

15 August 2022

By Fax (3748 8900) and By Post

AECOM Asia Co. Ltd.
The PRE's Office
550 Cheung Tung Road, Lantau, Hong Kong

Attention: Mr. Jason Yu

Dear Sir,

**Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and
Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2019/01
HZMB HKBCF – Phase 2 and Other Works
Monthly EM&A Report for July 2022**

Reference is made to the Environmental Team's submission of Monthly EM&A Report for July 2022 certified by the ET Leader (ET's ref.: "MCL/ED/0315/2022/C" dated 15 August 2022) and provided to us via e-mail on 15 August 2022.

We are pleased to inform you that we have no further comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 5.4 of the Environmental Permit No. EP-353/2009/K (the EP).

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,
For and on behalf of
Ramboll Hong Kong Limited



Brian Tam
Independent Environmental Checker
HZMB HKBCF

c.c.	HyD	Attn.: Mr. Eric Wong	(By Fax: 3188 6614)
	HyD	Attn.: Mr. Y F Lau	(By Fax: 3188 6614)
	Fugro	Attn.: Mr. Calvin Leung	(By Fax: 2450 6138)
	CHEC	Attn.: Mr. Johnason Ko	(By Fax: 2887 3104)



FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Date 15 August 2022
Our Ref. MCL/ED/0315/2022/C

Ramboll Hong Kong Limited
21/F, BEA Harbour View Centre,
56 Gloucester Road,
Wan Chai, Hong Kong

BY EMAIL

Attn.: Mr. Brian Tam, Independent Environmental Checker

Dear Sir,

**EP Condition 5.4 – Monthly EM&A Report for
Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and
Other Works (Contract No. HY/2019/01)**

Pursuant to Condition 5.4 of the Environmental Permit (EP-353/2009K) for the captioned project, we hereby submit the certified Monthly EM&A Report for July 2022 for your verification.

Thank you for your attention, should there be any comments or queries, please contact our Mr. Cyrus Lai at 3565-4442 or the undersigned at 3565-4441.

Yours faithfully,
for and on behalf of
FUGRO TECHNICAL SERVICES LIMITED

Calvin Leung
Environmental Team Leader

c.c.	AECOM	Attn: Mr. Jason Yu, Mr. Gordon Kok
	Ramboll	Attn: Mr. Y. H. Hui, Mr. K. C. Chan
	CHEC	Attn: Mr. Marko Chan, Mr. Matthew Wu



Monthly EM&A Report (July 2022)

0002/20/ED/0505 03 |

Contact No. HY/2019/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Document Control

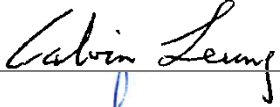


Document Information

Project Title	Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works (Contract No. HY/2019/01)
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Client Information

Client	China Harbour Engineering Co., Ltd. - Contract No. HY/2019/01
Client Address	China Harbour Building, 370-4 King's Road, North Point Hong Kong
Client Contact	Matthew Wu

Environmental Team

Initials	Name	Role	Signature
MP	Calvin M.P. Leung	Environmental Team Leader	
CY	Cyrus C.Y. Lai	Senior Environmental Consultant	
KH	Toby K.H. Wan	Environmental Consultant	

EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2019/01 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works" (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2019/01 was awarded to China Harbour Engineering Co. Limited and Fugro Technical Services Limited (FTS) was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2019/01 is part of the "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities" (HZMB HKBCF) Project which is a "Designated Project" under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 4 December 2019 and the construction site preparation works commenced in early February 2020.

Fugro Technical Services Limited (FTS) has been appointed by the Contractor to implement the Environmental Monitoring & Audit (EM&A) programme for the Contract in accordance with the Updated EM&A Manual for HKBCF (Version 1.0) and is providing environmental team services for the Contract.

This is the 30th Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 July 2022 to 31 July 2022.

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality, noise and the post-construction dolphin monitoring works for the Contract are covered by Contract No. HY/2019/01 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 as part of EM&A programme if the impact air quality monitoring work is no longer covered by Contract No. HY/2011/03 respectively. However, this is subject to ENPO's final decision on which ET should carry out the monitoring work at these stations.

Breaches of Action and Limit Levels

According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality and noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022, no Action / Limit Level exceedance for air quality and noise monitoring was recorded during the period.

Complaint Log

No complaints were received in the reporting period.

Notifications of any Summons and Successful Prosecutions

No notifications of summons and prosecutions were received in the reporting period.

Reporting Change

The Proposal for Termination of EM&A Programme in Construction Phase (0002_20_ED_0467_04) was verified by IEC on 13 June 2022 and approved by EPD on 5 July 2022 (EPD ref. () in AX(12) in EP771/E1/100).

Future Key Issues

No main construction works will be carried out in the next reporting period.

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1. INTRODUCTION

1.1 Background

- 1.1.1 Fugro Technical Services Limited was commissioned by China Harbour Engineering Co. Limited (also referred to as “the Contractor”) to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for Contract No. HY/2019/01 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works”.
- 1.1.2 Contract No. HY/2019/01 is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. The general layout of the Project area is shown in **Figure 1**. Commencement of the Contract took place on 4 December 2019 and the construction site preparation works commenced in early February 2020.
- 1.1.3 This is the 30th Monthly EM&A report to document the findings of site inspection activities and EM&A programme carried out by the Contractor of Contract No. HY/2019/01 from 1 July 2022 to 31 July 2022 (reporting period) and is submitted to fulfil Condition 5.4 of the EP.

1.2 Project Description

- 1.2.1 The works to be executed under Contract No. HY/2019/01 include the following major items:
- Landscaping and establishment works;
 - Irrigation system and associated drainage pumping system and facilities;
 - Erection and installation in the Passenger Clearance Building;
 - Public transport interchange (PTI) public toilet, satellite refuse collection point (RCP) and observation guard booths;
 - PTI cross boundary shuttle (CBS) / cross boundary coach (CBC) lanes and covered walkway;
 - Vehicle clearance plazas (VCP) vehicle kiosks and associate automatic vehicle clearance supporting system (AVCSS).

1.3 Project Organization

1.3.1 The Project Organization structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Senior Resident Engineer	Mr. Jason Yu	3748 8903
	Resident Engineer	Mr. Gordon Kok	3748 8967
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3465 2888
	Independent Environmental Checker (IEC)	Mr. Brian Tam	9700 6767
	Environmental Site Supervisor	Mr. K. C. Chan	3465 2882
Contractor (China Harbour Engineering Co. Ltd)	Environmental Manager	Mr. Marko Chan	9427 2879
	Environmental Officer	Mr. Matthew Wu	6076 2675
Environmental Team (Fugro Technical Services Limited)	Environmental Team Leader (ETL)	Mr. Calvin Leung	3565 4441

1.4 Construction Programme and Activities

1.4.1 The site layout plan of the Contract is shown in **Figure 1**.

1.4.2 The construction programme of this Contract is shown in **Appendix A**.

1.4.3 The Proposal for Termination of EM&A Programme in Construction Phase (0002_20_ED_0467_04) was verified by IEC on 13 June 2022 and approved by EPD on 5 July 2022 (EPD ref. () in AX(12) in EP771/E1/100).

1.5 Works undertaken during the month

1.5.1 No main construction works was carried out in the reporting period.

1.6 Status of Environmental Licences, Notification and Permits

1.6.1 A summary of the relevant permits, licenses and/or notifications on environmental protection for this Contract is presented in **Table 1.2**.

Table 1.2 Environmental Licenses, Notification and Permits Summary

Permit/ Notification/ License	Reference No	Valid From	Valid Till
Environmental Permit	EP-353/2009/K	11-Apr-16	Not Applicable
Notification pursuant to Air Pollution (Construction Dust) Regulation	451380	28-Nov-19	Not Applicable
Billing Account for Disposal of C&D waste	A/C No. 7036097	18-Dec-19	Not Applicable
Chemical Waste Producer Registration	5296-951-C1186-32	6-Feb-20	Not Applicable
Water Discharge License	WT00035721-2020	8-Jun-21	30-Apr 25

2. AIR QUALITY

2.1 Monitoring Requirement

- 2.1.1 In accordance with the Contract Specific EM&A Manual, 1-hour and 24-hour Total Suspended Particulates (TSP) levels should be measured at the designated air quality monitoring stations to indicate the impacts of construction dust on air quality. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was carried out for at least once every 6 days.
- 2.1.2 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022. The last monitoring was completed on 24 March 2022.

2.2 Monitoring Locations

- 2.2.1 In accordance with the Contract Specific EM&A Manual, four air quality monitoring locations, namely AMS2, AMS3C, AMS6 and AMS7B were set up at the proposed locations. AMS2, AMS3C and AMS7B are covered by Contract No. HY/2019/01 "Hong Kong-Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works"
- 2.2.2 AMS6 is covered by Contract No. HY/2011/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road (HZMB HKLR) – Section between Scenic Hill and HKBCF". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 as part of EM&A programme if this air quality monitoring station is no longer covered by Contract No. HY/2011/03.
- 2.2.3 Due to the existing air quality monitoring location AMS7B would be hand over back to Airport Authority for their construction works. A new alternative air quality monitoring location is still under processing. Air quality monitoring location AMS7B was temporary suspended, effective from 10 December 2020.
- 2.2.4 According to the email date 11 August 2021, EPD have no comment on the Proposal for Relocation of Monitoring Location AMS 7B, the monitoring location AMS 7B are proposed to be relocated by alternative monitoring location AMS 7C for air quality monitoring. The monitoring location AMS 7C has resumed air quality monitoring on 5 October 2021.
- 2.2.5 The most updated locations of air quality monitoring are summarized in **Table 2.1** and they are shown in **Figure 2**.

Table 2.1 Air Quality Monitoring Location

Monitoring Station	Location
AMS2	Tung Chung Development Pier
AMS3C	Ying Tung Estate Market Rooftop
AMS6	Dragonair / CNAC (Group) Building (HKIA)
AMS7C	East Sea Rescue Berth – Airport Fire Contingent Third Runway Site Office

Remarks: The ET of this Contract should conduct impact air quality monitoring at station AMS6 listed in the table as part of EM&A programme according to latest notification from ENPO when the monitoring station is no longer covered by another ET of the HZMB project.

3. NOISE

3.1 Monitoring Requirement

3.1.1 In accordance with the Contract Specific EM&A Manuals, L_{eq} (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.1.2 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022. The last monitoring was completed on 24 March 2022.

3.2 Monitoring Parameters and Frequency

3.2.1 The parameters and frequencies of impact noise monitoring is summarized in **Table 3.1**.

Table 3.1 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency
L_{eq} (30min) L_{10} and L_{90} will be recorded for reference	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week

3.3 Monitoring Locations

3.3.1 In accordance with the Contract Specific EM&A Manual, two noise monitoring locations, namely NMS2 and NMS3C are covered under Contract No. HY/2019/01 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works.

3.3.2 Due to rejection from Ho Yu College (NMS3) for setting up a noise monitoring station at their school, an alternative location at site boundary of the site office area at Works Area WA2 (NMS3B) is proposed. Impact noise monitoring has been relocated from NMS3B to Ying Tung Estate Market Rooftop (NMS3C) on 20 August 2018 under Contract No. HY/2013/04. The same baseline and Action and Limit levels for noise, as derived from the baseline monitoring data recorded at Ho Yu College, are adopted for this alternative noise monitoring location.

3.3.3 The most updated locations are summarized in **Table 3.2** and the locations of the noise monitoring stations shown in **Figure 3**.

Table 3.2 Construction Noise Monitoring Location

Monitoring Station	Location
NMS2	Seaview Crescent
NMS3C	Ying Tung Estate Refuse Collection Point

Remark: The Limit Levels for schools will be applied for this alternative monitoring location at NMS3C.

4. ECOLOGY MONITORING

4.1 Monitoring Requirements

- 4.1.1 All marine-based construction activities for the HKBCF project were completed in January 2019. No marine-based construction activities will be undertaken under this Contract. However, the ET of this Contract or another ET of the HZMB is required to conduct post-construction dolphin monitoring in accordance with Section 10.7 of the updated EM&A Manual.
- 4.1.2 The CV of the proposed dolphin specialist for this Contract has been submitted to IEC for review prior to submission to AFCD for approval.
- 4.1.3 According to the Proposal on Post-construction Dolphin Monitoring (PCDM) prepared by Contract No. HY/2013/04 which has been verified by ENPO and approved by EPD on 8 March 2019 (EPD ref. () in Ax(5) to E771/E1/100) , the completion date of the PCDM is in February 2021. Therefore, the reporting of Chinese White Dolphins monitoring works under this contract was completed on 1 March 2021.

4.2 Monitoring Locations and Methodology

- 4.2.1 In accordance with the requirements of the updated EM&A manual, the dolphin monitoring programme have adopted the standard line-transect method (Buckland et al. 2001) to survey the pre-set and fixed transect lines defined by AFCD in the Northeast Lantau (NEL) and Northwest Lantau (NWL) survey areas. The layout map of the transect lines provided by AFCD is presented in **Figure 4**.

5. SITE INSPECTION AND AUDIT

5.1 Site Inspection

- 5.1.1 Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.
- 5.1.2 Details of observations recorded during the site inspections are summarized in **Appendix G**.
- 5.1.3 According to the EPD's letter (EPD ref. () in AX(12) in EP771/E1/100), EPD has no comment on the Proposal for Termination of EM&A Programme in Construction Phase, the site inspection for Contract No: HY/2019/01 have been terminated on 5 July 2022. The last inspection was completed on 29 June 2022.

5.2 Landscape and Visual Site Audit (Establishment Period)

- 5.2.1 As informed by AECOM, the commencement date of the 12-month establishment period for the landscape monitoring under this contract is 5 January 2022. Bi-monthly landscape and visual site audits will be conducted from 5 January 2022 to 4 January 2023.
- 5.2.2 The next bi-monthly landscape and visual site audit was schedule on 15 August 2022.

5.3 Advice on the Solid and Liquid Waste Management Status

- 5.3.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 5.3.2 The monthly summary of waste flow table is detailed in **Appendix D**.
- 5.3.3 If off-site disposal is required, the excavated marine mud from the land-based works shall be disposed of at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee or other locations as agreed by the Director. The Contractor shall ensure no spilling and overflowing of materials during loading / unloading / transportation is allowed.
- 5.3.4 The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

6. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

6.1 Environmental Exceedance

6.1.1 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality and noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022, no Action / Limit Level exceedance for air quality and noise monitoring was recorded during the period.

6.2 Complaints, Notification of Summons and Prosecution

6.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

6.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix F**.

7. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

7.1 Implementation Status

According to the EPD's letter (EPD ref. () in AX(12) in EP771/E1/100), EPD has no comment on the Proposal for Termination of EM&A Programme in Construction Phase, the EM&A programme for Contract No: HY/2019/01 have been terminated on 5 July 2022. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**.

8. FUTURE KEY ISSUES

8.1 Construction Programme for the Next Month

- No main construction works will be carried out in the next reporting period.

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, waste management and landscape and visual impact issues.

8.3 Monitoring Schedules for the Next Month

8.3.1 The tentative schedule for environmental monitoring in the coming month is provided in **Appendix I**.

9. CONCLUSION AND RECOMMENDATION

9.1 Conclusions

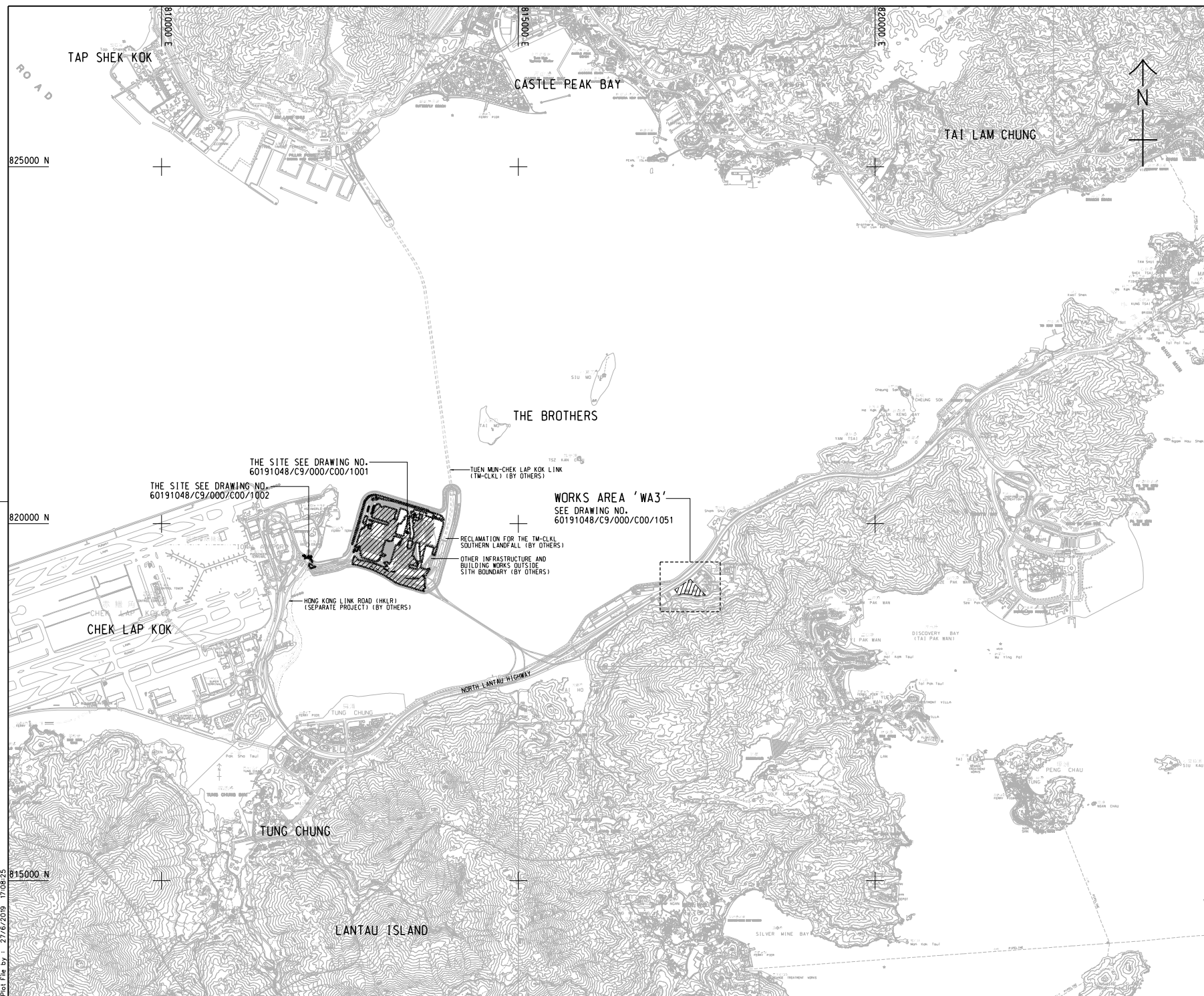
- 9.1.1 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality and noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022, no Action / Limit Level exceedance for air quality and noise monitoring was recorded during the period.
- 9.1.2 According to the EPD's letter (EPD ref. () in AX(12) in EP771/E1/100), EPD has no comment on the Proposal for Termination of EM&A Programme in Construction Phase, the site inspection for Contract No: HY/2019/01 have been terminated on 5 July 2022.
- 9.1.3 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Comment and Recommendations

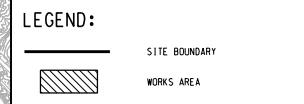
- 9.2.1 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.
- 9.2.2 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:
- Air Quality Impact
- No specific observation was identified in the reporting month.
- Construction Noise Impact
- No specific observation was identified in the reporting month.
- Water Quality Impact
- No specific observation was identified in the reporting month.
- Chemical and Waste Management
- No specific observation was identified in the reporting month.
- Permit/ Licenses
- No specific observation was identified in the reporting month.

Figure 1

The Site Layout Plan of the Contract



- NOTES:**
- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 - DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.



THE SITE SEE DRAWING NO. 60191048/C9/000/C00/1001

THE SITE SEE DRAWING NO. 60191048/C9/000/C00/1002

WORKS AREA 'WA3'
SEE DRAWING NO. 60191048/C9/000/C00/1051

TUEN MUN-CHEK LAP KOK LINK (TM-CKLK) (BY OTHERS)

RECLAMATION FOR THE TM-CKLK SOUTHERN LANDFALL (BY OTHERS)

OTHER INFRASTRUCTURE AND BUILDING WORKS OUTSIDE SITE BOUNDARY (BY OTHERS)

HONG KONG LINK ROAD (HKLR) (SEPARATE PROJECT) (BY OTHERS)

REV. NO.	DESCRIPTION	BY	DATE
-	TENDER DRAWING	TTHK	JUL 19

香港高速公路局
HIGHWAYS DEPARTMENT
 主要工程管理處 (傳真與函)
 Major Works Project Management Office (Special Duties)

香港-珠海-澳門大橋
HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES - PHASE 2 AND OTHER WORKS

SITE LOCATION PLAN

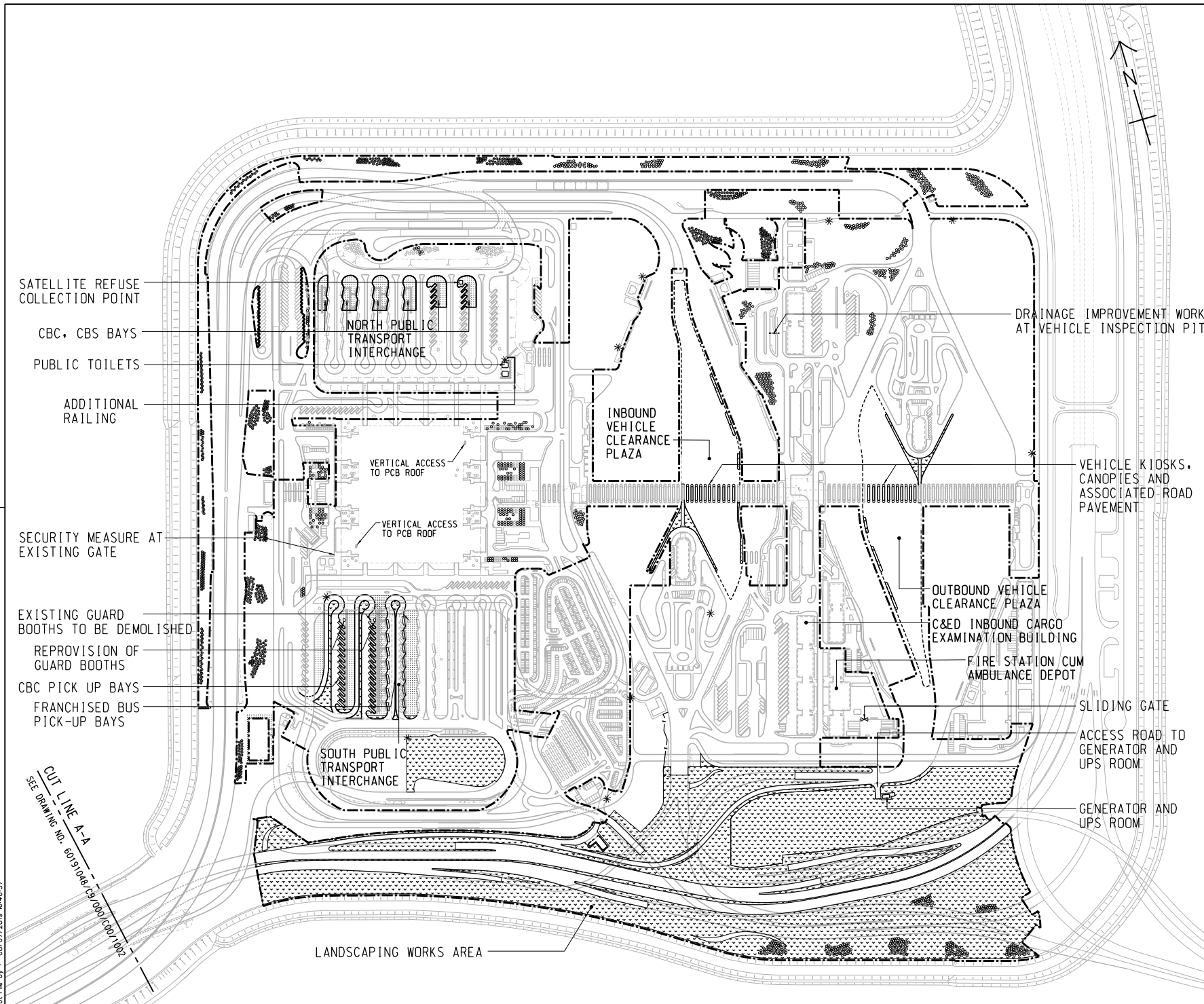
AECOM +
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI +

DRG. NO. 圖紙編號 **60191048/C9/000/C00/1000**

DESIGNED BY 設計人	TTHK	CONTRACT NO. 合約編號	HY/2019/01	APPROVED BY 核准人	SC1
DRAWN BY 繪圖人	JC	STATUS 狀態			
SCALE 比例尺	A1 1 : 25000				
DRAWING UNIT 圖紙單位	METRES				

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Plot File by : 27/6/2019 17:08:25



- REMARKS:**
- IN SPT1:
 - DEMOLISH 2 NOS. EXISTING GUARD BOOTHS AND RE-PROVISION TO REVISED LOCATIONS AS SHOWN
 - CONSTRUCT COVERED WALKWAYS FOR THE NEW FB AND CBC PICK UP BAYS
 - MODIFY EXISTING DUCTING AND POLES FOR ELV SYSTEM, ROAD LIGHTING AND PILLAR BOXES, AND THE ASSOCIATED CABLING WORKS
 - RELOCATE AND REINSTATE 3 NOS. OF EXISTING BUS OPERATOR OFFICES AND FOOD TRUCK
 - REPLACEMENT OF DRAWPIT COVERS
 - IN NPT1:
 - CONSTRUCT COVERED WALKWAYS FOR THE NEW CBC, CBS PICK UP BAYS AND PUBLIC TOILETS
 - PROVIDE AUTOMATIC IRRIGATION SYSTEM AT SLOPES
 - MODIFY EXISTING COVERED WALKWAY AND PROVISION OF LIGHTING
 - REPLACEMENT OF DRAWPIT COVERS
 - LANDSCAPING WORKS AREA:
 - CONSTRUCT IRRIGATION SYSTEM WITH 13 NOS. OF NEW WATER POINT AND THE AUTOMATIC IRRIGATION SYSTEM AND PROVIDE MAINTENANCE WORKS
 - LANDSCAPE SOFTWORK, ESTABLISHMENT AND MAINTENANCE WORKS
 - CONSTRUCT RIVER WASHED STONE SWATHE AND MAINTENANCE WORKS
 - PROTECT EXISTING PLANTING AND HARD STRUCTURES
 - PASSENGER CLEARANCE BUILDING
 - VERTICAL ACCESS
 - IMPROVEMENT WORKS FOR WATER FEATURE
 - MINOR REMAINING WORKS
 - PROVISION OF NEW CENTRAL AVSS EQUIPMENT WITH SUFFICIENT CAPACITY, PROCESSING POWER AND STORAGE TO ACCOMMODATE BOTH THE EXISTING AND NEW AVSS
 - VEHICLE KIOSKS AT INBOUND & OUTBOUND VCP
 - PROVISION OF AVSS AT NEW KIOSKS TO SERVE 24 NOS. VEHICULAR LANES
 - REPLACEMENT OF BARRIER GATE WITH SKIRTING AT 72 NOS. EXISTING KIOSK
 - C&E INBOUND CARGO EXAMINATION BUILDING
 - PROVISION OF NEW CENTRAL AVSS EQUIPMENT WITH SUFFICIENT CAPACITY, PROCESSING POWER AND STORAGE TO ACCOMMODATE BOTH THE EXISTING AND NEW AVSS

ABBREVIATION:

SPT1 - SOUTH PUBLIC TRANSPORT INTERCHANGE
 NPT1 - NORTH PUBLIC TRANSPORT INTERCHANGE
 VCP - VEHICLE CLEARANCE PLAZA
 PCB - PASSENGER CLEARANCE BUILDING
 FB - FRANCHISED BUS
 CBC - CROSS BOUNDARY COACH
 CBS - CROSS BOUNDARY SHUTTLE
 ELV - EXTRA LOW VOLTAGE
 AVSS - AUTOMATIC VEHICLE CLEARANCE SUPPORT SYSTEM

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C9/000/C00/1002

- LEGEND:**
- SITE BOUNDARY
 - AMENITY AREA
 - FOOTPATH
 - COVERED WALKWAY
 - SECURITY FENCE
 - TREE PLANTING
 - IRRIGATION POINT

NO.	DESCRIPTION	DATE
-	TENDER DRAWING	TTHK 06/2019

HONG KONG HIGHWAYS DEPARTMENT
 香港公路局
 Major Works Project Management Office (Special Duties)
 主要工程管理處 (專責業務)
 HONG KONG-ZHUIHAI-MACAO BRIDGE
 香港-珠海-澳門大橋
 PHASE 2 AND OTHER WORKS

GENERAL ARRANGEMENT
 SHEET 1 OF 2

AECOM +
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI +

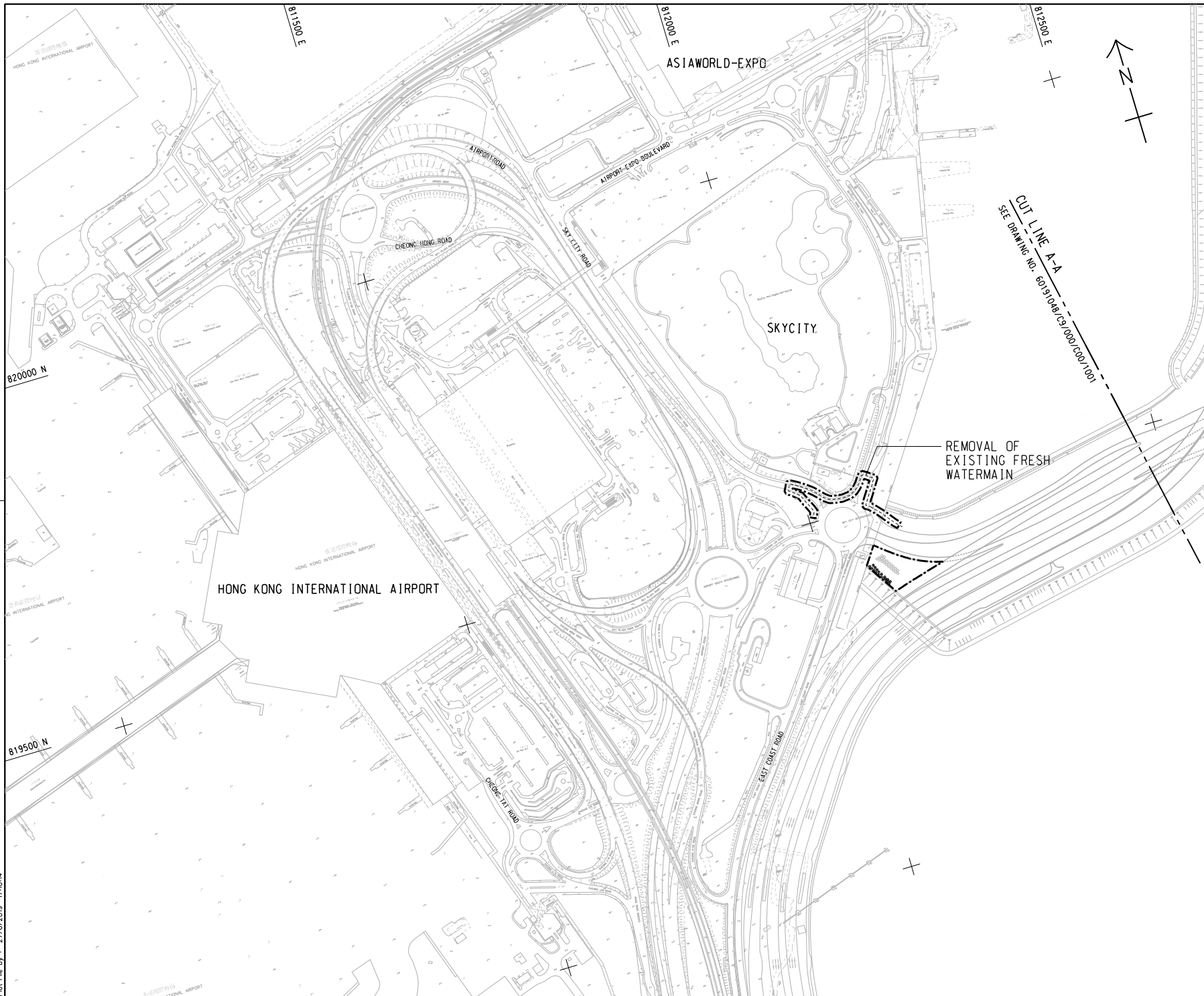
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 圖紙編號

DESIGNED BY TTHK	CONTRACT NO. HY/2019/01	P. Dir. APPROVED SCL
DRAWN BY JC	STATUS REV	
SCALE AT 1 : 2500	DRAWING UNIT IN METRES	

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Plot File by : 09/07/2019 B-4657

CUT LINE A-A
 SEE DRAWING NO. 60191048/C9/000/C00/1002



NOTE:
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C9/000/C00/1001.

REV. NO.	DESCRIPTION	DATE
1	TENDER DRAWING	JUL 19

香港公路局
 HIGHWAYS DEPARTMENT
 主要工程管理處 (傳真專組)
 Major Works Project Management Office (Special Duties)

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - PHASE 2 AND OTHER WORKS

GENERAL ARRANGEMENT
 SHEET 2 OF 2

Rogers Strik Harbour + Partners

 Aedas
 BURO HAPPOLD ATKINS ADI

DRG. NO. 60191048/C9/000/C00/1002
 圖紙編號

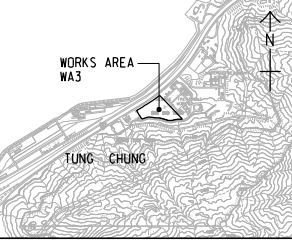
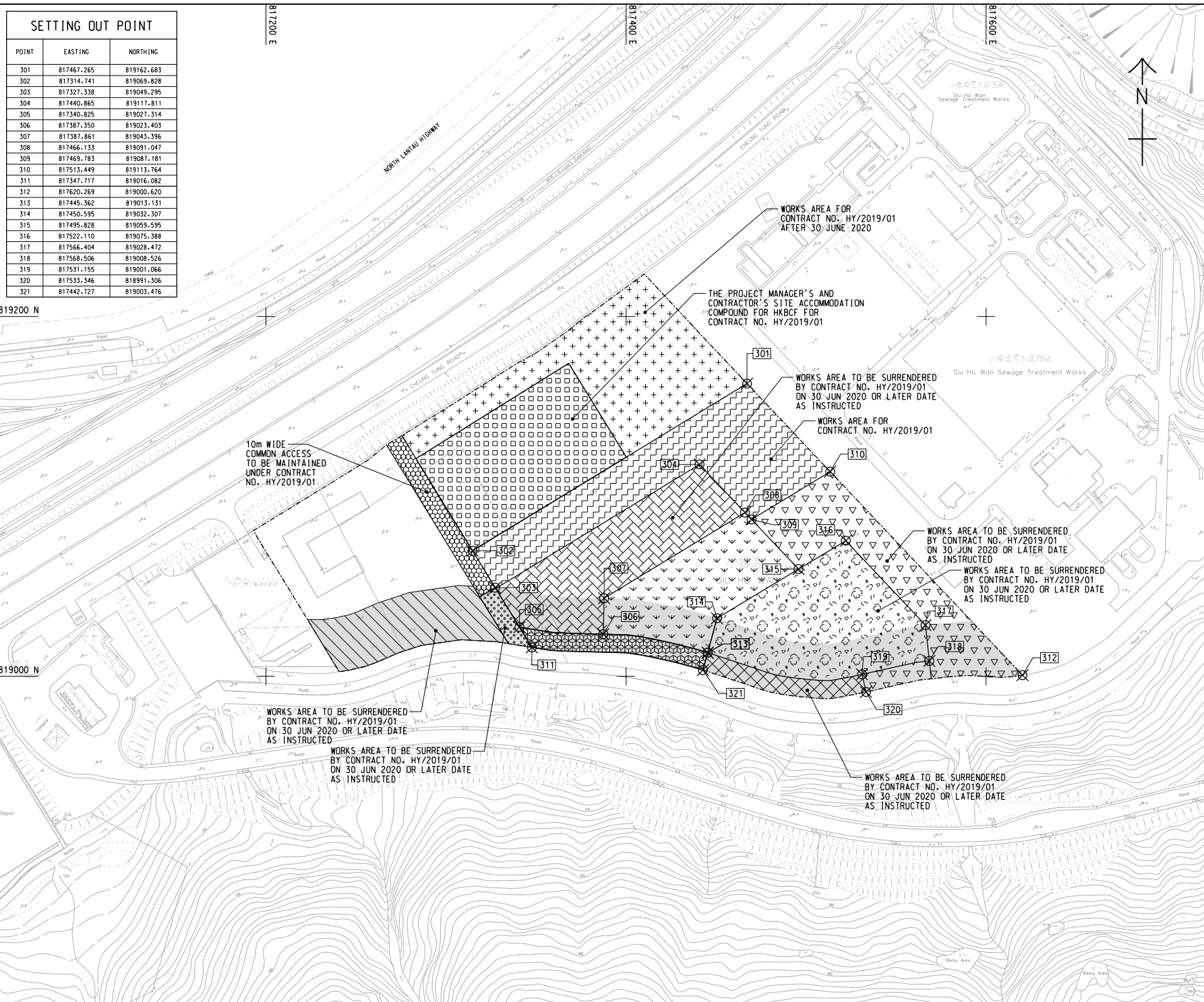
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 核准
TTHK	HY/2019/01	SC1

SCALE
 比例尺
 A1 : 1 : 2500
 DIMENSIONING UNIT IN METRES
 尺寸單位為公尺

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Plot File by : 27/6/2019 17:03:4

SETTING OUT POINT		
POINT	EASTING	NORTHING
301	817467.265	819162.683
302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817620.269	819000.620
313	817445.362	819013.131
314	817450.595	819032.307
315	817495.828	819059.595
316	817522.110	819075.388
317	817566.404	819028.472
318	817568.506	819008.526
319	817531.155	819001.066
320	817533.346	818991.306
321	817442.727	819003.476



LOCATION PLAN
SCALE 1 : 25000

NOTES:
 1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

	WORKS AREA BOUNDARY
	PORTION 3.1
	PORTION 3.2
	PORTION 3.3
	PORTION 3.4
	PORTION 3.5
	PORTION 3.6
	PORTION 3.7
	PORTION 3.8
	PORTION 3.9
	PORTION 3.10
	PORTION 3.11
	PORTION 3.12
	NON-BUILDING AREA 8200m ² (WHOLE)

TENDER DRAWING	TTHK/000/JUL/19
REV. NO.	DESCRIPTION

HIGHWAYS DEPARTMENT
 Major Works Project Management Office (Special Duties)

HONG KONG-ZHUIHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - PHASE 2 AND OTHER WORKS

WORKS AREA WA3

AECOM +
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI +

DRGNO. 60191048/C9/000/C00/1051
 圖紙編號

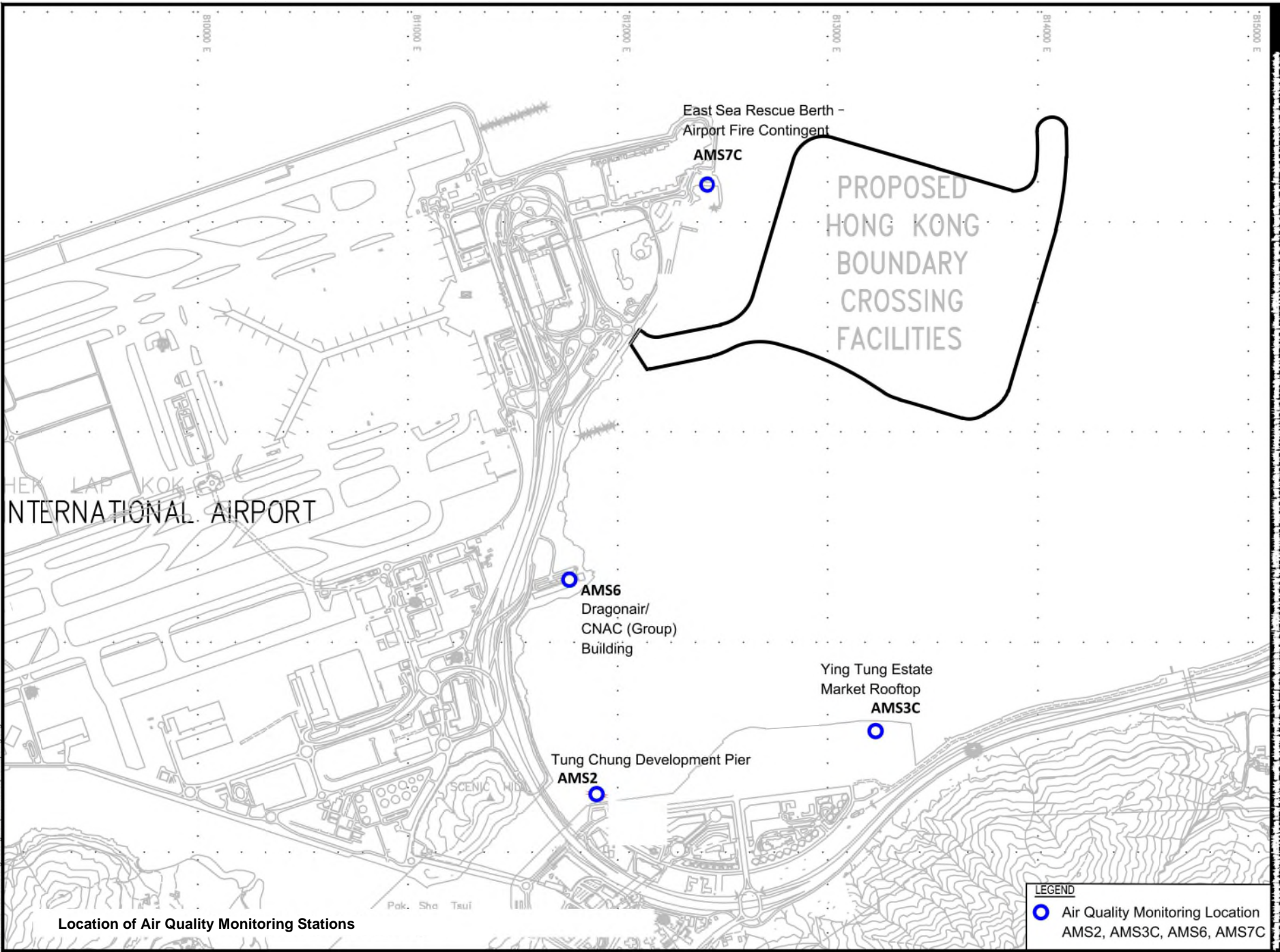
DESIGNED BY TTHK	CONTRACT NO. HY/2019/01	P. Dir. APPROVED SCL
DRAWN BY JC	STATUS REV	

SCALE: 1 : 1000
 DIMENSIONS ARE IN METRES
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Plot File by : 22/6/2019 9:34:39

Figure 2

The Location of the Air Quality Monitoring Station



Location of Air Quality Monitoring Stations

LEGEND

- Air Quality Monitoring Location
AMS2, AMS3C, AMS6, AMS7C

Figure 3

The Location of the Noise Monitoring Station

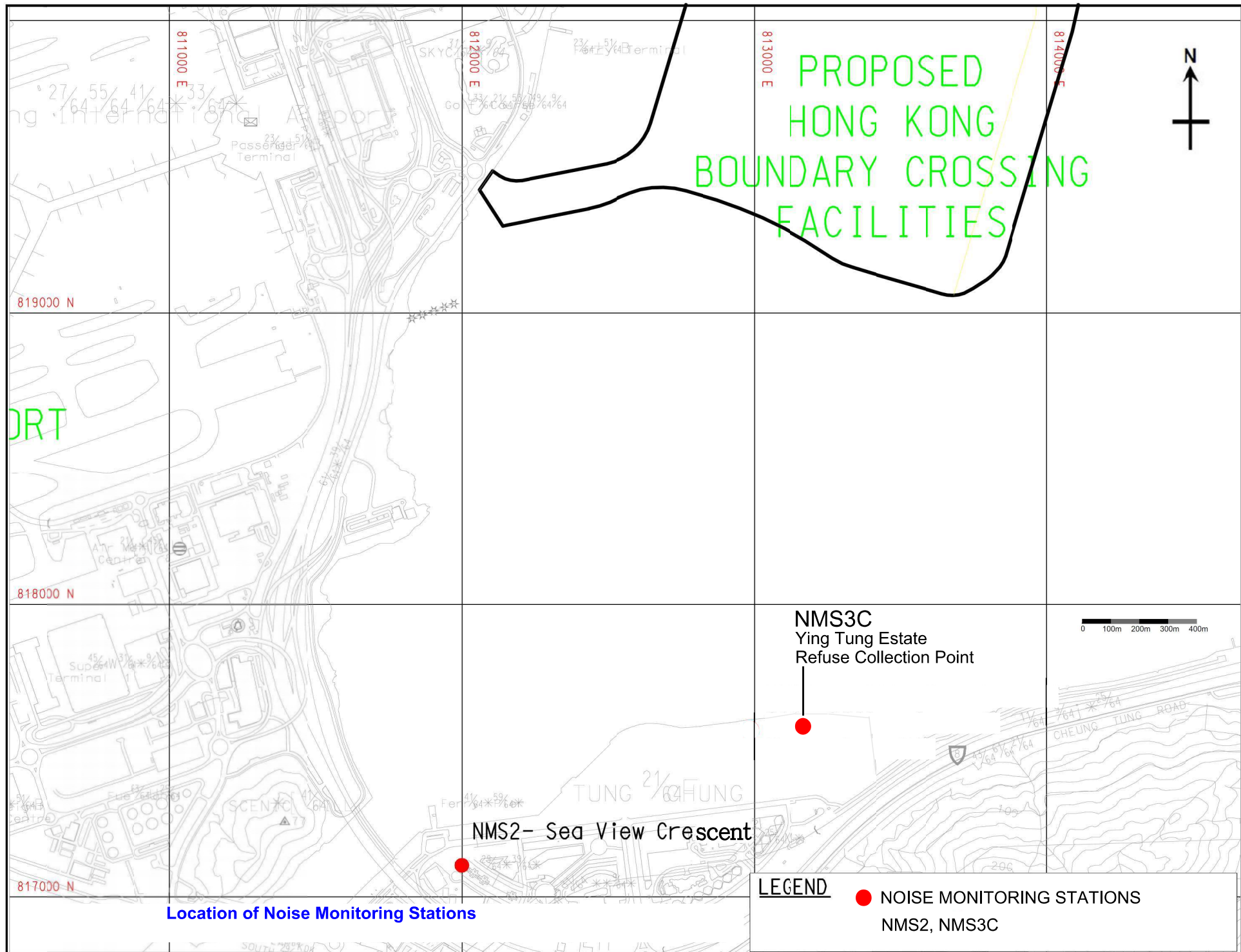
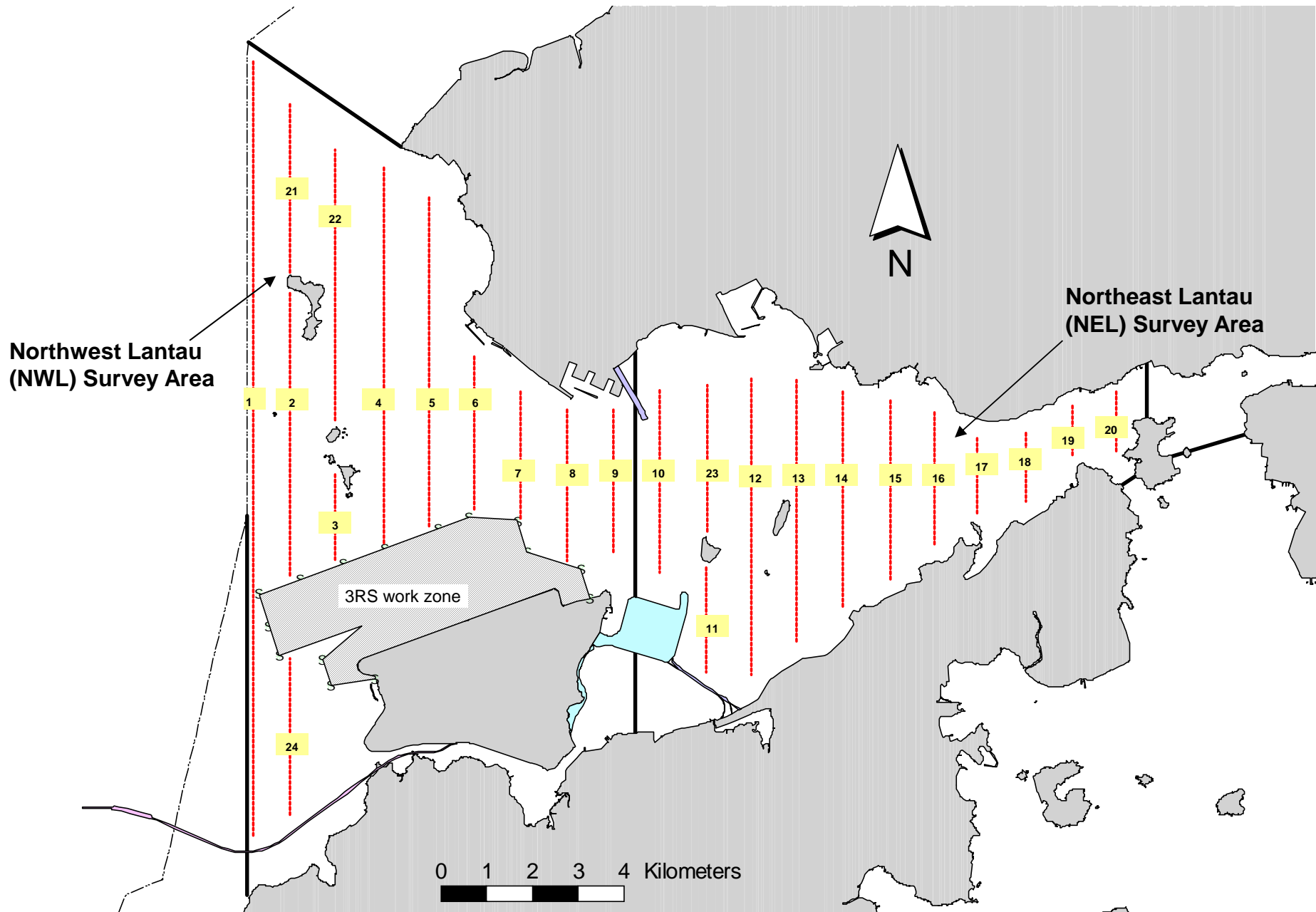


Figure 4

Post-Construction Dolphin Monitoring Line Transect
Layout Map



Transect Line Layout in Northwest and Northeast Lantau Survey Areas

Appendix A

Construction Programme

Activity ID	Activity Name	Remaining Duration	Start	Finish	2022					
					Jan	Feb	Mar	Apr	May	
Revised Works Programme for HKZMB Phase 2 and Other Works (HY/2019/01)										
CONTRACT DATES										
Starting Date										
A0090	Completion Date (730 +19 days)	0		03-Feb-22*						
Sectional Completion										
A0310	Section 5: Remaining Works (730 +19 days) P.8 - P.12	0		03-Feb-22*						
SUBMISSIONS										
A0460	Acceptance of TTA	0	01-Jan-20 A	03-Feb-22						
CONTRACTOR'S DESIGN										
A7960	Design for Pump House	0	04-Dec-19 A	03-Feb-22						
A7980	Acceptance of the Design for Pump House	0	16-Aug-20 A	31-Jan-22 A						
BUILDING INFORMATION MODELING										
A7580	Completion of BIM 3D Model	28	17-Feb-20 A	02-Mar-22						
A7580A	As-built GIS Data Submission	28	03-Feb-22	02-Mar-22						
A7590	As-built BIM Model	41	08-Jan-21 A	15-Mar-22						
REFINEMENT WORKS AT HKP (4A)										
Installation of Sliding Gate at Building No. 041 (4A.J)										
A6650A	Removal of the existing manual swing gate	0	04-Oct-21 A	03-Feb-22						
A6710	Installation of Security Fence and Sliding Gate (Fire Station cum Ambulance Depot 041)	8	06-Dec-21 A	12-Feb-22						
A6720	T&C	3	14-Feb-22	16-Feb-22						
Painting for Volleyball Court										
A8850	Pavement rectification	15	03-Jan-22 A	21-Feb-22						
A8860	Painting for Volleyball Ground, Part 2	6	22-Feb-22*	28-Feb-22						
SECTION 3: NPTI - PUBLIC TOILET, COVERED WALKWAY & PAVEMENT (6)										
Additional and Modification to Existing Covered Walkway, Area 1 - 6 (6.E)										
A6980	Installation of aluminum honey comb panels to the existing covered walkways	0	29-Dec-20 A	08-Jan-22 A						
A6990	T&C	0	07-Jul-21 A	08-Jan-22 A						
Additional & Modification of Covered Walkway adjacent to Building 003, Area 7 (6.C)										
A4470G	Canopy Lighting Installation	0	15-Apr-21 A	03-Jan-22 A						
A7010	T&C	0	16-Aug-21 A	04-Feb-22						
Public Toilet Type 1, Building 003 (6.B)										
A3390	TPIDC Authority Inspection & Approval	0	30-Aug-21 A	15-Jan-22 A						
A6100	ASD Approval, WWO Part V submission & Approval	0	30-Aug-21 A	15-Jan-22 A						
Additional Railing adjacent to Building 003 (6.D)										
A3410	Installation of Railing	0	03-Jul-21 A	04-Feb-22						
SECTION 5: REMAINING WORKS										
External Works at Plaza										
A1520	Additional Drainage Works and Modification of existing UUs	0	03-Jun-20 A	04-Feb-22						
A1540B	Pavement Works (Roadbase and Base Course) at Outbound North	12	10-May-21 A	17-Feb-22						
A1540C	Pavement Works (Roadbase and Base Course) at Inbound South	11	08-Jun-21 A	16-Feb-22						
A8770	Pavement Works (Wearing Course) at Outbound	22	08-Nov-21 A	01-Mar-22						
A8780	Pavement Works (Wearing Course) at Inbound	24	08-Nov-21 A	03-Mar-22						
A8790	Road Marking & Signs	48	03-Jan-22 A	31-Mar-22						
Design, Design Acceptance & Procurement for Kiosks										
A7110	Procurement of Steelwork/Glazing/ABWF/E&M Material	0	07-Apr-20 A	03-Feb-22						
Inbound: 11 No. of Private Car Kiosks between 027/028										
Builder Works (5.A)										
A1080C	ABWF Works at 4th Group Kiosks (3 nos.)	0	27-Jul-21 A	12-Jan-22 A						
A1080D	ABWF Works at Kiosks at Inbound VCP (miscellaneous external railing, cladding etc.)	33	17-Aug-21 A	14-Mar-22						
A1180A	MJ, Fall Arrest System, Maintenance Access	0	01-Sep-21 A	31-Jan-22 A						
A4480	Removal of all hoarding after OPT	12	14-Mar-22*	26-Mar-22						
A8800	Removal of TTA	4	28-Mar-22	31-Mar-22						
E&M Works										
A1120-42	8.1.2.2. (by Civil/metal/E&M) D1-ABWF (raised floor, furniture, E&M, road surface at kiosk completed)	0	04-Feb-22							
A1120-44	8.1.2.2- 1st Installation of Equipment (027/028)	32	18-Oct-21 A	12-Mar-22						
A1120-44C	8.1.2.2- 4th Installation of Equipment (027/028)	32	25-Nov-21 A	12-Mar-22						
A1120-46.2	8.1.2.2-Termination & Installation Test of all ODB (027/028)	37	04-Feb-22	18-Mar-22						
A1120-46.4	8.1.2.2-Integrate all ODBs into Existing ODB network(027/028) (IB & OB together 24 kiosks)	28	19-Mar-22	25-Apr-22						
A1120-54	8.1.2A-Relocation of Inbound VID and VTS Equipment	32	04-Oct-21 A	12-Mar-22						

■ Actual Work ◆ Milestone
■ Remaining Work
■ Critical

THREE MONTH ROLLING PROGRAMME FOR PHASE 2 AND OTHER WORKS
HKZMB - HONG KONG BOUNDARY CROSSING FACILITIES
 Page 1 of 3

Date	Revision	Checked	Approved
12-Mar-22	3mth Rolling Programme, 3 Feb. 22 - 2 May 22	ZJ	

HKZMB HK Boundary Crossing Facilities - Phase 2 and Other Works

16-Mar-22

Activity ID	Activity Name	Remaining Duration	Start	Finish	2022				
					Jan	Feb	Mar	Apr	May
A1120-60	8.1.3 - System Configuration of AVCSS	69	15-Jan-22 A	29-Apr-22					
A1120-70	8.1.4-Complete Training, SAT (exclude ODB) (12 AVCSS Kiosks at 027/028)	53	30-Apr-22	05-Jul-22					
A1120-80	8.1.5-Preparation of O&M Manual and Spare Parts	60	30-Apr-22	13-Jul-22					
A1130-10	8.1.7-D1-TTA for OPT (027/028)	13	04-Feb-22	18-Feb-22					
A1130-20	8.1.7-OPT (027/028)	16	21-Feb-22	08-Mar-22					
A1130-30	8.1.7A - Migration/Integration with existing AVCSS (Existing 72 Kiosks + 24 Phase 2 Kiosks)	37	14-Mar-22	29-Apr-22					
A1130-40	8.1.6-T&C maintenance Services	225	30-Apr-22	01-Feb-23					
A1190	E&M Works at Roof	0	24-Jul-21 A	31-Jan-22 A					
A8370	Update and modification of District Cooling System (DCS) (incl. water balancing for new kiosks and	60	01-Nov-21 A	19-Apr-22					
Outbound: 11 No. of Private Car Kiosks between 029/030									
Builder's Works (5.A)									
A1270D	ABWF Works at Kiosks at Outbound VCP (miscellaneous external railing, cladding etc.)	26	25-May-21 A	05-Mar-22					
A1380A	MJ, Fall Arrest System, Maintenance Access	0	25-Aug-21 A	31-Jan-22 A					
A4670	Removal of all hoarding after OPT	12	14-Mar-22*	26-Mar-22					
A8810	Removal of TTA	4	28-Mar-22	31-Mar-22					
E&M Works									
A1310-44	8.1.2.2-1st Installation of Equipment (029/030)	32	18-Oct-21 A	12-Mar-22					
A1310-44C	8.1.2.2-4th Installation of Equipment (029/030)	32	05-Nov-21 A	12-Mar-22					
A1310-46.2	8.1.2.2-Termination & Installation Test of all ODB (029/030)	12	03-Jan-22 A	17-Feb-22					
A1310-46.4	8.1.2.2-Integrate all ODBs into Existing ODB network(027/028) (IB & OB together 24 kiosks)	28	18-Feb-22	22-Mar-22					
A1310-54	8.1.2A-Relocation of Outbound VID and VTS Equipment	0	04-Oct-21 A	15-Jan-22 A					
A1310-60	8.1.3 - System Configuration of AVCSS	69	04-Feb-22	29-Apr-22					
A1310-70	8.1.4-Complete Training, SAT (exclude ODB) (12 AVCSS Kiosks at 029/030)	53	30-Apr-22	05-Jul-22					
A1310-80	8.1.5-Preparation of O&M Manual and Spare Parts	60	30-Apr-22	13-Jul-22					
A1320-10	8.1.7-D1-TTA for OPT (029/030)	13	04-Feb-22	18-Feb-22					
A1320-20	8.1.7-OPT (029/030)	14	07-Feb-22	20-Feb-22					
A1320-30	8.1.7A - Migration/Integration with existing AVCSS (Existing 72 Kiosks+24 Phase 2 Kiosks)	41	14-Mar-22	05-May-22					
A1390	E&M Works at Roof	8	03-Aug-21 A	12-Feb-22					
A8380	Update and modification of District Cooling System (DCS) (incl. water balancing for new kiosks and	60	01-Nov-21 A	19-Apr-22					
SPTI Stage 3B									
A8640	Installation of Covered Walkway Canopy	0	16-Aug-21 A	04-Feb-22					
A8660	Rigid Pavement Type A	0	17-Aug-21 A	17-Jan-22 A					
A8670	Kerb & Planter Barrier	0	18-Aug-21 A	17-Jan-22 A					
A8690	Flexible Pavement Type C (incl. SOL353)	0	18-Sep-21 A	17-Jan-22 A					
A8710	Footpath Paving Block	0	21-Sep-21 A	17-Jan-22 A					
A8720	Canopy Lighting and E&M Works	8	03-Nov-21 A	12-Feb-22					
Pump House for Landscape (2)									
A2900	Submission of Materials	0	04-Dec-19 A	03-Feb-22					
A2910	Acceptance of the Design for Pump House	0	16-Aug-20 A	07-Feb-22 A					
A2990	Final Connection and T&C	12	01-Nov-21 A	17-Feb-22					
A6440	WSD Inspection & Approval, Final Connection	16	04-Feb-22	19-Feb-22					
Substation Paving Unit									
A8820	Substation: Modification of existing MH/drawpit covers, construct U-channel and catch pit and conn	21	13-Nov-21 A	28-Feb-22					
A8830	Substation: Site formation for Pavement Works	0	20-Dec-21 A	08-Jan-22 A					
A8840	Substation: Pavement Works (KP1 & K1) (Paving Unit)	21	28-Dec-21 A	28-Feb-22					
Landscape Works (2)									
A4180B	Hydroseeding for Landscaping Area (C33 & Southern Portion)	0	14-Apr-21 A	04-Jan-22 A					
Irrigation System (Southern Portion)									
Irrigation System at Southern Portion									
A7910	Irrigaton Pipe Laying (incl. install sprinklers and QCV)	10	02-Jan-21 A	15-Feb-22					
A7930	T&C	14	16-Feb-22	03-Mar-22					
Irrigation System (Water Point)									
A7160	T&C	24	04-Oct-21 A	03-Mar-22					
Group 1: WP 12, 13, 14 & 18									
A6563	Construction of Additional Waterpoints (WP 14) for Irrigation	0	03-Aug-21 A	20-Jan-22 A					
A6567	Construction of Additional Waterpoints (WP 18) for Irrigation	0	03-Aug-21 A	20-Jan-22 A					
Group 2: WP 19 - 22									
A6568	Construction of Additional Waterpoints (WP 19) for Irrigation	0	03-Sep-21 A	20-Jan-22 A					
A6569	Construction of Additional Waterpoints (WP 20) for Irrigation	0	03-Aug-21 A	20-Jan-22 A					
A6571	Construction of Additional Waterpoints (WP 21) for Irrigation	0	03-Aug-21 A	20-Jan-22 A					
A6572	Construction of Additional Waterpoints (WP 22) for Irrigation	0	03-Aug-21 A	20-Jan-22 A					

Actual Work ◆ ◆ Milestone
 Remaining Work
 Critical

THREE MONTH ROLLING PROGRAMME FOR PHASE 2 AND OTHER WORKS
HKZMB - HONG KONG BOUNDARY CROSSING FACILITIES
 Page 2 of 3

Date	Revision	Checked	Approved
12-Mar-22	3mth Rolling Programme, 3 Feb. 22 - 2 May 22	ZJ	

Activity ID	Activity Name	Remaining Duration	Start	Finish	2022				
					Jan	Feb	Mar	Apr	May
Group 4: WP 8, & WP 23									
A6573	Construction of Additional Waterpoints (WP 23) for Irrigation	0	03-Aug-21 A	20-Jan-22 A					
Completion of Section 5									
A7490	Section 5: Remaining Works (730 + 12 days)	0		31-Mar-22*	◆ Section 5: Remaining Works (730 + 12 days)				
SECTION 6: ESTABLISHMENT WORKS									
A3550	Establishment Works	336	05-Jan-22 A	04-Jan-23					

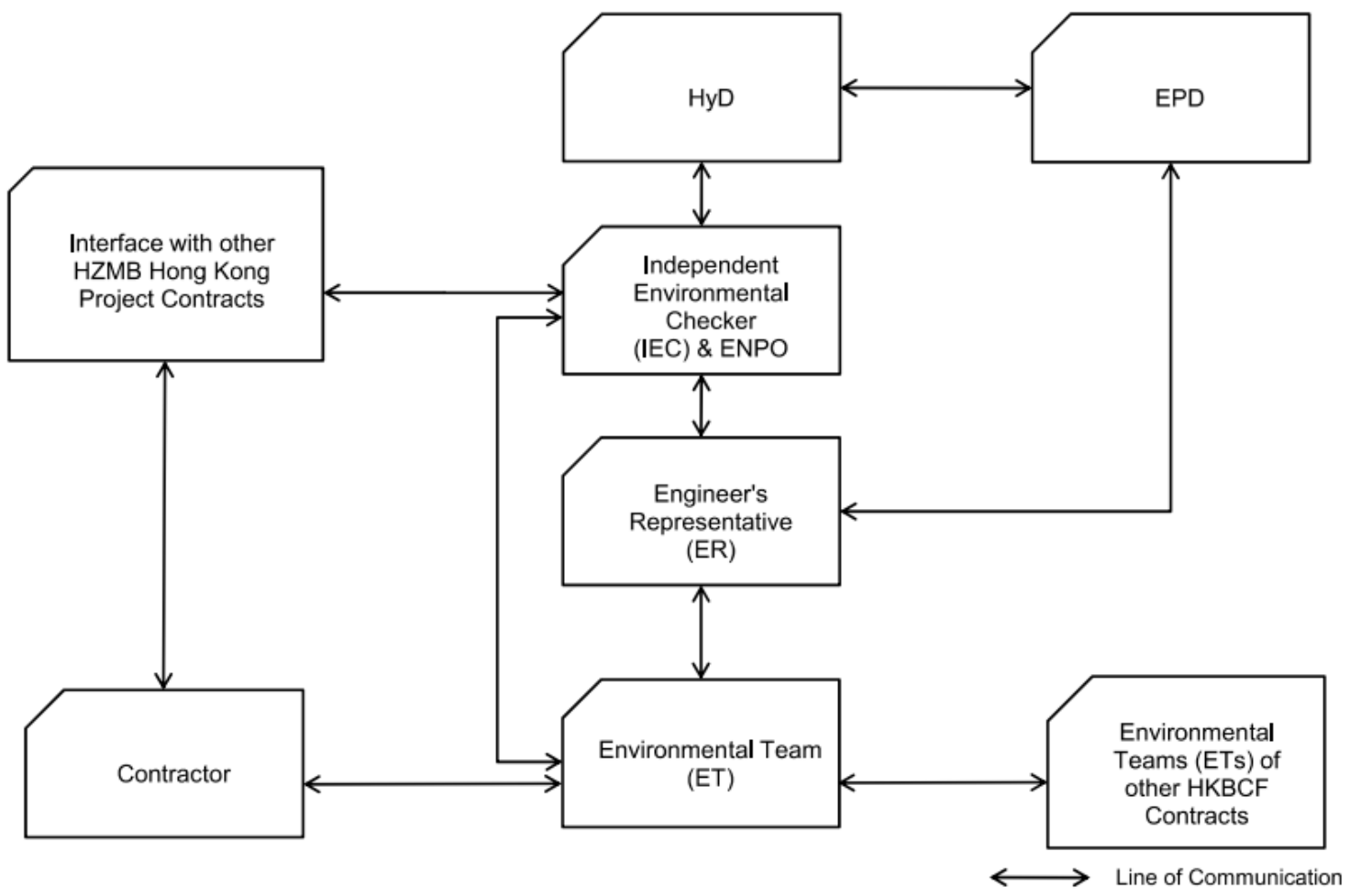
Actual Work ◆ Milestone
 Remaining Work
 Critical

**THREE MONTH ROLLING PROGRAMME FOR PHASE 2 AND OTHER WORKS
HKZMB - HONG KONG BOUNDARY CROSSING FACILITIES**

Date	Revision	Checked	Approved
12-Mar-22	3mth Rolling Programme, 3 Feb. 22 - 2 May 22	ZJ	

Appendix B

Project Organization Chart



Appendix C

Event and Action Plan

Event / Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	ACTION LEVEL			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 	<ol style="list-style-type: none"> 1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	LIMIT LEVEL			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. <u>Notify IEC and Contractor;</u> 2. <u>Identify source, investigate the causes of exceedance and propose remedial measures;</u> 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. <u>Inform IEC, ER, EPD and Contractor;</u> 2. <u>Identify source;</u> 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose 4. remedial 5. measures for the analysed noise problem; 6. Ensure remedial measures properly implemented; 7. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Dolphin Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor. 	<ol style="list-style-type: none"> 1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER/SOR; 3. Implement the agreed measures.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly. 	<ol style="list-style-type: none"> 1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures 3. Supervise the implementation of additional monitoring and/or any other mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures. 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary. 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

Appendix D

Waste Flow Table

Waste Flow Table for Year 2020										
Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)
2020 Jan	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2020 Feb	720.34	Nil	720.34	Nil	Nil	Nil	0.335	Nil	Nil	2.23
2020 Mar	11344.57	Nil	10218.92	Nil	1125.65	Nil	0.669	Nil	Nil	8.05
2020 Apr	19649.37	Nil	18670.3	Nil	979.07	Nil	Nil	Nil	Nil	21.64
2020 May	26767.55	Nil	26692.04	Nil	75.51	Nil	2.42	Nil	Nil	196.64
2020 Jun	4628.13	Nil	4198.52	Nil	429.61	Nil	Nil	Nil	Nil	117.19
2020 Jul	4895.66	Nil	3398.41	Nil	1497.25	Nil	Nil	Nil	Nil	30.33
2020 Aug	4971.00	Nil	4774.49	Nil	196.51	Nil	0.418	Nil	Nil	36.91
2020 Sep	1175.26	Nil	736.1	Nil	439.16	Nil	Nil	Nil	Nil	36.16
2020 Oct	3433.83	Nil	Nil	2262.7	1171.13	Nil	Nil	Nil	Nil	32.25
2020 Nov	26481.72	Nil	Nil	24393.64	2088.08	Nil	Nil	Nil	Nil	40.09
2020 Dec	14361.90	Nil	Nil	13468.00	893.90	Nil	Nil	Nil	Nil	39.56
Total	118429.33	0	69409.12	40124.34	8895.87	0	3.842	0	0	561.05

Note:

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

2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

Waste Flow Table for Year 2021										
Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)
2021 Jan	787.6	0	0	0	787.6	0	0	0	0	18.19
2021 Feb	254.95	0	0	0	254.95	0	0	0	0	154.94
2021 Mar	1899.61	0	0	1720.5	179.11	0	0	0	0	371.73
2021 Apr	4056.27	0	0	0	4056.27	2.13	8.17	0	0	144.08
2021 May	2738.81	0	0	0	2738.81	0.495	0	0	0	31.63
2021 Jun	1009.53	0	0	0	1009.53	0	0	0	0	90.91
2021 Jul	1384.29	0	0	0	1384.29	0	0	0	0	51.69
2021 Aug	340.46	0	0	0	340.46	5.85	0	0	0	42.99
2021 Sep	732.9	0	0	0	732.9	0	0	0	0	70.11
2021 Oct	1023.81	0	0	0	1023.81	0	0	0	0	74.68
2021 Nov	1155.56	0	0	0	1155.56	3.195	0	0	0	121.99
2021 Dec	271.67	0	0	0.00	271.67	0	0	0	0	70.97
Total	15655.46	0	0	1720.5	13934.96	11.665	8.17	0	0	1243.91

Note:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- 3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

Waste Flow Table for Year 2022										
Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)
2022 Jan	167.72	0	0	0	167.72	0	0	0	0	58.92
2022 Feb	50.85	0	0	0	50.85	0	0	0	0	20.48
2022 Mar	10.10	0	0	0	10.10	0	0	0	0	16.46
2022 Apr	154.27	0	0	0	154.27	0	0	0	0	20.09
2022 May	186.03	0	0	0	186.03	0	0	0	0	6.33
2022 Jun	7.86	0	0	0	7.86	0	0	0	0	8.08
2022 Jul	0	0	0	0	0	0	0	0	0	0
2022 Aug										
2022 Sep										
2022 Oct										
2022 Nov										
2022 Dec										
Total	576.83	0	0	0	576.83	0	0	0	0	130.36

Note:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- 3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

Appendix E

Implementation Status of Environment Mitigation
Measures (Operation Phase)

Implementation Status of Environment Mitigation Measures (Construction Phase) - Contract No. HY/2019/01

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location / Duration of Measures	Implementation Status
Landscape & Visual (Operation Phase)				
S14.3.3.3	LV4	<p><u>Mitigate both Landscape and Visual Impacts</u> G10. Provide proper planting maintenance on the new planting areas to enhance the aesthetic degree.</p>	Operational stage	Implemented
Waste Management (Operational Waste)				
S8.4.3	WM6	<p><u>Chemical Waste</u> The requirements given in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes should be followed in handling of these chemical wastes. A trip-ticket system should be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical wastes which will be collected by a licensed collector to a licensed facility for final treatment and disposal.</p>	Operational stage	Implemented

Appendix F

Cumulative statistics on Environmental Complaints,
Notifications of Summons and Successful Prosecutions

Environmental Complaints Log

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Appendix G (Not Applicable)

Summary of Site Audit in the Reporting Month

Appendix H (Not Applicable)

Outstanding Issues and Deficiencies

Appendix I

Environmental Monitoring Schedule

Project: Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Impact Monitoring Schedule (July 2022)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Remarks

- As informed by AECOM, the commencement date of the 12-month establishment period for the landscape monitoring under this contract is 5 January 2022. Bi-monthly landscape and visual site audits will be conducted from 5 Jan 2022 to 4 Jan 2023.

Project: Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Impact Monitoring Schedule (August 2022)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15 Bi-monthly landscape and visual site audit	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Remarks

- As informed by AECOM, the commencement date of the 12-month establishment period for the landscape monitoring under this contract is 5 January 2022. Bi-monthly landscape and visual site audits will be conducted from 5 Jan 2022 to 4 Jan 2023.