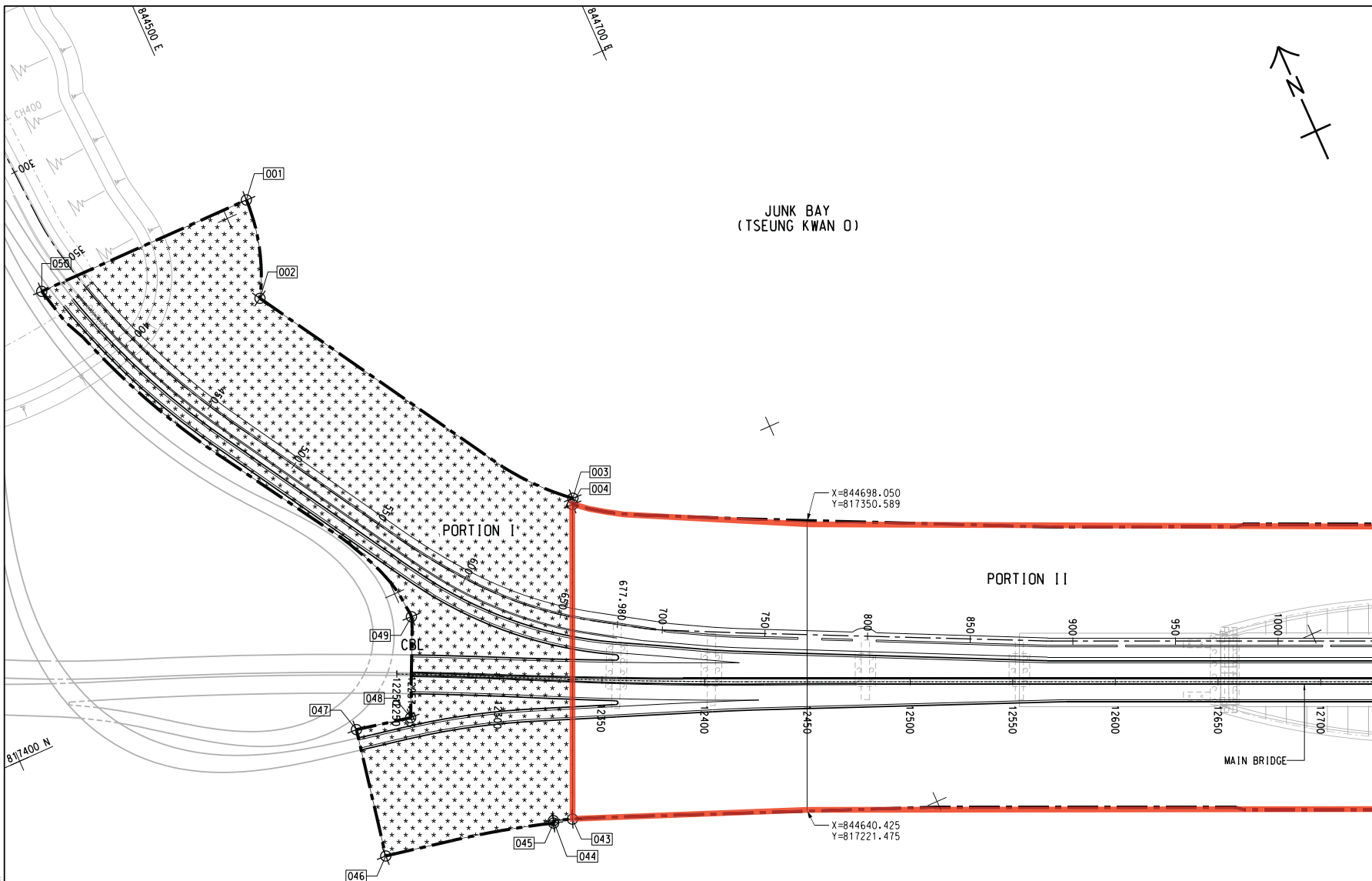
Appendix A

Project Layout Plan



Printed by : HMTB/04/14 1/25/2013
Drawing No. : 209506/EIA/IN/001
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Drawing Title : GENERAL LAYOUT PLAN
Drawing No. : 209506/EIA/IN/001
Status : FINAL
Rev. : B

 土木工程拓展署 Civil Engineering and Development Department	 ARUP One 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	Drawn GL Date 01/13		Drawing No. 209506/EIA/IN/001	
				Checked JP	Approved ST		
				Scale 1:5000 on A1 & 1:10000 on A3		Status FINAL	Rev. B
				Rev.	Description	Date	



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/CDD/1022 AND 1023.

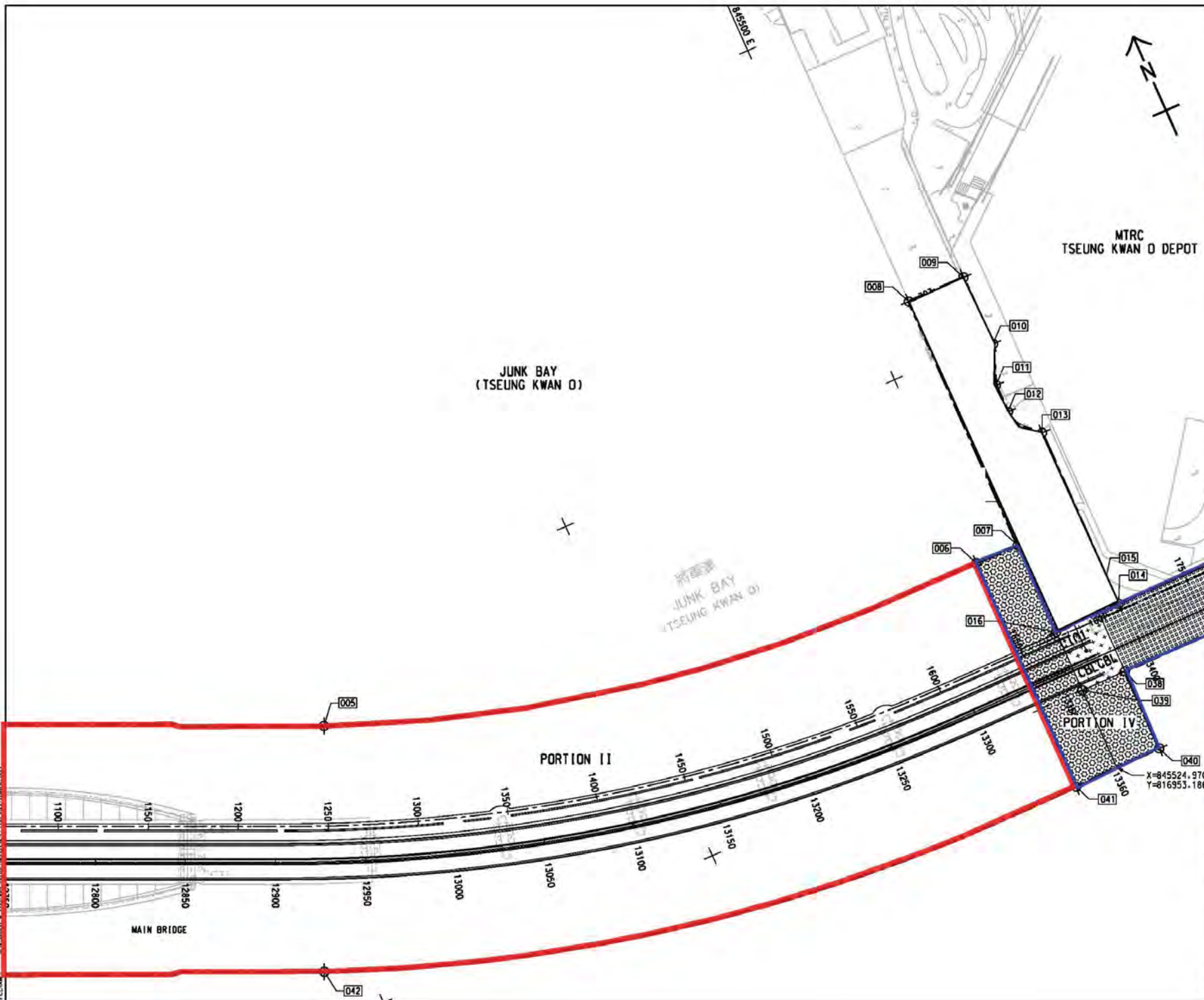
LEGEND:

---	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

A	FIRST ISSUE	HK	KN	AC	15/01/18
Rev	Amendment	By	CHK	App	Date
PROJECT MANAGER:		PROJECT MANAGER:			
 土木工程拓展署 Civil Engineering and Development Department					
SUPERVISOR:					
					
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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 USER: 0170
 DATE: 01/01/07
 PROJECT: 0170
 DRAWING: 0170



NOTE:

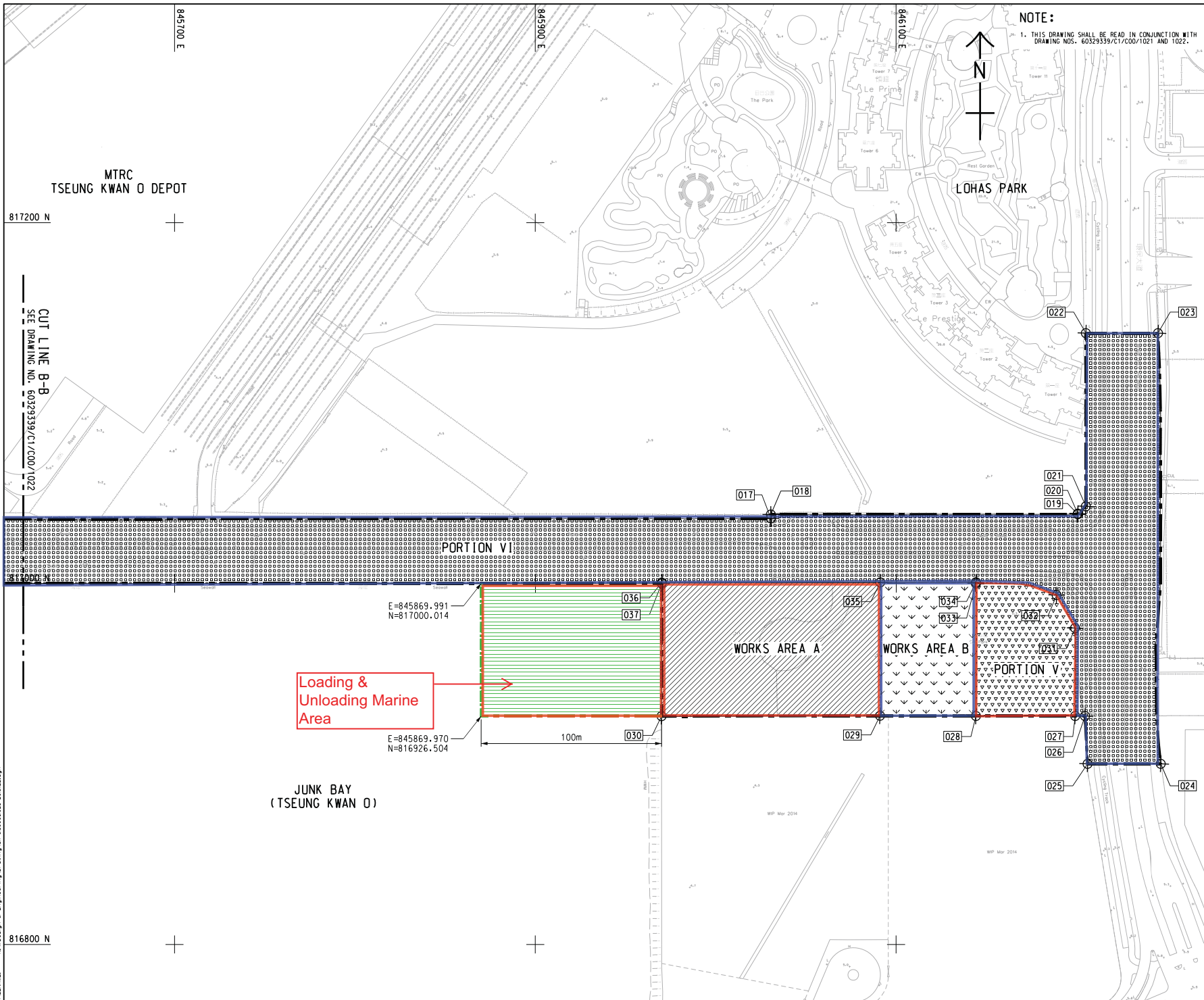
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/000/1021 AND 1023.

LEGEND:

- Works area under Contract 1
- Works area under Contract 2

PROJECT MANAGER	PROJECT MANAGER
	土木工程拓展署 Civil Engineering and Development Department
SUPERVISOR	
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:	
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Copyright Reserved	

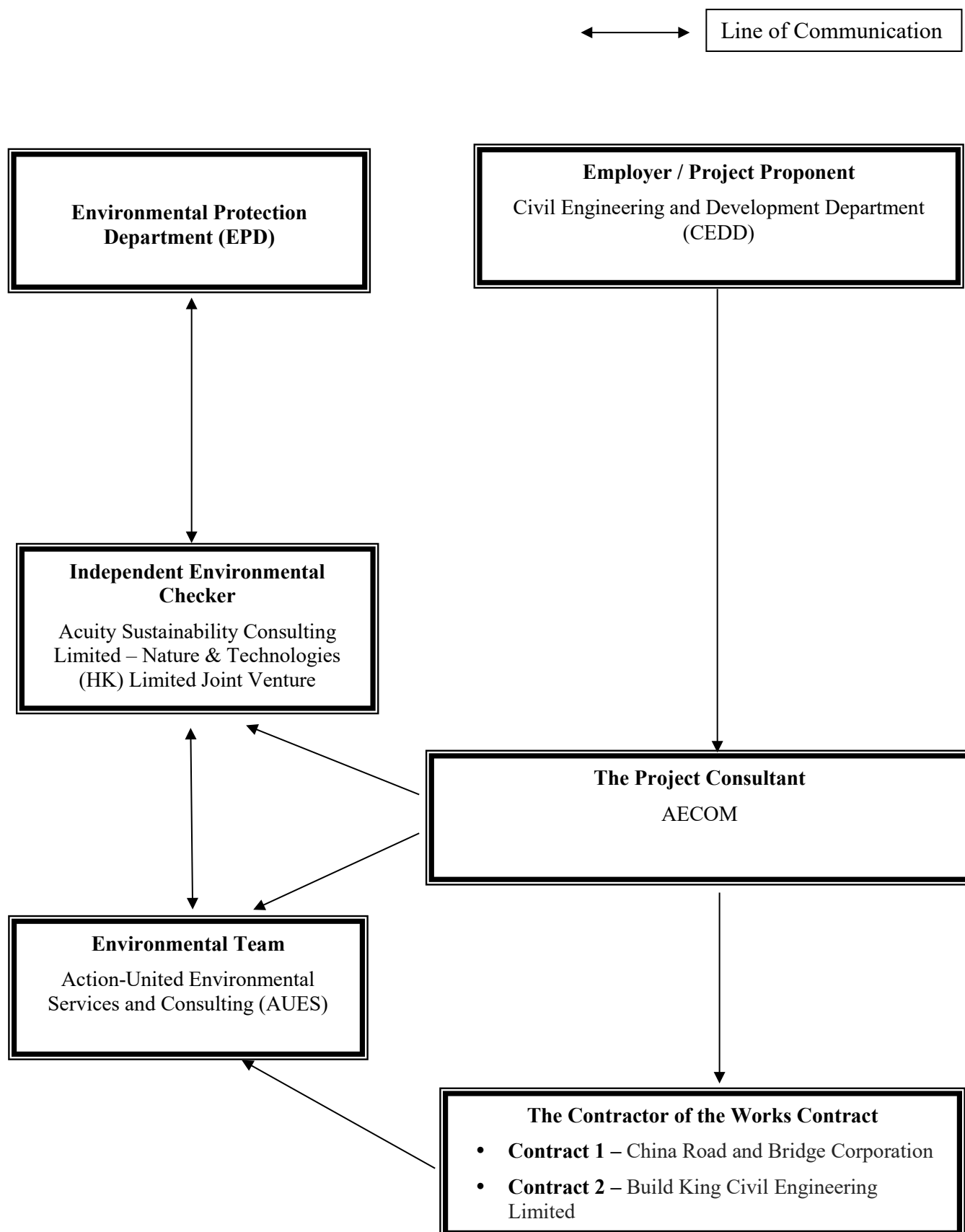
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Appendix B

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
AECOM	Senior Resident Engineer	Jackie Chan	3595 8045	3596 6118
ASC – N&T JV	Independent Environmental Checker	Kevin Li	2698 6833	2698 9383
ASC – N&T JV	Senior Environmental Consultant	Tandy Tse	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 Supervisor	Janice Poon	9148 5688	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

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

Activity ID	Activity Name	Physical	Duration	Original Duration	Remaining Duration	Start	Finish	Physical % Complete	December 2023												January 2024					February 2024					March 2024		
									26	03	10	17	24	31	07	14	21	28	04	11	18	25	03	10									
Cross Bay Link,Tseung Kwan O Main Bridge and Associated Works		98	1	08-Jan-22 A	08-Dec-23				Cross Bay Link,Tseung Kwan O Main Bridge and Associated Works																								
Section 2 of Works-All Works within Portion II,III,IV and VI		98	1	08-Jan-22 A	08-Dec-23				Section 2 of Works-All Works within Portion II,III,IV and VI																								
CBL Main Bridge and Marine Viaduct		98	1	08-Jan-22 A	08-Dec-23				CBL Main Bridge and Marine Viaduct																								
Steel Bridge		98	1	08-Jan-22 A	08-Dec-23				Steel Bridge																								
Welding & Painting Works		98	1	08-Jan-22 A	08-Dec-23				Welding & Painting Works																								
Painting of the Ring Weld		98	1	08-Jan-22 A	08-Dec-23				Painting of the Ring Weld																								
S2-SB2080	Top coating of the steel deck (main span) (NCE No.181)	98	1	08-Jan-22 A	08-Dec-23	95%			Top coating of the steel deck (main span) (NCE No.181)																								

Remaining Level of Effort

Actual Work

Remaining Work

Critical Remaining Work

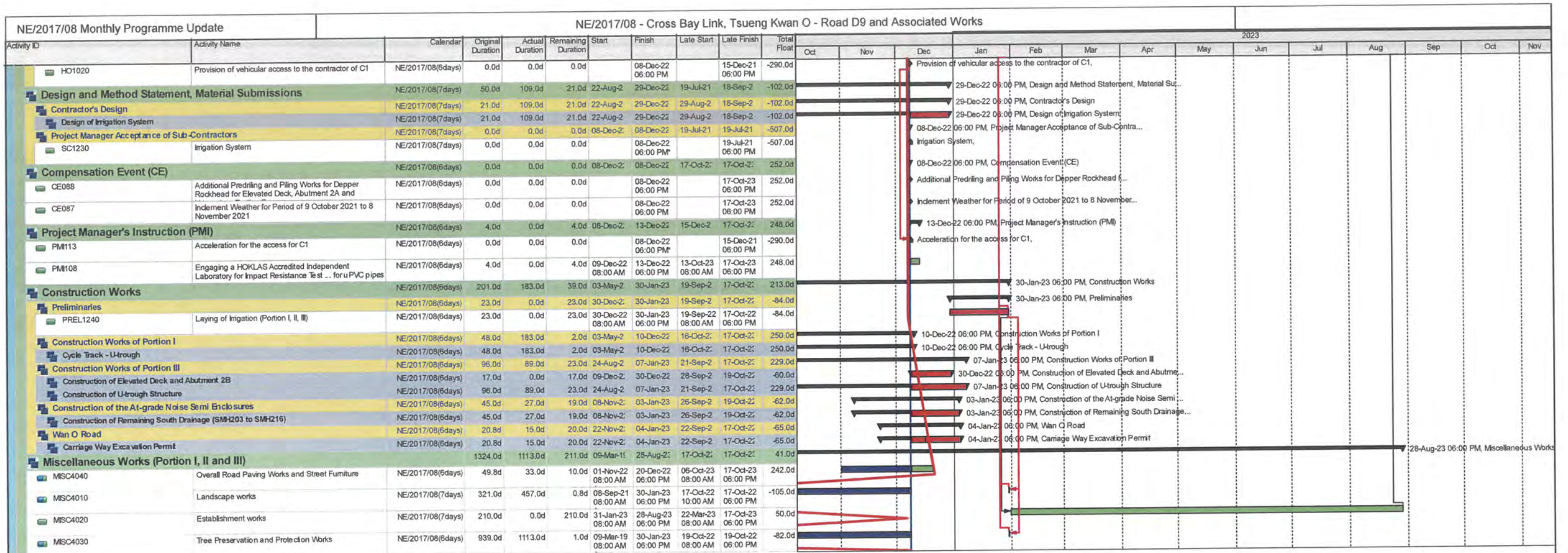
Milestone

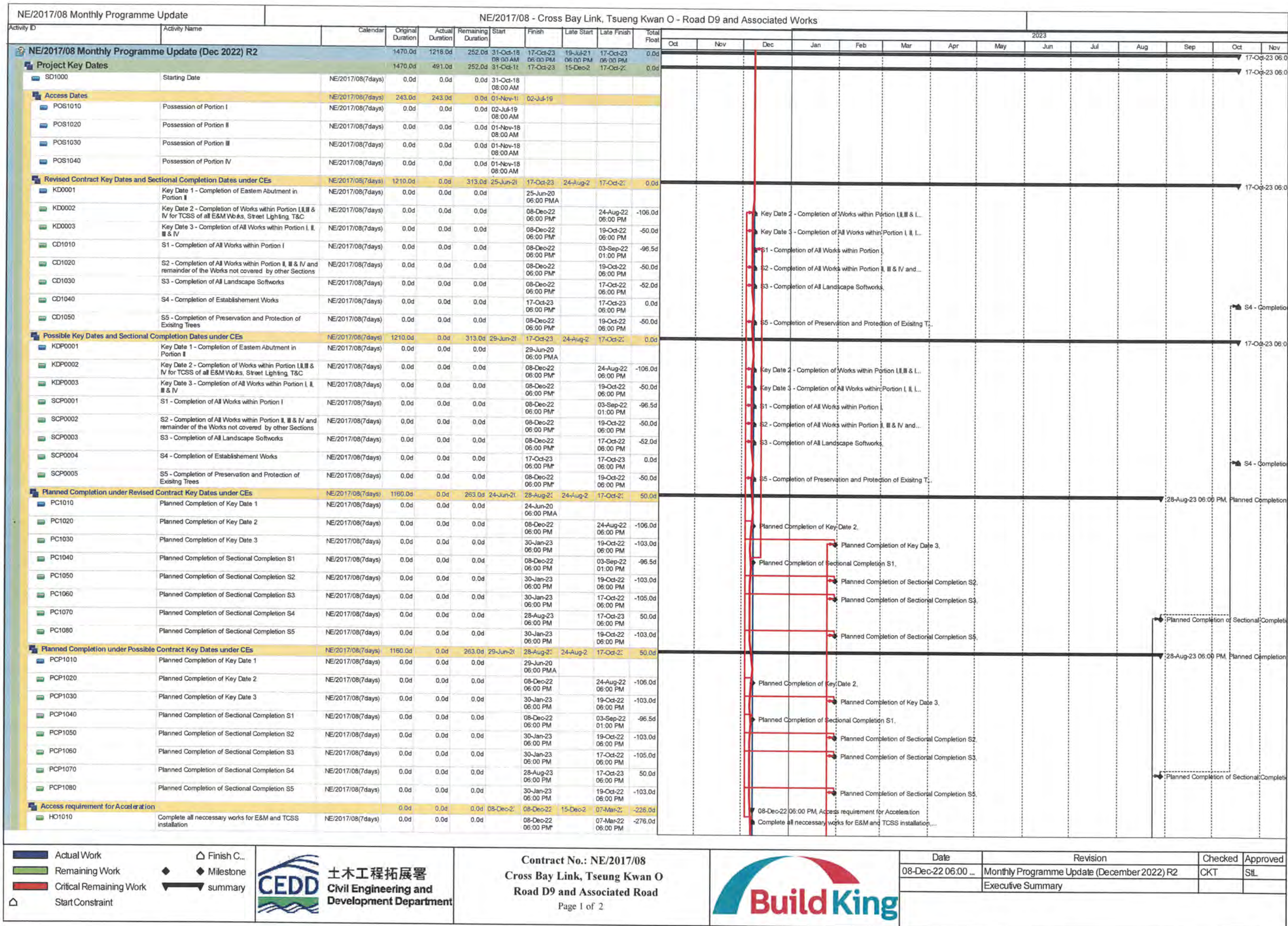
Summary

Three Month Rolling Programme (Dec 2023-Mar 2024)

Date	Revision	Checked	Approved
08-Dec-23	3MRP (Dec 23 - Mar 24)		

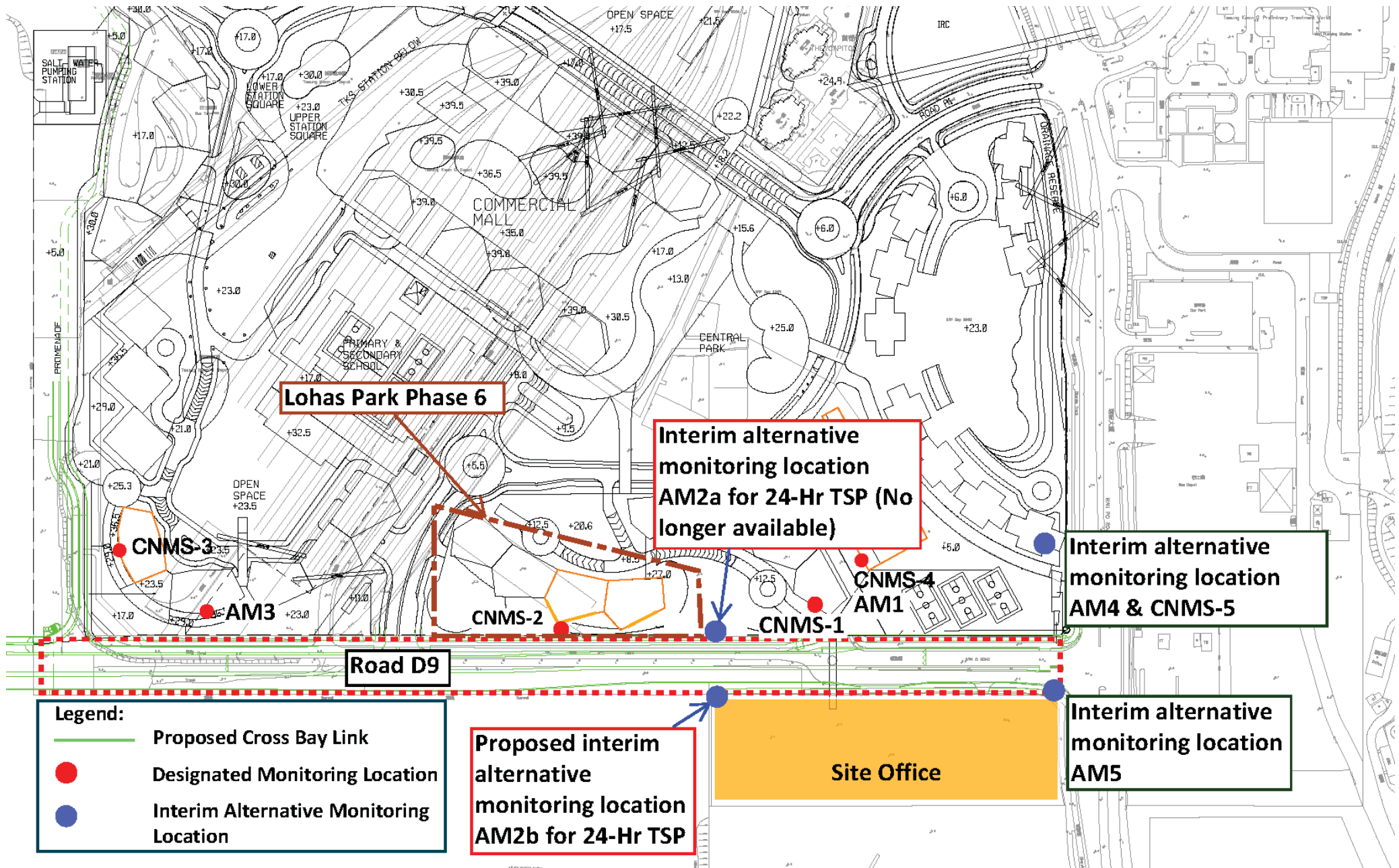
Contract 2

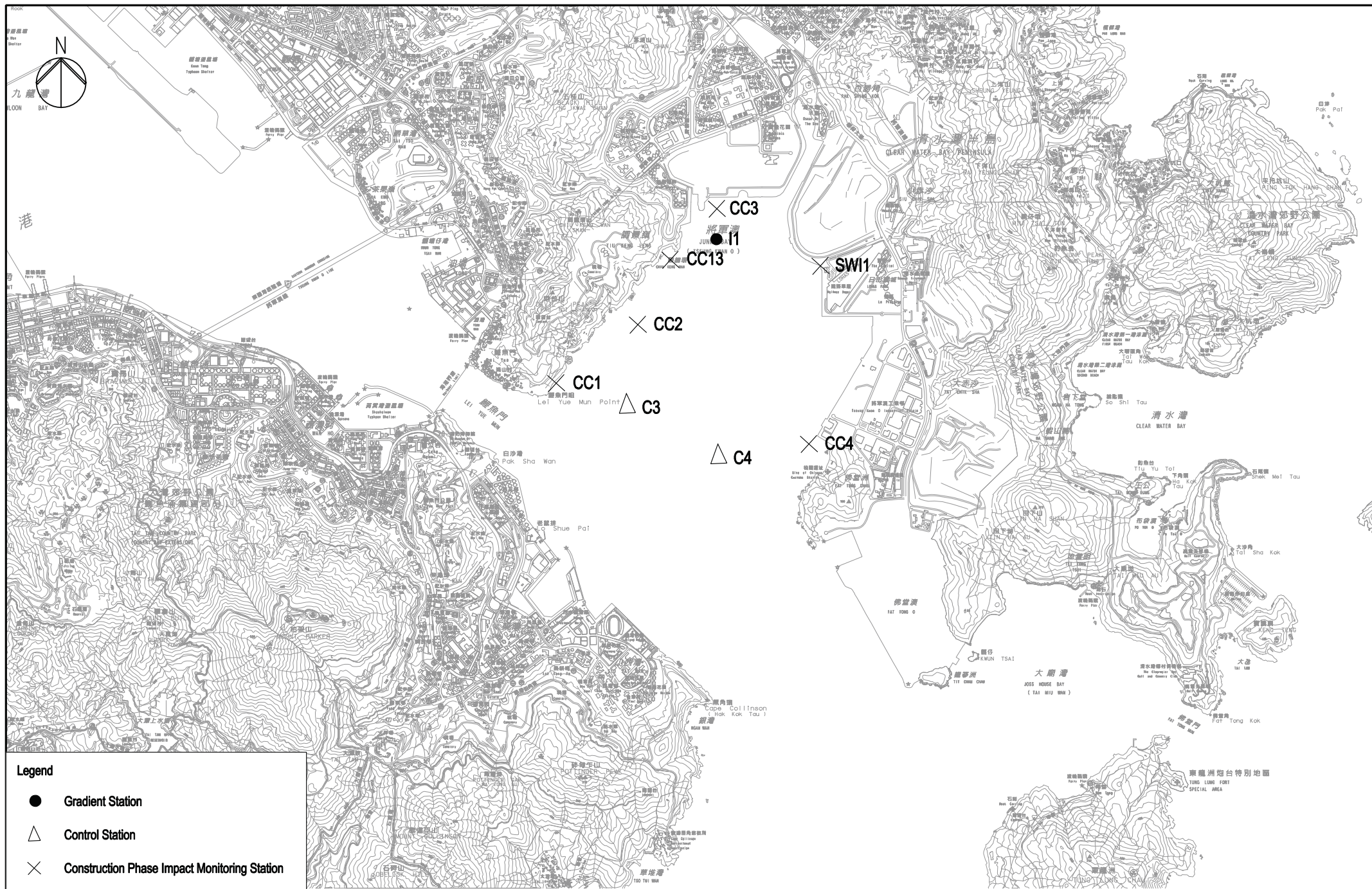




Appendix D

Monitoring Location (Air Quality, Noise and Water Quality)





Legend

- Gradient Station
- △ Control Station
- × Construction Phase Impact Monitoring Station



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	Scale	1:30000 (A3)	Status	FINAL	Rev.	C
C	THIRD ISSUE	03/13	Checked	JP	Approved	ST	209506/EMA/WQ/001	
B	SECOND ISSUE	01/13						
A	FIRST ISSUE	03/11						

Drawn GL Date 03/13

Checked JP Approved ST

Drawing No.

209506/EMA/WQ/001

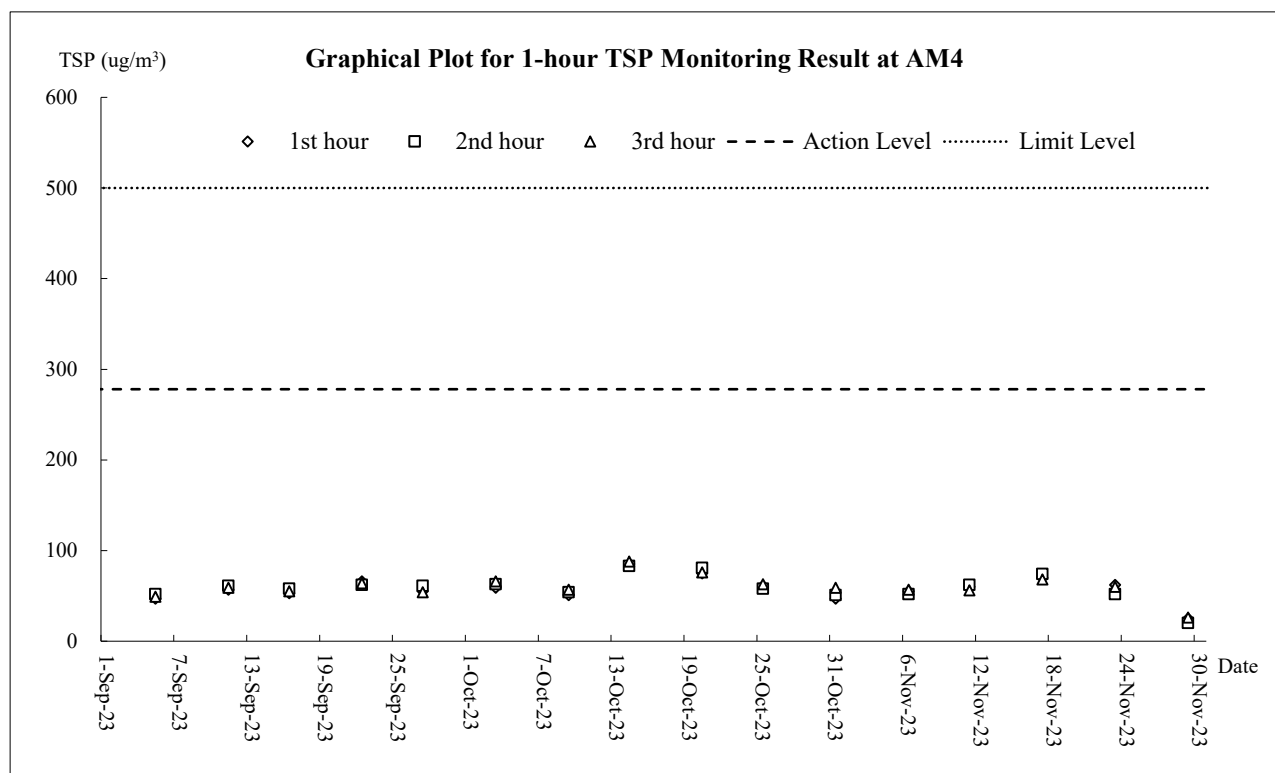
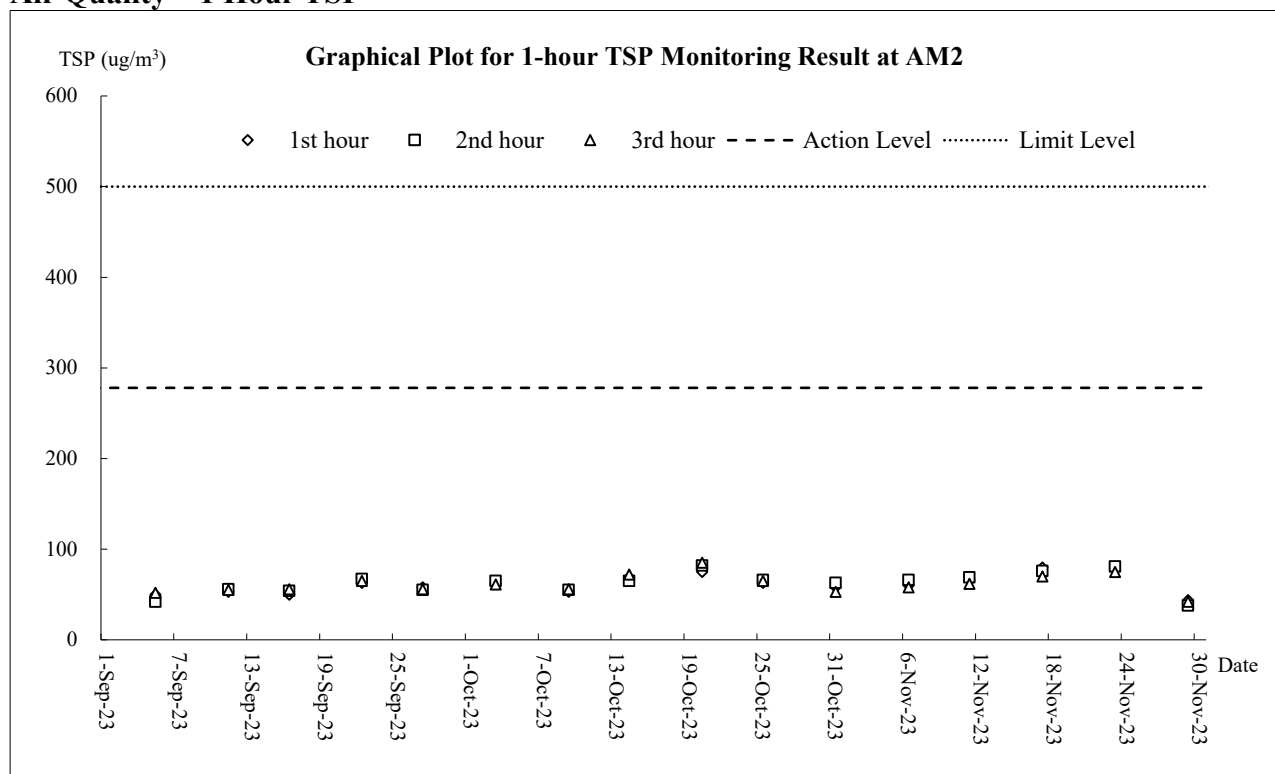
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Rev. C

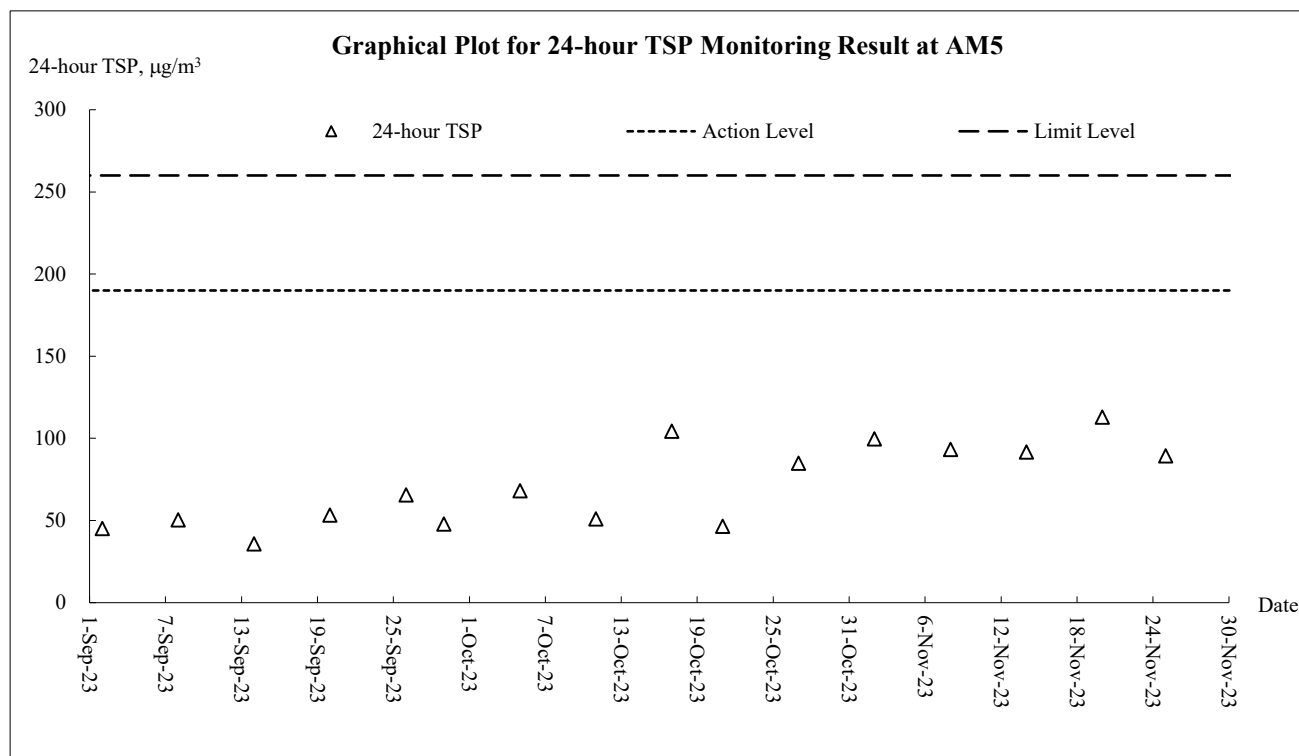
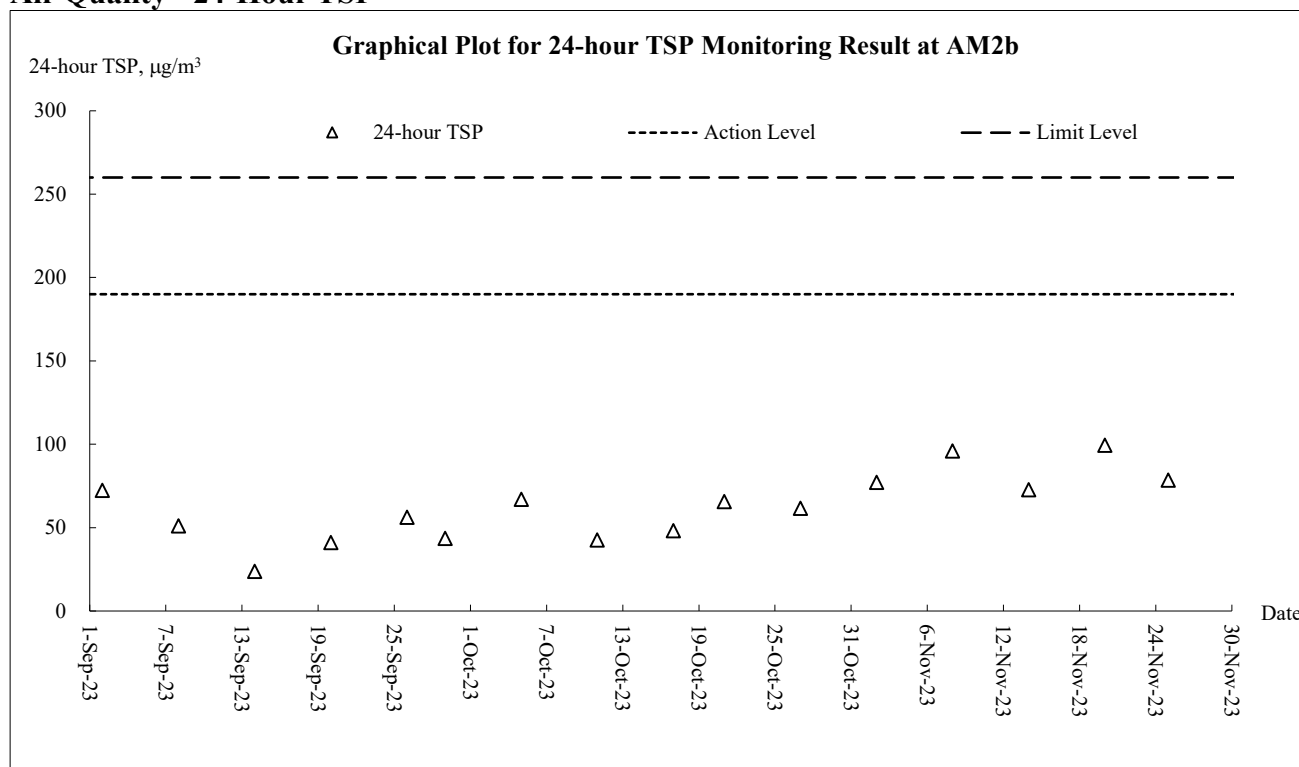
Appendix E

Graphical Plots of Monitoring Results

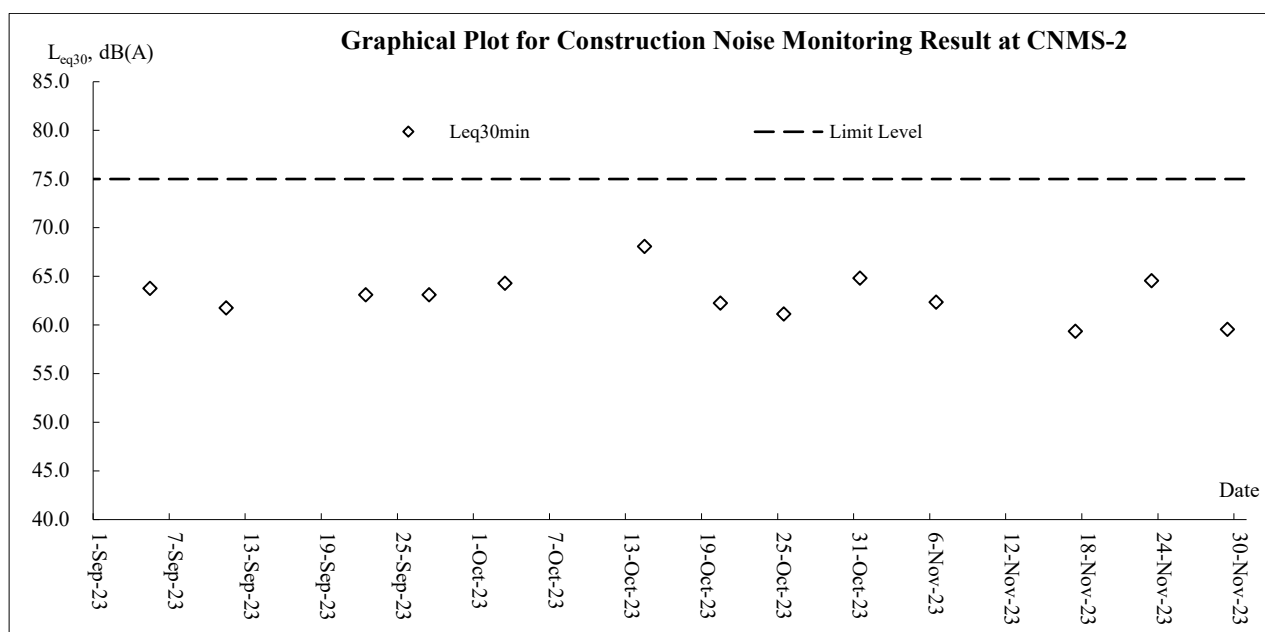
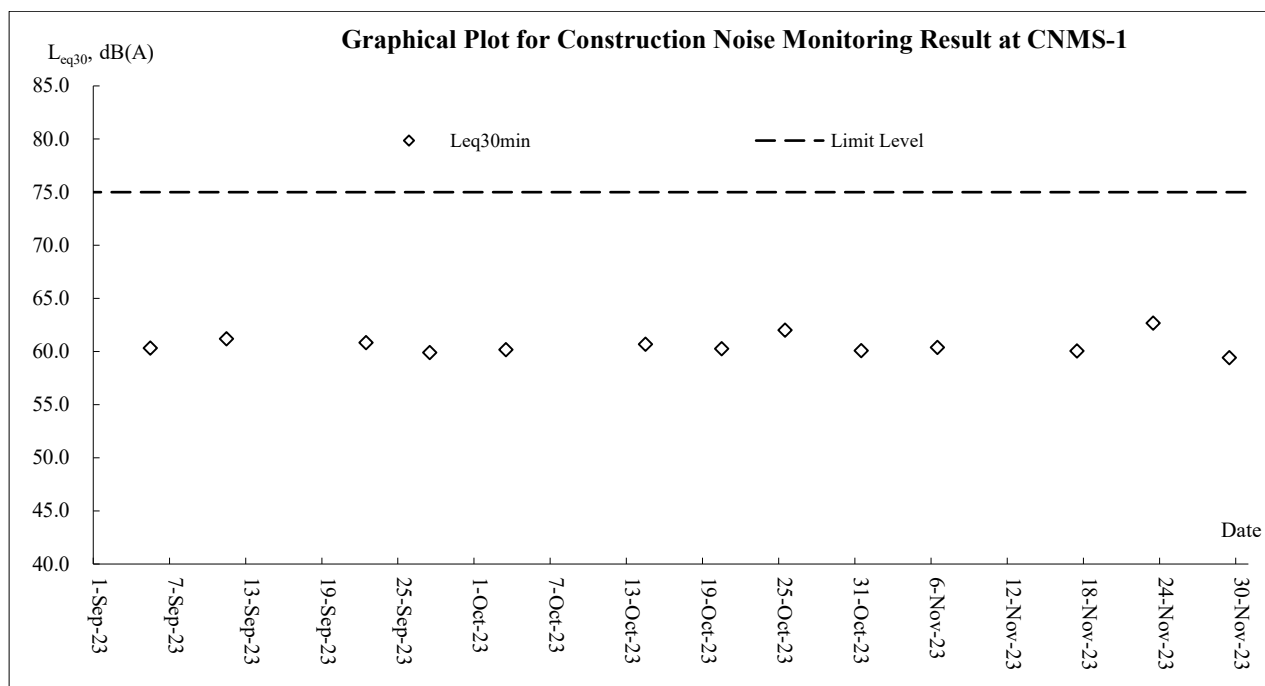
Air Quality – 1 Hour TSP

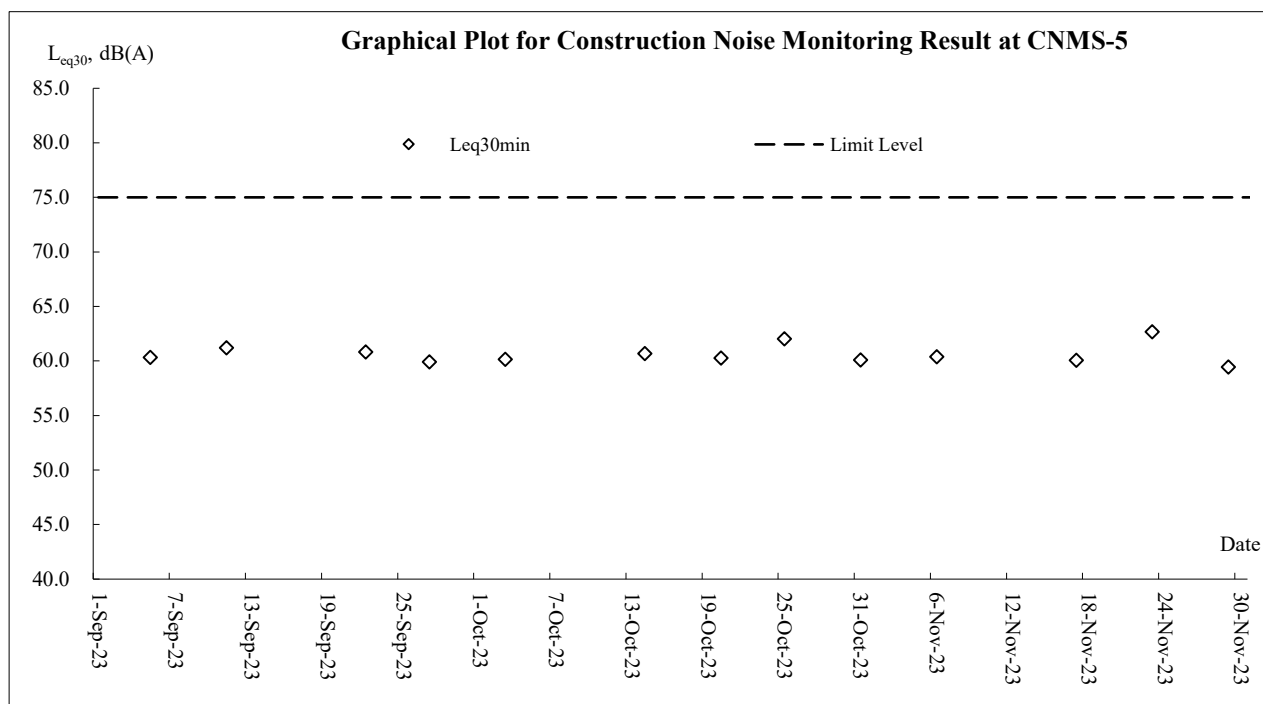


Air Quality - 24-Hour TSP



Construction Noise





Appendix F

Meteorological Information

The weather of September 2023

In terms of extreme weather, September 2023 was an eventful month in Hong Kong with the ferocious strike by Super Typhoon Saola on 1 – 2 September and the phenomenal rainstorm on 7 – 8 September. With a maximum sustained wind of 230 km/h near its centre, Saola was the second most intense tropical cyclone affecting the South China Sea since 1950 and Hurricane Signal No. 10 was issued in Hong Kong during the passage of Saola, the first time since Super Typhoon Mangkhut hit Hong Kong in September 2018. A trough of low pressure associated with the remnant of tropical cyclone Haikui brought prolonged torrential rain to Hong Kong on 7 – 8 September and necessitated the issuance of the Black Rainstorm Warning for 16 hours and 35 minutes, setting the longest record since the introduction of the rainstorm warning system in 1992. Mainly attributing to the heavy rain associated with Saola and troughs of low pressure in the first half of the month, the Observatory recorded an all-time high September rainfall of 1067.1 millimetres, more than three times of the September normal of 321.4 millimetres and easily breaking the previous record of 844.2 millimetres set way back in September 1952. Moreover, the rainfall deficit in the first eight months of this year was mostly compensated by the record-breaking rainfall in September. The accumulated rainfall this year up to September was 2224.3 millimetres, slightly less than the normal figure of 2242.8 millimetres for the same period. Despite the stormy weather in the first part of the month, there was a long spell of sunny and very hot weather with 10 consecutive very hot days from 21 to 30 September in the later part of the month. It also set the longest record of consecutive very hot days for September. Overall, the month remained hotter than usual with a mean temperature of 28.5 degrees, 0.6 degrees above the normal of 27.9 degrees.

The weather of October 2023

With more than usual moisture in the lower atmosphere over southern China, October 2023 was much cloudier than usual in Hong Kong. The mean amount of cloud in the month was 79 percent, 21 percent above the normal of 58 percent and the second highest on record for October. The duration of bright sunshine in the month was only 138.9 hours, about 30 percent lower than the normal figure of 197.8 hours and the fourth lowest on record for October. Mainly attributing to the record-breaking rainfall associated with tropical cyclone Koinu on 8 – 9 October, the month was also much wetter than usual. The monthly total rainfall was 546.0 millimetres, more than four times of the normal figure of 120.3 millimetres and the fifth highest on record for October. The accumulated rainfall this year up to October was 2770.3 millimetres, about 17 percent more than the normal figure of 2363.1 millimetres for the same period. Despite the below normal sunshine, the month was warmer than usual. The mean temperature of 26.4 degrees was 0.7 degrees above the normal and one of the fourth highest for October on record. There were 3 very hot days in the early part of the month, the highest on record for October.

The weather of November 2023

With the northeast monsoon over the south China coast weaker than normal for most of the time in the month, November 2023 was much warmer than usual in Hong Kong. The monthly mean temperature of 23.5 degrees, monthly mean maximum temperature of 26.1 degrees and monthly mean minimum temperature of 21.6 degrees were 1.3 degrees, 1.6 degrees and 1.3 degrees above their corresponding normals and respectively one of the second, one of the third and one of the fourth highest on record for November. Together with the higher than usual temperatures in September and October, the autumn of this year from September to November was also much warmer than usual. The mean minimum temperature of 24.4 degrees, mean temperature of 26.1 degrees and mean maximum temperature of 28.8 degrees were respectively one of the highest, one of the second and fifth highest on record for the same period. The month was drier than usual with a total rainfall of 3.3 millimetres, only about 8 percent of the normal figure of 39.3 millimetres. Mainly attributing to record-breaking rainstorms in September and October, the autumn of this year was exceptionally wet with a total rainfall of 1616.4 millimetres, the highest on record for the same period. The accumulated rainfall this year up to November was 2773.6 millimetres, about 15 percent above the normal figure of 2402.4 millimetres for the same period.

*The detailed meteorological data for each successive day can be referred to in the Monthly EM&A Reports (September 2023, October 2023 and November 2023.)

Appendix G

Waste Flow Table

Contract 1

Monthly Summary Waste Flow Table for 2023 (year)

Name of Person completing the record: Janice Poon (ES)

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	0.018	0.000	0.000	0.000	0.018	0.000	0.000	0.160	0.000	0.000	0.148
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.210	0.000	0.000	0.052
Mar	0.006	0.000	0.000	0.000	0.006	0.000	0.000	0.215	0.000	0.000	0.243
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.192	0.000	0.000	0.063
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.205	0.000	0.000	0.033
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.000	0.000	0.025
Sub-total	0.024	0.000	0.000	0.000	0.024	0.000	0.000	1.202	0.000	0.000	0.563
Jul	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.210	0.000	0.000	0.109
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225	0.000	0.000	0.157
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.170	0.000	0.000	0.067
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.215	0.000	0.000	0.067
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225	0.000	0.000	0.043
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.024	0.000	0.000	0.000	0.024	0.000	0.000	2.247	0.000	0.000	1.005

Note:

- For non-inert portion of C&D material, assume the density of 1 m³ general refuse is equal to 200 kg.
- For inert portion of C&D material, assume 6 m³ per each full-filled dump truck.
- All values are round off to the third decimal places.

Contract 2

Monthly Summary Waste Flow Table for 2023 Year

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity	Hard Rock and	Reused in the	Reused in other	Disposal as Public	Imported Fill	Metals	Paper / Cardboard	Plastics	Chemical Waste	Other, e.g. general
	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m ³]
Jan	0.265	0.000	0.000	0.000	0.265	0.000	0.000	0.000	0.000	0.000	0.014
Feb	0.009	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.008
Mar	0.014	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.020
Apr	0.015	0.000	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.000
May	0.014	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.006
June	0.003	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.012
SUB-TOTAL	0.319	0.000	0.000	0.000	0.319	0.000	0.000	0.000	0.000	0.000	0.060
Jul	0.008	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.017
Aug	0.014	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.015
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
Dec											
TOTAL	0.341	0.000	0.000	0.000	0.341	0.000	0.000	0.000	0.000	0.000	0.129

Note: Conversion to 1000m³ for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m³ 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 m³

Appendix H

Complaint Summary

(No Complaint received in the Reporting Period)

Appendix I

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 of 5m3) 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	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	
	appropriate and adequate portable toilets and be responsible 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 disposal 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	<u>Waste Reduction Measures</u> 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 through 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	<u>Storage, Collection and Transportation of Waste</u> 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
				Agent	Stage	
	authorities; and Disposal of waste should be done at licensed waste disposal facilities.					
S9.5.8-11	<u>C&D Materials</u> 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	<u>Excavated Marine Sediments</u> 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	<u>Sewage</u> 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	<u>General Refuse</u> 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