

**Contract No. HY/2017/10
Tuen Mun - Chek Lap Kok Link -
Northern Connection Tunnel
Buildings, Electrical and Mechanical
Works**

Sixth Quarterly EM&A Report

10 February 2020

Environmental Resources Management
2507, 25/F One Harbourfront
18 Tak Fung Street
Hung Hom, Kowloon
Hong Kong
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**Contract No. HY/2017/10
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Mechanical Works**

**Environmental Resources
Management**

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Sixth Quarterly EM&A Report

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Client: Gammon		Project No: 0463091			
Summary: This document presents the Sixth Quarterly EM&A Report for Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works.		Date: 10 February 2020			
		Approved by: 			
		<i>Mr Craig Reid</i> Partner			
		Certified by: 			
		<i>Dr Jasmine Ng</i> ET Leader			
	Sixth Quarterly Monthly EM&A Report	CW	JN	CAR	10/2/20
Revision	Description	By	Checked	Approved	Date
This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.		Distribution		 <input type="checkbox"/> Internal <input checked="" type="checkbox"/> Public <input type="checkbox"/> Confidential 	



12 February 2020

By Fax (2783 0155) and By Post

AECOM Asia Company Limited
Supervising Officer's Representative Office
No. 8 Mong Fat Street, Tuen Mun, New Territories, Hong Kong

Attention: Mr. Desmond Fung

Dear Mr. Fung,

**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**

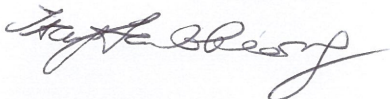
**Contract No. HY/2017/10
TM-CLKL – Northern Connection Tunnel Buildings, E&M Works
6th Quarterly EM&A Report for September - November 2019**

Reference is made to the Environmental Team's submission of the quarterly EM&A report for September - November 2019 (ET's ref.: "0463091_6th Quarterly EM&A_20200210.doc" dated 10 February 2020) certified by the ET Leader and provided to us via e-mail on 11 February 2020.

Please be informed that we have no adverse comments on the captioned submission.

Thank you for very much your attention. Please feel free to contact the undersigned or the ENPO Leader, Mr. Y H Hui, should you require further information.

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



F. C. Tsang
Independent Environmental Checker
Tuen Mun-Chek Lap Kok Link

c.c.

HyD	Mr. Patrick Ng	(By Fax: 3188 6614)
HyD	Mr. Cheng Pan	(By Fax: 3188 6614)
AECOM	Mr. Conrad Ng	(By Fax: 3922 9797)
ERM	Dr. Jasmine Ng	(By Fax: 2723 5660)
Gammon	Mr. Max Poon	(By Fax: 3520 0486)

Internal: DY, YH, RY, ENPO Site

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EXECUTIVE SUMMARY

Under *Contract No. HY/2017/10*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake Northern Connection Tunnel Buildings, Electrical and Mechanical Works of the Tuen Mun – Chek Lap Kok Link Project (TM-CLK Link Project) while AECOM Asia Company Limited was appointed by HyD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET) in accordance with *Environmental Permit No. EP-354/2009/A*. Ramboll Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO). Subsequent applications for variation of environmental permits (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

The construction phase of the Contract commenced on 7 June 2018 and will tentatively be completed by 2021. The impact monitoring of the EM&A programme, including air quality and environmental site inspections, were commenced on 7 June 2018.

This is the Sixth Quarterly EM&A Report presenting the EM&A works carried out during the period from 1 September to 30 November 2019 for the *Contract No. HY/2017/10 Northern Connection Tunnel Buildings, Electrical and Mechanical Works* (the “Contract”) in accordance with the Updated EM&A Manual of the TM-CLK Link Project. As informed by the Contractor, major activities in the reporting period included:

September 2019

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Building structure at Fire Services Department Building;
- Building Structure at Customs and Excise Department Building;

- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Building Structure, Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Building Structure at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

October 2019

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Building Structure at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Building Structure, Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Building Structure at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

November 2019

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

A summary of monitoring and audit activities conducted in the reporting period is listed below ⁽¹⁾:

24-hour TSP Monitoring	30 sessions
1-hour TSP Monitoring	30 sessions
Landfill Gas Hazard Monitoring	75 days
Joint Environmental Site Inspection	13 sessions

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

Eight (8) Action Level and four (4) Limit Level exceedances of 1-hour TSP and no exceedance of 24-hour TSP Action and Limit Levels were recorded by the Environmental Team of Contract No. HY/2012/08 during the reporting period.

Breaches of Action Level for Landfill Gas Hazard Monitoring

Results of landfill gas hazard monitoring in the reporting period complied with the Action Level.

Environmental Complaints, Non-compliance & Summons

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

Reporting Change

There was no reporting change in the reporting period.

Upcoming Works for the Next Reporting Period

Works to be undertaken in the coming quarter include the following:

December 2019

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;

(1) ET justification on the Contract Specific Environmental Monitoring and Audit activities under this Contract was submitted to ENPO on 11 September 2018

- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

January 2020

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;

- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

February 2020

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;

- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the coming quarterly period are mainly associated with dust and waste management issues.

BACKGROUND

According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated increase in cross boundary traffic, developments in the Northwest New Territories (NWNT), and possible developments in North Lantau, including the Airport developments, the Lantau Logistics Park (LLP) and the Hong Kong – Zhuhai – Macao Bridge (HZMB). In order to cope with the anticipated traffic demand, two new road sections between NWNT and North Lantau – Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) are proposed.

An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. ESB-175/2007) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)*. The EIA Report was submitted under the Environmental Impact Assessment Ordinance (EIAO) in August 2009. Subsequent to the approval of the EIA Report (EIAO Register Number AEIAR-146/2009), an Environmental Permit (EP-354/2009) for TM-CLKL was granted by the Director of Environmental Protection (DEP) on 4 November 2009, and EP variation (VEP) (EP-354/2009/A) was issued on 8 December 2010. Subsequent applications for variation of environmental permits (VEPs), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

Under *Contract No. HY/2017/10*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the Northern Connection Tunnel Buildings, Electrical and Mechanical Works of TM-CLKL while AECOM Asia Company Limited was appointed by HyD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET). Ramboll Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO).

The construction phase of the Contract commenced on 7 June 2018 and will be tentatively completed by 2021. The impact monitoring phase of the EM&A programme, including air quality and environmental site inspections, commenced on 7 June 2018.

The general layout plan of the Contract components is presented in *Figures 1.1 & 1.2a to c*.

Project Management Initials: Designer: KATH Checked: SYLC Approved: CWN ISO A1 594mm x 841mm

Plot File by: Jerry Wong 23-Jan-18
 PATH: Y:\TO TO RSS\MSL\C4 Drawings\C4_Drawing (2018_01_02)\A-architectural drawings -CON\60240249_C4_7051.dgn



AECOM

PROJECT
 TUEN MUN -
 CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK
 - NORTHERN CONNECTION TUNNEL
 BUILDINGS, ELECTRICAL AND
 MECHANICAL WORKS

CLIENT
 路政署
HIGHWAYS DEPARTMENT
 港珠澳大橋香港工程管理有限公司
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

CONSULTANT
 AECOM Asia Company Ltd.
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SUB-CONSULTANTS

Figure 1.1

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN.18	TENDER ADDENDUM NO.1	SYLC
-	DEC.17	TENDER DRAWING	SYLC

STATUS

SCALE
 A1 1:40000
 DIMENSION UNIT
 MILLIMETRES

KEY PLAN

PROJECT NO. 60240249
 CONTRACT NO. HY/2017/10

SHEET TITLE
 OVERALL SITE PLAN

SHEET NUMBER
 60240249/C4/7051A

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 Project Management Initials: Designer: MATH Chenweid SYLC Approved: CWN ISO 1194mm x 847mm
 01/7071 01/7072



AECOM


PROJECT
1.3

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TUNNEL BUILDINGS, ELECTRICAL AND MECHANICAL WORKS

CLIENT

HIGHWAYS DEPARTMENT
 路政署
 香港 - 珠海 - 澳門大橋
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

CONSULTANT

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S&B ENGINEERING

Figure 1.2a

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN.18	TENDER ADDENDUM NO.1	SYLC
	DEC.17	TENDER DRAWING	SYLC

STATUS

SCALE: 1:2500
DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO. 60240249
CONTRACT NO. HY/2017/10

SHEET TITLE
ZONING PLAN (SHEET 1)

SHEET NUMBER
60240249/C4/7061A

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Project Management initials: Designer: KATH Checked: SYLC Approved: CWN ISO A1 394mm x 641mm
 CM3



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PROJECT
 TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK
 - NORTHERN CONNECTION TUNNEL
 BUILDINGS, ELECTRICAL AND
 MECHANICAL WORKS

CLIENT

 路政署 HIGHWAYS DEPARTMENT
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 Hong Kong - Zhuhai - Macao Bridge
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Figure 1.2b

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN.18	TENDER ADDENDUM NO.1	SYLC
	DEC.17	TENDER DRAWING	SYLC

STATUS

SCALE: A1 1:2500
 DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO.: 60240249
 CONTRACT NO.: HY/2017/10

SHEET TITLE: ZONING PLAN (SHEET 2)

SHEET NUMBER: 60240249/C4/7062A

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Project Management Initials: Designer: KATH; Checked: SYLC; Approved: CWN ISO A1 554mm x 841mm

Plot File by: Jerrywong 17-Jan-18
 PATH: Y:\TO\To RSS\SL\C4 Drawings\C4 Drawings\C4 Drawings - DGN\60240249 C4_7063.dgn



PROJECT
 TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TUNNEL BUILDINGS, ELECTRICAL AND MECHANICAL WORKS

CLIENT
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 HIGHWAYS DEPARTMENT
 港珠澳大橋香港工程管理有限公司
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

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Figure 1.2c

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN. 18	TENDER ADDENDUM NO. 1	SYLC
	DEC. 17	TENDER DRAWING	SYLC

STATUS

SCALE: A1 1:2500
 DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO. 60240249
 CONTRACT NO. HY/2017/10

SHEET TITLE
 ZONING PLAN (SHEET 3)

SHEET NUMBER
 60240249/C4/7063A

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1.2 SCOPE OF REPORT

This is the Sixth Quarterly EM&A Report under the *Contract No. HY/2017/10 Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works*. This report presents a summary of the environmental monitoring and audit works from 1 September to 30 November 2019.

1.3 ORGANIZATION STRUCTURE

The organization structure of the Contract is shown in *Appendix A*. The key personnel contact names and contact details are summarized in *Table 1.1* below.

Table 1.1 *Contact Information of Key Personnel*

Party	Position	Name	Telephone	Fax
HyD (Highways Department)	Project Coordinator	Joseph Lee	2762 4958	3188 6614
	Senior Engineer	Cheng Pan	2762 3383	3188 6614
ER (AECOM Asia Company Limited)	Principle Resident Engineer	S. W. Fok	2293 6200	2293 6300
	Resident Engineer	Desmond Fung	2293 6200	2293 6300
ENPO / IEC (Ramboll Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
	IEC	Dr. F.C. Tsang	3465 2851	3465 2899
Contractor (Gammon Construction Limited)	Site Agent	Kenneth Tai	9039 4723	-
	Environmental Officer	Max Poon	9103 6303	-
ET (ERM-HK)	ET Leader	Dr. Jasmine Ng	2271 3311	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of the Contract commenced on 7 June 2018. The rolling construction programme for the period of September to November 2019 is shown in *Appendix B*.

As informed by the Contractor, details of the major works carried out in this reporting period are listed below:

September 2019

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;

- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Building structure at Fire Services Department Building;
- Building Structure at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Building Structure, Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Building Structure at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

October 2019

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;

- Building Structure at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Building Structure, Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Building Structure at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

November 2019

Land-based Works

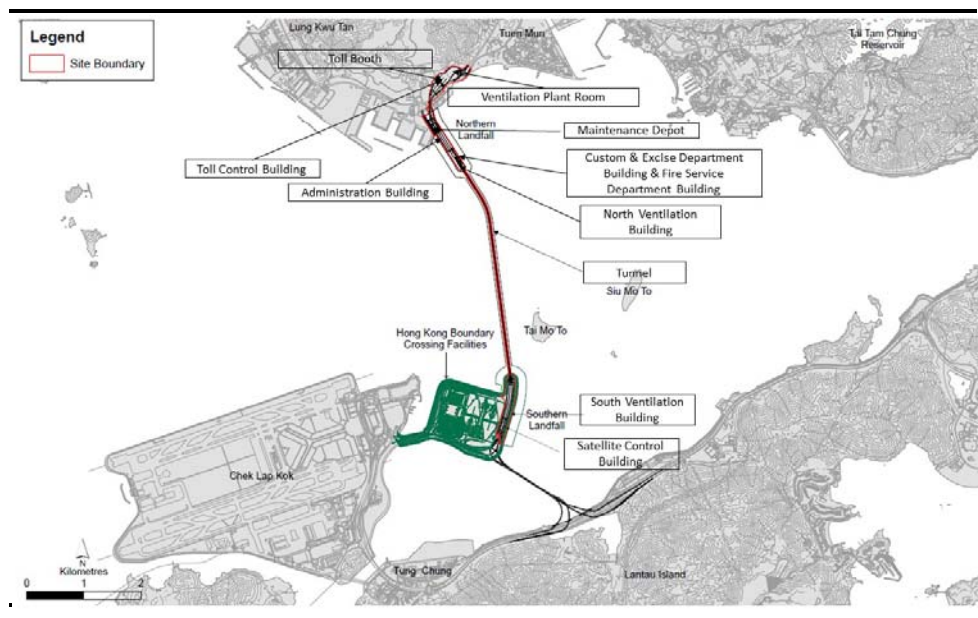
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works at Kiosk N2;

- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

The locations of the construction activities are shown in *Figure 1.3*. The Environmental Sensitive Receivers in the vicinity of the Contract are shown in *Figure 1.4*.

The implementation schedule of environmental mitigation measures is presented in *Appendix C*.

Figure 1.3 *Locations of Major Construction Activities in the Reporting Period*



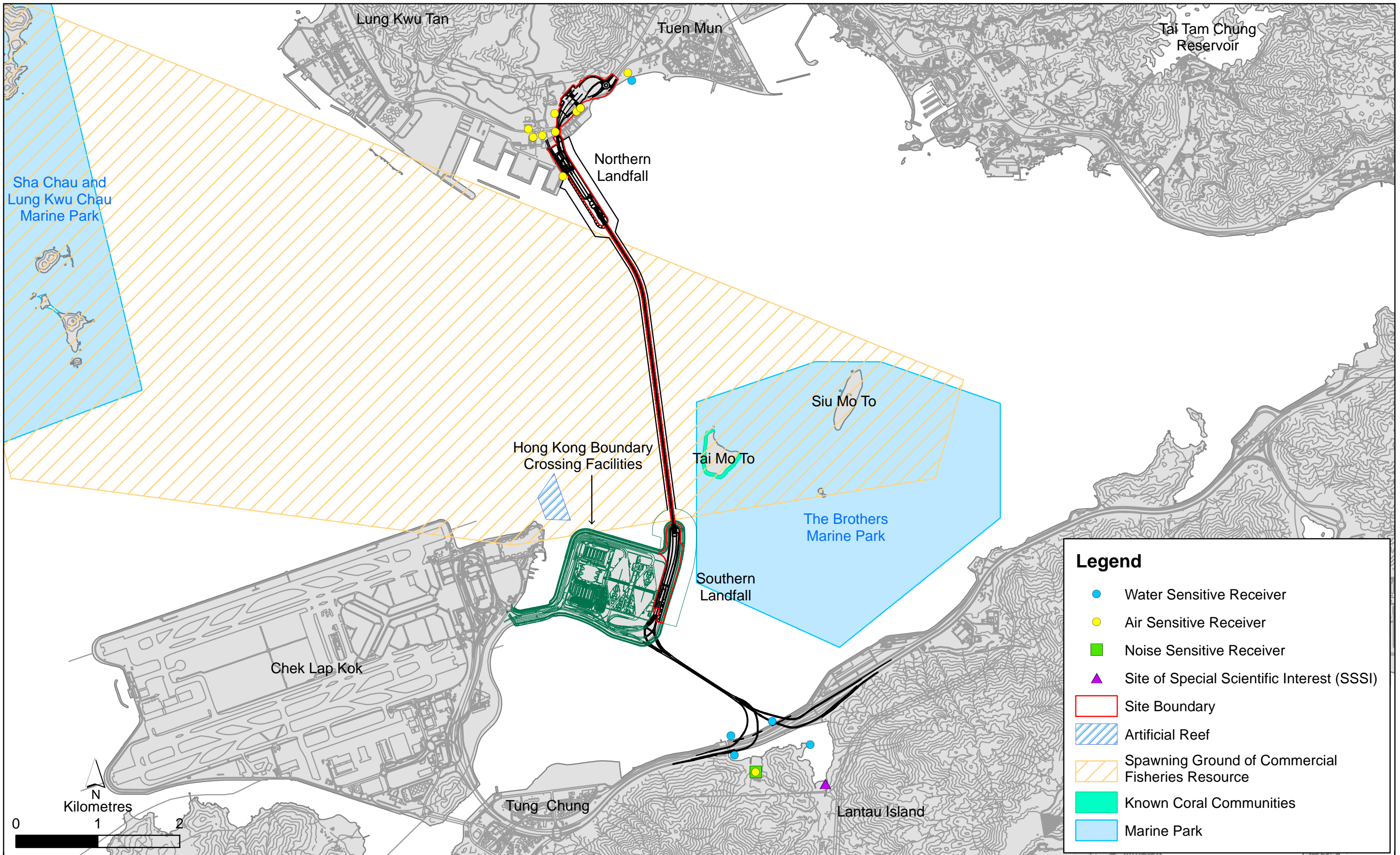


Figure 1.4

Environmental Sensitive Receivers in the Vicinity of the Project

The EM&A programme required environmental monitoring for air quality and environmental site inspections for air quality, water quality and waste management. The EM&A requirements and related findings for each component are summarized in the following sections

2.1 AIR QUALITY

2.1.1 Monitoring Requirements and Equipment

In accordance with the Updated EM&A Manual and the Enhanced TSP Monitoring Plan, impact 1-hour TSP monitoring was conducted three (3) times every six (6) days and impact 24-hour TSP monitoring was carried out once every six (6) days when the highest dust impact was expected. 1-hr and 24-hr TSP monitoring frequency was increased to three times per day every three days and daily every three days, respectively, as excavation works for launching shaft under *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* commenced on 24 October 2014.

Results of air quality monitoring were adopted from the published EM&A data of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* ⁽¹⁾.

The Action and Limit Levels of the air quality monitoring were adopted from the published EM&A reports of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* ⁽²⁾. The Action and Limit Levels are provided in *Appendix D*.

The locations of the monitoring stations overlapped with *Contract No. HY/2012/08* are shown in *Figure 2.1* and presented in *Table 2.1*.

(1) Published EM&A data for impact air quality monitoring by *Contract No. HY/2012/08* are available at: <http://www.hzmbenpo.com/>

(2) Published EM&A reports of *Contract No. HY/2012/08* are available at: <http://www.hzmbenpo.com/>

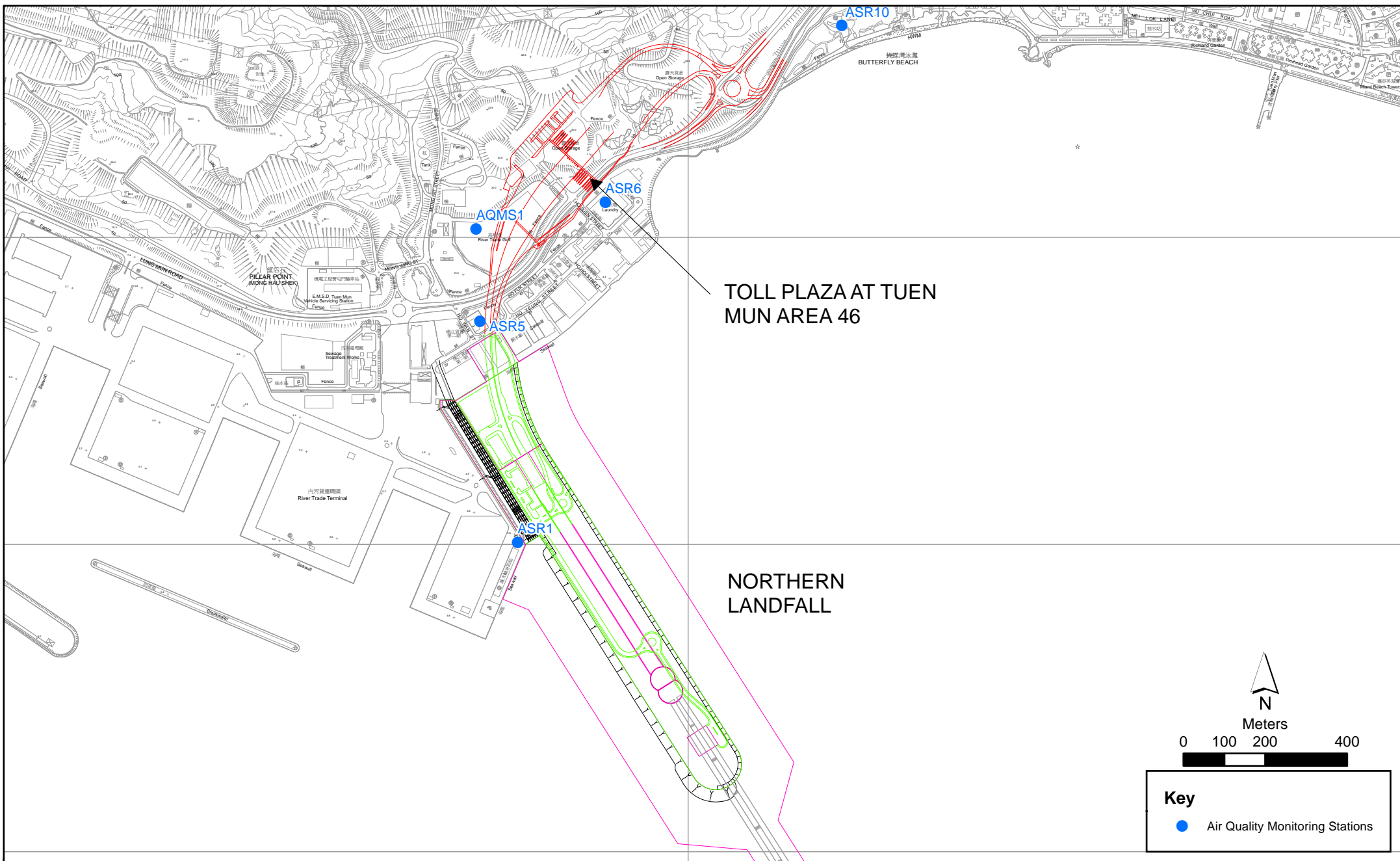


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Key
 ● Air Quality Monitoring Stations

**Environmental
 Resources
 Management**



Table 2.1 *Locations of Impact Air Quality Monitoring Stations and its Corresponding Monitoring Requirements*

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR1	2, 5, 8, 11, 14, 17, 20, 23, 26 and 29 September 2019	Tuen Mun Fireboat Station	Office	TSP monitoring <ul style="list-style-type: none"> 1-hour Total Suspended Particulates (1-hour TSP, $\mu\text{g}/\text{m}^3$), 3 times in every 6 days
ASR5	2, 5, 8, 11, 14, 17, 20, 23, 26 and 29 October 2019	Pillar Point Fire Station	Office	<ul style="list-style-type: none"> 24-hour Total Suspended Particulates (24-hour TSP, $\mu\text{g}/\text{m}^3$), daily for 24-hour in every 6 days
AQMS1	1, 4, 7, 10, 13, 16, 19, 22, 25 and 28 November 2019	Previous River Trade Golf	Bare ground	Enhanced TSP monitoring (commenced on 24 October 2014 under <i>Contract No. HY/2012/08</i>) <ul style="list-style-type: none"> 1-hour Total Suspended Particulates (1-hour TSP, $\mu\text{g}/\text{m}^3$), 3 times in every 3 days
ASR6		Butterfly Beach Laundry	Office	<ul style="list-style-type: none"> 24-hour Total Suspended Particulates (24-hour TSP, $\mu\text{g}/\text{m}^3$), daily for 24-hour in every 3 days
ASR10		Butterfly Beach Park	Recreational uses	

2.1.2 *Results and Observations*

Results of air quality monitoring were adopted from the published EM&A data of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* ⁽¹⁾.

Eight (8) Action Level and four (4) Limit Level exceedances for 1-hour TSP were recorded by the Environmental Team of *Contract No. HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix I*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

2.2 *EM&A SITE INSPECTION*

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. Thirteen (13) site inspections were carried out in the reporting period on 6, 13, 20, and 27 September, 4, 11, 18 and 25 October and 1, 8, 15, 22 and 29 November 2019.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.2*.

(1) Published EM&A data for impact air quality monitoring by *Contract No. HY/2012/08* are available at: <http://www.hzmbenpo.com/>

Table 2.2 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Period

Inspection Date	Observations	Recommendations/ Remarks
6 September 2019	<p>Satellite Control Building</p> <ul style="list-style-type: none"> • General refuse should be disposed in capped rubbish bin. • Accumuated waste in the refuse skip should be cleared. 	<p>Satellite Control Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to dipose general refuse in capped rubbish bin. • The Contractor was reminded to clear accumuated waste in refuse skip.
13 September 2019	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • Accumuated general refuse should be cleared. 	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to clear accumuated general refuse.
20 September 2019	<p>Fire Services Department Building</p> <ul style="list-style-type: none"> • Food waste should be removed from the waste skip. • Cement bags should be covered by tarpaulin sheets.. <p>Administration Building</p> <ul style="list-style-type: none"> • Water spraying should be applied under dry conditionis 	<p>Fire Services Department Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to remove food waste from the waste skip. • The Contractor was reminded to cover cement bags with tarpaulin sheets. <p>Administration Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to apply water spraying under dry conditions.
27 September 2019	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • Damaged trip tray was observed. <p>Fire Services Department Building</p> <ul style="list-style-type: none"> • Food waste should be removed from the site. • Large amount of dust accumulated on the floor. 	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to replace the damaged trip tray. <p>Fire Services Department Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to restrict workers from food consumption on site and clear out food waste. • The Contractor was reminded to closely apply dust-control measures.
4 October 2019	<p>Satellite Control Building</p> <ul style="list-style-type: none"> • Waste disposed of in the skip should be sorted. • Scissors platform should be turned off when not in use. 	<p>Satellite Control Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to sort waste disposed of in the skip. • The Contractor was reminded to shut down scissors platform when not in use.
11 October 2019	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • Construction waste should be regularly removed. <p>Fire Services Department Building</p> <ul style="list-style-type: none"> • Construction waste should be regularly removed. • Cement bags should be covered. 	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to clear construction waste. <p>Fire Services Department Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to clear construction waste. • The Contractor was reminded to cover cement bags.
18 October 2019	<p>Toll Control Building</p> <ul style="list-style-type: none"> • General refuse was observed. 	<p>Toll Control Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to remove general refuse regularly.
25 October 2019	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • Accumulated general refuse was observed. 	<p>North Ventilation Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to remove general refuse regularly.
1 November 2019	<p>Satellite Control Building</p> <ul style="list-style-type: none"> • Chemicals were observed not placed in drip tray. 	<p>Satellite Control Building</p> <ul style="list-style-type: none"> • The Contractor was reminded to place chemicals in drip tray.

Inspection Date	Observations	Recommendations/ Remarks
8 November 2019	Satellite Control Building <ul style="list-style-type: none"> Chemical containers were observed not placed in drip tray. South Ventilation Building <ul style="list-style-type: none"> Pipe threading machine was observed not place in drip tray. 	Satellite Control Building <ul style="list-style-type: none"> The Contractor was reminded to place chemical containers in drip tray. South Ventilation Building <ul style="list-style-type: none"> The Contractor was reminded to place the pipe threading machine in drip tray.
15 November 2019	Fire Services Department Building <ul style="list-style-type: none"> Chemical waste container was observed not locked. 	Fire Services Department Building <ul style="list-style-type: none"> The Contractor was reminded to lock the chemical waste container.
22 November 2019	Satellite Control Building <ul style="list-style-type: none"> Chemical containers were observed not placed in drip tray. 	Satellite Control Building <ul style="list-style-type: none"> The Contractor was reminded to place chemical containers in drip tray.
29 November 2019	Maintenance Depot <ul style="list-style-type: none"> Chemicals were observed not placed in drip tray. 	Maintenance Depot <ul style="list-style-type: none"> The Contractor was reminded to place chemicals in drip tray.

The Contractor has rectified all of the observations as identified during environmental site inspections in the reporting period.

2.3 **LANDFILL GAS HAZARD MONITORING**

In accordance with the Updated EM&A Manual of the TM-CLK Link Project, landfill gas hazard monitoring should be performed to ensure that the works area at Pillar Point Valley (PPV) Landfill is free of landfill gas during any excavations works. A total of 75 days of landfill gas hazard monitoring was conducted at Toll Control Building in the reporting period (*Appendix F*).

The Action Level of the landfill gas hazard monitoring were adopted from the Updated EM&A Manual of the TM-CLK Link Project and are provided in *Appendix D*.

2.3.1 **Results and Observations**

Results for landfill gas hazard monitoring are summarized in *Table 2.3* and the monitoring data is provided in *Appendix G*.

Results of methane, oxygen and carbon dioxide in the reporting period complied with the Action Level. No action as stated in the Updated EM&A Manual of the TM-CLK Link Project and presented in *Appendix D* is required to be undertaken.

Table 2.3 Summary of Landfill Gas Hazard Monitoring Results in the Reporting Period

		Average (%)	Range (%)	Action Level (%) ^(a)
September 2019	Methane	0	0	10/20
	Oxygen	20.8	20.8-20.9	19/18
	Carbon Dioxide	0.03	0.03-0.04	0.5/1.5
October 2019	Methane	0	0	10/20
	Oxygen	20.8	20.7-20.9	19/18
	Carbon Dioxide	0.03	0.03-0.04	0.5/1.5
November 2019	Methane	0	0	10/20
	Oxygen	20.8	20.7-20.9	19/18
	Carbon Dioxide	0.03	0.03-0.04	0.5/1.5

Notes:
(a) Depending on the results of the measurements, actions required will vary. Actions in the event of landfill gas being detected in excavation/confined area was adopted from the Updated EM&A Manual of the TM-CLK Link Project

2.4 WASTE MANAGEMENT STATUS

The Contractor had submitted application form for registration as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

Wastes generated during this reporting period included mainly construction wastes (inert and non-inert). Reference has been made to the waste flow table prepared by the Contractor (*Appendix H*). The quantities of different types of wastes are summarized in *Table 2.4*.

Table 2.4 Quantities of Different Waste Generated in the Reporting Period

Month/Year	Inert C&D Materials ^(a) (m ³)	Inert Construction Waste Re-used (m ³)	Non-inert Construction Waste ^(b) (kg)	Imported Fill (m ³)	Recyclable Materials ^(c) (kg)	Chemical Wastes (kg)
September 2019	177	0	196,740	0	63 ^(d)	0
October 2019	200	0	265,560	0	56	0
November 2019	510	0	305,880	0	63	0

Notes:

- (a) Inert construction wastes include hard rock and large broken concrete disposed as public fill.
- (b) Non-inert construction wastes include general refuse disposed at landfill.
- (c) Recyclable materials include metals, paper, cardboard, plastics, timber and others.
- (d) Updated figure is presented.

The Contractor was advised to properly maintain on site C&D materials and waste collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse/ recycle of C&D materials and wastes. The Contractor was also reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

For chemical waste containers, the Contractor was reminded to treat chemical waste properly and store the containers temporarily in designated chemical waste storage area on site in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.

2.5

ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.5* below.

Table 2.5 Summary of Environmental Licensing and Permit Status

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Environmental Permit	EP-354/2009/D	13 March 2015	N/A	HyD	Tuen Mun- Chek Lap Kok Link
APCO Construction Dust Notification	433493	14 May 2018	N/A	GCL	For Tuen Mun working area
Construction Waste Billing Account	7030836	15 May 2018	N/A	GCL	N/A
Chemical Waste Producer Registration	5213-422-G2827-01	13 June 2018	N/A	GCL	N/A
Discharge License under WPCO for Buildings at C2 area	WT00031783-2018	22 October 2018	31 October 2023	GCL	Sampling Frequency: Bimonthly
Discharge License under WPCO for Buildings at C3 area	WT00032062-2018	30 October 2018	31 October 2023	GCL	Sampling Frequency: Quarterly
Construction Noise Permit	GW-RW0267-19	21 June 2019	14 October 2019	GCL	For Toll Control Building, Administration Building, Maintenance Depot, FSD, C&ED, Boundary Wall, Tunnel, Approach ramp, NVB and WA18
	GW-RW0524-19	3 November 2019	29 April 2020	GCL	For Toll Control Building, Administration Building, Maintenance Depot, FSD, C&ED, Boundary Wall, Tunnel, Approach ramp, NVB and WA18
Construction Noise Permit	GW-RS0778-19	30 August 2019	28 February 2020	GCL	For Kiosk S2 and SCB
Construction Noise Permit	GW-RS0448-19	25 September 2019	14 December 2019	GCL	For Deck Void Lighting Installation

2.6 *IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES*

In response to the site audit findings, the Contractors carried out all corrective actions.

A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in *Appendix C*. The necessary mitigation measures relevant to this Contract were implemented properly.

2.7 *SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT*

Eight (8) Action Level and four (4) Limit Level exceedances for 1-hour TSP were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix I*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

No exceedance of Action and Limit Levels for 24-hour TSP was recorded in the reporting period.

Results of landfill gas hazard monitoring in the reporting period complied with the Action Level.

Cumulative statistics are provided in *Appendix I*.

2.8 *SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS*

The Environmental Complaint Handling Procedure is provided in *Figure 2.2*.

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

Statistics on complaints, notifications of summons, successful prosecutions are summarized in *Appendix I*.

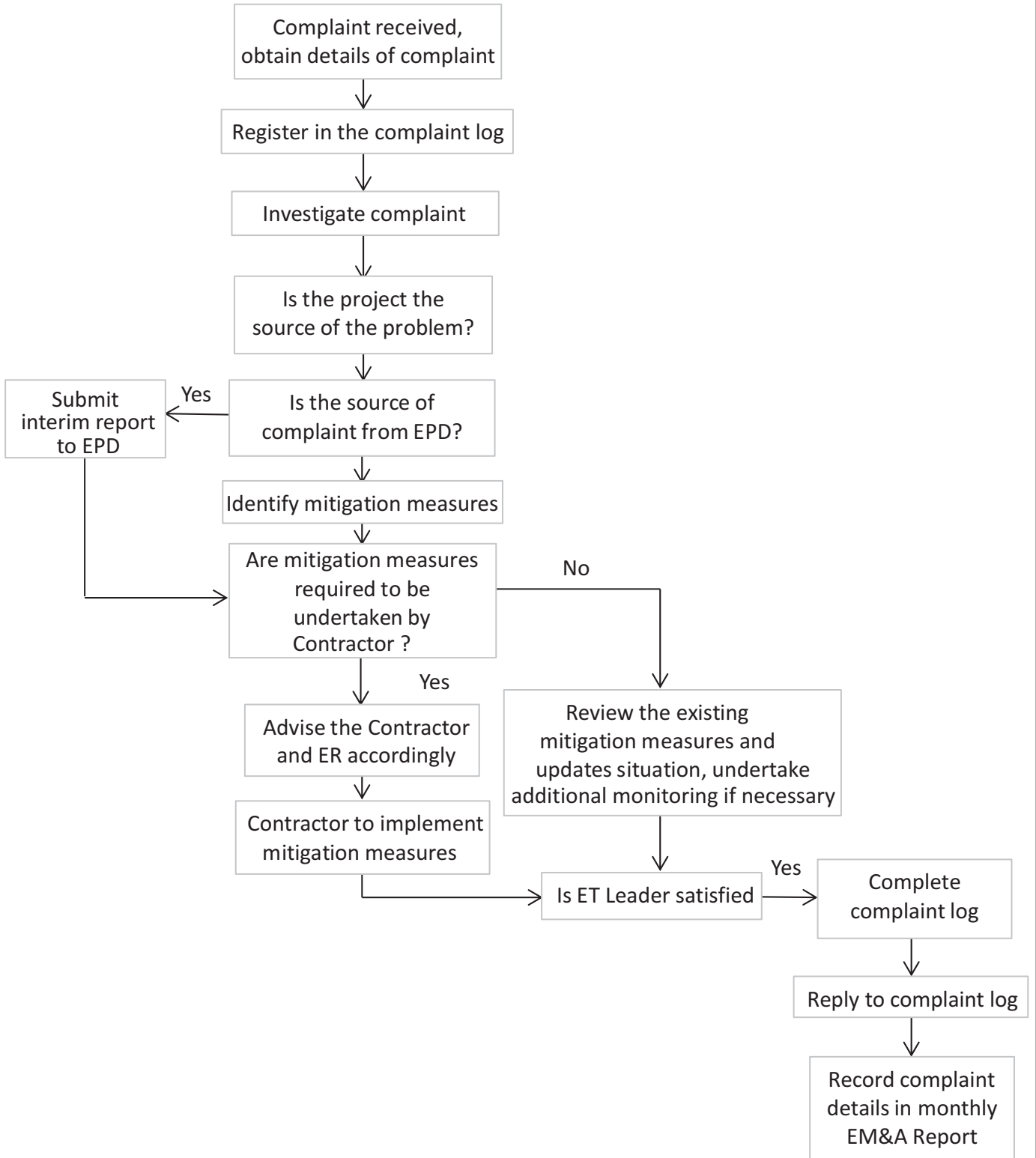


Figure 2.2

Environmental Complaint Handling Procedure

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING QUARTER

As informed by the Contractor, the major works for the Contract in the coming quarter are summarized below:

December 2019***Land-based Works***

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

January 2020

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

February 2020

Land-based Works

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

3.2

KEY ISSUES FOR THE COMING QUARTER

Potential environmental impacts arising from the above upcoming construction activities are mainly associated with dust and waste management issues.

4.1**CONCLUSIONS**

This Sixth Quarterly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 September to 30 November 2019, in accordance with the Updated EM&A Manual and the requirements of EP-354/2009/D.

Air quality monitoring (including 1-hour TSP and 24-hour TSP) was carried out in this reporting period.

Eight (8) Action Level and four (4) Limit Level exceedances for 1-hour TSP were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix I*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

No exceedance of Action and Limit Levels for 24-hour TSP was recorded in the reporting month.

Results of landfill gas hazard monitoring in the reporting period complied with the Action Level.

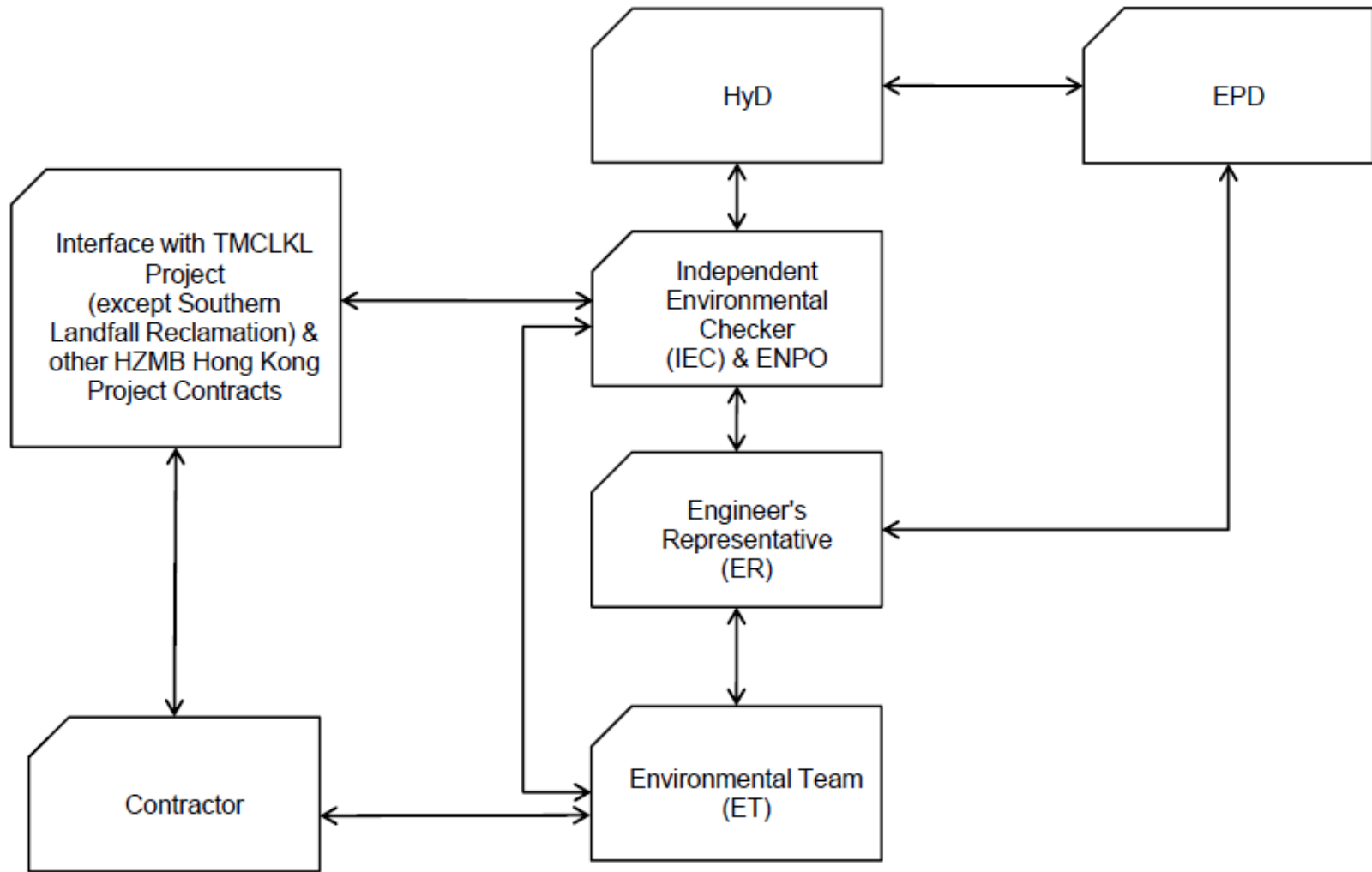
Environmental site inspection was carried out thirteen (13) times in the reporting period. Remedial actions recommended for the deficiencies identified during the site audits were properly implemented by the Contractor.

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Project Organization for Environmental Works



↔ Line of Communication

Appendix B

Construction Programme

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019						
							Sep	Oct	Nov	Dec			
HY2017/10 - Works Programme Three Month Rolling Programme 20-Sep-19													
Contract Dates													
Key Dates													
KD02	KD02 - Admin Bldg, Maintenance Depot, Kiosk N2, & TCSS Provision	0	100%	0									
KD03	KD03 - Satellite Control Bldg & TCSS Provision	0	0%	0									
KD06	KD06 - E&M for Admin Bldg, Depot, Training Ground, N Vent Bldg, N2	0	0%	0									
Portion Access Dates													
P2010	Access to Portion VII SVB Basement BL1	0	0%	0									
P2020	Access to Portion VII SVB G/F	0	0%	0									
P2030	Access to Portion VII SVB 1/F	0	0%	0									
P2040	Access to Portion VII SVB 2/F	0	0%	0									
P360	Access to Portion IVa (Day 588)	0	0%	0									
Portion Possession Dates													
P325	Possession to Portion XXII (Day 483)	0	0%	0									
P335	Possession to Portion XXIII (Day 483)	0	0%	0									
P345	Possession to Portion VIb (Day 483)	0	0%	0									
P355	Possession to Portion VII	0	0%	0									
Portion Handover Dates													
H110	Vacate Portion XVIIb (Day 137 after Possession)	0	0%	0									
Major Design Submission & Approval													
Toll Control Building													
MVAC System													
TCB-EMD1095	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28									
TCB-EMD1115	Authorities Review and Comment of MVAC Pump head calculation	56	50%	28									
Electrical System													
TCB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28									
TCB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28									
TCB-EMD1335	ER Review and Approval of System Design of PV System	13	100%	0									
Fire Service System													
TCB-EMD1175	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28									
TCB-EMD1195	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28									
TCB-EMD1215	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28									
Plumbing & Drainage System													
TCB-EMD1235	Authorities Review and Comment of Pump Head Calculation	56	50%	28									
TCB-EMD1275	Authorities Review and Comment of Hot water system capacity calculation	56	50%	28									
TCB-EMD1395	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28									
Administration Building													
MVAC System													
ADB-EMD1015	Authorities Review and Comment of AC Cooling Capacity Calculation	56	50%	28									
ADB-EMD1035	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28									
ADB-EMD1055	Authorities Review and Comment of Pump head calculation	56	50%	28									
ADB-EMD1075	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28									
Electrical System													
ADB-EMD1115	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28									
ADB-EMD1135	Authorities Review and Comment of Generator Calculation	56	50%	28									
ADB-EMD1335	ER Review and Approval of System Design of PV System	13	100%	0									
Fire Service System													
ADB-EMD1155	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28									

CONTRACT NO. HY2017/10
NORTHERN TUNNEL CONNECTION BUILDING E&M WORKS
THREE MONTHLY PROGRAMME AS OF 20 SEP 2019

Date	Revision	Checked	Approved
20-Sep-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
ADB-EMD1175	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
ADB-EMD1195	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28						
Plumbing & Drainage System										
ADB-EMD1215	Authorities Review and Comment of Pump Head Calculation	56	50%	28						
ADB-EMD1235	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28						
ADB-EMD1255	Authorities Review and Comment of Hot water system capacity calculation	56	50%	28						
North Ventilation Building										
MVAC System										
NVB-EMD1035	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28						
Electrical System										
NVB-EMD1055	Authorities Review and Comment of HV Electrical Loading Calculation	56	50%	28						
NVB-EMD1075	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28						
NVB-EMD1095	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28						
NVB-EMD1115	Authorities Review and Comment of Generator Calculation	56	50%	28						
Fire Service System										
NVB-EMD1135	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
NVB-EMD1155	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
NVB-EMD1175	Authorities Review and Comment of FM200 System Design Calculation	28	50%	14						
Plumbing & Drainage System										
NVB-EMD1305	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28						
Maintenance Depot										
MVAC System										
MD-EMD1015	Authorities Review and Comment of AC Cooling Capacity Calculation	56	50%	28						
Electrical System										
MD-EMD1075	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28						
MD-EMD1095	Authorities Review and Comment of Generator Calculation	56	50%	28						
Fire Service System										
MD-EMD1115	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
MD-EMD1135	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
MD-EMD1155	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28						
Plumbing & Drainage System										
MD-EMD1175	Authorities Review and Comment of Pump Head Calculation	56	50%	28						
MD-EMD1195	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28						
MD-EMD1215	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28						
Satellite Control Building										
Electrical System										
SCB-EMD1055	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28						
SCB-EMD1075	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28						
SCB-EMD1095	Authorities Review and Comment of Generator Calculation	56	50%	28						
Fire Service System										
SCB-EMD1115	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
SCB-EMD1135	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
SCB-EMD1155	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28						
Plumbing & Drainage System										
SCB-EMD1285	Authorities Review and Comment of Pump Head Calculation	56	50%	28						
SCB-EMD1335	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28						
Custom & Excise Department Building										
Electrical System										

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
CEDB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28						
CEDB-EMD1035	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28						
CEDB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28						
Fire Service System										
CEDB-EMD1075	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
CEDB-EMD1095	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
Plumbing & Drainage System										
CEDB-EMD1135	Authorities Review and Comment of Pump Head Calculation	56	50%	28						
CEDB-EMD1155	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28						
Fire Services Department Building										
Electrical System										
FSDB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28						
FSDB-EMD1035	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28						
FSDB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28						
Fire Service System										
FSDB-EMD1075	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
FSDB-EMD1095	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
FSDB-EMD1205	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28						
Plumbing & Drainage System										
FSDB-EMD1135	Authorities Review and Comment of Pump Head Calculation	56	50%	28						
FSDB-EMD1155	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28						
South Ventilation Building										
MVAC System										
SVB-EMD1015	Authorities Review and Comment of Staircase Pressurization System Calculation	56	50%	28						
SVB-EMD1035	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28						
Electrical System										
SVB-EMD1055	Authorities Review and Comment of HV Electrical Loading Calculation	56	50%	28						
SVB-EMD1095	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28						
SVB-EMD1115	Authorities Review and Comment of Generator Calculation	56	50%	28						
Fire Service System										
SVB-EMD1135	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
SVB-EMD1155	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
SVB-EMD1175	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28						
Vehicular Underpass										
Fire Service System										
VU-EMD1025	Authorities Review and Comment of Foam system design calculation	56	50%	28						
Plumbing & Drainage System										
VU-EMD1045	Authorities Review and Comment of Pump Head Calculation	56	50%	28						
Tunnel Lighting System										
VU-EMD1145	Authorities Review and Comment of Design Proposal of Tunnel Lighting System (TLS)	56	50%	28						
VU-EMD1165	Authorities Review and Comment of Tunnel Lighting Lux Calculation	56	50%	28						
Tunnel										
Fire Service System										
TUN-EMD1035	Authorities Review and Comment of Foam system design calculation	56	50%	28						
TUN-EMD1115	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28						
TUN-EMD1135	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28						
Plumbing & Drainage System										
TUN-EMD1185	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28						

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Sep	Oct	Nov	Dec	
CCMS, TCS and ELV System											
ELV-EMD1015	Authorities Review and Comment of System Design for Toll Control system	56	50%	28							
ELV-EMD1035	Authorities Review and Comment of System Design for CMCS	56	50%	28							
ELV-EMD1055	Authorities Review and Comment of System Design for other ELV systems	56	50%	28							
Major Material Submission & Approval											
GEN-EMM1020	Authorities Review and Comment of Technical Info. - Miscellaneous 1st fix Materials/ Equipment	28	50%	14							
GEN-EMM1050	Authorities Review and Comment of Technical Info. - Miscellaneous 2nd fix Materials/ Equipment	28	50%	14							
GEN-EMM1080	Authorities Review and Comment of Technical Info. - Miscellaneous final fix Materials/ Equipment	28	50%	14							
MVAC System											
MVAC-EMM1015	Authorities Review and Comment of Technical Info. - Chiller	56	50%	28							
MVAC-EMM1035	Authorities Review and Comment of Technical Info. - Chilled Water Pump	56	50%	28							
MVAC-EMM1075	Authorities Review and Comment of Technical Info. - Computer Room AC (CRAC) Unit	56	50%	28							
MVAC-EMM1095	Authorities Review and Comment of Technical Info. - AHU & PAU	56	50%	28							
MVAC-EMM1115	Authorities Review and Comment of Technical Info. - Staircase Pressurization Fan	56	50%	28							
Electrical System											
ELE-EMM1075	Authorities Review and Comment of Technical Info. - HV Cables	56	50%	28							
ELE-EMM1155	Authorities Review and Comment of Technical Info. - UPS and Battery	28	50%	14							
ELE-EMM1175	Authorities Review and Comment of Technical Info. - MCB & MCCB & Distribution Board	28	50%	14							
ELE-EMM1225	Authorities Review and Comment of Technical Info. - PV System	56	50%	28							
Fire Service System											
FS-EMM1015	Authorities Review and Comment of Technical Info. - FM200	56	50%	28							
FS-EMM1095	Authorities Review and Comment of Technical Info. - FR/ HR system	56	50%	28							
FS-EMM1115	Authorities Review and Comment of Technical Info. - Gas detection	56	50%	28							
Plumbing & Drainage System											
PD-EMM1015	Authorities Review and Comment of Technical Info. - Sump Pump	56	50%	28							
PD-EMM1035	Authorities Review and Comment of Technical Info. - Hot Water System	56	50%	28							
PD-EMM1055	Authorities Review and Comment of Technical Info. - LMCP (PD)	56	50%	28							
Tunnel Ventilation System											
TVS-EMM1035	Authorities Review and Comment of Technical Info. - Pressurization Fan	56	50%	28							
TVS-EMM1105	Authorities Review and Comment of Technical Info. - AQMS Equipment	56	50%	28							
TVS-EMM1155	Authorities Review and Comment of Technical Info. - MFSD	56	50%	28							
Tunnel and Road Lighting System											
TRLS-EMM1035	Authorities Review and Comment of Technical Info. - Road Lighting Fitting	56	50%	28							
CCMS, TCS and ELV System											
ELV-EMM1020	Authorities Review and Comment of Technical Info. - CMCS Equipment	56	50%	28							
ELV-EMM1050	Authorities Review and Comment of Technical Info. - TCS Equipment	56	50%	28							
ELV-EMM1080	Authorities Review and Comment of Technical Info. - other ELV Equipment	56	50%	28							
Drawing Submission & Approval											
Satellite Control Building											
Individual Shop Drawing											
SCB-ISD1040	Authorities Review and Comment of SCB ISD 1st batch	28	50%	14							
SCB-ISD1090	Authorities Review and Comment of SCB ISD 2nd batch	28	50%	14							
Custom & Excise Department Building											
Individual Shop Drawing											
CEDB-ISD1040	Authorities Review and Comment of C&EDB ISD 1st batch	28	50%	14							
CEDB-ISD1090	Authorities Review and Comment of C&EDB ISD 2nd batch	28	50%	14							
South Ventilation Building											
Individual Shop Drawing											

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
SVB-ISD1080	ER Review and Approval of SVB ISD 2nd batch	7	50%	4						
Structural, Electrical & Mechanical Drawing										
SVB-SEM2030	ER Review and Approval of SVB SEM	7	0%	7						
Tunnel										
Individual Shop Drawing										
TUN-ISD1090	Authorities Review and Comment of Tunnel ISD 2nd batch	28	50%	14						
TUN-ISD1110	ER Review and Comment of Tunnel ISD 3rd batch	30	80%	6						
TUN-ISD1120	Preparation and Resubmission of Tunnel ISD 3rd batch	30	0%	30						
TUN-ISD1130	ER Review and Approval of Tunnel ISD 3rd batch	15	0%	15						
TUN-ISD1140	Authorities Review and Comment of Tunnel ISD 3rd batch	28	50%	14						
TUN-ISD1150	Submission of Tunnel ISD 4th batch	6	80%	1						
TUN-ISD1160	ER Review and Comment of Tunnel ISD 4th batch	30	70%	9						
TUN-ISD1170	Preparation and Resubmission of Tunnel ISD 4th batch	30	0%	30						
TUN-ISD1180	ER Review and Approval of Tunnel ISD 4th batch	15	0%	15						
TUN-ISD1190	Authorities Review and Comment of Tunnel ISD 4th batch	28	50%	14						
Fire Services Department Building										
Individual Shop Drawing										
FSDB-ISD1040	Authorities Review and Comment of FSDB ISD 1st batch	28	50%	14						
FSDB-ISD1090	Authorities Review and Comment of FSDB ISD 2nd batch	28	50%	14						
Vehicular Underpass										
Individual Shop Drawing										
VU-ISD1090	Authorities Review and Comment of Vehicular Underpass ISD 2nd batch	28	50%	14						
North Ventilation Building										
Individual Shop Drawing										
NVB-ISD1090	Authorities Review and Approval of NVB ISD - 2nd batch	28	50%	14						
E&M Manufacture & Delivery										
Toll Control Building										
MVAC System										
TCB-MD1050	Manufacture & Delivery to HK - AHU & PAU	90	90%	9						
CCMS, TCS and ELV System										
TCB-MD1205	Shipping to HK - CMCS Equipment	14	20%	11						
TCB-MD1210	Manufacture - TCS Equipment	180	32.78%	121						
TCB-MD1220	Manufacture & Delivery to HK - other ELV Equipment	83	75%	21						
Plumbing & Drainage System										
TCB-MD1110	Manufacture & Delivery to HK - Sump Pump	120	90.83%	11						
TCB-MD1120	Manufacture & Delivery to HK - Hot Water System	120	90.83%	11						
Electrical System										
TCB-MD1280	Manufacture & Delivery to HK - PV System Equipment	60	20%	48						
Fire Service System										
TCB-MD1150	Manufacture & Delivery to HK - FM200	150	92.67%	11						
TCB-MD1170	Manufacture & Delivery to HK - FS Pump	120	96.67%	4						
Administration Building										
Electrical System										
ADB-MD1095	Shipping to HK - UPS and Battery	42	73.81%	11						
ADB-MD1310	Manufacture & Delivery to HK - PV System Equipment	60	20%	48						
MVAC System										
ADB-MD1050	Manufacture & Delivery to HK - Cooling Tower	100	89%	11						
Plumbing & Drainage System										

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
ADB-MD1130	Manufacture & Delivery to HK - Hot Water System	120	90.83%	11						
CCMS and ELV System										
ADB-MD1210	Manufacture - CMCS Equipment	62	82.26%	11						
ADB-MD1212	FAT - CMCS Equipment	7	0%	7						
ADB-MD1215	Shipping to HK - CMCS Equipment	14	0%	14						
ADB-MD1220	Manufacture & Delivery to HK - other ELV Equipment	83	75%	21						
North Ventilation Building										
Plumbing & Drainage System										
NVB-MD1100	Manufacture & Delivery to HK - Sump Pump	120	90.83%	11						
NVB-MD1110	Manufacture & Delivery to HK - LMCP (PD)	60	81.67%	11						
CCMS and ELV System										
NVB-MD1225	Shipping to HK - CMCS Equipment	14	60%	6						
NVB-MD1230	Manufacture - other ELV Equipment	62	85%	9						
NVB-MD1232	FAT - other ELV Equipment	7	0%	7						
NVB-MD1235	Shipping to HK - other ELV Equipment	7	0%	7						
Maintenance Depot										
Electrical System										
MD-MD1015	Shipping to HK - Generator	28	42.86%	16						
MD-MD1025	Shipping to HK - LV Switchboard	14	28.57%	10						
MD-MD1040	Manufacture & Delivery to HK - LV Cables	120	85%	18						
Fire Service System										
MD-MD1080	Manufacture & Delivery to HK - FM200	150	88%	18						
MD-MD1090	Manufacture & Delivery to HK - FS Pump	120	90%	12						
CCMS and ELV System										
MD-MD1130	Manufacture - CMCS Equipment	62	82.26%	11						
MD-MD1132	FAT - CMCS Equipment	7	0%	7						
MD-MD1135	Shipping to HK - CMCS Equipment	14	0%	14						
MD-MD1140	Manufacture & Delivery to HK - other ELV Equipment	83	75%	21						
Plumbing & Drainage System										
MD-MD1050	Manufacture & Delivery to HK - Sump Pump	120	75%	30						
MD-MD1060	Manufacture & Delivery to HK - Water Pump	90	66.67%	30						
MD-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	50%	30						
Satellite Control Building										
SCB-MD1175	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	88.89%	5						
SCB-MD1185	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	80%	9						
SCB-MD1195	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	68.89%	14						
Electrical System										
SCB-MD1020	Manufacture - Generator	118	82.2%	21						
SCB-MD1025	Shipping to HK - Generator	28	0%	28						
SCB-MD1035	Shipping to HK - UPS and Battery	42	0%	42						
SCB-MD1040	Manufacture - LV Switchboard	86	87%	11						
SCB-MD1042	FAT - LV Switchboard	10	0%	10						
SCB-MD1045	Shipping to HK - LV Switchboard	14	0%	14						
SCB-MD1050	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	50%	30						
SCB-MD1060	Manufacture & Delivery to HK - LV Cables	120	64.17%	43						
MVAC System										
SCB-MD1010	Manufacture & Delivery to HK - Computer Room Air Conditioning (CRAC) Unit	120	50.83%	59						
Fire Service System										

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
SCB-MD1100	Manufacture & Delivery to HK - FM200	150	90%	15						
SCB-MD1110	Manufacture & Delivery to HK - FS Pump	120	60.83%	47						
SCB-MD1120	Manufacture & Delivery to HK - AFA System	100	20%	80						
SCB-MD1130	Manufacture & Delivery to HK - LMCP (FS)	60	20%	48						
SCB-MD1140	Manufacture & Delivery to HK - FR/ HR system	90	20%	72						
Plumbing & Drainage System										
SCB-PO1120	Manufacture & Delivery to HK - LMCP (PD)	60	20%	48						
SCB-PO1130	Manufacture & Delivery to HK - Water Pump	90	85%	14						
CCMS and ELV System										
SCB-MD1150	Manufacture - CMCS Equipment	62	20%	50						
SCB-MD1152	FAT - CMCS Equipment	7	0%	7						
SCB-MD1155	Shipping to HK - CMCS Equipment	14	0%	14						
SCB-MD1160	Manufacture & Delivery to HK - other ELV Equipment	83	45%	46						
Lift System										
SCB-MD1000	Manufacture & Delivery to HK - Lift System	120	80%	24						
Custom & Excise Department Building										
CEDB-MD1215	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	80%	9						
Electrical System										
CEDB-MD1020	Manufacture - Generator	118	85%	18						
CEDB-MD1025	Shipping to HK - Generator	28	0%	28						
CEDB-MD1035	Shipping to HK - UPS and Battery	42	20%	34						
CEDB-MD1040	Manufacture - LV Switchboard	86	87%	11						
CEDB-MD1042	FAT - LV Switchboard	10	0%	10						
CEDB-MD1045	Shipping to HK - LV Switchboard	14	0%	14						
CEDB-MD1050	Manufacture & Delivery to HK - LV Cables	120	75%	30						
CEDB-MD1060	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	38	40%	23						
MVAC System										
CEDB-MD1010	Manufacture & Delivery to HK - AHU & PAU	60	25%	45						
Fire Service System										
CEDB-MD1090	Manufacture & Delivery to HK - FM200	120	48.33%	62						
CEDB-MD1100	Manufacture & Delivery to HK - FS Pump	120	65%	42						
CEDB-MD1110	Manufacture & Delivery to HK - AFA System	70	30%	49						
CEDB-MD1120	Manufacture & Delivery to HK - LMCP (FS)	51	49.02%	26						
CEDB-MD1130	Manufacture & Delivery to HK - FR/ HR system	90	45.56%	49						
Plumbing & Drainage System										
CEDB-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	78.33%	13						
CEDB-MD1080	Manufacture & Delivery to HK - Water Pump	90	47.78%	47						
CCMS and ELV System										
CEDB-MD1170	Manufacture - CMCS Equipment	62	0%	62						
CEDB-MD1172	FAT - CMCS Equipment	7	0%	7						
CEDB-MD1175	Shipping to HK - CMCS Equipment	14	0%	14						
CEDB-MD1180	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83						
Lift System										
CEDB-MD1000	Manufacture & Delivery to HK - Lift System	124	52.42%	59						
Fire Services Department Building										
FSDB-MD1155	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	80%	9						
FSDB-MD1165	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	68.89%	14						
FSDB-MD1175	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	68.89%	14						

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019					
							Sep	Oct	Nov	Dec		
Electrical System												
FSDB-MD1000	Manufacture - Generator	118	82%	21								
FSDB-MD1005	Shipping to HK - Generator	28	0%	28								
FSDB-MD1010	Manufacture - UPS and Battery	53	98.11%	1								
FSDB-MD1015	Shipping to HK - UPS and Battery	42	0%	42								
FSDB-MD1020	Manufacture - LV Switchboard	86	96.51%	3								
FSDB-MD1022	FAT - LV Switchboard	10	0%	10								
FSDB-MD1025	Shipping to HK - LV Switchboard	14	0%	14								
FSDB-MD1030	Manufacture & Delivery to HK - LV Cables	120	60%	48								
FSDB-MD1040	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	20%	48								
Fire Service System												
FSDB-MD1090	Manufacture & Delivery to HK - FS Pump	120	60%	48								
FSDB-MD1100	Manufacture & Delivery to HK - AFA System	100	52%	48								
FSDB-MD1110	Manufacture & Delivery to HK - LMCP (FS)	48	0%	48								
FSDB-MD1120	Manufacture & Delivery to HK - FR/ HR system	90	20%	72								
FSDB-MD1185	Manufacture & Delivery to HK - FM200	150	60%	60								
Plumbing & Drainage System												
FSDB-MD1060	Manufacture & Delivery to HK - Water Pump	90	45%	50								
FSDB-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	20%	48								
CCMS and ELV System												
FSDB-MD1130	Manufacture - CMCS Equipment	62	0%	62								
FSDB-MD1132	FAT - CMCS Equipment	7	0%	7								
FSDB-MD1135	Shipping to HK - CMCS Equipment	14	0%	14								
FSDB-MD1140	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83								
South Ventilation Building												
SVB-MD1235	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	70%	14								
SVB-MD1245	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	60%	18								
Electrical System												
SVB-MD1005	Shipping to HK - Generator	28	20%	22								
SVB-MD1015	Shipping to HK - UPS and Battery	42	20%	34								
SVB-MD1020	Manufacture - HV/LV Transformer	92	79.35%	19								
SVB-MD1022	FAT - HV/LV Transformer	14	0%	14								
SVB-MD1025	Shipping to HK - HV/LV Transformer	14	0%	14								
SVB-MD1030	Manufacture - LV Switchboard	86	79.07%	18								
SVB-MD1032	FAT - LV Switchboard	10	0%	10								
SVB-MD1035	Shipping to HK - LV Switchboard	14	0%	14								
SVB-MD1040	Manufacture - HV Switchboard	92	83.69%	15								
SVB-MD1042	FAT - HV Switchboard	14	0%	14								
SVB-MD1045	Shipping to HK - HV Switchboard	14	0%	14								
SVB-MD1050	Manufacture & Delivery to HK - HV Cables	120	89.17%	13								
SVB-MD1060	Manufacture & Delivery to HK - Busduct	120	60%	48								
SVB-MD1070	Manufacture & Delivery to HK - LV Cables	120	73%	32								
SVB-MD1080	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	70%	18								
MVAC System												
SVB-MD1175	Shipping to HK - Tunnel Ventilation Fan	45	11.11%	40								
SVB-MD1180	Manufacture & Delivery to HK - Staircase Pressurization Fan	60	50%	30								
Fire Service System												
SVB-MD1120	Manufacture & Delivery to HK - FM200	150	85%	23								

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							Sep	Oct	Nov	Dec
SVB-MD1130	Manufacture & Delivery to HK - FS Pump	120	77%	28						
SVB-MD1140	Manufacture & Delivery to HK - AFA System	100	50%	50						
SVB-MD1150	Manufacture & Delivery to HK - FR/ HR system	90	50%	45						
SVB-MD1160	Manufacture & Delivery to HK - LMCP (FS)	60	70%	18						
Plumbing & Drainage System										
SVB-MD1100	Manufacture & Delivery to HK - Water Pump	90	83%	15						
SVB-MD1110	Manufacture & Delivery to HK - LMCP (PD)	60	35%	39						
SVB-MD1255	Manufacture & Delivery to HK - Sump Pump	120	70%	36						
CCMS and ELV System										
SVB-MD1200	Manufacture - CMCS Equipment	62	25%	47						
SVB-MD1202	FAT - CMCS Equipment	7	0%	7						
SVB-MD1205	Shipping to HK - CMCS Equipment	14	0%	14						
SVB-MD1210	Manufacture & Delivery to HK - other ELV Equipment	83	45%	46						
Lift System										
SVB-MD1190	Manufacture & Delivery to HK - Lift System	120	78.33%	26						
Vehicular Underpass										
VU-MD1030	Manufacture & Delivery to HK - Sump Pump	120	93.33%	8						
VU-MD1040	Manufacture & Delivery to HK - Water Pump	90	70%	27						
VU-MD1050	Manufacture & Delivery to HK - Gas detection	60	0%	60						
VU-MD1060	Manufacture - CMCS Equipment	62	90%	6						
VU-MD1062	FAT - CMCS Equipment	7	0%	7						
VU-MD1065	Shipping to HK - CMCS Equipment	21	0%	21						
VU-MD1070	Manufacture & Delivery to HK - other ELV Equipment	90	75%	23						
Tunnel										
TUN-MD1009	Manufacture - Tunnel Lighting System (4th Batch)	90	80%	18						
TUN-MD1015	Manufacture & Delivery to HK - Gas detection	90	0%	90						
TUN-MD1030	Manufacture & Delivery to HK - FS Pump	60	35%	39						
TUN-MD1042	FAT - CMCS Equipment	21	50%	11						
TUN-MD1045	Shipping to HK - CMCS Equipment	7	0%	7						
TUN-MD1050	Manufacture & Delivery to HK - other ELV Equipment	90	66.67%	30						
TUN-MD1060	Manufacture & Delivery to HK - Sump Pump	109	0%	109						
TUN-MD1070	Manufacture - AQMS Equipment	69	99%	1						
TUN-MD1080	FAT - AQMS Equipment	14	0%	14						
TUN-MD1090	Shipping to HK - AQMS Equipment	7	0%	7						
Approach Road										
AR-MD1010	Manufacture - CMCS Equipment	62	93.55%	4						
AR-MD1015	FAT - CMCS Equipment	7	0%	7						
AR-MD1018	Shipping to HK - CMCS Equipment	14	0%	14						
AR-MD1020	Manufacture & Delivery to HK - other ELV Equipment	83	73.49%	22						
Key Date 1 - Toll Control Building (TCB) & TCSS Provision										
ABWF Works (for All)										
ATCB1010	Door and Window Frames	82	93.9%	5						
ATCB1120	External Cladding and Wall Plastering	94	81.91%	17						
ATCB1130	ABWF second fix & final fix	90	38.89%	55						
Key Date 2 - Administration Building, Maintenance Depot, Kiosk N2, TCSS Provision										
Administration Building (ADB)										
ABWF Works (for All)										
AADB1140	Door and Window Frames	19	0%	19						

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
AADB1151	ABWF Works to Plant Rooms 1/F	52	69.23%	16						
AADB1160	ABWF Works to Office and Corridors G/F	126	44.44%	70						
AADB1161	ABWF Works to Office and Corridors 1/F	126	44.44%	70						
AADB1170	ABWF Works to Toilets G/F	132	50%	66						
AADB1171	ABWF Works to Toilets 1/F	132	50%	66						
AADB1180	Waterproofing and Roofing	48	83.33%	8						
AADB1190	External Cladding and Wall Plastering	69	0%	69						
AADB1200	ABWF second fix & final fix	90	0%	90						
Maintenance Depot										
ABWF Works (for All)										
AMD1010	Door and Window Frames	10	0%	10						
AMD1020	ABWF Works to Plant Rooms	58	60%	23						
AMD1030	ABWF Works to Office and Corridors	132	80.3%	26						
AMD1040	ABWF Works to Toilets	144	76.39%	34						
AMD1050	Waterproofing and Roofing	51	88.24%	6						
AMD1060	External Cladding and Wall Plastering	98	0%	98						
AMD1070	ABWF second fix & final fix	80	0%	80						
Provision for TCSS Installation										
MD220	KD2 Achieved	0	100%	0						
Kiosk N2										
N2-140	Cable Containment Installation to enable TCSS installation	19	100%	0						
Key Date 6 - E&M Works for Administration Building, Maintenance Depot, North Vent Building, Kiosk N2										
E&M Works for Administration Building										
Installation										
G/F										
ADB-EMGF1010	E&M Installation - 1st fix - G/F	46	96%	2						
ADB-EMGF1020	E&M Installation - 2nd fix - G/F	40	75%	10						
ADB-EMGF1030	E&M Installation - Final fix - G/F	40	14%	34						
ADB-EMGF1050	E&M Installation - 11kV Switch & Tx Room 1 - G/F	46	80%	9						
ADB-EMGF1110	E&M Installation - 11kV Switch & Tx Room 2 - G/F	46	75%	12						
ADB-EMGF1120	Cabling from NVB	12	66%	4						
ADB-EMGF1170	E&M Installation - LV Switch Room - G/F	34	80%	7						
ADB-EMGF1180	Cable laying - LV Switch Room - from G/F	24	5%	23						
ADB-EMGF1190	Sub-circuit Power On - LV Switch Room - G/F	0	0%	0						
ADB-EMGF1210	E&M Installation - Generator Room & Fuel Tank Room - G/F	70	65%	25						
ADB-EMGF1240	E&M Installation - MVAC Plant Rooms - G/F	76	40%	46						
ADB-EMGF1260	E&M Installation - FS Plant Rooms - G/F	60	45%	33						
ADB-EMGF1280	E&M Installation - PD Plant Rooms - G/F	50	20%	40						
ADB-EMGF1300	E&M Installation - ELV Plant Rooms - G/F	50	15%	43						
1/F										
ADB-EM1F1010	E&M Installation - 1st fix - 1/F	40	86%	6						
ADB-EM1F1020	E&M Installation - 2nd fix - 1/F	40	44%	22						
ADB-EM1F1030	E&M Installation - Final fix - 1/F	40	1%	40						
ADB-EM1F1060	E&M Installation - MVAC Plant Rooms - 1/F	64	40%	38						
ADB-EM1F1080	E&M Installation - Electrical Plant Rooms - 1/F	64	25%	48						
ADB-EM1F1100	E&M Installation - ELV Plant Rooms - 1/F	52	25%	39						
Roof										
ADB-EMRF1000	ABWF Works ready for E&M Mobilization to General Areas - Roof	0	0%	0						

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							Sep	Oct	Nov	Dec
ADB-EMRF1010	E&M Installation - 1st fix - Roof	25	0%	25						
ADB-EMRF1013	E&M Installation - 2nd fix - Roof	25	0%	25						
ADB-EMRF1016	E&M Installation - Final fix - Roof	25	0%	25						
ADB-EMRF1020	ABWF Works ready for E&M Mobilization to Cooling Tower Area - Roof	0	0%	0						
ADB-EMRF1030	E&M Installation - Cooling Tower Area - Roof	90	0%	90						
Lift Installation (L01)										
ADB-LF1010	Access to lift shaft and lift machine room	0	100%	0						
ADB-LF1020	Lift & lift machine room installation	80	40%	48						
ADB-LF1030	Testing & commissioning	12	0%	12						
ADB-LF1040	Final adjustment, Submission of Form LE5 & EMSD processing	18	0%	18						
Testing and Commissioning										
ADB-TC1000	T&C for Subcircuit Power On	18	0%	18						
ADB-TC1010	T&C for DG Licence	6	0%	6						
ADB-TC1020	Equipment Start-up T&C for FSI for FSI	12	0%	12						
E&M Works for Maintenance Depot										
Installation										
G/F										
MD-EMGF1010	E&M Installation - 1st fix - G/F	40	96%	2						
MD-EMGF1020	E&M Installation - 2nd fix - G/F	40	52%	19						
MD-EMGF1030	E&M Installation - Final fix - G/F	40	5%	38						
MD-EMGF1050	E&M Installation - LV Switch Room - G/F	90	65%	32						
MD-EMGF1060	Cable laying - LV Switch Room - from G/F	12	0%	12						
MD-EMGF1061	Cabling from ADB	6	0%	6						
MD-EMGF1070	Sub-Circuit Power On - LV Switch Room - G/F	0	0%	0						
MD-EMGF1080	ABWF Works ready for E&M Mobilization to Generator & Fuel Tank Rooms - G/F	0	100%	0						
MD-EMGF1090	E&M Installation - Generator & Fuel Tank Rooms - G/F	75	25%	56						
MD-EMGF1110	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	100%	0						
MD-EMGF1120	E&M Installation - Electrical Plant Rooms - G/F	70	20%	56						
MD-EMGF1130	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - G/F	0	100%	0						
MD-EMGF1140	E&M Installation - MVAC Plant Rooms - G/F	90	25%	68						
MD-EMGF1160	E&M Installation - FS Plant Rooms - G/F	90	60%	36						
MD-EMGF1170	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	100%	0						
MD-EMGF1180	E&M Installation - PD Plant Rooms - G/F	85	15%	72						
MD-EMGF1190	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - G/F	0	0%	0						
MD-EMGF1200	E&M Installation - Elv Plant Rooms - G/F	60	0%	60						
R/F										
MD-EMRF1000	ABWF Works ready for E&M Mobilization to R/F	0	0%	0						
MD-EMRF1010	E&M Installation - 1st fix - R/F	30	0%	30						
MD-EMRF1020	E&M Installation - 2nd fix - R/F	30	0%	30						
MD-EMRF1030	E&M Installation - Final fix - R/F	30	0%	30						
Testing & Commissioning										
MD-TC1000	T&C for Subcircuit Power On	12	0%	12						
E&M Works for North Ventilation Building										
Installation										
TVF Installation										
SB-NVB-TVF-3										
TVF-NVB1490	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1500	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3						

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							Aug	Sep	Oct	Nov	Dec
TVF-NVB1510	Leakage test for TVF	8	0%	8							
SB-NVB-TVF-4											
TVF-NVB1520	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0							
TVF-NVB1530	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1540	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1550	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-2											
TVF-NVB1050	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1060	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1070	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-3											
TVF-NVB0120	Preparation Works	6	100%	0							
TVF-NVB1080	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0							
TVF-NVB1090	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1100	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1110	Leakage test for TVF	8	0%	8							
SB-NVB-TVF-1											
TVF-NVB0200	Preparation Works	6	100%	0							
TVF-NVB1400	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0							
TVF-NVB1410	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1420	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1430	Leakage test for TVF	8	0%	8							
SB-NVB-TVF-2											
TVF-NVB1450	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1460	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1470	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-1											
TVF-NVB0100	Preparation Works	6	100%	0							
TVF-NVB1000	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0							
TVF-NVB1010	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1020	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1030	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-4											
TVF-NVB0130	Preparation Works	6	0%	6							
TVF-NVB1120	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12							
TVF-NVB1130	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1140	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6							
TVF-NVB1150	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-5											
TVF-NVB1170	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1180	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1190	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-6											
TVF-NVB1210	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	50%	6							
TVF-NVB1230	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-7											
TVF-NVB1250	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1260	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							

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							Aug	Sep	Oct	Nov	Dec
TVF-NVB1270	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-8											
TVF-NVB1290	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1300	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1310	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-9											
TVF-NVB1330	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1340	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1350	Leakage test for TVF	8	0%	8							
NB-NVB-TVF-10											
TVF-NVB1370	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	90%	1							
TVF-NVB1390	Leakage test for TVF	8	0%	8							
B2/F											
NVB-EMB21010	E&M Installation - 1st fix - B2/F	50	98%	1							
NVB-EMB21020	E&M Installation - 2nd fix - B2/F	50	91%	5							
NVB-EMB21030	E&M Installation - Final fix - B2/F	50	60%	20							
NVB-EMB21060	E&M Installation - Electrical Plant Rooms - B2/F	90	87%	12							
NVB-EMB21080	E&M Installation - MVAC Plant Rooms - B2/F	60	40%	36							
NVB-EMB21100	E&M Installation - FS Plant Rooms - B2/F	45	40%	27							
NVB-EMB21120	E&M Installation - PD Plant Rooms - B2/F	60	48%	31							
NVB-EMB21140	E&M Installation - Elv Plant Rooms - B2/F	45	60%	18							
B1/F											
NVB-EMB11010	E&M Installation - 1st fix - B1/F	50	97%	2							
NVB-EMB11020	E&M Installation - 2nd fix - B1/F	50	90%	5							
NVB-EMB11030	E&M Installation - Final fix - B1/F	50	63%	19							
NVB-EMB11060	E&M Installation - Electrical Plant Rooms - B1/F	90	88%	11							
NVB-EMB11080	E&M Installation - MVAC Plant Rooms - B1/F	60	40%	36							
NVB-EMB11100	E&M Installation - Elv Plant Rooms - B1/F	45	60%	18							
G/F											
NVB-EMGF1010	E&M Installation - 1st fix - G/F	50	96%	2							
NVB-EMGF1020	E&M Installation - 2nd fix - G/F	50	88%	6							
NVB-EMGF1030	E&M Installation - Final fix - G/F	50	50%	25							
NVB-EMGF1080	Wiring Inspection with CLP	12	0%	12							
NVB-EMGF1090	Power On Energization by CLP	0	0%	0							
NVB-EMGF1120	E&M Installation - Genset Room & Fuel Tank Room - G/F	80	65%	28							
NVB-EMGF1140	E&M Installation - Electrical Plant Rooms - G/F	50	90%	5							
NVB-EMGF1160	E&M Installation - MVAC Plant Rooms - G/F	52	45%	29							
NVB-EMGF1180	E&M Installation - FS Plant Rooms - G/F	90	65%	32							
NVB-EMGF1200	E&M Installation - PD Plant Rooms - G/F	90	40%	54							
1/F											
NVB-EM1F1010	E&M Installation - 1st fix - 1/F	50	98%	1							
NVB-EM1F1020	E&M Installation - 2nd fix - 1/F	50	85%	8							
NVB-EM1F1030	E&M Installation - Final fix - 1/F	50	54%	23							
NVB-EM1F1050	E&M Installation - LV Switch Room - 1/F	40	85%	6							
NVB-EM1F1060	Cable laying - LV Switch Room - 1/F	58	75%	15							
NVB-EM1F1070	Sub-Circuit Power On - LV Switch Room - 1/F	0	0%	0							
NVB-EM1F1090	E&M Installation - 11kV Switch & Tx Room 1 - 1/F	60	75%	15							
NVB-EM1F1150	E&M Installation - 11kV Switch & Tx Room 2 - 1/F	60	80%	12							

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							Sep	Oct	Nov	Dec
NVB-EM1F1220	E&M Installation - Electrical Plant Rooms - 1/F	50	90%	5						
NVB-EM1F1240	E&M Installation - MVAC Plant Rooms - 1/F	90	65%	32						
NVB-EM1F1260	E&M Installation - FS Plant Rooms - 1/F	90	75%	23						
2/F										
NVB-EM2F1010	E&M Installation - 1st fix - 2/F	50	98%	1						
NVB-EM2F1020	E&M Installation - 2nd fix - 2/F	50	77%	12						
NVB-EM2F1030	E&M Installation - Final fix - 2/F	50	60%	20						
NVB-EM2F1060	E&M Installation - Electrical Plant Rooms - 2/F	50	90%	5						
NVB-EM2F1080	E&M Installation - MVAC Plant Rooms - 2/F	60	40%	36						
NVB-EM2F1100	E&M Installation - Elv Plant Rooms - 2/F	45	42%	26						
Lift Installation (L01 & L02)										
NVB-LF1020	Lift & lift machine room installation	73	70%	22						
NVB-LF1030	Testing & commissioning	24	0%	24						
NVB-LF1040	Final adjustment, Submission of Form LE5 & EMSD processing	20	0%	20						
Testing & Commissioning										
NVB-TC1000	T&C for Subcircuit Power On	18	0%	18						
NVB-TC1010	T&C for DG Licence	6	0%	6						
NVB-TC1020	T&C for TVF	33	0%	33						
NVB-TC1030	Equipment Start-up T&C for FSI	12	0%	12						
NVB-TC1033	Individual E&M System T&C for FSI	42	0%	42						
Remaining E&M Works for Kiosk N2 (Structure Completed under KD2)										
EN2120	ABWF Works (Door, windows, tiles)	30	0%	30						
EN2130	E&M Works	31	0%	31						
EN2140	Testing & Commissioning	12	0%	12						
Key Date 3 - Satellite Control Building & TCSS Provision										
Building Structure										
SCB170	Upper Roof Slab	15	100%	0						
SCB180	Handover Portion XVIIIb to HY/2012/08	0	0%	0						
ABWF Works (for All)										
ASCB1000	Blockwork Walls	19	100%	0						
ASCB1010	Door and Window Frames	19	100%	0						
ASCB1020	ABWF Works to Plant Rooms G/F	60	42%	35						
ASCB1021	ABWF Works to Plant Rooms 1/F	60	25%	45						
ASCB1022	ABWF Works to Plant Rooms 2/F	60	0%	60						
ASCB1030	ABWF Works to Office and Corridors G/F	95	42%	55						
ASCB1031	ABWF Works to Office and Corridors 1/F	95	25%	71						
ASCB1040	ABWF Works to Toilets 1/F	103	39.81%	62						
ASCB1050	Waterproofing and Roofing	50	0%	50						
ASCB1060	External Cladding and Wall Plastering	101	0%	101						
Provision for TCSS Installation										
SCB210	Cable Containment Installation to enable TCSS installation	62	0%	62						
Key Date 5 - E&M Works for TCB, Toll Area, Kiosk N1, Underpass, Plant Rm, and Approach Roads										
Carpark Canopy										
ETCB150	Steelwork for Canopy Structure	45	0%	45						
ETCB160	E&M 1st fix Installation for Canopy Structure	30	0%	30						
ETCB170	E&M 2nd fix and final fix Installation for Canopy Structure	30	0%	30						
E&M Works for TCB										
Installation										

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							Sep	Oct	Nov	Dec			
Basement													
TCB-EM1001	E&M Installation - 1st fix - Basement	60	93%	4									
TCB-EM1002	E&M Installation - 2nd fix - Basement	60	66%	20									
TCB-EM1003	E&M Installation - Final fix - Basement	60	22%	47									
G/F													
TCB-EMGF1010	E&M Installation - 1st fix - G/F	60	96%	2									
TCB-EMGF1020	E&M Installation - 2nd fix - G/F	60	78%	13									
TCB-EMGF1030	E&M Installation - Final fix - G/F	60	32%	41									
TCB-EMGF1080	Wiring Inspection with CLP	12	0%	12									
TCB-EMGF1090	Power On Energization by CLP	0	0%	0									
TCB-EMGF1110	E&M Installation - LV Switch Room - G/F	70	65%	25									
TCB-EMGF1120	Cable laying - LV Switch Room - from G/F	51	0%	51									
TCB-EMGF1150	E&M Installation - Generator & Fuel Tank Rooms - G/F	90	25%	68									
TCB-EMGF1180	E&M Installation - Electrical Plant Rooms - G/F	50	80%	10									
TCB-EMGF1200	E&M Installation - MVAC Plant Rooms - G/F	90	48%	47									
TCB-EMGF1220	E&M Installation - FS Plant Rooms - G/F	90	30%	63									
TCB-EMGF1240	E&M Installation - PD Plant Rooms - G/F	60	30%	42									
1/F													
TCB-EM1F1010	E&M Installation - 1st fix - 1/F	60	96%	2									
TCB-EM1F1020	E&M Installation - 2nd fix - 1/F	60	88%	7									
TCB-EM1F1030	E&M Installation - Final fix - 1/F	60	32%	41									
TCB-EM1F1060	E&M Installation - Electrical Plant Rooms - 1/F	90	62%	34									
TCB-EM1F1080	E&M Installation - FS Plant Rooms - 1/F	90	90%	9									
TCB-EM1F1100	E&M Installation - PD Plant Rooms - 1/F	90	33%	60									
2/F													
TCB-EM2F1010	E&M Installation - 1st fix - 2/F	48	97%	1									
TCB-EM2F1020	E&M Installation - 2nd fix - 2/F	48	85%	7									
TCB-EM2F1030	E&M Installation - Final fix - 2/F	48	27%	35									
TCB-EM2F1060	E&M Installation - Electrical Plant Room - 2/F	60	75%	15									
TCB-EM2F1080	E&M Installation - MVAC Plant Rooms - 2/F	90	55%	41									
TCB-EM2F1100	E&M Installation - Elv Plant Rooms - 2/F	60	48%	31									
Roof													
TCB-EMRF1010	E&M Installation - 1st fix - Roof	50	31.25%	34									
TCB-EMRF1020	E&M Installation - 2nd fix - Roof	50	2%	49									
Lift Installation (L01)													
TCB-LF1010	Lift & lift machine room installation	90	35%	59									
Toll Area													
South Bound													
ETA130	Installation of South Bound Toll Booths	30	80%	6									
ETA140	South Bound Toll Booths - E&M installation 1st fix	36	0%	36									
ETA150	Toll Booth Subway - E&M installation 1st fix	48	60%	19									
ETA160	E&M installation - 2nd fix and final fix	36	0%	36									
North Bound													
ETA210	North Bound Toll Booths - E&M installation 1st fix	36	0%	36									
ETA220	Toll Booth Subway - E&M installation 1st fix	48	60%	19									
ETA230	E&M installation - 2nd fix and final fix	36	0%	36									
Kiosk N1													
EN130	Structure	48	0%	48									

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							Sep	Oct	Nov	Dec
EN140	ABWF Works (Door, windows, tiles)	30	0%	30						
Underpass										
E&M Works at Underpass										
EU120	Remaining E&M Installations	37	48.65%	19						
EU130	Equipment Start-up T&C for FSI	12	0%	12						
VU110	Jet Fans installation	24	0%	24						
VU140	Dampers installation	24	0%	24						
VU150	Cabling Works	36	95%	2						
VU170	High Level works - Tunnel Lighting	39	85%	6						
VU180	Cladding Works	25	50%	13						
Plant Room										
E&M Works										
EPR130	E&M Installation	90	75%	23						
EPR150	Equipment Start-up T&C for FSI	6	0%	6						
EPR153	Individual E&M System T&C for FSI	18	0%	18						
VU160	Pressurization Fans Installation	24	0%	24						
Deck Void										
Bridge H1, G1, G2										
DV110	Possess Portions IX	0	0%	0						
DV120	Electrical Installation - Bridge H1	20	0%	20						
DV130	Electrical Installation - Bridge G1	20	0%	20						
DV140	Electrical Installation - Bridge G2	20	0%	20						
DV150	T&C for Electrical Installation	12	0%	12						
TD1, TD2, RB_W										
DV180	Possess Portions X, IX and XI	0	0%	0						
DV190	Electrical Installation - Bridge TD1	20	0%	20						
DV200	Electrical Installation - Bridge TD2	20	20%	16						
Approach Roads										
Under Portions IX, XI, XX										
AR130	Cabling works - Portion IX	40	0%	40						
AR133	Cabling works - Portion XI	40	0%	40						
AR140	Road lighting installation & termination - Portion IX	25	0%	25						
AR145	Road lighting installation & termination - Portion XI	25	0%	25						
Under Portion X										
AR180	Cabling works in portion X	90	92%	7						
AR190	Road lighting installation & termination in portion X	90	30%	63						
AR200	T&C of Roading Lighting in portion X	30	0%	30						
Key Date 6B - E&M Works for South Vent Duct, Tunnel, and Approach Roads										
E&M Works										
SVD130	Access to Portions IVa	0	0%	0						
Ventilation Ducts										
SVD-1000	Cable Containment Installation	8	0%	8						
SVD-1010	Damper Installation	8	0%	8						
Service Gallery										
Ch 7200 - 5000										
TNL-SG1000	Drilling works CH7200 - 5000	12	70%	4						
TNL-SG1010	Wall Mounted Pipe Module Installation CH7200 - 5000	30	70%	9						
TNL-SG1020	Ceiling Mounted Module Delivery CH7200 - 5000	30	70%	9						

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TNL-SG1030	High Level 2nd Fix and Final Fix Installation CH7200 - 5000	46	0%	46							
TNL-SG1040	Cabling Works CH7200 - 5000	29	0%	29							
CH5000 - 3050											
TNL-SG1060	Drilling works CH5000 - 3050	12	55%	5							
TNL-SG1070	Wall Mounted Pipe Module Installation CH5000 - 3050	30	55%	14							
TNL-SG1080	Ceiling Mounted Module Delivery CH5000 - 3050	30	55%	14							
TNL-SG1090	High Level 2nd Fix and Final Fix Installation CH5000 - 3050	43	0%	43							
TNL-SG1100	Cabling Works CH5000 - 3050	28	0%	28							
CH3050 - 2500											
TNL-SG1120	Drilling works CH3050 - 2500	3	30%	2							
TNL-SG1130	Wall Mounted Pipe Module Installation CH3050 - 2500	12	30%	8							
TNL-SG1140	Ceiling Mounted Module Delivery CH3050 - 2500	12	30%	8							
Road Level & OHVD											
Ch 7200 - 5000											
Ch 7200 - 6700											
TNU-RL1770	Bracket fixing on side wall - CH7200 to 6700	8	90%	1							
TNU-RL1790	Lighting in the middle of tunnels - CH7200 to 6700	8	84%	1							
TNU-RL1800	FH/ HR pipe installation - CH7200 to 6700	8	91%	1							
TNU-RL1830	Cabling Works on Brackets - CH7200 to 6700	14	78%	3							
TNU-RL1880	High level wiring works and remaining High level works in the middle of tunnels - CH7200 to 6700	20	50%	10							
TNU-RL1910	Low level works - FS nicle module - CH7200 to 6700	10	10%	9							
TNU-RL1930	Low level works - FS nicle connection - CH7200 to 6700	10	0%	10							
TNU-RL1940	Final connection to small powers - CH7200 to 6700	10	0%	10							
TNU-RL1970	Cladding works - CH7200 to 6700	13	0%	13							
Ch 6700 - 6100											
TNU-RL1000	Bracket fixing on side wall - CH6700 to 6100	10	97%	0							
TNU-RL1010	Lighting in the middle of tunnels - CH6700 to 6100	9	96.01%	0							
TNU-RL1020	FH/ HR pipe installation - CH6700 to 6100	10	95%	1							
TNU-RL1030	Cabling Works on Brackets - CH6700 to 6100	17	78%	4							
TNU-RL1040	MSFD delivery in OHVD - CH6700 to 6100	11	95%	1							
TNU-RL1050	MSFD installation works in OHVD - CH6700 to 6100	11	95%	1							
TNU-RL1060	High level wiring works and remaining High level works in the middle of tunnels - CH6700 to 6100	24	40%	14							
TNU-RL1070	Low level works - FS nicle module - CH6700 to 6100	12	0%	12							
TNU-RL1080	Low level works - FS nicle connection - CH6700 to 6100	12	0%	12							
TNU-RL1090	Final connection to small powers - CH6700 to 6100	10	0%	10							
TNU-RL1100	Cladding works - CH6700 to 6100	15	0%	15							
Ch 6100 - 5600											
TNU-RL1110	Bracket fixing on side wall - CH6100 to 5600	8	96.99%	0							
TNU-RL1140	Cabling Works on Brackets - CH6100 to 5600	14	78%	3							
TNU-RL1170	High level wiring works and remaining High level works in the middle of tunnels - CH6100 to 5600	20	40%	12							
TNU-RL1180	Low level works - FS nicle module - CH6100 to 5600	10	0%	10							
TNU-RL1190	Low level works - FS nicle connection - CH6100 to 5600	10	0%	10							
TNU-RL1200	Final connection to small powers - CH6100 to 5600	10	0%	10							
TNU-RL1210	Cladding works - CH6100 to 5600	13	0%	13							
CH 5600 - 5000											
TNU-RL1220	Bracket fixing on side wall - CH5600 to 5000	10	95%	1							
TNU-RL1240	FH/ HR pipe installation - CH5600 to 5000	10	98%	0							
TNU-RL1250	Cabling Works on Brackets - CH5600 to 5000	17	78%	4							

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TNU-RL1280	High level wiring works and remaining High level works in the middle of tunnels - CH5600 to 5000	24	40%	14						
TNU-RL1290	Low level works - FS nicle module - CH5600 to 5000	12	0%	12						
TNU-RL1300	Low level works - FS nicle connection - CH5600 to 5000	12	0%	12						
TNU-RL1310	Final connection to small powers - CH5600 to 5000	10	0%	10						
TNU-RL1320	Cladding works - CH5600 to 5000	15	0%	15						
CH5000 - 3050										
CH5000 - 4500										
TNU-RL1780	Bracket fixing on side wall - CH5000 to 4500	8	90%	1						
TNU-RL1850	Cabling Works on Brackets - CH5000 to 4500	14	78%	3						
TNU-RL1860	MSFD delivery in OHVD - CH5000 to 4500	9	98%	0						
TNU-RL1890	MSFD installation works in OHVD - CH5000 to 4500	9	98%	0						
TNU-RL1900	High level wiring works and remaining High level works in the middle of tunnels - CH5000 to 4500	20	35%	13						
TNU-RL1920	Low level works - FS nicle module - CH5000 to 4500	10	0%	10						
TNU-RL1950	Low level works - FS nicle connection - CH5000 to 4500	10	0%	10						
TNU-RL1960	Final connection to small powers - CH5000 to 4500	10	0%	10						
CH4500 - 4000										
TNU-RL1330	Bracket fixing on side wall - CH4500 to 4000	8	90%	1						
TNU-RL1350	FH/ HR pipe installation - CH4500 to 4000	8	98.01%	0						
TNU-RL1360	Cabling Works on Brackets - CH4500 to 4000	14	70%	4						
TNU-RL1390	High level wiring works and remaining High level works in the middle of tunnels - CH4500 to 4000	20	35%	13						
TNU-RL1400	Low level works - FS nicle module - CH4500 to 4000	10	0%	10						
TNU-RL1410	Low level works - FS nicle connection - CH4500 to 4000	10	0%	10						
CH4000 - 3500										
TNU-RL1440	Bracket fixing on side wall - CH4000 to 3500	8	91%	1						
TNU-RL1470	Cabling Works on Brackets - CH4000 to 3500	14	60%	6						
TNU-RL1480	MSFD delivery in OHVD - CH4000 to 3500	9	80%	2						
TNU-RL1490	MSFD installation works in OHVD - CH4000 to 3500	9	80%	2						
TNU-RL1500	High level wiring works and remaining High level works in the middle of tunnels - CH4000 to 3500	20	35%	13						
CH3500 - 3050										
TNU-RL1550	Bracket fixing on side wall - CH3500 to 3050	8	89%	1						
TNU-RL1570	FH/ HR pipe installation - CH3500 to 3050	8	91.99%	1						
TNU-RL1580	Cabling Works on Brackets - CH3500 to 3050	14	42%	8						
TNU-RL1590	MSFD delivery in OHVD - CH3500 to 3050	9	8.99%	8						
TNU-RL1600	MSFD installation works in OHVD - CH3500 to 3050	9	8.99%	8						
TNU-RL1610	High level wiring works & remaining High level works in the tunnel middle - CH3500 to 3050	20	30%	14						
CH3050 - 2500										
<input type="checkbox"/> TNU-RL1660	Bracket fixing on side wall - CH3050 to 2500	8	0%	8						
Other Works										
<input type="checkbox"/> TNU-OW1000	HV Cabling Works in Tunnels	48	0%	48						
<input type="checkbox"/> TNU-OW1010	FR enclosure installation	42	0%	42						
T&C										
<input type="checkbox"/> TNL-10TC1010	Permanent power available to tunnels from NVB	0	0%	0						
Key Date 7 - E&M Works for Satellite Control Building and Kiosks S1&S2										
E&M Works for Satellite Control Building										
E&M Works										
Installation										
G/F										
<input type="checkbox"/> SCB-EMGF10	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0						

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SCB-EMGF10	E&M Installation - 1st fix - G/F	30	0%	30						
SCB-EMGF10	E&M Installation - 2nd fix - G/F	30	0%	30						
SCB-EMGF10	ABWF Works ready for E&M Mobilization to Generator Room & Fuel Tank Room - G/F	0	0%	0						
SCB-EMGF10	E&M Installation - Generator Room & Fuel Tank Room - G/F	70	0%	70						
SCB-EMGF10	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	0%	0						
SCB-EMGF10	E&M Installation - LV Switch Room - G/F	60	0%	60						
SCB-EMGF10	Cable laying - LV Switch Room - from G/F	42	0%	42						
SCB-EMGF11	ABWF Works ready for E&M Mobilization to CLP Tx Room - G/F	0	100%	0						
SCB-EMGF11	E&M Installation - CLP Tx Room - G/F	18	0%	18						
SCB-EMGF11	Inspection & Handover to CLP	6	0%	6						
SCB-EMGF11	Installation by CLP - CLP Tx Room - G/F	68	0%	68						
SCB-EMGF11	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0						
SCB-EMGF11	E&M Installation - FS Plant Rooms - G/F	80	0%	80						
SCB-EMGF11	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	0%	0						
SCB-EMGF12	E&M Installation - PD Plant Rooms - G/F	90	0%	90						
1/F										
SCB-EM1F10	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	0%	0						
SCB-EM1F10	E&M Installation - 1st fix - 1/F	30	0%	30						
SCB-EM1F10	E&M Installation - 2nd fix - 1/F	30	0%	30						
SCB-EM1F10	ABWF Works ready for E&M Mobilization to Computer Room (TCSS) - 1/F	0	0%	0						
SCB-EM1F10	E&M Installation - Computer Room (TCSS) - 1/F	60	0%	60						
SCB-EM1F10	ABWF Works ready for E&M Mobilization to EL Room - 1/F	0	0%	0						
SCB-EM1F10	E&M Installation - EL Room - 1/F	90	0%	90						
SCB-EM1F10	ABWF Works ready for E&M Mobilization to FS Plant Rooms - 1/F	0	0%	0						
SCB-EM1F11	E&M Installation - FS Plant Rooms - 1/F	85	0%	85						
SCB-EM1F11	ABWF Works ready for E&M Mobilization to Elv Plant Room - 1/F	0	0%	0						
SCB-EM1F11	E&M Installation - ELV Plant Room - 1/F	70	0%	70						
Roof										
SCB-EMRF10	ABWF Works ready for E&M Mobilization to R/F	0	0%	0						
SCB-EMRF10	E&M Installation - 1st fix - R/F	25	0%	25						
SCB-EMRF10	E&M Installation - 2nd fix - R/F	25	0%	25						
SCB-EMRF10	ABWF Works ready for E&M Mobilization to FS Plant Rooms	0	0%	0						
SCB-EMRF10	E&M Installation - FS Plant Rooms	75	0%	75						
Lift Installation (L01)										
SCB-LF1010	Access to lift shaft and lift machine room	0	0%	0						
SCB-LF1020	Lift & lift machine room installation	75	0%	75						
Kiosk S2										
S2110	Possess Portion Vib	0	100%	0						
S2120	Structure	30	0%	30						
S2130	ABWF Works (Door, windows, tiles)	15	0%	15						
S2140	E&M works	36	0%	36						
Key Date 6C - E&M Works for South Ventilation Building										
SVB-SEM1000	SEM Drawings ready for Structural Works for SVB	0	0%	0						
Installation										
TVF Installation										
NB-SVB-TVF-1										
SVB-TVF2000	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2010	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						

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							Sep	Oct	Nov	Dec	
							SVB-TVF2020	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2
SVB-TVF2030	Leakage test for TVF	8	0%	8							
NB-SVB-TVF-2											
SVB-TVF2040	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2050	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2060	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2070	Leakage test for TVF	8	0%	8							
NB-SVB-TVF-3											
SVB-TVF2080	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2090	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2100	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2110	Leakage test for TVF	8	0%	8							
NB-SVB-TVF-4											
SVB-TVF2120	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2130	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	8	0%	8							
SVB-TVF2140	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2150	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-1											
SVB-TVF2160	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2170	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2180	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2190	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-2											
SVB-TVF2200	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2210	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2220	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2230	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-3											
SVB-TVF2240	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2250	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2260	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2270	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-4											
SVB-TVF2280	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2290	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	8	0%	8							
SVB-TVF2300	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2310	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-5											
SVB-TVF2320	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2330	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2340	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2350	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-6											
SVB-TVF2360	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6							
SVB-TVF2370	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7							
SVB-TVF2380	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2							
SVB-TVF2390	Leakage test for TVF	8	0%	8							
SB-SVB-TVF-7											

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							SVB-TVF2400	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%
SVB-TVF2410	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2420	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2430	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-8										
SVB-TVF2440	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2450	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2460	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2470	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-9										
SVB-TVF2480	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2490	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2500	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2510	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-10										
SVB-TVF2520	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2530	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	8	0%	8						
SVB-TVF2540	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2550	Leakage test for TVF	8	0%	8						
B2/F										
SVB-EMB21010	E&M Installation - 1st fix - B2/F	25	47%	13						
SVB-EMB21020	E&M Installation - 2nd fix - B2/F	25	34%	17						
SVB-EMB21030	E&M Installation - Final fix - B2/F	25	0%	25						
SVB-EMB21060	E&M Installation - Electrical Plant Rooms- B2/F	40	0%	40						
SVB-EMB21080	E&M Installation - MVAC Palnt Rooms - B2/F	60	0%	60						
SVB-EMB21100	E&M Installation - FS Plant Rooms - B2/F	45	0%	45						
SVB-EMB21110	E&M Installation - PD Palnt Rooms - B2/F	60	0%	60						
B1/F										
SVB-EMB11000	E&M access to B1/F	0	100%	0						
SVB-EMB11010	E&M Installation - 1st fix - B1/F	25	28%	18						
SVB-EMB11020	E&M Installation - 2nd fix - B1/F	25	12%	22						
SVB-EMB11030	E&M Installation - Final fix - B1/F	25	0%	25						
SVB-EMB11060	E&M Installation - Electrical Plant Rooms - B1/F	40	0%	40						
SVB-EMB11080	E&M Installation - MVAC Plant Rooms - B1/F	60	0%	60						
SVB-EMB11100	E&M Installation - FS Plant Rooms - B1/F	48	0%	48						
SVB-EMB11120	E&M Installation - Elv Plant Rooms - B1/F	48	0%	48						
G/F										
SVB-EMGF1000	E&M access to G/F	0	100%	0						
SVB-EMGF1010	E&M Installation - 1st fix - G/F	25	8%	23						
SVB-EMGF1020	E&M Installation - 2nd fix - G/F	25	0%	25						
SVB-EMGF1030	E&M Installation - Final fix - G/F	25	0%	25						
SVB-EMGF1050	E&M Installation - CLPP HV Switch Room - G/F	12	0%	12						
SVB-EMGF1060	Inspection & Handover to CLP	5	0%	5						
SVB-EMGF1070	Installation by CLP - CLPP HV Switch Room - G/F	24	0%	24						
SVB-EMGF1080	Wiring Inspection with CLP	2	0%	2						
SVB-EMGF1120	E&M Installation - Genset Room & Fuel Tank Rooms - G/F	40	0%	40						
SVB-EMGF1140	E&M Installation - Electrical Plant Rooms - G/F	40	0%	40						
SVB-EMGF1160	E&M Installation - MVAC Plant Rooms - G/F	40	0%	40						

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Sep	Oct	Nov	Dec
							SVB-EMGF1180	E&M Installation - FS Plant Rooms - G/F	40	0%
SVB-EMGF1200	E&M Installation - PD Plant Rooms - G/F	40	0%	40						
SVB-EMGF1220	E&M Installation - Elv Plant Rooms - G/F	48	0%	48						
1/F										
SVB-EM1F1000	E&M access to 1/F	0	0%	0						
SVB-EM1F1010	E&M Installation - 1st fix - 1/F	25	0%	25						
SVB-EM1F1020	E&M Installation - 2nd fix - 1/F	25	0%	25						
SVB-EM1F1030	E&M Installation - Final fix - 1/F	25	0%	25						
SVB-EM1F1050	E&M Installation - 11kV Switch & Tx Room 1 - 1/F	41	0%	41						
SVB-EM1F1110	E&M Installation - 11kV Switch & Tx Room 2 - 1/F	41	0%	41						
SVB-EM1F1170	E&M Installation - LV Switch Room - 1/F	41	0%	41						
SVB-EM1F1180	Cable laying - from 1/F	16	0%	16						
SVB-EM1F1190	Sub-Circuit Power On - LV Switch Room - 1/F	0	0%	0						
SVB-EM1F1220	E&M Installation - Electrical Plant Rooms - 1/F	50	0%	50						
SVB-EM1F1240	E&M Installation - MVAC Plant Rooms - 1/F	60	0%	60						
SVB-EM1F1260	E&M Installation - FS Plant Rooms - 1/F	50	0%	50						
SVB-EM1F1280	E&M Installation - ELV Plant Rooms - 1/F	50	0%	50						
2/F										
SVB-EM2F1000	E&M access to 2F	0	0%	0						
SVB-EM2F1010	E&M Installation - 1st fix - 2/F	25	0%	25						
SVB-EM2F1020	E&M Installation - 2nd fix - 2/F	25	0%	25						
SVB-EM2F1030	E&M Installation - Final fix - 2/F	25	0%	25						
SVB-EM2F1060	E&M Installation - Electrical Plant Rooms - 2/F	40	0%	40						
SVB-EM2F1080	E&M Installation - MVAC Plant Rooms - 2/F	40	0%	40						
SVB-EM2F1100	E&M Installation - FS Plant Rooms - 2/F	40	0%	40						
SVB-EM2F1120	E&M Installation - PD Plant Rooms - 2/F	40	0%	40						
Lift Installation (L01 & L02)										
SVB-LF1010	Access to lift shaft and lift machine room	0	0%	0						
SVB-LF1020	Lift & lift machine room installation	50	0%	50						
Key Date 10 - FSD Building Structure & E&M Works										
Building Structure										
FSD240	Top Roof	18	100%	0						
ABWF Works										
AFSD1000	Blockwork Walls	25	30%	18						
AFSD1010	Door and Window Frames	19	0%	19						
AFSD1020	ABWF Works to Plant Rooms G/F	56	30%	39						
AFSD1021	ABWF Works to Plant Rooms 1/F	56	0%	56						
AFSD1030	ABWF Works to Office and Corridors G/F	124	30%	87						
AFSD1031	ABWF Works to Office and Corridors 1/F	124	0%	124						
AFSD1040	ABWF Works to Toilets G/F	136	30%	95						
AFSD1050	Waterproofing and Roofing	52	0%	52						
AFSD1060	External Cladding and Wall Plastering	101	0%	101						
E&M Works										
Installation										
G/F										
FSDB-EMGF100	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0						
FSDB-EMGF101	E&M Installation - 1st fix - G/F	40	0%	40						
FSDB-EMGF102	ABWF Works ready for E&M Mobilization to CLPTX Room - G/F	0	0%	0						

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Aug	Sep	Oct	Nov	Dec
FSDB-EMGF105	E&M Installation - CLP Tx Room - G/F	18	0%	18							
FSDB-EMGF106	Inspection & Handover to CLP	6	0%	6							
FSDB-EMGF107	Installation by CLP - CLP Tx Room - G/F	82	0%	82							
FSDB-EMGF111	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	0%	0							
FSDB-EMGF112	E&M Installation - Electrical Plant Rooms - G/F	60	0%	60							
FSDB-EMGF113	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0							
FSDB-EMGF114	E&M Installation - FS Plant Rooms - G/F	50	0%	50							
FSDB-EMGF115	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - G/F	0	0%	0							
FSDB-EMGF116	E&M Installation - Elv Plant Rooms - G/F	50	0%	50							
1/F											
FSDB-EM1F100	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	0%	0							
FSDB-EM1F101	E&M Installation - 1st fix - 1/F	40	0%	40							
FSDB-EM1F104	ABWF Works ready for E&M Mobilization to Emergency Generator & Fuel Tank Rooms - 1/F	0	0%	0							
FSDB-EM1F105	E&M Installation - Emergency Generator & Fuel Tank Rooms - 1/F	60	0%	60							
FSDB-EM1F106	ABWF Works ready for E&M Mobilization to LV Switch Room - 1/F	0	0%	0							
FSDB-EM1F107	E&M Installation - LV Switch Room - 1/F	55	0%	55							
FSDB-EM1F111	ABWF Works ready for E&M Mobilization to FS Plant Rooms - 1/F	0	0%	0							
FSDB-EM1F112	E&M Installation - FS Plant Rooms - 1/F	60	0%	60							
FSDB-EM1F113	ABWF Works ready for E&M Mobilization to PD Plant Rooms - 1/F	0	0%	0							
FSDB-EM1F114	E&M Installation - PD Plant Rooms - 1/F	60	0%	60							
Roof											
FSDB-EMRF100	ABWF Works ready for E&M Mobilization to Roof	0	0%	0							
FSDB-EMRF101	E&M Installation - 1st fix - Roof	20	0%	20							
Statutory Inspections and approvals											
FSDB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24							
Key Date 9 - C&ED Building & E&M Works											
Building Structure											
CED240	Second Floor	25	80%	5							
CED250	Third Floor	32	0%	32							
CED260	Roof Slab	30	0%	30							
CED270	Top Roof	14	0%	14							
ABWF Works											
ACED1000	Blockwork Walls	54	0%	54							
ACED1010	Door and Window Frames	48	0%	48							
ACED1020	ABWF Works to Plant Rooms G/F	60	0%	60							
ACED1021	ABWF Works to Plant Rooms 1/F	60	0%	60							
ACED1022	ABWF Works to Plant Rooms 2/F	60	0%	60							
ACED1023	ABWF Works to Plant Rooms 3/F	60	0%	60							
ACED1030	ABWF Works to Office and Corridors G/F	133	0%	133							
ACED1031	ABWF Works to Office and Corridors 1/F	118	0%	118							
ACED1032	ABWF Works to Office and Corridors 2/F	130	0%	130							
ACED1033	ABWF Works to Office and Corridors 3/F	92	0%	92							
ACED1040	ABWF Works to Toilets G/F	142	0%	142							
ACED1041	ABWF Works to Toilets 2/F	142	0%	142							
ACED1042	ABWF Works to Toilets 3/F	98	0%	98							
ACED1050	Waterproofing and Roofing	50	0%	50							
ACED1060	External Cladding and Wall Plastering	97	0%	97							
E&M Works											

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019					
							Aug	Sep	Oct	Nov	Dec	
Installation												
C&EDB-GF0001	E&M cast-in Installation	90	80%	18								
G/F												
C&EDB-GF1000	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0								
C&EDB-GF1010	E&M Installation - 1st fix - G/F	40	0%	40								
C&EDB-GF1020	E&M Installation - 2nd fix - G/F	40	0%	40								
C&EDB-GF1040	ABWF Works ready for E&M Mobilization to CLP Tx Room - G/F	0	0%	0								
C&EDB-GF1050	E&M Installation - CLP Tx Room - G/F	18	0%	18								
C&EDB-GF1060	Inspection & Handover to CLP	6	0%	6								
C&EDB-GF1070	Installation by CLP - CLP Tx Room - G/F	82	0%	82								
C&EDB-GF1110	ABWF Works ready for E&M Mobilization to Generator & Fuel Tank Rooms - G/F	0	0%	0								
C&EDB-GF1120	E&M Installation - Generator & Fuel Tank Rooms - G/F	90	0%	90								
C&EDB-GF1130	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0								
C&EDB-GF1140	E&M Installation - FS Plant Rooms - G/F	90	0%	90								
C&EDB-GF1150	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - G/F	0	0%	0								
C&EDB-GF1160	E&M Installation - Elv Plant Rooms - G/F	90	0%	90								
1/F												
C&EDB-1F1000	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	0%	0								
C&EDB-1F1010	E&M Installation - 1st fix - 1/F	40	0%	40								
C&EDB-1F1040	ABWF Works ready for E&M Mobilization to LV Switch Room - 1/F	0	0%	0								
C&EDB-1F1050	E&M Installation - LV Switch Room - 1/F	60	0%	60								
C&EDB-1F1080	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 1/F	0	0%	0								
C&EDB-1F1090	E&M Installation - Electrical Plant Rooms - 1/F	90	0%	90								
Statutory Inspections and approvals												
C&EDB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24								
Key Date 11 - Landscape Soft Works & Trees Protection												
Trees Protection												
SL198	Protection Existing Trees & Submit Report with Photographic Record No.9	41	17.07%	34								
SL199	Protection Existing Trees & Submit Report with Photographic Record No.10	41	0%	41								
SL200	Protection Existing Trees & Submit Report with Photographic Record No.11	41	0%	41								
Key Date 8 - All Works for Tunnel Commissioning & Opening												
Petrol Filling Station												
Structure												
PS120	Excavation	20	0%	20								
PS130	Footing	20	0%	20								
PS140	Petrol Filling Station Roof	14	0%	14								
PS150	Structure for Petrol Filling Station	36	0%	36								
PS160	Underground Fuel Tank Structure	36	0%	36								
Statutory Inspections and approvals												
Administration Building												
ADB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24								
ADB-SI1080	DG Submission & Vent/425 to FSD	0	0%	0								
ADB-SI1090	DG Inspection by FSD	36	0%	36								
Maintenance Depot												
MD-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24								
North Ventilation Building												
NVB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24								
NVB-SI1010	DG Submission & Vent/425 to FSD	0	0%	0								

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Sep	Oct	Nov	Dec	
NVB-SI1020	DG Inspection by FSD	36	0%	36							
NVB-SI1090	Submit WWO46 Part IV for PD	0	0%	0							◆
NVB-SI1100	Submit WWO46 Part IV for FS	0	0%	0							◆
NVB-SI1110	WSD inspection of Plumbing Installation (PL)	4	0%	4							■
NVB-SI1120	WSD inspection of Plumbing Installation (FS)	4	0%	4							■
Underpass & Plant Room											
VUP-SI1060	Submit WWO46 Part IV for FS	0	0%	0							◆
VUP-SI1080	WSD inspection of Plumbing Installation (FS)	4	0%	4							■
Toll Control Building & Toll Collector Subway											
TCB-SI0015	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24							
Satellite Control Building											
SCB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24							
South Ventilation Building											
SVB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24							
SVB-SI1090	Submit WWO46 Part IV for PD	0	0%	0							◆
SVB-SI1100	Submit WWO46 Part IV for FS	0	0%	0							◆
SVB-SI1120	WSD inspection of Plumbing Installation (FS)	4	0%	4							■

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Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

(In reference to CINOTECH (2011) Agreement No. CE35/2011 EP Baseline Environmental Monitoring for Hong Kong-Zhuhai-Macao Bridge Tuen Mun-Chek Lap Kok Link - Investigation. Updated EM&A Manual for Tuen Mun-Chek Lap Kok Link)

Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
Air Quality									
4.8.1	3.8	Watering of the construction sites in Lantau for 8 times/day and in Tuen Mun for 12 times/day to reduce dust emissions by 87.5% and 91.7% respectively and shall be undertaken.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<>
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		✓

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

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Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit.	All representative existing ASRs/ throughout construction period	Contractor	EM&A Manual		Y		N/A (Results adopted from published EM&A data of Contract No. HY.2012/08)
WATER QUALITY (LAND WORKS)									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Sewage effluent and discharges from on- site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		N/A
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		✓

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Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.10	-	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/ design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Y	✓
6.10	Section 11	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
WASTE									
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.	Contract Mobilisation	Contractor	TMEIA		Y		✓

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: if suitable for the substance to be held,	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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*Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule*

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
		resistant to corrosion, maintained in good conditions and securely closed; f Having a capacity of <450L unless the specifications have been approved by the EPD; and w Chinese according to the instructions prescribed in Schedule 2 of the Regulations. f Clearly labelled and used solely for the storage of chemical wastes; f Enclosed with at least 3 sides; f Impermeable floor and bund with 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; f Adequate ventilation; f Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and f Incompatible materials are adequately separated.							
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	All waste containers shall be in a secure area on hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		✓
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All areas / throughout construction period	Contractor	EM&A Manual		Y		✓
LANDSCAPE AND VISUAL									
10.9	7.6	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) (CM1)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A

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Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
10.9	7.6	Trees unavoidably affected by the works shall be transplanted where practical. Trees will 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. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme (CM2)	All areas/detailed design/during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Hillside and roadside screen planting to proposed roads, associated structures and slope works (CM3)	All areas/detailed design/during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone) (CM4)	All areas/detailed design/during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/detailed design/during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/detailed design/during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/detailed design/during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/detailed design/during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓

Legend: D=Design, C=Construction, O=Operation

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Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
10.9	7.6	Recycle/ Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Compensatory tree planting 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 (CM10)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Re-vegetation of affected woodland/shrubland with native species (OM1)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/L CSD
10.9	7.6	Tall buffer screen tree / shrub / climber planting should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/L CSD
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill (OM3)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD

*** Remarks:**

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Contractor
- Δ Deficiency of Mitigation Measures but rectified by Contractor
- N/A Not Applicable in Reporting Period

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

Appendix D

Summary of Action and Limit Levels

Table D1 *Action and Limit Levels for 1-hour and 24-hour TSP*

Parameters	Action	Limit
24 Hour TSP Level in $\mu\text{g}/\text{m}^3$	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214	260
1 Hour TSP Level in $\mu\text{g}/\text{m}^3$	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337	500

Table D2 *Actions in the Event of Landfill Gas being Detected in Excavation/ Confined Area*

Parameter	Measurement	Action
Oxygen	< 19%	- Ventilate to restore oxygen to > 19%
	< 18%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to > 19%
Methane	> 10% LEL (> 0.5% v/v)	- Prohibit hot work - Ventilate to restore methane to < 10% LEL
	> 20% LEL (>1% v/v)	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 10%
Carbon Dioxide	> 0.5%	- Ventilate to restore oxygen to < 0.5%
	> 1.5%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 0.5%

Appendix E

Event Action Plan

Appendix L1 Event/ Action Plan for Air Quality

EVENT	ET ⁽¹⁾	IEC ⁽¹⁾	ACTION	
			ER ⁽¹⁾	Contractor
Action Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the IEC and the 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 the 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 the source. 2. Inform the IEC and the ER. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with the IEC and the Contractor on remedial actions required. 6. If exceedance continues, arrange meeting with the IEC and the ER. 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check the Contractor's working method. 3. Discuss with the ET and the 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 the Contractor. 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate

EVENT	ACTION			
	ET ⁽¹⁾	IEC ⁽¹⁾	ER ⁽¹⁾	Contractor
Limit Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the ER and the DEP. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep the IEC, the DEP and the ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 3. Discuss with the ET and the 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 the Contractor. 3. Ensure remedial measures are 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 the IEC, the ER, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with the IEC and the ER to discuss the remedial actions to be taken. 7. Assess effectiveness of the Contractor's remedial actions 	<ol style="list-style-type: none"> 1. Discuss amongst the ER, ET and the Contractor on the potential remedial actions. 2. Review the 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 the Contractor. 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity 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 activity of works as determined by the ER until the exceedance is abated.

and keep the IEC, the DEP and
the ER informed of the results.

8. If the exceedance stops, cease
additional monitoring.

Abbreviations: ET - Environmental Team, IEC - Independent Environmental Checker, SO - Supervising Office, DEP - Director of Environmental Protection

Appendix F

EM&A Monitoring Schedule

**HY/2017/10 Tuen Mun - Chek Lap Kok Link - Northern Tunnel Connection Buildings, E&M Works
Tentative Landfill Gas Monitoring Schedule (1 to 30 September 2019)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
29-Sep	30-Sep					

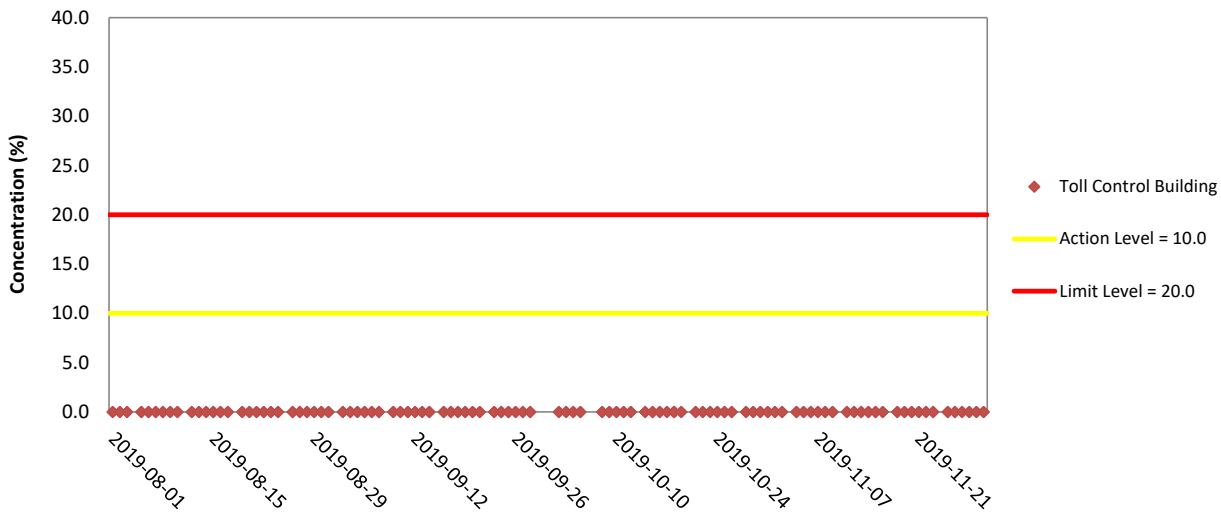
**HY/2017/10 Tuen Mun - Chek Lap Kok Link - Northern Tunnel Connection Buildings, E&M Works
Tentative Landfill Gas Monitoring Schedule (1 to 31 October 2019)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Oct	02-Oct	03-Oct	04-Oct	05-Oct
			LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
06-Oct	07-Oct	08-Oct	09-Oct	10-Oct	11-Oct	12-Oct
		LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
20-Oct	21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
27-Oct	28-Oct	29-Oct	30-Oct	31-Oct		
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)		

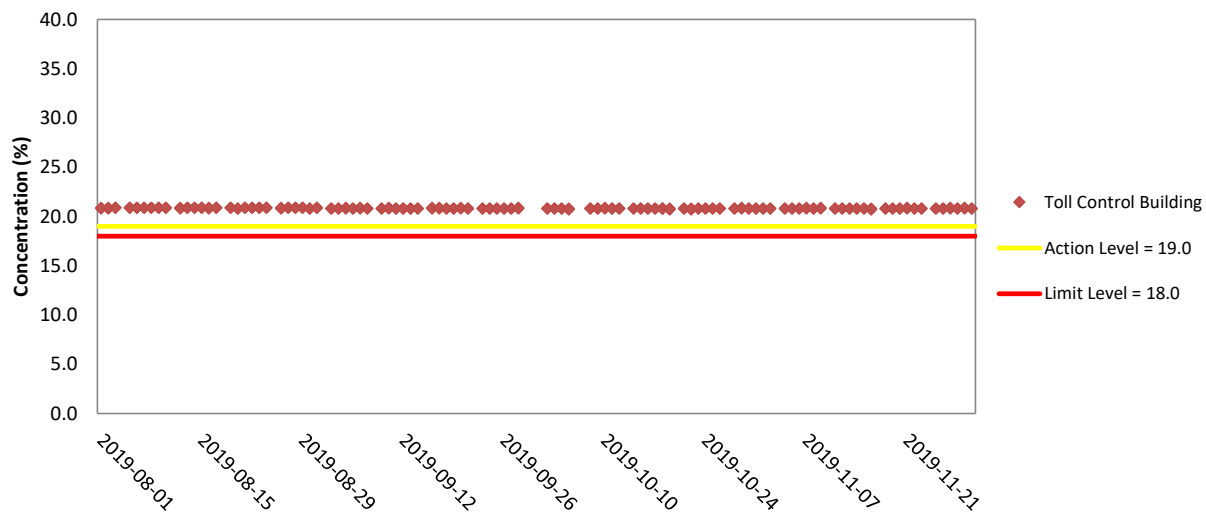
Appendix G

Landfill Gas Monitoring
Results and Graphical
Presentation

Landfill Gas Monitoring Results on Methane Level



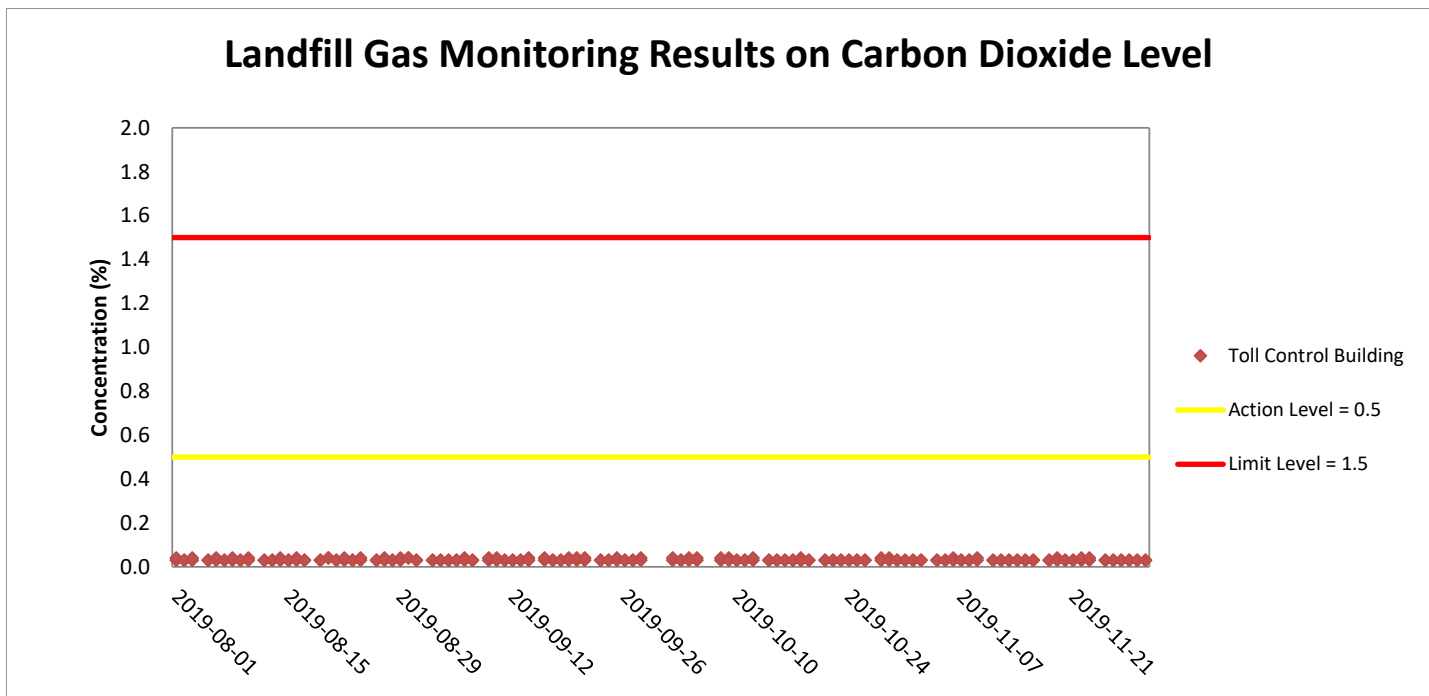
Landfill Gas Monitoring Results on Oxygen Level



Weather condition within the reporting period was sunny to rainy

Major construction works undertaken within the reporting period include

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Building Structure, Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Building Structure, Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Building Structure, Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.



Weather condition within the reporting period was sunny to rainy

Major construction works undertaken within the reporting period include

- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Building Structure, Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Building Structure, Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Booth;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building;
- Building Structure, Electrical and Mechanical Works and Architectural Builders Work and Finishes at Kiosk S2; and
- Electrical and Mechanical Works at South Ventilation Building.

Appendix F

Monthly Summary of Waste Flow Table

Contract No. : HY/2017/10

Tuen Mun Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works

Monthly Summary Waste Flow Table for 2019 (Year)

Month/Material	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation		Actual Quantities of Recyclables Generation			
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
Unit	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	2.089	-	0.150	-	1.939	-	-	74.680	47.620	-	0.077	-
Feb	2.474	0.008	0.345	-	2.129	-	-	67.230	-	-	0.056	-
Mar	0.079	0.060	-	-	0.079	-	-	73.690	23.310	-	-	-
Apr	0.013	-	-	-	0.013	-	-	56.730	18.020	-	0.056	-
May	-	-	-	-	-	-	-	62.240	-	-	0.056	-
Jun	0.011	0.004	-	-	0.011	-	-	118.070	-	-	0.077	-
SUB-TOTAL	4.666	0.072	0.495	0.000	4.171	0.000	0.000	452.640	88.950	0.000	0.322	0.000
Jul	0.058	0.019	-	-	0.058	-	-	148.880	-	-	0.070	-
Aug	0.192	0.073	-	-	0.192	-	-	177.240	-	-	-	-
Sep	0.177	0.015	-	-	0.177	-	-	196.740	-	-	0.063	-
Oct	0.200	-	-	-	0.200	-	-	265.560	-	-	0.056	-
Nov	0.510	0.119	-	-	0.510	-	-	305.880	-	-	0.063	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	5.803	0.298	0.495	0.000	5.308	0.000	0.000	1,546.940	88.950	0.000	0.574	0.000

Notes :

- 1 - The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2 - Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- 3 - Broken concrete for recycling into aggregates.
- 4 - Assumed 5 kg per damaged water-filled barrier.
- 5 - Disposed as Public Fills includes Hard Rock and Large Broken Concrete.

Appendix I

Cumulative Statistics on
Exceedances, Complaints,
Notifications of Summons
and Successful Prosecutions

Appendix I1 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting quarter	Total No. recorded since contract commencement
1-Hr TSP	Action	8	35
	Limit	4	7
24-Hr TSP	Action	0	2
	Limit	0	0
Landfill gas hazard monitoring			
• Methane	Action	0	0
	Limit	0	0
• Oxygen	Action	0	0
	Limit	0	0
• Carbon Dioxide	Action	0	0
	Limit	0	0

Appendix I2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting quarter	0	0	0
Total No. received since contract commencement	1	0	0

Email
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Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 09 October 2019

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Limit Level Exceedance
0463091_20September2019_1hrTSP_Station ASR1

One (1) exceedances were recorded on 20 September 2019.

Regards,

A handwritten signature in blue ink that reads "Jasmine".

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

**CONTRACT NO. HY/2017/10
TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION TUNNEL BUILDINGS,
ELECTRICAL AND MECHANICAL WORKS**

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Limit Level Exceedance</u> 0463091_20September2019_1hrTSP_Station ASR1 [Total No. of Exceedances = 1]	
Date	20 September 2019 (Measured) 9 October 2019 (Results obtained from ENPO Website)	
Monitoring Station	ASR1	
Parameter(s) with Exceedance(s)	1- hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to the attached data sheet (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 20 September 2019. <ul style="list-style-type: none"> Electrical and Mechanical Works and Architectural Builders Work and Finishes at Maintenance Depot and Administration Building; Building Structure at Fire Services Department Building and Customs and Excise Department Building 	
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> Apart from exceedance of 1-hr TSP at ASR1 during 10:49-11:49 on 20 September 2019, all 1-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. With reference to the recorded wind direction (ranged between 2° and 5°, blowing from a northerly direction) and wind speed (ranged between 0.5 and 0.7 m/s) when exceedance recorded, ASR1 is located downstream to the construction works at Maintenance Depot and in vicinity of Administration Building. However, the construction works at Maintenance Depot and Administration Building were Electrical and Mechanical Works and Architectural Builders Work and Finishes which are considered not major dust generating works (refer to attached photos). In addition, other construction activities which located further away included Building Structure at Fire Services Department Building and Customs and Excise Department Building. These construction works are also considered not major dust generating works. <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>	
Actions Taken / To Be Taken	The Contractor has been reminded to ensure all dust suppression measures are implemented at the site area. The ET will monitor for future trends in exceedances.	

Remarks	The monitoring results on 20 September and locations of air quality monitoring stations are attached.
----------------	---

Project	Contract	Date (yyyy-mm-dd)	Station	Time (hh:mm, 24 hour)	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-09-20	AQMS1	08:56	1-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	2019-09-20	AQMS1	09:58	1-hour TSP	116	ug/m3
TMCLKL	HY/2012/08	2019-09-20	AQMS1	11:00	1-hour TSP	112	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR1	08:45	1-hour TSP	220	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR1	09:47	1-hour TSP	214	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR1	10:49	1-hour TSP	539	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR10	08:11	1-hour TSP	107	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR10	09:13	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR10	10:15	1-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR5	08:33	1-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR5	09:35	1-hour TSP	188	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR5	10:37	1-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR6	08:23	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR6	09:25	1-hour TSP	163	ug/m3
TMCLKL	HY/2012/08	2019-09-20	ASR6	10:27	1-hour TSP	131	ug/m3

Note: Indicates Exceedance of Action Level
Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period

Date (dd-mm-yyyy)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20-09-2019	0:00	0.5	274
20-09-2019	1:00	0.6	285
20-09-2019	2:00	1.2	291
20-09-2019	3:00	1	288
20-09-2019	4:00	1.1	251
20-09-2019	5:00	0.5	322
20-09-2019	6:00	0.4	288
20-09-2019	7:00	0.3	351
20-09-2019	8:00	0.5	350
20-09-2019	9:00	0.6	347
20-09-2019	10:00	0.7	5
20-09-2019	11:00	0.5	2
20-09-2019	12:00	0.5	347
20-09-2019	13:00	0.3	322
20-09-2019	14:00	0.8	21
20-09-2019	15:00	0.2	24
20-09-2019	16:00	0.1	3
20-09-2019	17:00	0.1	357
20-09-2019	18:00	0.2	344
20-09-2019	19:00	0.3	351
20-09-2019	20:00	0.5	352
20-09-2019	21:00	0.6	287
20-09-2019	22:00	1.1	295
20-09-2019	23:00	0.4	354
20-09-2019	0:00	0.3	305

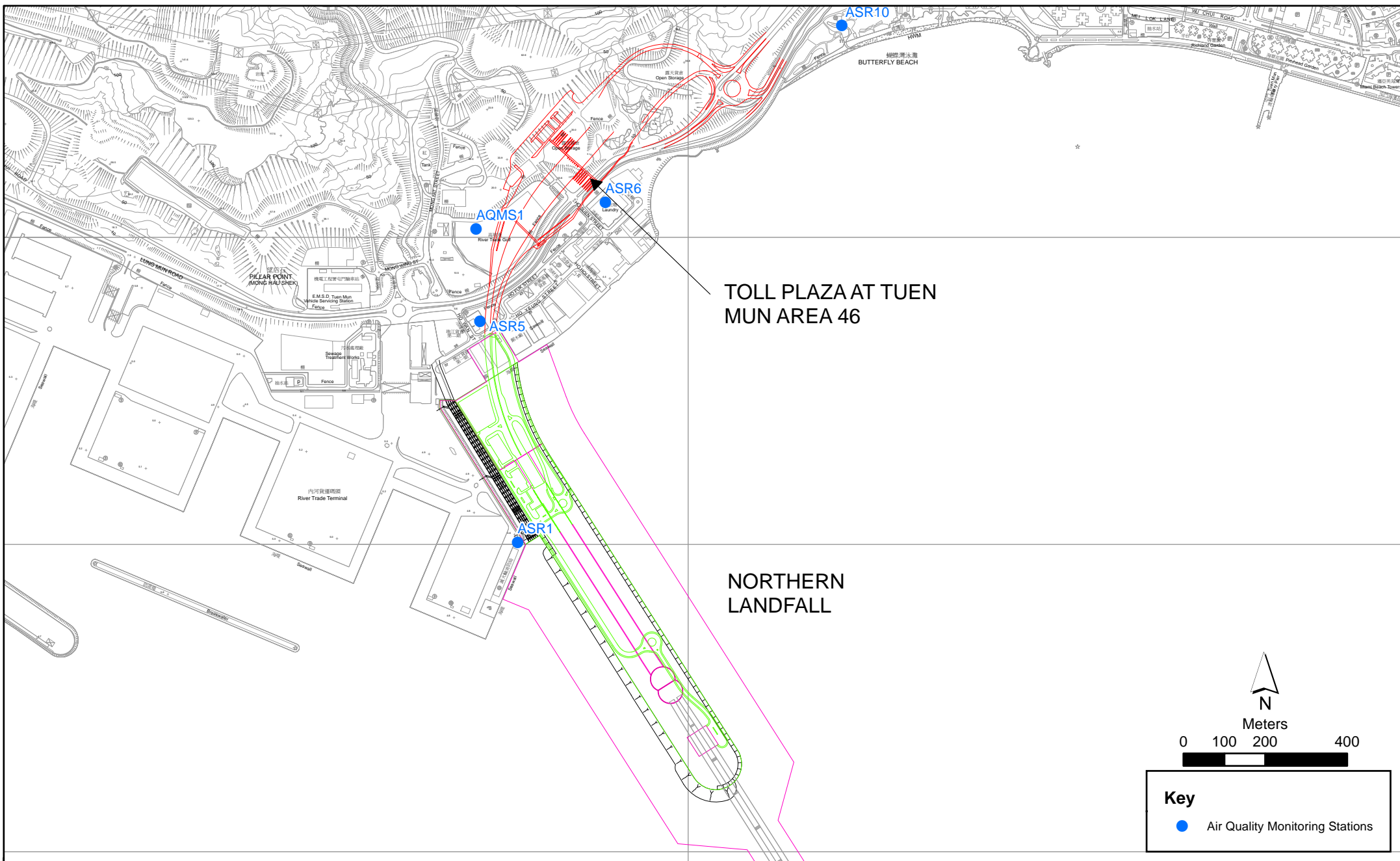


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Legend

Site Boundary

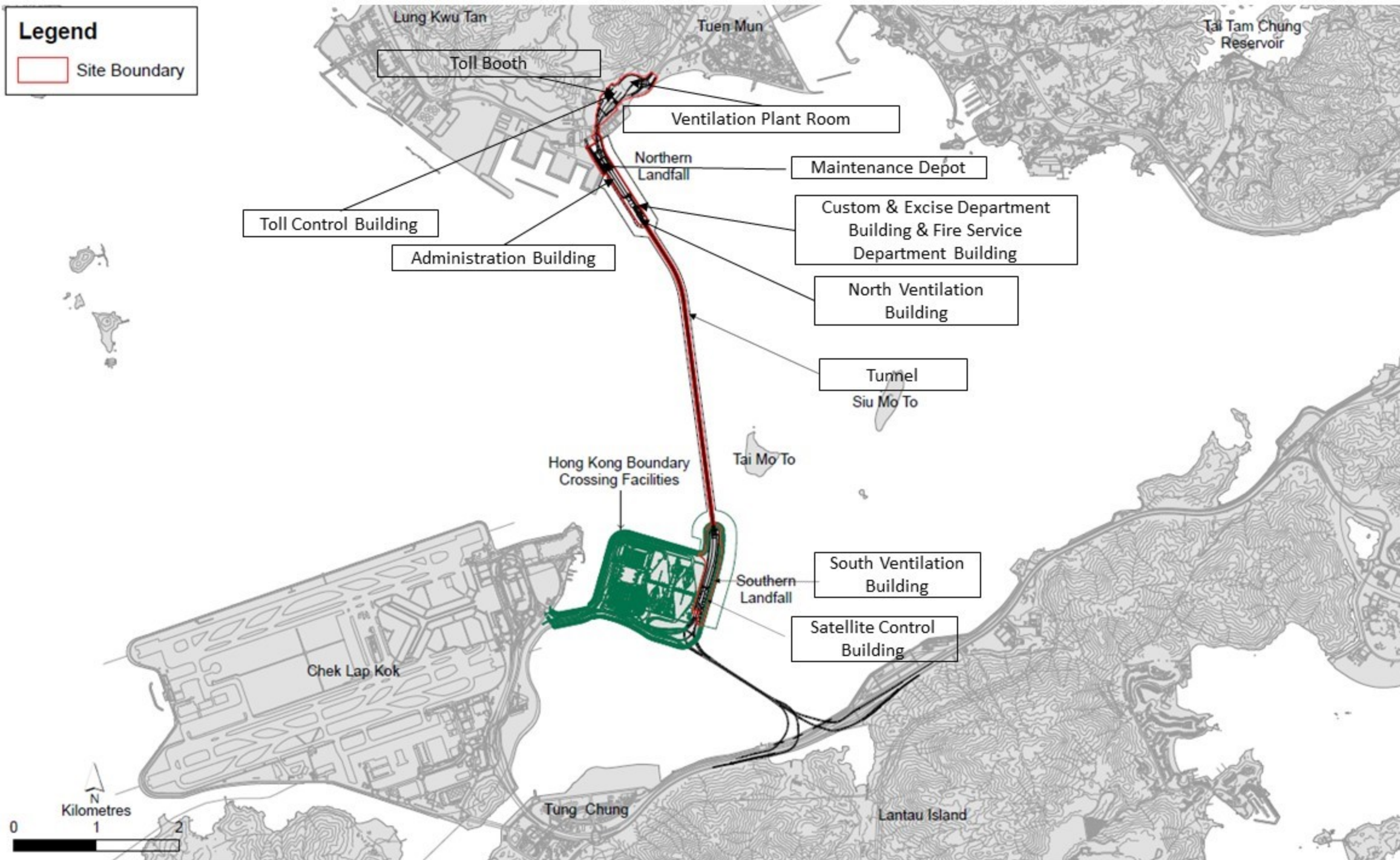




Photo 1 - Construction works at Administration Building



Photo 2 - Construction works at Maintenance Depot

Email
message

Environmental
Resources
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To Ramboll Hong Kong Limited (ENPO)

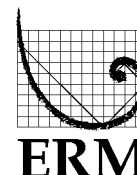
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 7 November 2019

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



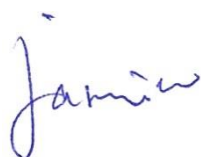
Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance
0463091_14October2019_1hrTSP_Station ASR1

One (1) exceedance was recorded on 14 October 2019.

Regards,



Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10

**TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION TUNNEL BUILDINGS,
ELECTRICAL AND MECHANICAL WORKS**

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Action Level Exceedance</u> 0463091_14October2019_1hrTSP_Station ASR1 [Total No. of Exceedances = 1]	
Date	14 October 2019 (Measured) 7 November 2019 (Results obtained from ENPO Website)	
Monitoring Station	ASR1	
Parameter(s) with Exceedance(s)	1- hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to the attached data sheet (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 14 October 2019 included <ul style="list-style-type: none"> • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Maintenance Depot • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Administration Building • Architectural Builders Work and Finishes at Fire Services Department Building • Building Structure at Customs and Excise Department Building • Electrical and Mechanical Works at North Ventilation Building • Architectural Builders Work and Finishes at Toll Control Building 	

Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> • Apart from exceedance of 1-hr TSP at ASR1 during 9:50-10:50 on 14 October 2019, all 1-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. • With reference to the recorded wind direction (ranged between 65° and 335°, blowing from a north-easterly and north-westerly direction) and wind speed (0.4 m/s) when exceedance recorded, ASR1 is located downstream to the construction works at Maintenance Depot and in vicinity of Administration Building. However, the construction works at Maintenance Depot and Administration Building were Electrical and Mechanical Works and Architectural Builders Work and Finishes which are considered not major dust generating works. • Dust suppression measures i.e. watering were applied on site nearby Maintenance Depot and Administration Building to prevent dust generation (refer to <i>watering record</i>). • In addition, other construction activities which located upstream of ASR1 and further away included Architectural Builders Work and Finishes at Toll Control Building. These construction works are also considered not major dust generating works. <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>
Actions Taken / To Be Taken	<p>The Contractor has been reminded to ensure all dust suppression measures are implemented at the site area. The ET will monitor for future trends in exceedances.</p>
Remarks	<p>The monitoring results on 14 October and locations of air quality monitoring stations are attached.</p>

Results of Air Quality Monitoring

Project	Contract	Date (yyyy-mm-dd)	Station	Time	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-10-14	AQMS1	9:00:00	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2019-10-14	AQMS1	10:02:00	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2019-10-14	AQMS1	11:04:00	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR1	8:48:00	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR1	9:50:00	1-hour TSP	363	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR1	10:52:00	1-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR10	8:15:00	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR10	9:17:00	1-hour TSP	35	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR10	10:19:00	1-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR5	8:37:00	1-hour TSP	278	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR5	9:39:00	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR5	10:41:00	1-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR6	8:25:00	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR6	9:27:00	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR6	10:29:00	1-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2019-10-14	AQMS1	12:06:00	24-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR1	11:54:00	24-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR10	11:21:00	24-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR5	11:43:00	24-hour TSP	116	ug/m3
TMCLKL	HY/2012/08	2019-10-14	ASR6	11:31:00	24-hour TSP	65	ug/m3

Note: Indicates Exceedance of Action Level
Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
19/10/14	0:00	0.4	165
19/10/14	1:00	0.4	336
19/10/14	2:00	0.9	77
19/10/14	3:00	0.9	66
19/10/14	4:00	1.3	65
19/10/14	5:00	0.9	80
19/10/14	6:00	0.4	178
19/10/14	7:00	0.4	187
19/10/14	8:00	0	-
19/10/14	9:00	0.4	65
19/10/14	10:00	0.4	335
19/10/14	11:00	0.9	60
19/10/14	12:00	1.3	64
19/10/14	13:00	0.9	83
19/10/14	14:00	0.9	3
19/10/14	15:00	1.3	30
19/10/14	16:00	1.3	344
19/10/14	17:00	1.3	114
19/10/14	18:00	0.4	123
19/10/14	19:00	0.4	81
19/10/14	20:00	0.9	65
19/10/14	21:00	0.9	86
19/10/14	22:00	1.3	83
19/10/14	23:00	2.7	62

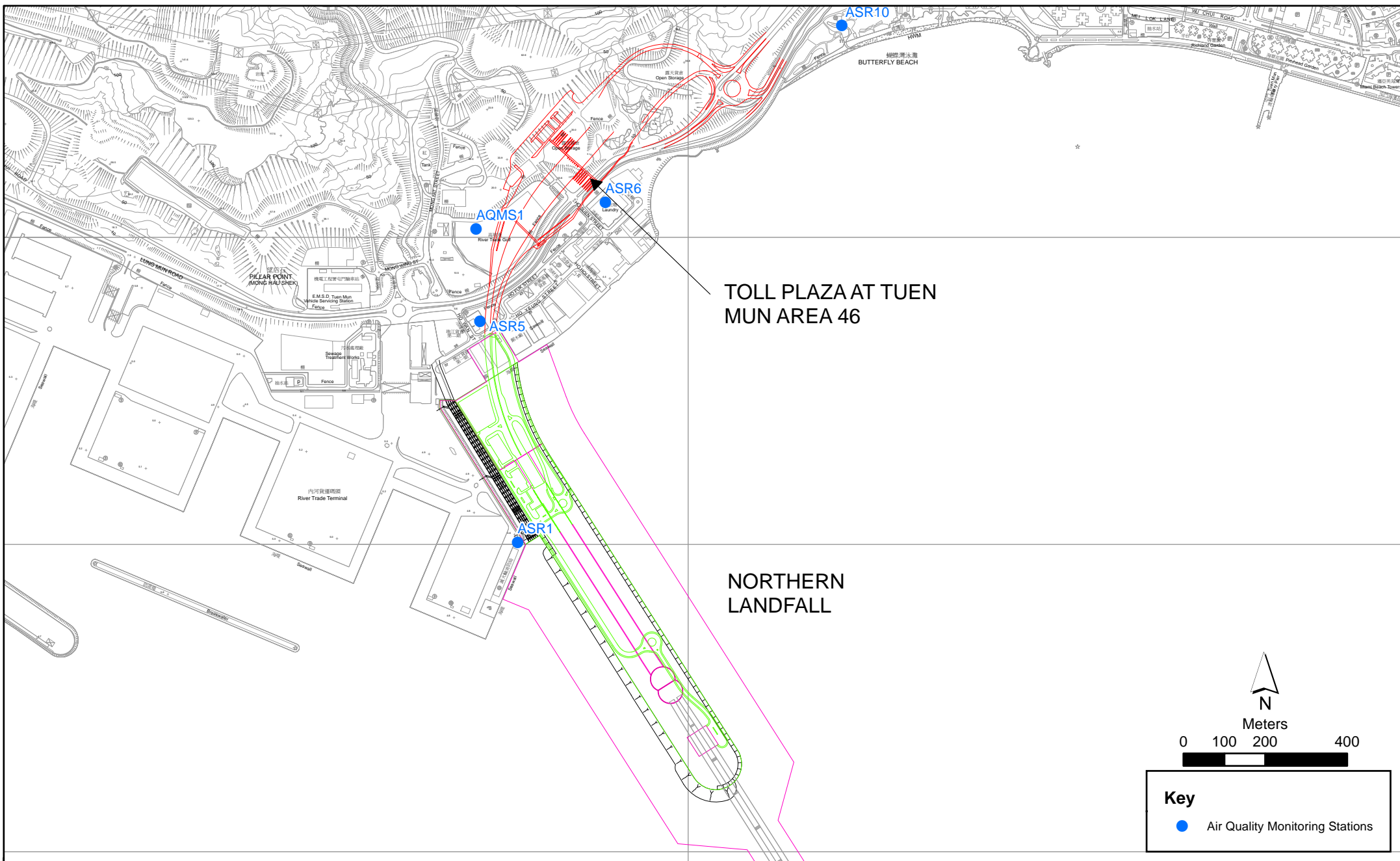


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

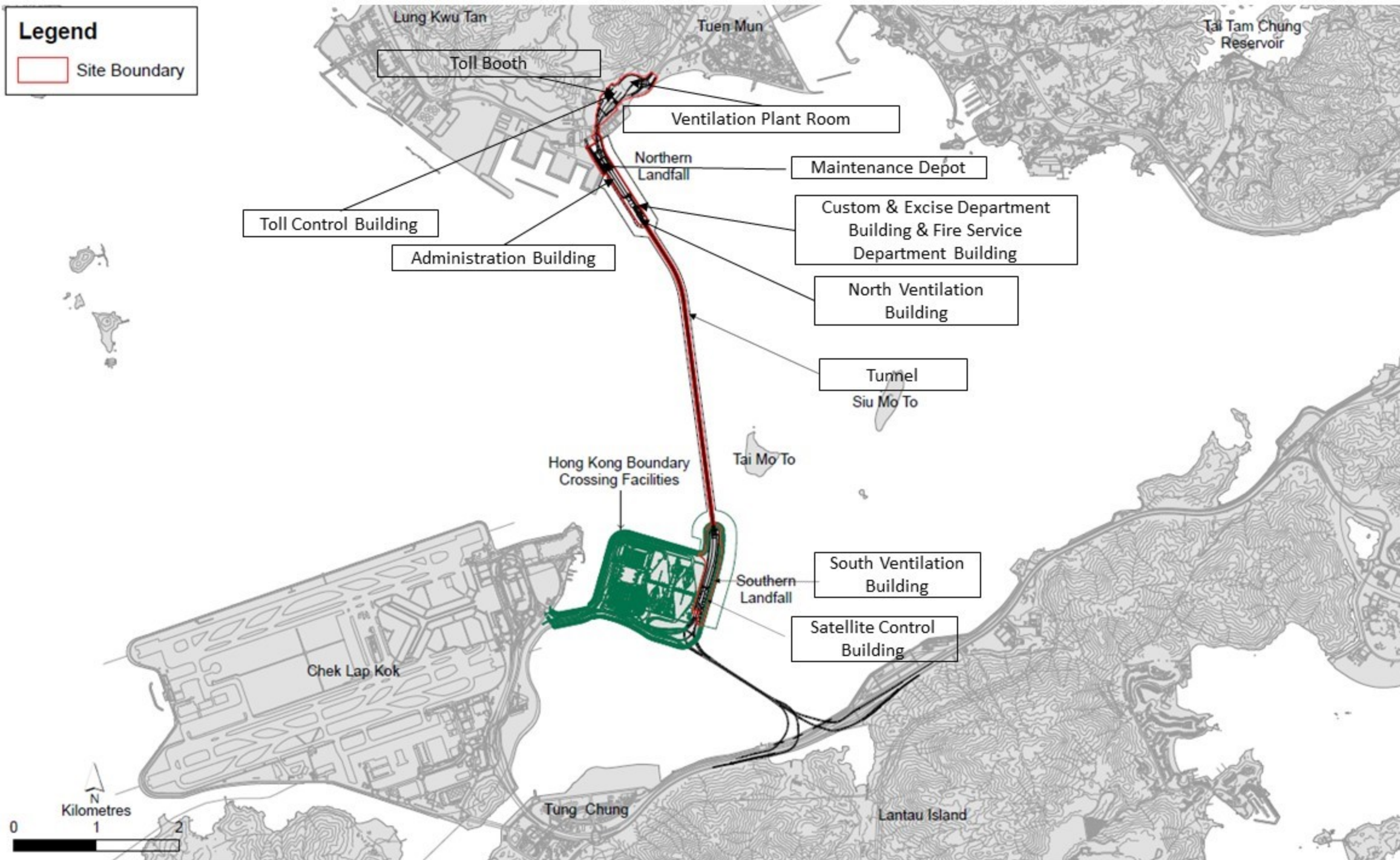
Key
 ● Air Quality Monitoring Stations

**Environmental
 Resources
 Management**



Legend

Site Boundary



Appendix A

Watering Record on 14 October 2019

Location

14th Oct

MD & AdB

Period		Time	Sign.
7-8			
8-9	/	8:30	成
9-10	/	9:30	成
10-11	/	10:15	成
11-12	/ /	11:15 11:45	成
12-13	/	12:55	成
13-14	/	13:40	成
14-15	/	14:30	成
15-16	/ /	15:15 15:55	成
16-17	/	16:35	成
17-18	/	17:35	成
18-19			

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

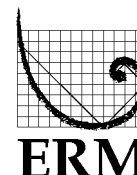
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 7 November 2019

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance

0463091_17October2019_1hrTSP_Station ASR1
0463091_17October2019_1hrTSP_Station ASR1

Two (2) exceedances were recorded on 17 October 2019.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10

**TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION TUNNEL BUILDINGS,
ELECTRICAL AND MECHANICAL WORKS**

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Action Level Exceedance</u> 0463091_17October2019_1hrTSP_Station ASR1 0463091_17October2019_1hrTSP_Station ASR1 [Total No. of Exceedances = 2]	
Date	17 October 2019 (Measured) 7 November 2019 (Results obtained from ENPO Website)	
Monitoring Station	ASR1	
Parameter(s) with Exceedance(s)	1- hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to the attached data sheet (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 17 October 2019 included <ul style="list-style-type: none"> • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Maintenance Depot • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Administration Building • Architectural Builders Work and Finishes at Fire Services Department Building • Building Structure at Customs and Excise Department Building • Electrical and Mechanical Works at North Ventilation Building • Architectural Builders Work and Finishes at Toll Control Building 	

Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> • Apart from exceedances of 1-hr TSP at ASR1 during 9:41-10:41 and 10:43-11:43 on 17 October 2019, all 1-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. • With reference to the recorded wind direction (ranged between 67° and 98°, blowing from a north-easterly direction) and wind speed (ranged between 1.3 and 1.8 m/s) when exceedances recorded, ASR1 is located downstream to the construction works at Maintenance Depot and in vicinity of Administration Building. However, the construction works at Maintenance Depot and Administration Building were Electrical and Mechanical Works and Architectural Builders Work and Finishes which are considered not major dust generating works. • Dust suppression measures i.e. watering were applied on site nearby Maintenance Depot and Administration Building to prevent dust generation (refer to <i>watering record</i>). • In addition, other construction activities which located upstream of ASR1 and further away included Architectural Builders Work and Finishes at Toll Control Building. These construction works are also considered not major dust generating works. <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>
Actions Taken / To Be Taken	<p>The Contractor has been reminded to ensure all dust suppression measures are implemented at the site area. The ET will monitor for future trends in exceedances.</p>
Remarks	<p>The monitoring results on 17 October and locations of air quality monitoring stations are attached.</p>

Results of Air Quality Monitoring

Project	Contract	Date (yyyy-mm-dd)	Station	Time	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-10-17	AQMS1	8:50:00	1-hour TSP	103	ug/m3
TMCLKL	HY/2012/08	2019-10-17	AQMS1	9:52:00	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2019-10-17	AQMS1	10:54:00	1-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR1	8:39:00	1-hour TSP	331	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR1	9:41:00	1-hour TSP	354	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR1	10:43:00	1-hour TSP	385	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR10	8:04:00	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR10	9:06:00	1-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR10	10:08:00	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR5	8:27:00	1-hour TSP	288	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR5	9:29:00	1-hour TSP	230	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR5	10:31:00	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR6	8:15:00	1-hour TSP	128	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR6	9:17:00	1-hour TSP	112	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR6	10:19:00	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2019-10-17	AQMS1	11:56:00	24-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR1	11:45:00	24-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR10	11:10:00	24-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR5	11:33:00	24-hour TSP	100	ug/m3
TMCLKL	HY/2012/08	2019-10-17	ASR6	11:21:00	24-hour TSP	81	ug/m3

Note: Indicates Exceedance of Action Level
Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
19/10/17	0:00	0.4	153
19/10/17	1:00	0.4	108
19/10/17	2:00	0.4	7
19/10/17	3:00	0.4	69
19/10/17	4:00	0.4	183
19/10/17	5:00	0	-
19/10/17	6:00	0.4	111
19/10/17	7:00	1.3	101
19/10/17	8:00	2.2	67
19/10/17	9:00	1.8	84
19/10/17	10:00	1.3	98
19/10/17	11:00	1.8	67
19/10/17	12:00	1.3	98
19/10/17	13:00	1.8	44
19/10/17	14:00	1.3	56
19/10/17	15:00	0.9	74
19/10/17	16:00	0.9	27
19/10/17	17:00	0.9	329
19/10/17	18:00	0.9	345
19/10/17	19:00	0.9	356
19/10/17	20:00	0.9	337
19/10/17	21:00	0.9	351
19/10/17	22:00	1.3	335
19/10/17	23:00	1.3	339

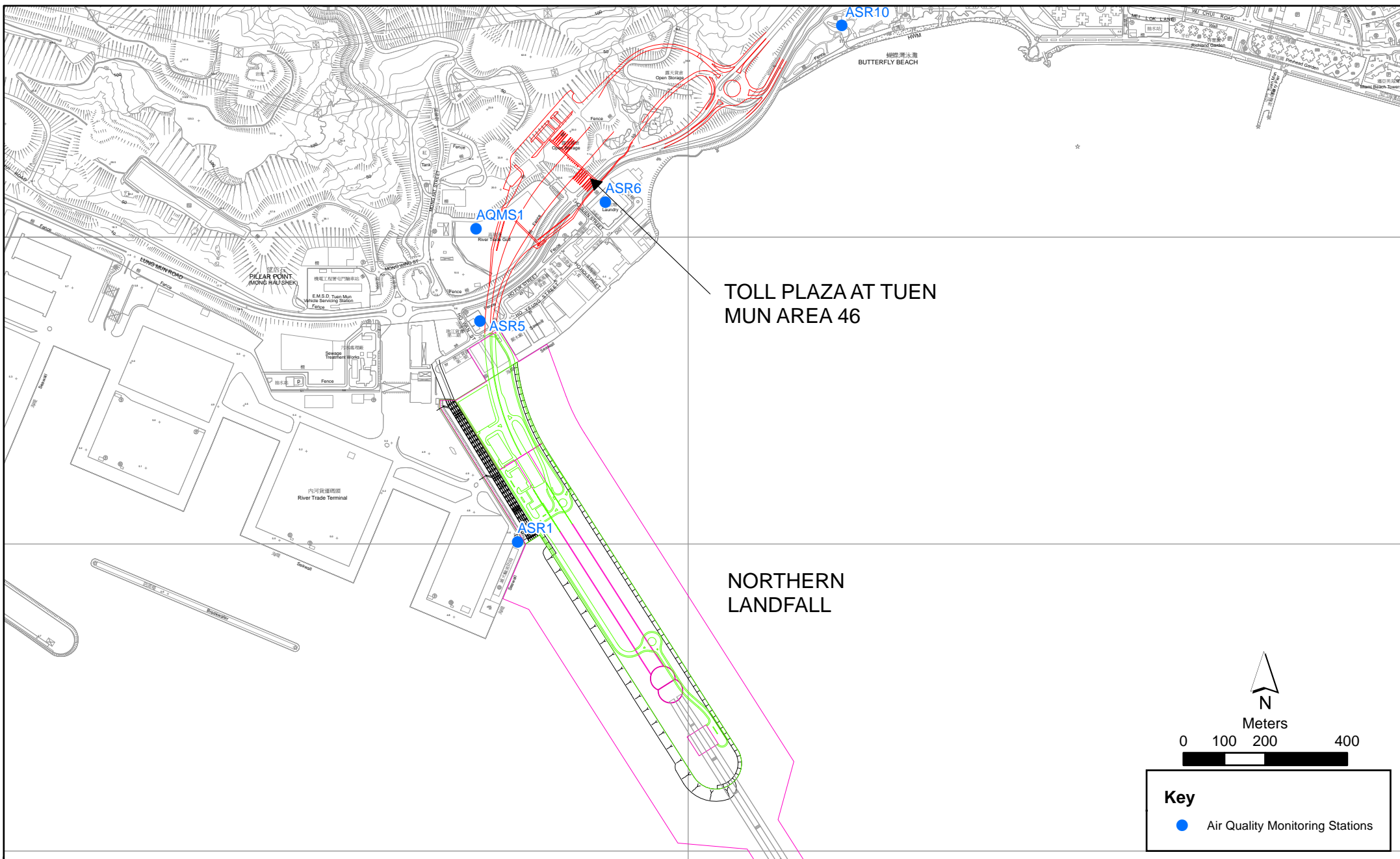
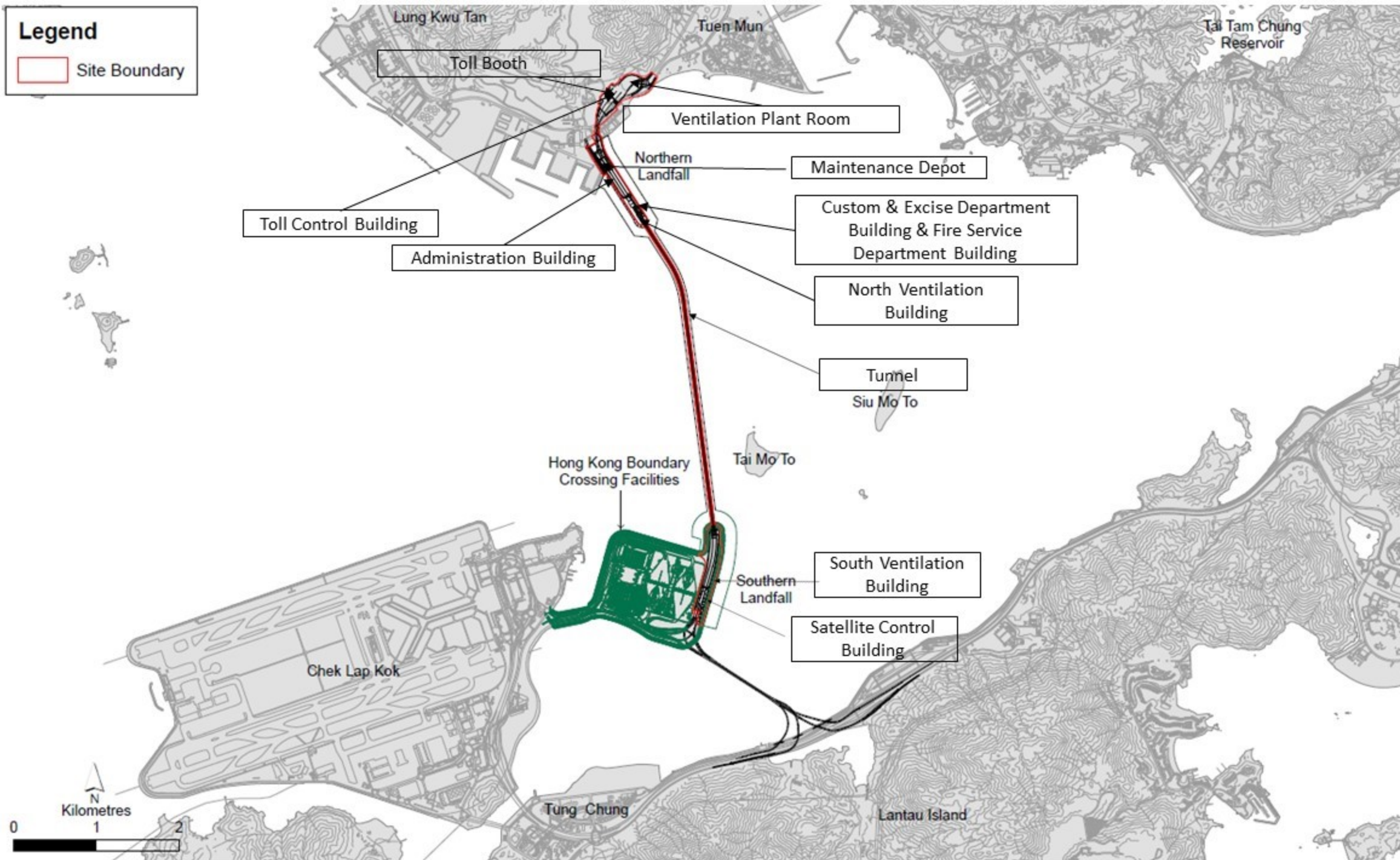


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Legend

Site Boundary



Appendix A

Watering Record on 17
October 2019

17th Oct

Location

MD & AdB.

Period		Time	Sign
7-8	/	7=58	成
8-9	/	8=35	成
9-10	/	9=30	成
10-11	/	10=30	成
11-12	/	11=30	成
12-13	/	12=50	成
13-14	/ /	13=15 13=50	成
14-15	/	14=50	成
15-16	/	15=45	成
16-17	/	16=45	成
17-18	/	17=35	成
18-19			

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

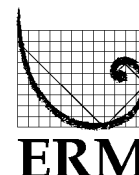
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 3 December 2019

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance

0463091_4November2019_1hrTSP_Station ASR5

Limit Level Exceedance

0463091_4November2019_1hrTSP_Station ASR1

Two (2) exceedances were recorded on 4 November 2019.

Regards,

Dr Jasmine Ng
Environmental Team Leader

CONFIDENTIALITY NOTICE

This facsimile transmission is intended only for the use of the addressee and is confidential. If you are not the addressee it may be unlawful for you to read, copy, distribute, disclose or otherwise use the information in this facsimile. If you are not the intended recipient, please telephone or fax us immediately.



ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10
 TUEN MUN – CHEK LAP KOK LINK –
 NORTHERN CONNECTION TUNNEL BUILDINGS,
 ELECTRICAL AND MECHANICAL WORKS

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<p style="text-align: center;"><u>Action Level Exceedance</u> 0463091_4November2019_1hrTSP_Station ASR5</p> <p style="text-align: center;"><u>Limit Level Exceedance</u> 0463091_4November2019_1hrTSP_Station ASR1</p> <p style="text-align: center;">[Total No. of Exceedances = 2]</p>	
Date	<p style="text-align: center;">4 November 2019 (Measured) 3 December 2019 (Results obtained from ENPO Website)</p>	
Monitoring Station	<p style="text-align: center;">ASR1 and ASR5</p>	
Parameter(s) with Exceedance(s)	<p style="text-align: center;">1- hr TSP</p>	
Action Levels	<p style="text-align: center;">1-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p>ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337</p>
	<p style="text-align: center;">24-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p>ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213</p>
Limit Levels	<p style="text-align: center;">1-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p style="text-align: center;">500</p>
	<p style="text-align: center;">24-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p style="text-align: center;">260</p>
Measured Levels	<p>Refer to the attached data sheet (Data are source from Contract No. HY/2012/08).</p>	
Works Undertaken (at the time of monitoring event)	<p>Works undertaken under this Contract on 4 November 2019 included</p> <ul style="list-style-type: none"> • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building; • Electrical and Mechanical Works at Ventilation Plant Room; • Electrical and Mechanical Works at North Ventilation Building; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building; • Electrical and Mechanical Works and Architectural Builder's Work at Customs and Excise Department Building; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel; • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Satellite Control Building; and • Electrical and Mechanical Works at South Ventilation Building. 	

Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> • Apart from exceedances of 1-hr TSP at ASR1 during 8:39-9:39 and ASR5 during 8:26-9:26 on 4 November 2019, all 1-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. • With reference to the recorded wind direction (ranged between 14° and 16°, blowing from a north-easterly direction) and wind speed (2.2 m/s) when exceedances recorded, ASR5 is located downstream to the construction works at Toll Control Building, while ASR1 is located downstream to the construction works at Maintenance Depot and Administration Building. However, the construction works at Toll Control Building, Maintenance Depot and Administration Building were mainly Electrical and Mechanical Works and Architectural Builders Work and Finishes which are considered not major dust generating works. • No major dust generating activities i.e. excavation works was conducted on 4 November 2019. • Dust suppression measures i.e. watering were applied on site nearby Maintenance Depot and Administration Building to prevent dust generation (refer to <i>watering record</i>). • Dust mitigation measures were implemented at Toll Control Building, for example, roads were paved and no debris/ materials were burnt at the works areas. <p>Based on the above, the exceedances are unlikely to be due to the Contract.</p>
Actions Taken / To Be Taken	<p>The Contractor has been reminded to ensure all dust suppression measures are implemented at the site area. The ET will monitor for future trends in exceedances.</p>
Remarks	<p>The monitoring results on 4 November 2019 and locations of air quality monitoring stations are attached.</p>

Results of Air Quality Monitoring

Project	Contract	Date (yyyy-mm-dd)	Station	Time	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-11-04	AQMS1	8:50:00	1-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2019-11-04	AQMS1	9:52:00	1-hour TSP	147	ug/m3
TMCLKL	HY/2012/08	2019-11-04	AQMS1	10:54:00	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR1	8:39:00	1-hour TSP	626	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR1	9:41:00	1-hour TSP	264	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR1	10:43:00	1-hour TSP	251	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR10	8:02:00	1-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR10	9:04:00	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR10	10:06:00	1-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR5	8:26:00	1-hour TSP	398	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR5	9:28:00	1-hour TSP	251	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR5	10:30:00	1-hour TSP	242	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR6	8:14:00	1-hour TSP	202	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR6	9:16:00	1-hour TSP	174	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR6	10:18:00	1-hour TSP	169	ug/m3
TMCLKL	HY/2012/08	2019-11-04	AQMS1	11:56:00	24-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR1	11:45:00	24-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR10	11:08:00	24-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR5	11:32:00	24-hour TSP	146	ug/m3
TMCLKL	HY/2012/08	2019-11-04	ASR6	11:20:00	24-hour TSP	106	ug/m3

Note:

Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
19/11/04	0:00	1.3	342
19/11/04	1:00	1.8	17
19/11/04	2:00	2.7	341
19/11/04	3:00	3.1	359
19/11/04	4:00	3.6	3
19/11/04	5:00	3.6	4
19/11/04	6:00	1.8	14
19/11/04	7:00	1.3	342
19/11/04	8:00	2.2	16
19/11/04	9:00	2.2	14
19/11/04	10:00	1.8	12
19/11/04	11:00	2.2	30
19/11/04	12:00	1.8	23
19/11/04	13:00	1.8	16
19/11/04	14:00	1.3	18
19/11/04	15:00	1.3	25
19/11/04	16:00	1.8	347
19/11/04	17:00	1.8	332
19/11/04	18:00	1.8	313
19/11/04	19:00	0.9	326
19/11/04	20:00	0.4	324
19/11/04	21:00	0.4	320
19/11/04	22:00	0.9	328
19/11/04	23:00	1.8	343

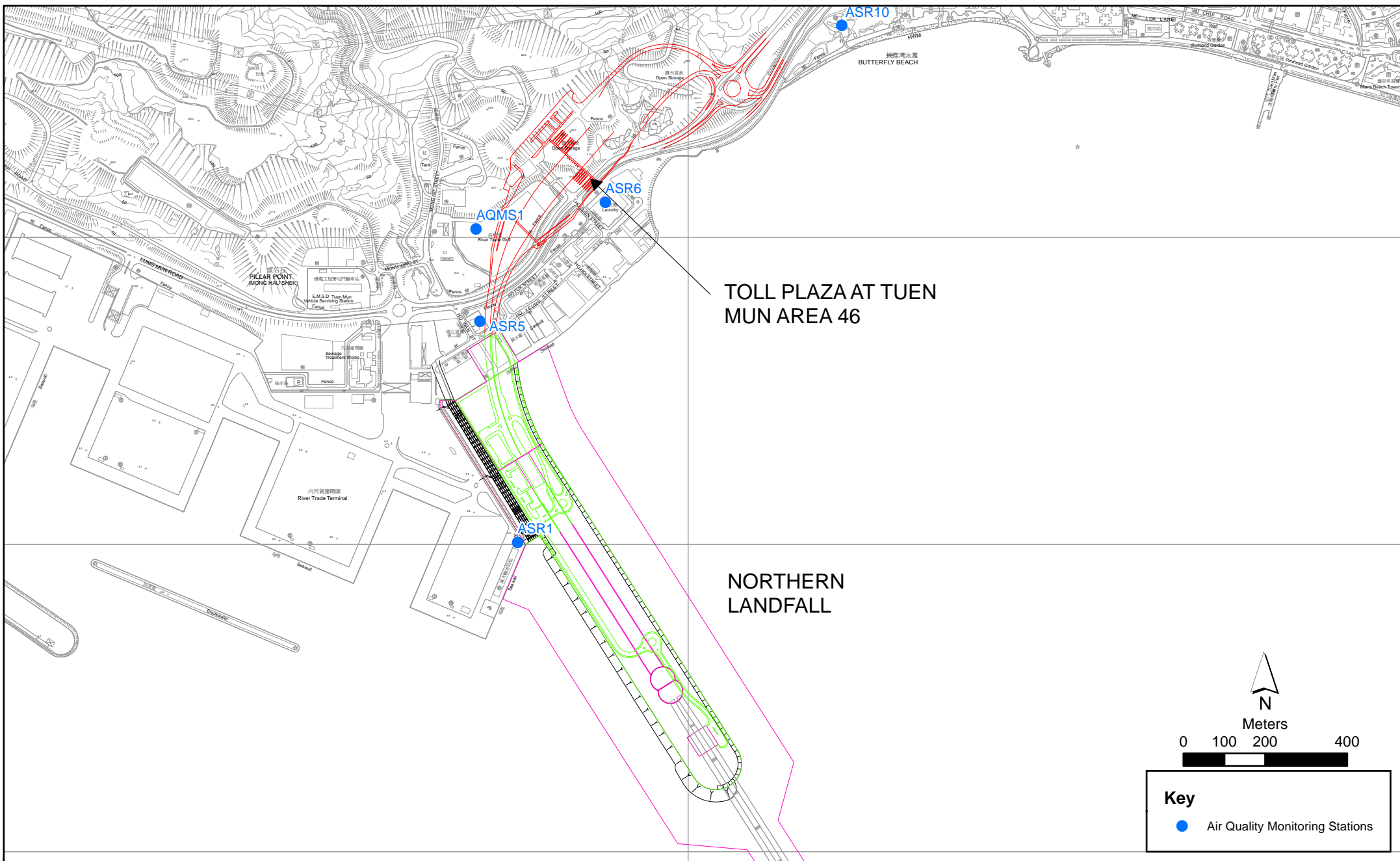
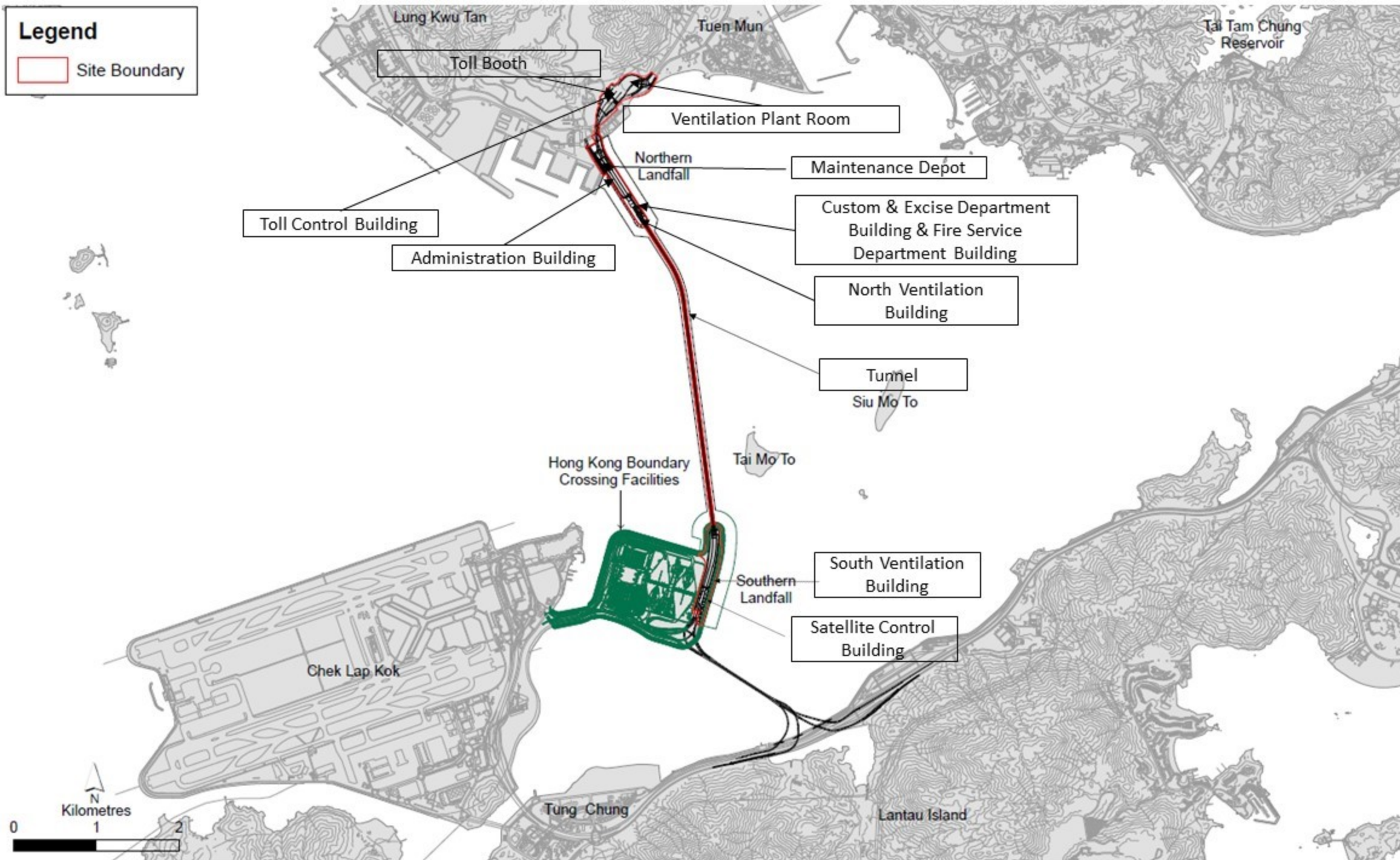


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Legend

Site Boundary



Appendix A

Watering Record on 4 November 2019

4 th Nov		MD & Ad(B)	
Period			Sign
7-8			
8-9	/	8:05	Jerry
9-10	/	9:00	Jerry
10-11	//	10:00 10:40	Jerry
11-12	/	11:30	Jerry
12-13	/	12:50	Jerry
13-14	/	13:20	Jerry
14-15	/	14:20	Jerry
15-16	//	15:00 15:40	Jerry
16-17	/	16:20	Jerry
17-18	/	17:20	Jerry
18-19			

Appendix B

Site Photo



Photo 1 - Construction works at Toll Control Building



Photo 2 - Construction works at Maintenance Depot



Photo 3 - Construction works at Administration Building

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 26 November 2019

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance
0463091_7November2019_1hrTSP_Station ASR5

One (1) exceedance was recorded on 7 November 2019.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10
 TUEN MUN – CHEK LAP KOK LINK –
 NORTHERN CONNECTION TUNNEL BUILDINGS,
 ELECTRICAL AND MECHANICAL WORKS

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Action Level Exceedance</u> 0463091_7November2019_1hrTSP_Station ASR5 [Total No. of Exceedances = 1]	
Date	7 November 2019 (Measured) 26 December 2019 (Results obtained from ENPO Website)	
Monitoring Station	ASR5	
Parameter(s) with Exceedance(s)	1- hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to the attached data sheet (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 7 November 2019 included <ul style="list-style-type: none"> • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building; • Architectural Builder's Work and Finishes at Fire Services Department Building; • Building Structure at Customs and Excise Department Building; • Electrical and Mechanical Works at North Ventilation Building; • Architectural Builders Work and Finishes at Toll Control Building 	

Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> • Apart from exceedance of 1-hr TSP at ASR5 during 13:24-14:24 on 7 November 2019, all 1-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. • With reference to the recorded wind direction (ranged between 16° and 304°, blowing from a north-easterly and north-westerly direction) and wind speed (ranged between 1.8 and 2.2 m/s) when exceedances recorded, ASR5 is located downstream to the construction works at Toll Control Building, while ASR1 is located downstream to the construction works at Toll Control Building. However, the construction works at Toll Control Building were Architectural Builders Work and Finishes which are considered not major dust generating works. • No major dust generating activities i.e. excavation works was conducted on 7 November 2019. • Dust suppression measures were implemented at the site area, for example, road at Toll Control Building were paved, no debris/materials were burnt at the works areas and watering was applied on dry area (refer to <i>Appendices A and B</i>). <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>
Actions Taken / To Be Taken	<p>The Contractor has been reminded to ensure all dust suppression measures are implemented at the site area. The ET will monitor for future trends in exceedances.</p>
Remarks	<p>The monitoring results on 7 November 2019 and locations of air quality monitoring stations are attached.</p>

Results of Air Quality Monitoring

Project	Contract	Date (yyyy-mm-dd)	Station	Time	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-11-07	AQMS1	13:46:00	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2019-11-07	AQMS1	14:48:00	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2019-11-07	AQMS1	15:50:00	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR1	13:35:00	1-hour TSP	239	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR1	14:37:00	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR1	15:39:00	1-hour TSP	160	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR10	13:01:00	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR10	14:03:00	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR10	15:05:00	1-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR5	13:24:00	1-hour TSP	479	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR5	14:26:00	1-hour TSP	161	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR5	15:28:00	1-hour TSP	147	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR6	13:13:00	1-hour TSP	212	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR6	14:15:00	1-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR6	15:17:00	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2019-11-07	AQMS1	16:52:00	24-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR1	16:41:00	24-hour TSP	158	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR10	16:07:00	24-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR5	16:30:00	24-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	2019-11-07	ASR6	16:19:00	24-hour TSP	105	ug/m3

Note:

Indicates Exceedance of Action Level
 Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
19/11/07	0:00	0	-
19/11/07	1:00	0	-
19/11/07	2:00	0.4	22
19/11/07	3:00	0.9	25
19/11/07	4:00	1.8	32
19/11/07	5:00	1.8	21
19/11/07	6:00	1.3	22
19/11/07	7:00	1.8	31
19/11/07	8:00	1.8	15
19/11/07	9:00	1.8	4
19/11/07	10:00	2.2	33
19/11/07	11:00	2.2	33
19/11/07	12:00	2.2	16
19/11/07	13:00	1.8	16
19/11/07	14:00	2.2	304
19/11/07	15:00	2.7	316
19/11/07	16:00	1.3	341
19/11/07	17:00	1.8	316
19/11/07	18:00	1.8	327
19/11/07	19:00	0.4	318
19/11/07	20:00	0	-
19/11/07	21:00	0.4	336
19/11/07	22:00	1.3	313
19/11/07	23:00	1.8	357

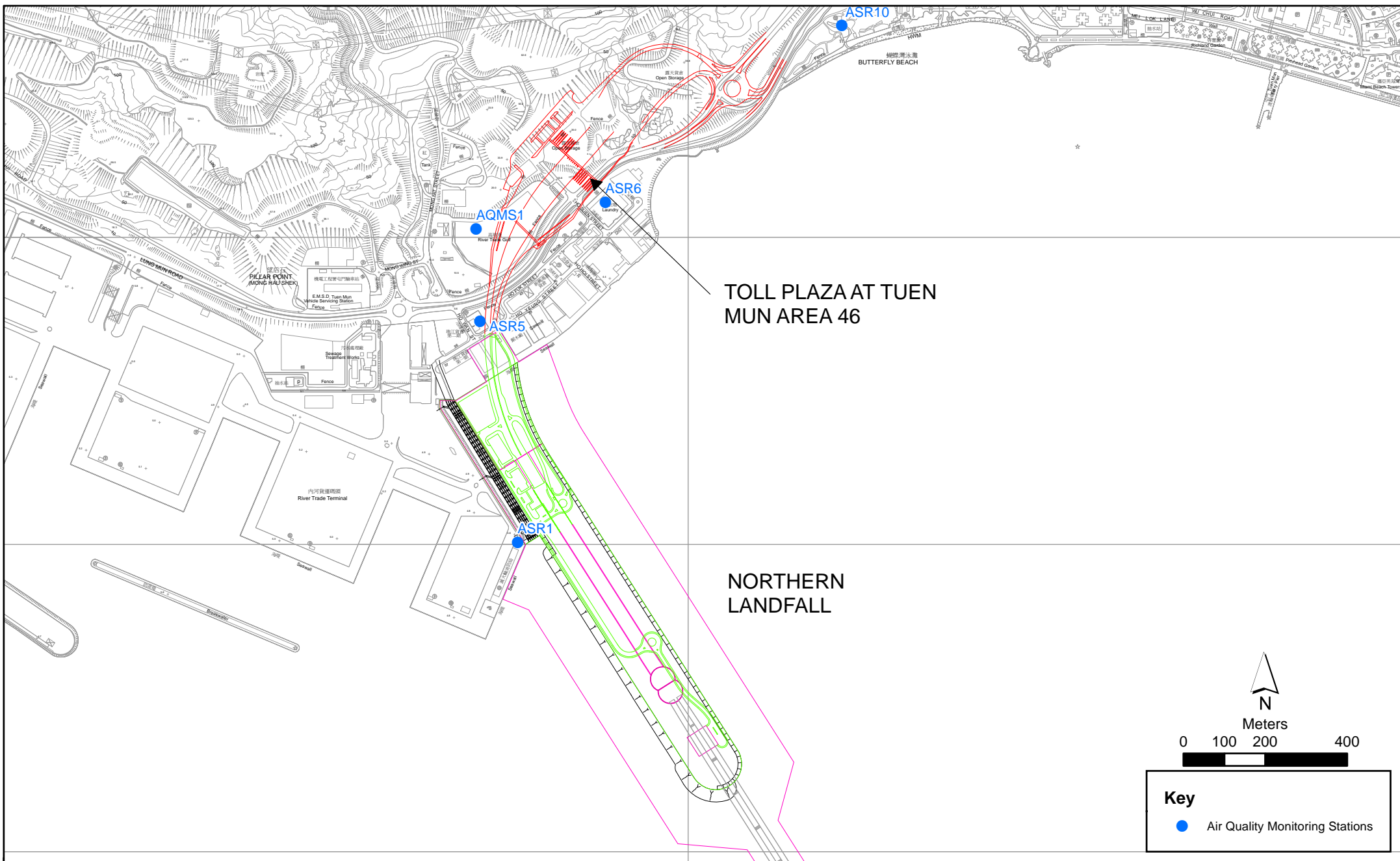


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

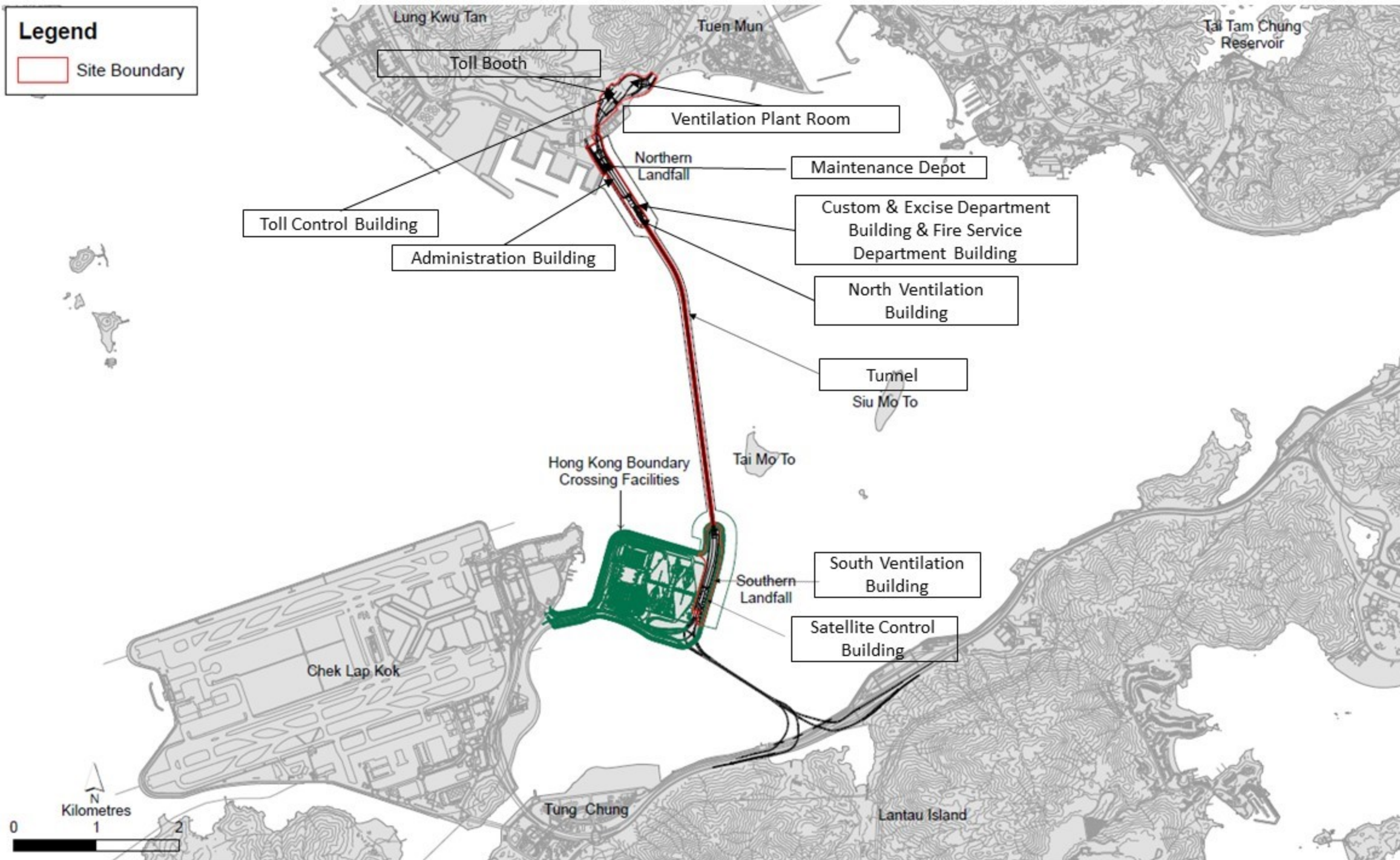
Key
 ● Air Quality Monitoring Stations

**Environmental
 Resources
 Management**



Legend

Site Boundary



Appendix A

Watering Record on 7 November 2019

7 th Nov		Location	
Period		MD & AdB	Sign
		Time	
7-8			
8-9	/	8:03	Jerry
9-10	/	9:05	Jerry
10-11	//	10:05 10:40	Jerry
11-12	/	11:40	Jerry
12-13	/	12:55	Jerry
13-14	/	13:30	Jerry
14-15	/	14:30	Jerry
15-16	/	15:15	Jerry
16-17	//	16:15 16:50	Jerry
17-18	/	17:35	Jerry
18-19			

Appendix B

Site Photo



Photo 1 - Construction works at Toll Control Building

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

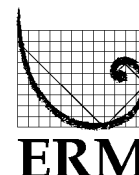
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 6 December 2019

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance

0463091_28November2019_1hrTSP_Station ASR1
0463091_28November2019_1hrTSP_Station ASR1
0463091_28November2019_1hrTSP_Station ASR5

Limit Level Exceedance

0463091_28November2019_1hrTSP_Station ASR1
0463091_28November2019_1hrTSP_Station ASR5

Five (5) exceedances were recorded on 28 November 2019.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

**CONTRACT NO. HY/2017/10
TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION TUNNEL BUILDINGS,
ELECTRICAL AND MECHANICAL WORKS**

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<p style="text-align: center;"><u>Action Level Exceedance</u></p> <p style="text-align: center;">0463091_28November2019_1hrTSP_Station ASR1 0463091_28November2019_1hrTSP_Station ASR1 0463091_28November2019_1hrTSP_Station ASR5</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p style="text-align: center;">0463091_28November2019_1hrTSP_Station ASR1 0463091_28November2019_1hrTSP_Station ASR5</p> <p style="text-align: center;">[Total No. of Exceedances = 5]</p>	
Date	<p style="text-align: center;">28 November 2019 (Measured) 10 December 2019 (Results obtained from ENPO Website)</p>	
Monitoring Station	<p style="text-align: center;">ASR1 and ASR5</p>	
Parameter(s) with Exceedance(s)	<p style="text-align: center;">1- hr TSP</p>	
Action Levels	<p style="text-align: center;">1-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p>ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337</p>
	<p style="text-align: center;">24-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p>ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213</p>
Limit Levels	<p style="text-align: center;">1-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p style="text-align: center;">500</p>
	<p style="text-align: center;">24-hr TSP ($\mu\text{g}/\text{m}^3$)</p>	<p style="text-align: center;">260</p>
Measured Levels	<p>Refer to the attached data sheet (Data are source from Contract No. HY/2012/08).</p>	
Works Undertaken (at the time of monitoring event)	<p>Works undertaken under this Contract on 28 November 2019 included</p> <ul style="list-style-type: none"> • Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building; • Electrical and Mechanical Works at Ventilation Plant Room; • Electrical and Mechanical Works at North Ventilation Building; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot; • Falsework dismantling at Fire Services Department Building; • Falsework dismantling at Customs and Excise Department Building; • Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel. 	

Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> • With reference to the recorded wind direction (ranged between 14° and 34°, blowing from a north-easterly direction) and wind speed (ranged between 2.2 and 2.7 m/s) when exceedances recorded, ASR1 is located downstream to the construction works at Maintenance Depot and Administration Building, while ASR5 is located downstream to the construction works at Ventilation Plant Room and Toll Control Building. However, the construction works at Toll Control Building, Ventilation Plant Room, Maintenance Depot and Administration Building were mainly Electrical and Mechanical Works and Architectural Builders Work and Finishes which are considered not major dust generating works (refer to <i>Appendix A</i>). • No major dust generating activities i.e. excavation works was conducted on 28 November 2019. • Dust suppression measures i.e. watering were applied on site nearby Administration Building to prevent dust generation (refer to <i>Appendix B</i>). • During ET's site inspection on 29 November 2019, the work area at Maintenance Depot and Administration Building were mainly paved. No dust generating activities/dust emission was observed (refer to <i>Appendix C</i>) <p>Based on the above, the exceedances are unlikely to be due to the Contract.</p>
Actions Taken / To Be Taken	<p>The Contractor has been reminded to review the watering frequency and apply additional watering on the dry area during the dry season in particular. The Contractor has been reminded to ensure all dust suppression measures are implemented at the site area. The ET will monitor for future trends in exceedances.</p>
Remarks	<p>The monitoring results on 28 November 2019 and locations of air quality monitoring stations are attached.</p>

Results of Air Quality Monitoring

Project	Contract	Date (yyyy-mm-dd)	Station	Time	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-11-28	AQMS1	8:49:00	1-hour TSP	187	ug/m3
TMCLKL	HY/2012/08	2019-11-28	AQMS1	9:51:00	1-hour TSP	161	ug/m3
TMCLKL	HY/2012/08	2019-11-28	AQMS1	10:53:00	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR1	8:38:00	1-hour TSP	577	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR1	9:40:00	1-hour TSP	452	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR1	10:42:00	1-hour TSP	385	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR10	8:00:00	1-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR10	9:02:00	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR10	10:04:00	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR5	8:02:00	1-hour TSP	534	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR5	9:27:00	1-hour TSP	500	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR5	10:29:00	1-hour TSP	299	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR6	8:13:00	1-hour TSP	216	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR6	9:15:00	1-hour TSP	183	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR6	10:17:00	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	2019-11-28	AQMS1	11:55:00	24-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR1	11:44:00	24-hour TSP	207	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR10	11:06:00	24-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR5	11:31:00	24-hour TSP	131	ug/m3
TMCLKL	HY/2012/08	2019-11-28	ASR6	11:19:00	24-hour TSP	109	ug/m3

Note:

Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
19/11/28	0:00	0	-
19/11/28	1:00	0.4	346
19/11/28	2:00	1.8	2
19/11/28	3:00	2.2	331
19/11/28	4:00	0.9	20
19/11/28	5:00	1.3	341
19/11/28	6:00	1.3	339
19/11/28	7:00	1.3	357
19/11/28	8:00	2.2	24
19/11/28	9:00	2.7	14
19/11/28	10:00	2.2	34
19/11/28	11:00	1.8	344
19/11/28	12:00	1.8	311
19/11/28	13:00	1.8	310
19/11/28	14:00	1.8	336
19/11/28	15:00	1.3	341
19/11/28	16:00	1.8	337
19/11/28	17:00	1.3	340
19/11/28	18:00	1.8	338
19/11/28	19:00	1.8	335
19/11/28	20:00	2.2	3
19/11/28	21:00	2.2	20
19/11/28	22:00	2.7	24
19/11/28	23:00	2.2	30

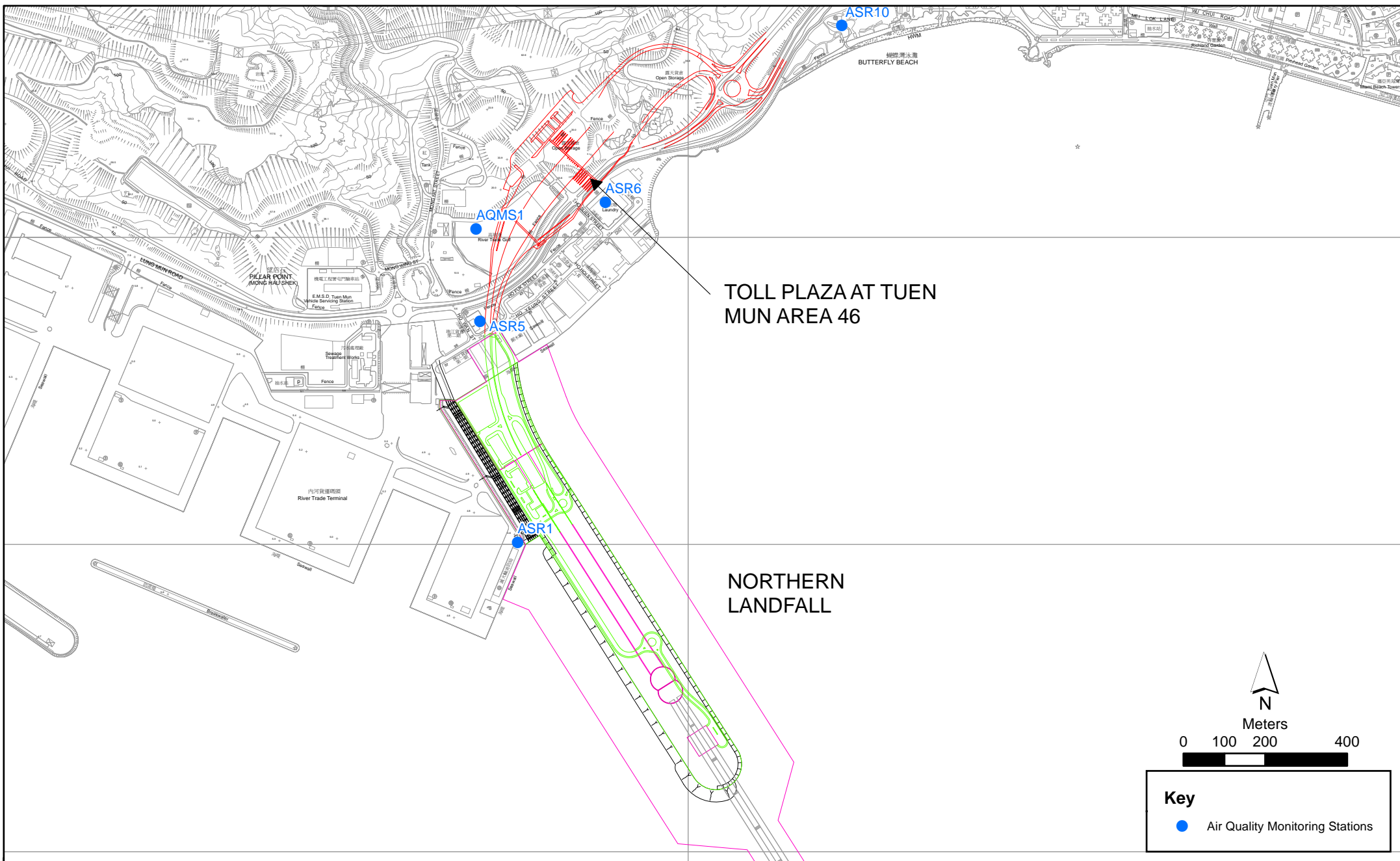
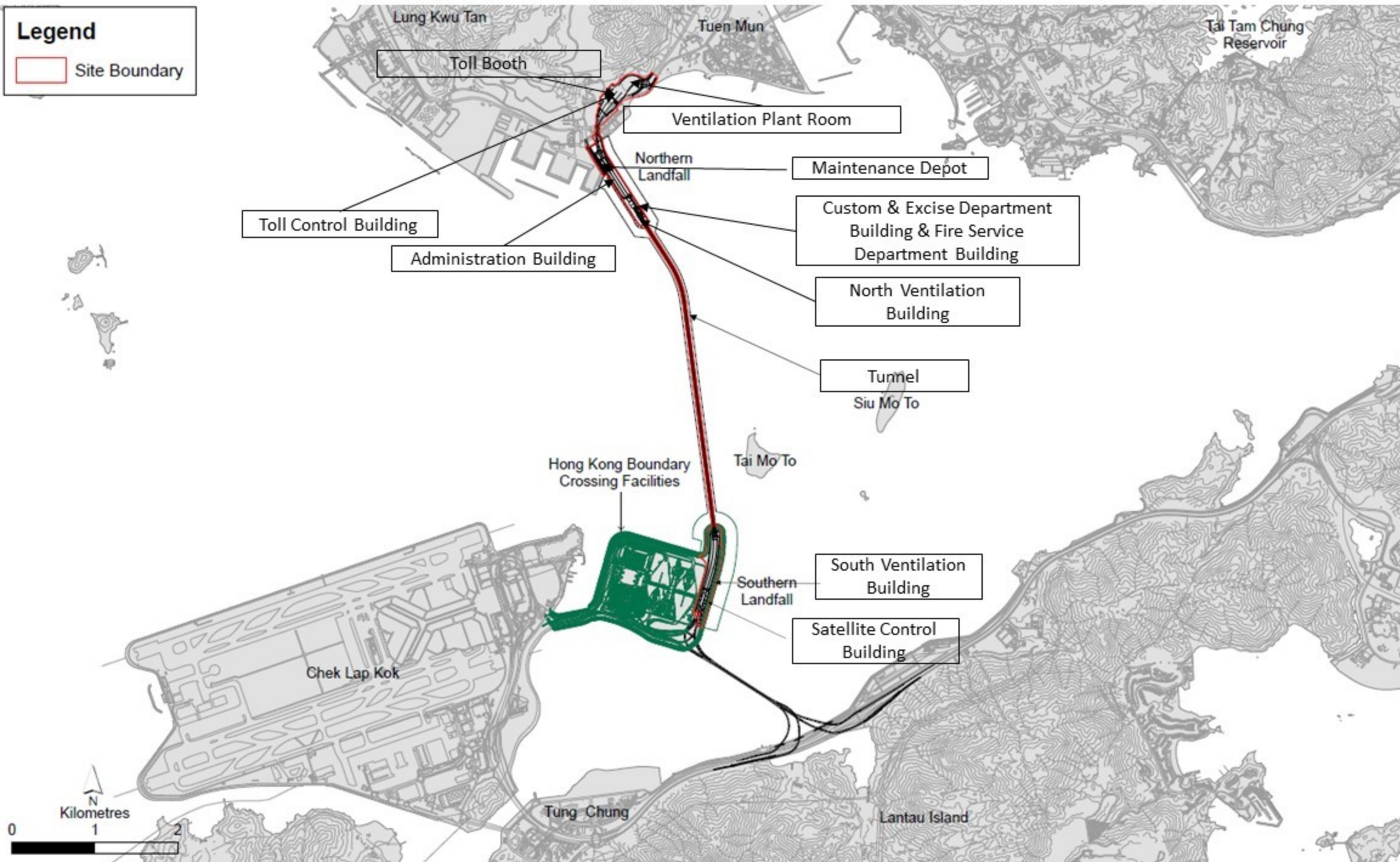


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Legend

Site Boundary



Appendix A

Site Photo



Photo 1 - Construction works at Administration Building



Photo 2 - Construction works at Maintenance Depot



Photo 3 - Construction works at Toll Control Building



Photo 4 - Watering was applied at Administration Building

Appendix B

Watering Record on 28
November 2019

28 th Nov		Location AdB	
Period		Time	Sign
7-8			
8-9	/	8:02	Jerry
9-10	/	9:00	Jerry
10-11	/	10:00	Jerry
11-12	//	11:04 11:50	Jerry
12-13	/	12:55	Jerry
13-14	/	13:40	Jerry
14-15	/	14:30	Jerry
15-16	//	15:10 15:50	Jerry
16-17	/	16:30	Jerry
17-18	/	17:30	Jerry
18-19			

Appendix C

ET site inspection on 29
November 2019

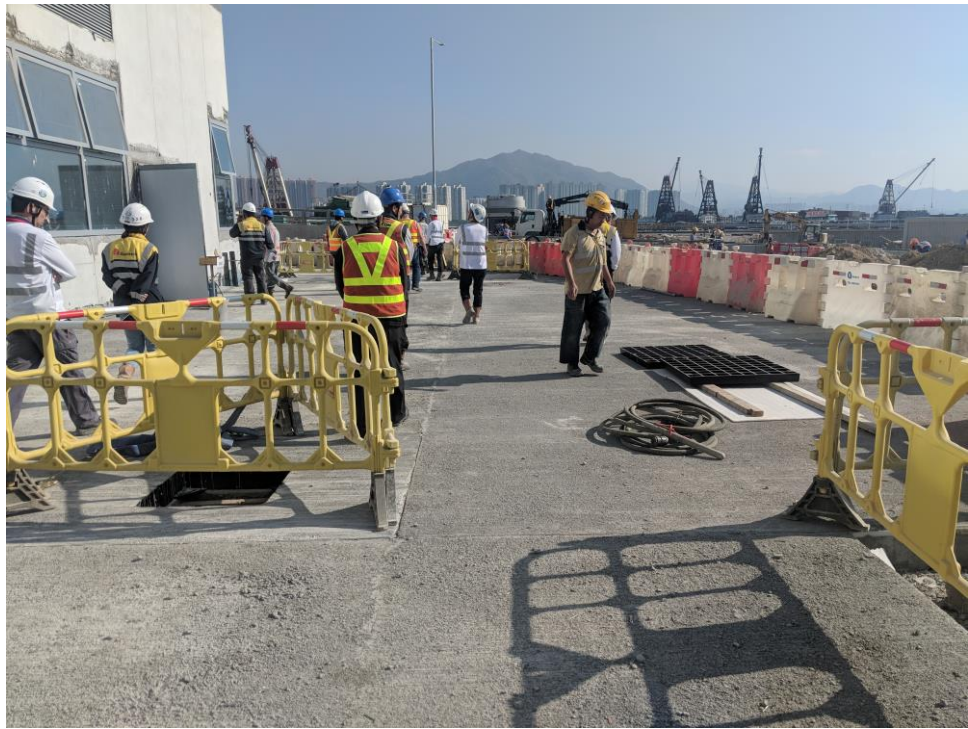


Photo 1 - Site condition at Maintenance Depot



Photo 2 - Site condition at Administration Building