

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

Tenth Monthly EM&A Report

15 April 2019

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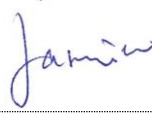


Contract No. HY/2017/10 Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works

**Environmental Resources
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Tenth Monthly EM&A Report

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Client: Gammon		Project No: 0463091			
Summary: This document presents the Tenth Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works.		Date: 15 April 2019			
		Approved by: 			
		<i>Mr Craig Reid</i> Partner			
		Certified by: 			
		<i>Dr Jasmine Ng</i> ET Leader			
	Tenth Monthly EM&A Report	CY	JN	CAR	15/4/19
Revision	Description	By	Checked	Approved	Date
<p>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.</p> <p>We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.</p>		<p>Distribution</p> <p><input type="checkbox"/> Internal</p> <p><input checked="" type="checkbox"/> Public</p> <p><input type="checkbox"/> Confidential</p>			
		 			

Ref.: HYDHZMBEEM00_0_7343L.19

15 April 2019

By Fax (2783 0155) and By Post

AECOM
Engineer's Representative's 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, Electrical and Mechanical
Works
10th Monthly EM&A Report (March 2019)**

Reference is made to the ET's submission of the monthly EM&A report for March 2019 (ET's ref.: "0463091_10th Monthly EM&A_2019") certified by the ET Leader and provided to us via e-mail on 15 April 2019.

Please be informed that we have no adverse comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 4.4 of EP-354/2009/D.

Thank you for your attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y. H. Hui should you have any queries.

Yours sincerely,



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

c.c.

HyD	Mr. Patrick Ng	(By Fax: 3188 6614)
HyD	Mr. Tony Pang	(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)

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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 tenth Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 31 March 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:

Land-based Works

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

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

24-hour TSP Monitoring	10 sessions
1-hour TSP Monitoring	10 sessions
Landfill Gas Hazard Monitoring	26 days
Joint Environmental Site Inspection	5 sessions

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

Two (2) Action Level exceedance for 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 and Limit Levels for Landfill Gas Hazard Monitoring

No exceedance of Action and Limit Levels was recorded for landfill gas hazard monitoring in the reporting month.

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 Month

Works to be undertaken in the next monitoring period of April 2019 include the following:

Land-based Works

- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Building Structure at Administration Building;
- Building Structure at Maintenance Depot;
- Electrical and Mechanical Works at Fire Services Department Building;

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

- Building Structure and Electrical and Mechanical Works at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2; and
- Electrical and Mechanical Works at the Tunnel.

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of April 2019 are mainly associated with dust and waste management issues.

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

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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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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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 01/7071 01/7072




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
 **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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Figure 1.2a

ISSUE/REVISION

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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
 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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Figure 1.2b

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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
 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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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 Tenth Monthly 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 in March 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 three-month rolling construction programme is shown in *Appendix B*.

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

Land-based Works

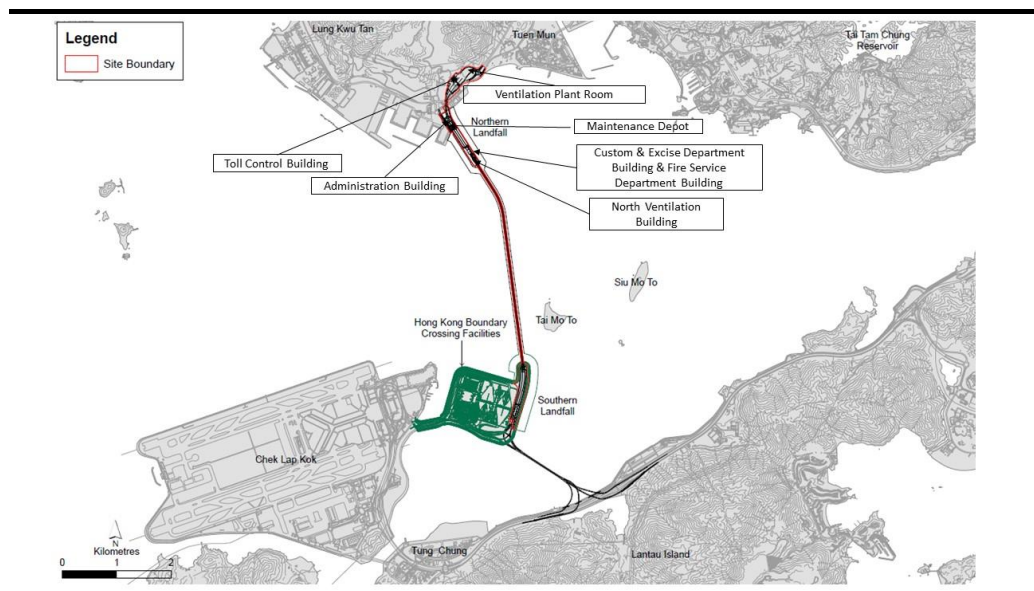
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;

- Building Structure at Administration Building;
- Building Structure at Maintenance Depot;
- Building Structure at Fire Services Department Building;
- Building Structure at Customs and Excise Department Building; and
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2.

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 Month*



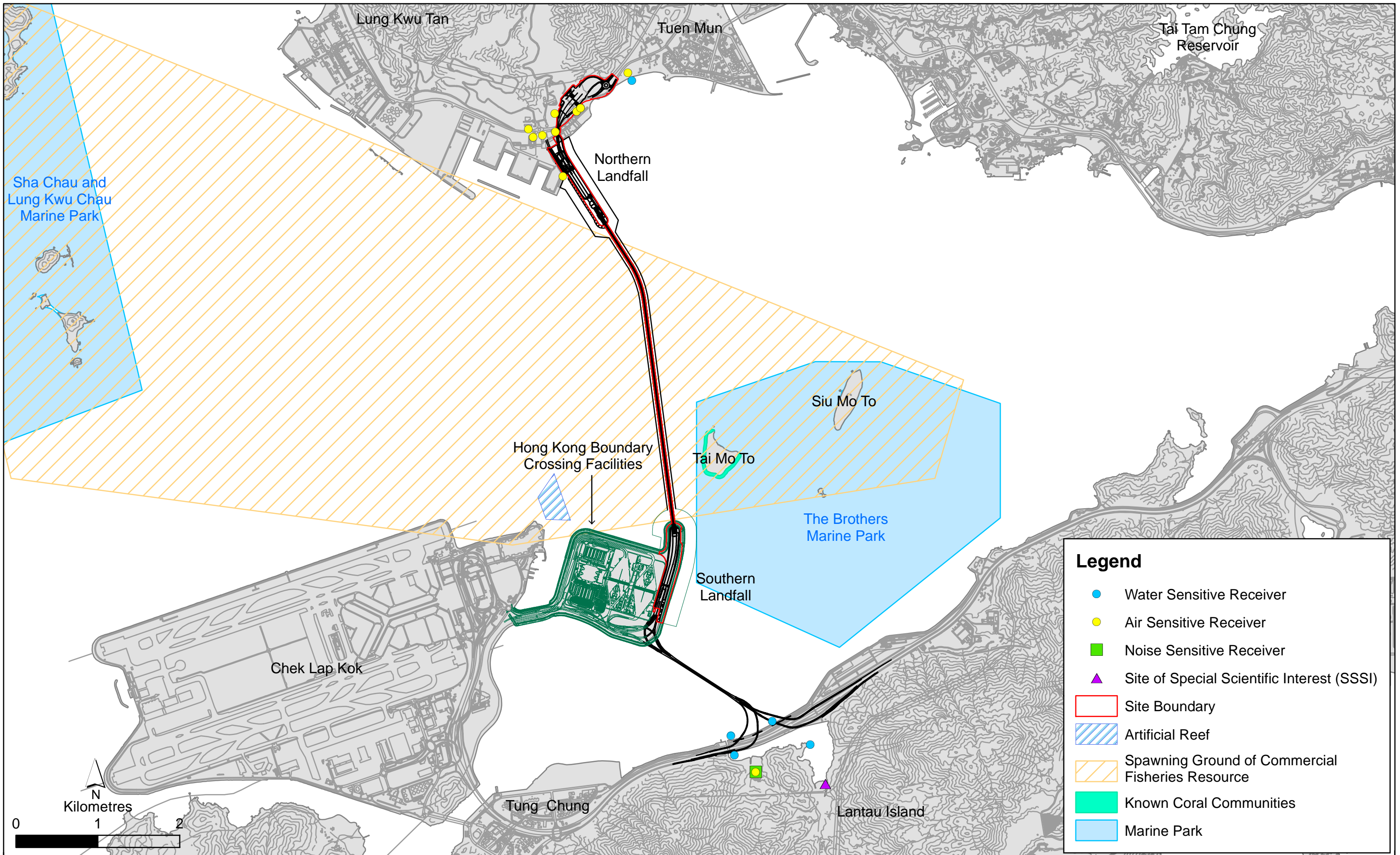


Figure 1.4

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*.

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

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR1	3, 6, 9, 12, 15, 18, 21, 24, 27 and 30 March 2019	Tuen Mun Fireboat Station	Office	TSP monitoring
ASR5		Pillar Point Fire Station	Office	<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 24-hour Total Suspended Particulates (24-hour TSP, $\mu\text{g}/\text{m}^3$), daily for 24-hour in every 6 days
AQMS1		Previous River Trade Golf	Bare ground	Enhanced TSP monitoring

(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)

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR6		Butterfly Beach Laundry	Office	(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
ASR10		Butterfly Beach Park	Recreational uses	<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

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⁾.

Two (2) Action Level exceedances for 1-hour TSP was recorded on 27 and 30 March 2019 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 G*. 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.

2.2 *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 26 days of landfill gas hazard monitoring was conducted at Ventilation Plant Room during 1 to 30 March 2019 (*Appendix F*).

The landfill gas hazard monitoring was conducted in accordance to the Updated EM&A Manual with a Altair 5X Gas Detector. The calibration certificate for the equipment is presented in *Appendix G*.

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

2.2.1 *Results and Observations*

Results for landfill gas hazard monitoring are summarized in *Table 2.2* and the monitoring data is provided in *Appendix H*.

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

No exceedance of Action and Limit Levels for methane, oxygen and carbon dioxide was recorded in the reporting month.

Table 2.2 *Summary of Landfill Gas Hazard Monitoring Results in the Reporting Period*

	Average (%)	Range (%)	Action / Limit Level (%)
Methane	0	0	10 / 20
Oxygen	20.8	20.7-20.9	19 / 18
Carbon Dioxide	0.07	0.07-0.08	0.5 / 1.5

2.3 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. In the reporting month, five (5) site inspections were carried out on 1, 8, 15, 22 and 29 March 2019.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.3*.

Table 2.3 *Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Month*

Inspection Date	Observations	Recommendations/ Remarks
1 March 2019	Maintenance Depot	Maintenance Depot
2019	<ul style="list-style-type: none"> Stagnant water was observed in drip tray. 	<ul style="list-style-type: none"> The Contractor was reminded to discharge stagnant water in the drip tray.
8 March 2019	Toll Control Building	Toll Control Building
	<ul style="list-style-type: none"> Different types of waste should be sorted for disposal. Good housekeeping should be maintained. Stagnant water in the drip tray should be cleared. 	<ul style="list-style-type: none"> The Contractor are reminded to sort different waste or disposal The Contractor are reminded to maintain good housekeeping. The Contractor are reminded to clear the stagnat water in the drip tray.
15 March 2019	Toll Control Building	Toll Control Building
	<ul style="list-style-type: none"> Accumulated waste in refuse skip was observed. 	<ul style="list-style-type: none"> The Contractor was reminded to clear accumulated waste in refuse skip.
22 March 2019	Fire Services Department Building and Customs and Excise Department Building	Fire Services Department Building and Customs and Excise Department Building
	<ul style="list-style-type: none"> Chemical containers should be placed in drip tray. Chemicals should be stored in proper containers General food waste should be disposed in capped rubbish bin. 	<ul style="list-style-type: none"> The Contractor was reminded to place chemical containers in drip tray. The Contractor was reminded to store chemicals in proper containers. The Contractor was reminded to dispose general food waste in capped rubbish bin.
29 March 2019	Administration Building	Administration Building
	<ul style="list-style-type: none"> General refuse was observed in refuse skip and accumulated construction was observed. 	<ul style="list-style-type: none"> The Contractor was reminded to dispose general refuse in capped rubbish bin and to sort construction waste prior to dipsoal.

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

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 I*). The quantities of different types of wastes are summarized in *Table 2.4*.

Table 2.4 Quantities of Different Waste Generated in the Reporting Month

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)
March 2019	79	0	73,690	0	0	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.

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 properly and store 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-RW0037-19	28 January 2019	23 July 2019	GCL	For Toll Control Building, Administration Building, Maintenance Depot and WA18
Construction Noise Permit	GW-RS0202-19	4 March 2019	3 September 2019	GCL	For Kiosk S2

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.

The landscape and visual (L&V) mitigation measures were also monitored on weekly basis in the reporting period. The monitoring status is summarized in *Appendix C*.

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

Two (2) Action 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 G*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

No exceedance of 24-hour TSP was recorded in this reporting month.

Cumulative statistics are provided in *Appendix J*.

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 J*.

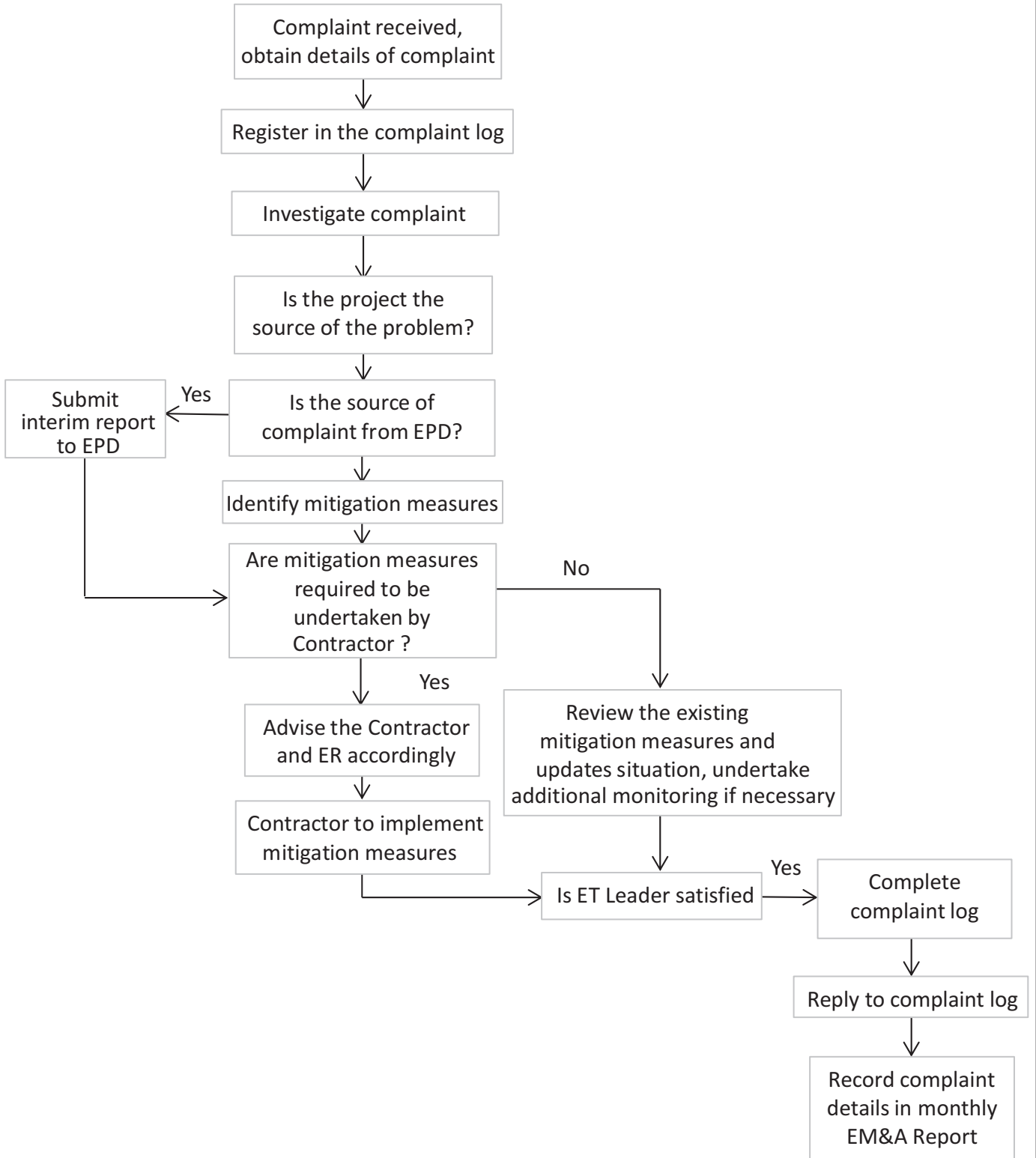


Figure 2.2

Environmental Complaint Handling Procedure

3 *FUTURE KEY ISSUES*

3.1 *CONSTRUCTION ACTIVITIES FOR THE COMING MONTH*

As informed by the Contractor, the major works for the Contract in April 2019 will be:

Land-based Works

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

3.2 *KEY ISSUES FOR THE COMING MONTH*

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of April 2019 are mainly associated with dust and waste management issues.

4.1 CONCLUSIONS

This Tenth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 31 March 2019, in accordance with the Updated EM&A Manual and the requirements of EP-354/2009/D.

Air quality (including 1-hour TSP and 24-hour TSP) and landfill gas hazard monitoring were carried out in this reporting month.

Two (2) Action 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 G*. 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.

No exceedance of Action and Limit Levels was recorded for landfill gas hazard monitoring in the reporting month.

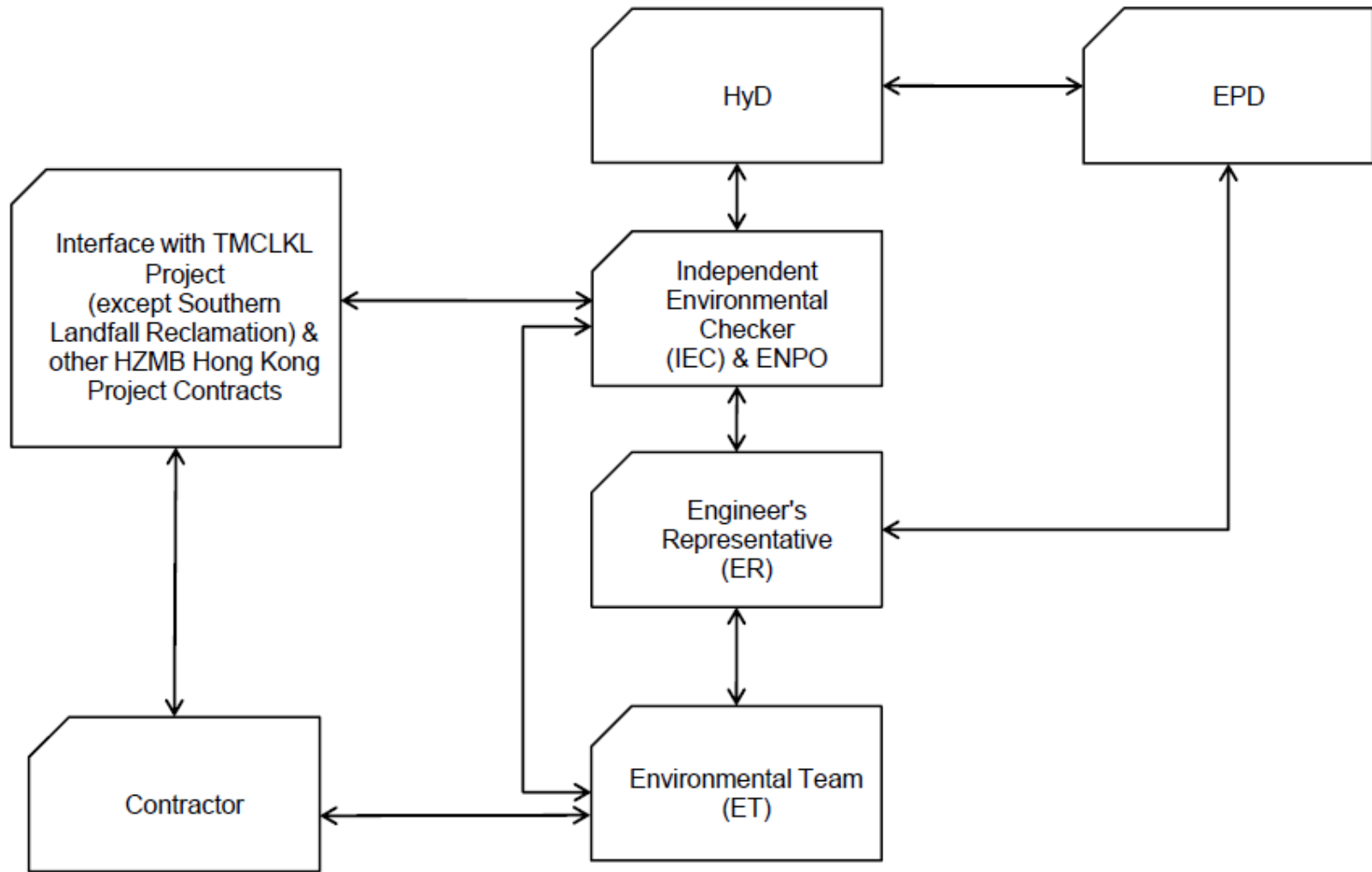
Environmental site inspection was carried out five (5) times in March 2019. Remedial actions recommended for the deficiencies identified during the site audits were properly implemented by the Contractor.

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					
							Mar	Apr	May	Jun		
HY2017/10 - Works Programme Three Month Rolling Programme 20-Mar-19												
Contract Dates												
Key Dates												
KD01	KD01 - Toll Control Bldg & TCSS Provision	0	0%	0		29-Apr-19*						
KD04A	KD4A - C&ED & FSD Substructure, Boundary Wall, ELS Removal	0	0%	0		30-Mar-19*						
Portion Access Dates												
P240	Access to Portion I (Day 329)	0	0%	0	31-Mar-19							
Portion Possession Dates												
P245	Possession to Portion Vc - (2 May 2019)	0	0%	0	02-May-19*							
P260	Possession to Portion XVIIa (Day 390)	0	100%	0	18-Mar-19 A							
P270	Possession to Portion XIX (Day 390)	0	0%	0	31-May-19							
P280	Possession to Portion XVIIb (Day 390)	0	100%	0	18-Mar-19 A							
P285	Possession to Portion XI (Day 390)	0	0%	0	31-May-19							
P290	Possession to Portion XXIa (Day 390)	0	0%	0	31-May-19							
P295	Possession to Portion IX (Day 390)	0	0%	0	31-May-19							
P300	Possession to Portion XXIIb (Day 390)	0	0%	0	31-May-19							
P305	Possession to Portion X (Day 390)	0	0%	0	31-May-19							
P315	Possession to Portion XXIc (Day 390)	0	0%	0	31-May-19							
Major Design Submission & Approval												
Toll Control Building												
MVAC System												
TCB-EMD1093	ER Review and Approval of AHU/PAU Static Pressure Calculation	13	100%	0	28-Feb-19 A	15-Mar-19 A						
TCB-EMD1095	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28	23-Aug-18 A	25-Apr-19						
TCB-EMD1113	ER Review and Approval of MVAC Pump head calculation	13	100%	0	28-Feb-19 A	15-Mar-19 A						
TCB-EMD1115	Authorities Review and Comment of MVAC Pump head calculation	56	50%	28	23-Aug-18 A	25-Apr-19						
TCB-EMD1135	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28	10-Jul-18 A	25-Apr-19						
Electrical System												
TCB-EMD1013	ER Review and Approval of UPS and Battery Capacity Calculations	13	100%	0	23-Feb-19 A	15-Mar-19 A						
TCB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	22-Aug-18 A	25-Apr-19						
TCB-EMD1032	Preparation and Resubmission of Electrical Loading Demand Calculation	26	0%	26	06-Oct-18 A	23-Apr-19						
TCB-EMD1033	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	24-Apr-19	09-May-19						
TCB-EMD1035	Authorities Review and Comment of Electrical Loading Demand Calculation	56	25%	42	16-Aug-18 A	13-May-19						
TCB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28	15-Aug-18 A	25-Apr-19						
TCB-EMD1305	Submission of System Design of PV System	0	0%	0	20-Mar-19*							
TCB-EMD1315	ER Review and Comment of System Design of PV System	26	0%	26	20-Mar-19	23-Apr-19						
TCB-EMD1325	Preparation and Resubmission of System Design of PV System	26	0%	26	24-Apr-19	24-May-19						
TCB-EMD1335	ER Review and Approval of System Design of PV System	13	0%	13	25-May-19	10-Jun-19						
TCB-EMD1345	Authorities Review and Comment of PV System	56	0%	56	20-Mar-19	29-May-19						
Fire Service System												
TCB-EMD1175	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	01-Aug-18 A	25-Apr-19						
TCB-EMD1195	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	14-Aug-18 A	25-Apr-19						
TCB-EMD1215	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28	13-Aug-18 A	25-Apr-19						
Plumbing & Drainage System												
TCB-EMD1235	Authorities Review and Comment of Pump Head Calculation	56	50%	28	07-Aug-18 A	25-Apr-19						
TCB-EMD1255	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	07-Aug-18 A	25-Apr-19						
TCB-EMD1273	ER Review and Approval of Hot water system capacity calculation	13	50%	7	11-Jan-19 A	27-Mar-19						
TCB-EMD1275	Authorities Review and Comment of Hot water system capacity calculation	56	50%	28	07-Aug-18 A	25-Apr-19						
TCB-EMD1395	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28	23-Jul-18 A	25-Apr-19						

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

P 1/24

Date	Revision	Checked	Approved
20-Mar-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Mar	Apr	May	Jun	
Lift System											
TCB-EMD1295	Authorities Review and Comment of System Design for Lift system	56	50%	28	12-Sep-18 A	25-Apr-19					
Administration Building											
MVAC System											
ADB-EMD1013	ER Review and Approval of AC Cooling Capacity Calculation	13	100%	0	28-Feb-19 A	07-Mar-19 A					
ADB-EMD1015	Authorities Review and Comment of AC Cooling Capacity Calculation	56	50%	28	17-Aug-18 A	25-Apr-19					
ADB-EMD1033	ER Review and Approval of AHU/PAU Static Pressure Calculation	13	100%	0	28-Feb-19 A	15-Mar-19 A					
ADB-EMD1035	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28	08-Oct-18 A	25-Apr-19					
ADB-EMD1053	ER Review and Approval of Pump head calculation	13	100%	0	28-Feb-19 A	15-Mar-19 A					
ADB-EMD1055	Authorities Review and Comment of Pump head calculation	56	50%	28	07-Nov-18 A	25-Apr-19					
ADB-EMD1075	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28	17-Aug-18 A	25-Apr-19					
Electrical System											
ADB-EMD1093	ER Review and Approval of UPS and Battery Capacity Calculations	13	50%	7	23-Feb-19 A	27-Mar-19					
ADB-EMD1095	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	05-Sep-18 A	25-Apr-19					
ADB-EMD1112	Preparation and Resubmission of Electrical Loading Demand Calculation	26	0%	26	06-Oct-18 A	23-Apr-19					
ADB-EMD1113	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	24-Apr-19	09-May-19					
ADB-EMD1115	Authorities Review and Comment of Electrical Loading Demand Calculation	56	25%	42	27-Aug-18 A	13-May-19					
ADB-EMD1135	Authorities Review and Comment of Generator Calculation	56	50%	28	09-Aug-18 A	25-Apr-19					
ADB-EMD1305	Submission of System Design of PV System	0	0%	0	20-Mar-19*						
ADB-EMD1315	ER Review and Comment of System Design of PV System	26	0%	26	20-Mar-19	23-Apr-19					
ADB-EMD1325	Preparation and Resubmission of System Design of PV System	26	0%	26	24-Apr-19	24-May-19					
ADB-EMD1335	ER Review and Approval of System Design of PV System	13	0%	13	25-May-19	10-Jun-19					
ADB-EMD1345	Authorities Review and Comment of System Design of PV System	56	0%	56	20-Mar-19	29-May-19					
Fire Service System											
ADB-EMD1155	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	13-Aug-18 A	25-Apr-19					
ADB-EMD1175	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	13-Aug-18 A	25-Apr-19					
ADB-EMD1195	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28	13-Aug-18 A	25-Apr-19					
Plumbing & Drainage System											
ADB-EMD1215	Authorities Review and Comment of Pump Head Calculation	56	50%	28	25-Aug-18 A	25-Apr-19					
ADB-EMD1235	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	25-Aug-18 A	25-Apr-19					
ADB-EMD1253	ER Review and Approval of Hot water system capacity calculation	13	50%	7	30-Jan-19 A	27-Mar-19					
ADB-EMD1255	Authorities Review and Comment of Hot water system capacity calculation	56	50%	28	25-Aug-18 A	25-Apr-19					
Lift System											
ADB-EMD1295	Authorities Review and Comment of System Design for Lift system	56	50%	28	12-Sep-18 A	25-Apr-19					
North Ventilation Building											
MVAC System											
NVB-EMD1013	ER Review and Approval of Staircase Pressurization System Calculation	13	50%	7	30-Nov-18 A	27-Mar-19					
NVB-EMD1035	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28	26-Sep-18 A	25-Apr-19					
Electrical System											
NVB-EMD1053	ER Review and Approval of HV Electrical Loading Calculation	13	50%	7	22-Mar-19 A	27-Mar-19					
NVB-EMD1055	Authorities Review and Comment of HV Electrical Loading Calculation	56	50%	28	26-Sep-18 A	25-Apr-19					
NVB-EMD1073	ER Review and Approval of UPS and Battery Capacity Calculations	13	50%	7	23-Feb-19 A	27-Mar-19					
NVB-EMD1075	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	17-Aug-18 A	25-Apr-19					
NVB-EMD1093	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	16-Mar-19 A	03-Apr-19					
NVB-EMD1095	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28	03-Sep-18 A	25-Apr-19					
NVB-EMD1105	Mitigation - ER Approval to Prepare & Order without FSD Approval	4	33.33%	3	19-Mar-19 A	22-Mar-19					
NVB-EMD1115	Authorities Review and Comment of Generator Calculation	56	50%	28	17-Aug-18 A	25-Apr-19					
Fire Service System											

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NORTHERN TUNNEL CONNECTION BUILDING E&M WORKS
THREE MONTHLY PROGRAMME AS OF 20 MAR 2019

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Date	Revision	Checked	Approved
20-Mar-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Mar	Apr	May	Jun
NVB-EMD1135	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	01-Aug-18 A	25-Apr-19				
NVB-EMD1155	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
NVB-EMD1175	Authorities Review and Comment of FM200 System Design Calculation	28	50%	14	13-Aug-18 A	04-Apr-19				
Plumbing & Drainage System										
NVB-EMD1195	Authorities Review and Comment of Pump Head Calculation	56	50%	28	07-Aug-18 A	25-Apr-19				
NVB-EMD1215	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	07-Aug-18 A	25-Apr-19				
NVB-EMD1305	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28	07-Aug-18 A	25-Apr-19				
Lift System										
NVB-EMD1255	Authorities Review and Comment of System Design for Lift system	56	50%	28	12-Sep-18 A	25-Apr-19				
Maintenance Depot										
MVAC System										
MD-EMD1013	ER Review and Approval of AC Cooling Capacity Calculation	13	100%	0	28-Feb-19 A	12-Mar-19 A				
MD-EMD1015	Authorities Review and Comment of AC Cooling Capacity Calculation	56	50%	28	17-Aug-18 A	25-Apr-19				
MD-EMD1035	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28	10-Oct-18 A	25-Apr-19				
MD-EMD1055	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28	17-Aug-18 A	25-Apr-19				
Electrical System										
MD-EMD1072	Preparation and Resubmission of Electrical Loading Demand Calculation	26	0%	26	05-Jan-19 A	23-Apr-19				
MD-EMD1073	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	24-Apr-19	09-May-19				
MD-EMD1075	Authorities Review and Comment of Electrical Loading Demand Calculation	56	25%	42	27-Aug-18 A	13-May-19				
Fire Service System										
MD-EMD1115	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
MD-EMD1135	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
MD-EMD1155	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
Plumbing & Drainage System										
MD-EMD1175	Authorities Review and Comment of Pump Head Calculation	56	50%	28	13-Aug-18 A	25-Apr-19				
MD-EMD1195	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	13-Aug-18 A	25-Apr-19				
MD-EMD1215	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28	27-Aug-18 A	25-Apr-19				
Satellite Control Building										
MVAC System										
SCB-EMD1015	Authorities Review and Comment of AC Cooling Capacity Calculation	56	50%	28	17-Aug-18 A	25-Apr-19				
SCB-EMD1035	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28	17-Aug-18 A	25-Apr-19				
Electrical System										
SCB-EMD1053	ER Review and Approval of UPS and Battery Capacity Calculations	13	50%	7	23-Feb-19 A	27-Mar-19				
SCB-EMD1055	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	05-Sep-18 A	25-Apr-19				
SCB-EMD1072	Preparation and Resubmission of Electrical Loading Demand Calculation	26	0%	26	05-Feb-19 A	23-Apr-19				
SCB-EMD1073	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	24-Apr-19	09-May-19				
SCB-EMD1075	Authorities Review and Comment of Electrical Loading Demand Calculation	56	25%	42	01-Nov-18 A	13-May-19				
SCB-EMD1095	Authorities Review and Comment of Generator Calculation	56	50%	28	27-Nov-18 A	25-Apr-19				
Fire Service System										
SCB-EMD1115	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
SCB-EMD1135	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
SCB-EMD1155	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28	14-Aug-18 A	25-Apr-19				
Plumbing & Drainage System										
SCB-EMD1285	Authorities Review and Comment of Pump Head Calculation	56	50%	28	27-Aug-18 A	25-Apr-19				
SCB-EMD1335	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	27-Aug-18 A	25-Apr-19				
Lift System										
SCB-EMD1235	Authorities Review and Comment of System Design for Lift system	56	50%	28	12-Sep-18 A	25-Apr-19				
Costom & Excise Department Building										

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THREE MONTHLY PROGRAMME AS OF 20 MAR 2019

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Date	Revision	Checked	Approved
20-Mar-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Mar	Apr	May	Jun
Electrical System										
CEDB-EMD1013	ER Review and Approval of UPS and Battery Capacity Calculations	13	50%	7	23-Feb-19 A	27-Mar-19				
CEDB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	01-Nov-18 A	25-Apr-19				
CEDB-EMD1032	Preparation and Resubmission of Electrical Loading Demand Calculation	26	0%	26	23-Jan-19 A	23-Apr-19				
CEDB-EMD1033	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	24-Apr-19	09-May-19				
CEDB-EMD1035	Authorities Review and Comment of Electrical Loading Demand Calculation	56	25%	42	01-Nov-18 A	13-May-19				
CEDB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28	27-Nov-18 A	25-Apr-19				
Fire Service System										
CEDB-EMD1075	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	21-Dec-18 A	25-Apr-19				
CEDB-EMD1095	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	08-Oct-18 A	25-Apr-19				
Plumbing & Drainage System										
CEDB-EMD1135	Authorities Review and Comment of Pump Head Calculation	56	50%	28	07-Sep-18 A	25-Apr-19				
CEDB-EMD1155	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	05-Sep-18 A	25-Apr-19				
Lift System										
CEDB-EMD1195	Authorities Review and Comment of System Design for Lift system	56	50%	28	12-Sep-18 A	25-Apr-19				
Fire Services Department Building										
Electrical System										
FSDB-EMD1013	ER Review and Approval of UPS and Battery Capacity Calculations	13	50%	7	23-Feb-19 A	27-Mar-19				
FSDB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	01-Nov-18 A	25-Apr-19				
FSDB-EMD1032	Preparation and Resubmission of Electrical Loading Demand Calculation	26	0%	26	23-Jan-19 A	23-Apr-19				
FSDB-EMD1033	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	24-Apr-19	09-May-19				
FSDB-EMD1035	Authorities Review and Comment of Electrical Loading Demand Calculation	56	25%	42	01-Nov-18 A	13-May-19				
FSDB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28	27-Nov-18 A	25-Apr-19				
Fire Service System										
FSDB-EMD1075	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	07-Sep-18 A	25-Apr-19				
FSDB-EMD1095	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	07-Sep-18 A	25-Apr-19				
FSDB-EMD1205	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28	07-Sep-18 A	25-Apr-19				
Plumbing & Drainage System										
FSDB-EMD1135	Authorities Review and Comment of Pump Head Calculation	56	50%	28	05-Sep-18 A	25-Apr-19				
FSDB-EMD1155	Authorities Review and Comment of Pressure Vessel Calculation	56	50%	28	05-Sep-18 A	25-Apr-19				
South Ventilation Building										
MVAC System										
SVB-EMD1012	Preparation and Resubmission of Staircase Pressurization System Calculation	26	50%	13	14-Feb-19 A	03-Apr-19				
SVB-EMD1013	ER Review and Approval of Staircase Pressurization System Calculation	13	0%	13	04-Apr-19	23-Apr-19				
SVB-EMD1015	Authorities Review and Comment of Staircase Pressurization System Calculation	56	50%	28	24-Jan-19 A	25-Apr-19				
SVB-EMD1035	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28	11-Sep-18 A	25-Apr-19				
Electrical System										
SVB-EMD1055	Authorities Review and Comment of HV Electrical Loading Calculation	56	50%	28	01-Nov-18 A	25-Apr-19				
SVB-EMD1073	ER Review and Approval of UPS and Battery Capacity Calculations	13	50%	7	23-Feb-19 A	27-Mar-19				
SVB-EMD1075	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28	07-Dec-18 A	25-Apr-19				
SVB-EMD1093	ER Review and Approval of Electrical Loading Demand Calculation	13	0%	13	16-Mar-19 A	03-Apr-19				
SVB-EMD1095	Authorities Review and Comment of Electrical Loading Demand Calculation	56	0%	56	28-Nov-18 A	29-May-19				
SVB-EMD1115	Authorities Review and Comment of Generator Calculation	56	50%	28	07-Dec-18 A	25-Apr-19				
Fire Service System										
SVB-EMD1135	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	21-Dec-18 A	25-Apr-19				
SVB-EMD1155	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	21-Dec-18 A	25-Apr-19				
SVB-EMD1175	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28	30-Nov-18 A	25-Apr-19				
Plumbing & Drainage System										

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Mar	Apr	May	Jun	
SVB-EMD1213	ER Review and Approval of Pressure Vessel Calculation	13	50%	7	16-Jan-19 A	27-Mar-19					
Lift System											
SVB-EMD1255	Authorities Review and Comment of System Design for Lift system	56	50%	28	12-Sep-18 A	25-Apr-19					
Vehicular Underpass											
Fire Service System											
VU-EMD1022	Preparation and Resubmission of Foam system design calculation	26	50%	13	23-Nov-18 A	03-Apr-19					
VU-EMD1023	ER Review and Approval of Foam system design calculation	13	0%	13	04-Apr-19	23-Apr-19					
VU-EMD1025	Authorities Review and Comment of Foam system design calculation	56	50%	28	09-Aug-18 A	25-Apr-19					
Plumbing & Drainage System											
VU-EMD1030	Submission of Pump Head Calculation	0	0%	0	20-Mar-19*						
VU-EMD1040	ER Review and Comment of Pump Head Calculation	26	0%	26	20-Mar-19	23-Apr-19					
VU-EMD1042	Preparation and Resubmission of Pump Head Calculation	26	0%	26	24-Apr-19	24-May-19					
VU-EMD1043	ER Review and Approval of Pump Head Calculation	13	0%	13	25-May-19	10-Jun-19					
VU-EMD1045	Authorities Review and Comment of Pump Head Calculation	56	0%	56	20-Mar-19	29-May-19					
VU-EMD1050	Submission of Pressure Vessel Calculation	0	0%	0	20-Mar-19*						
VU-EMD1060	ER Review and Comment of Pressure Vessel Calculation	26	0%	26	20-Mar-19	23-Apr-19					
VU-EMD1062	Preparation and Resubmission of Pressure Vessel Calculation	26	0%	26	24-Apr-19	24-May-19					
VU-EMD1063	ER Review and Approval of Pressure Vessel Calculation	13	0%	13	25-May-19	10-Jun-19					
VU-EMD1065	Authorities Review and Comment of Pressure Vessel Calculation	56	0%	56	20-Mar-19	29-May-19					
VU-EMD1070	Submission of Drainage Sump Pumps and Pump Pits Calculation	0	0%	0	20-Mar-19*						
VU-EMD1080	ER Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	26	0%	26	20-Mar-19	23-Apr-19					
VU-EMD1082	Preparation and Resubmission of Drainage Sump Pumps and Pump Pits Calculation	26	0%	26	24-Apr-19	24-May-19					
VU-EMD1083	ER Review and Approval of Drainage Sump Pumps and Pump Pits Calculation	13	0%	13	25-May-19	10-Jun-19					
VU-EMD1085	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	0%	56	20-Mar-19	29-May-19					
Tunnel Lighting System											
VU-EMD1145	Authorities Review and Comment of Design Proposal of Tunnel Lighting System (TLS)	56	50%	28	29-Aug-18 A	25-Apr-19					
VU-EMD1165	Authorities Review and Comment of Tunnel Lighting Lux Calculation	56	50%	28	31-Dec-18 A	25-Apr-19					
Tunnel											
Fire Service System											
TUN-EMD1032	Preparation and Resubmission of Foam system design calculation	26	50%	13	23-Nov-18 A	03-Apr-19					
TUN-EMD1033	ER Review and Approval of Foam system design calculation	13	0%	13	04-Apr-19	23-Apr-19					
TUN-EMD1035	Authorities Review and Comment of Foam system design calculation	56	50%	28	09-Aug-18 A	25-Apr-19					
TUN-EMD1110	ER Review and Comment of FS Pump Head Calculation	26	50%	13	11-Jan-19 A	03-Apr-19					
TUN-EMD1112	Preparation and Resubmission of FS Pump Head Calculation	26	0%	26	04-Apr-19	09-May-19					
TUN-EMD1113	ER Review and Approval of FS Pump Head Calculation	13	0%	13	10-May-19	24-May-19					
TUN-EMD1115	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28	11-Jan-19 A	25-Apr-19					
TUN-EMD1130	ER Review and Comment of Sprinkler Pump Head Calculation	26	50%	13	25-Jan-19 A	03-Apr-19					
TUN-EMD1132	Preparation and Resubmission of Sprinkler Pump Head Calculation	26	0%	26	04-Apr-19	09-May-19					
TUN-EMD1133	ER Review and Approval of Sprinkler Pump Head Calculation	13	0%	13	10-May-19	24-May-19					
TUN-EMD1135	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28	25-Jan-19 A	25-Apr-19					
Plumbing & Drainage System											
TUN-EMD1175	ER Review and Approval of Drainage Sump Pumps and Pump Pits Calculation	13	50%	7	28-Jan-19 A	27-Mar-19					
TUN-EMD1185	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28	27-Sep-18 A	25-Apr-19					
Tunnel Ventilation System											
TUN-EMD1225	ER Review and Approval of Air Quality Management system Design	13	50%	7	13-Sep-18 A	27-Mar-19					
Tunnel Lighting System											
TUN-EMD1075	Authorities Review and Comment of Design Proposal of Tunnel Lighting System (TLS)	56	50%	28	29-Aug-18 A	25-Apr-19					
TUN-EMD1095	Authorities Review and Comment of Tunnel Lighting Lux Calculation	56	50%	28	31-Dec-18 A	25-Apr-19					

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							Mar	Apr	May	Jun	
Approach Road											
Road Lighting System											
AR-EMD1013	ER Review and Approval of Design Proposal of Road Lighting System	13	50%	7	09-Nov-18 A	27-Mar-19					
AR-EMD1015	HyD (LGT) Review and Approval of Design Proposal of Road Lighting System	28	0%	28	27-Mar-19	04-May-19					
AR-EMD1020	Submission of Design Proposal of Road Lighting Lux Calculation	0	0%	0	20-Mar-19*						
AR-EMD1030	ER Review and Comment of Road Lighting Lux Calculation	26	0%	26	20-Mar-19	23-Apr-19					
AR-EMD1032	Preparation and Resubmission of Road Lighting Lux Calculation	26	0%	26	24-Apr-19	24-May-19					
AR-EMD1033	ER Review and Approval of Road Lighting Lux Calculation	13	0%	13	25-May-19	10-Jun-19					
AR-EMD1034	AA and Authorities Review and Comment of Road Lighting Lux Calculation	56	0%	56	20-Mar-19	29-May-19					
AR-EMD1035	HyD (LGT) Review and Approval of Road Lighting Lux Calculation	28	0%	28	11-Jun-19	13-Jul-19					
CCMS, TCS and ELV System											
ELV-EMD1013	ER Review and Approval of System Design for Toll Control system	13	50%	7	20-Sep-18 A	27-Mar-19					
ELV-EMD1015	Authorities Review and Comment of System Design for Toll Control system	56	50%	28	27-Jul-18 A	25-Apr-19					
ELV-EMD1035	Authorities Review and Comment of System Design for CMCS	56	50%	28	26-Sep-18 A	25-Apr-19					
ELV-EMD1053	ER Review and Approval of System Design for other ELV systems	13	50%	7	02-Jan-19 A	27-Mar-19					
ELV-EMD1055	Authorities Review and Comment of System Design for other ELV systems	56	50%	28	02-Oct-18 A	25-Apr-19					
Major Material Submission & Approval											
GEN-EMM1020	Authorities Review and Comment of Technical Info. - Miscellaneous 1st fix Materials/ Equipment	28	50%	14	31-May-18 A	04-Apr-19					
GEN-EMM1050	Authorities Review and Comment of Technical Info. - Miscellaneous 2nd fix Materials/ Equipment	28	50%	14	20-May-18 A	04-Apr-19					
GEN-EMM1080	Authorities Review and Comment of Technical Info. - Miscellaneous final fix Materials/ Equipment	28	50%	14	02-Jul-18 A	04-Apr-19					
MVAC System											
MVAC-EMM1015	Authorities Review and Comment of Technical Info. - Chiller	56	50%	28	14-Jun-18 A	25-Apr-19					
MVAC-EMM1035	Authorities Review and Comment of Technical Info. - Chilled Water Pump	56	50%	28	12-Jun-18 A	25-Apr-19					
MVAC-EMM1055	Authorities Review and Comment of Technical Info. - Cooling Tower	56	50%	28	11-Jun-18 A	25-Apr-19					
MVAC-EMM1075	Authorities Review and Comment of Technical Info. - Computer Room AC (CRAC) Unit	56	50%	28	19-Jul-18 A	25-Apr-19					
MVAC-EMM1095	Authorities Review and Comment of Technical Info. - AHU & PAU	56	50%	28	10-Sep-18 A	25-Apr-19					
MVAC-EMM1113	ER Review and Approval of Technical Info. - Staircase Pressurization Fan	13	50%	7	26-Oct-18 A	27-Mar-19					
MVAC-EMM1115	Authorities Review and Comment of Technical Info. - Staircase Pressurization Fan	56	50%	28	17-Jul-18 A	25-Apr-19					
Electrical System											
ELE-EMM1055	Authorities Review and Comment of Technical Info. - Busduct	56	50%	28	27-Sep-18 A	25-Apr-19					
ELE-EMM1075	Authorities Review and Comment of Technical Info. - HV Cables	56	50%	28	17-Sep-18 A	25-Apr-19					
ELE-EMM1095	Authorities Review and Comment of Technical Info. - LV Cables	56	50%	28	25-May-18 A	25-Apr-19					
ELE-EMM1135	Authorities Review and Comment of Technical Info. - Generator	28	50%	14	01-Nov-18 A	04-Apr-19					
ELE-EMM1155	Authorities Review and Comment of Technical Info. - UPS and Battery	28	50%	14	26-Nov-18 A	04-Apr-19					
ELE-EMM1175	Authorities Review and Comment of Technical Info. - MCB & MCCB & Distribution Board	28	50%	14	04-Dec-18 A	04-Apr-19					
ELE-EMM1185	Submission of Technical Info. - PV System	0	0%	0	20-Mar-19*						
ELE-EMM1195	ER Review and Comment of Technical Info. - PV System	26	0%	26	20-Mar-19	23-Apr-19					
ELE-EMM1205	Preparation and Resubmission of Technical Info. - PV System	26	0%	26	24-Apr-19	24-May-19					
ELE-EMM1215	ER Review and Approval of Technical Info. - PV System	13	0%	13	25-May-19	10-Jun-19					
ELE-EMM1225	Authorities Review and Comment of Technical Info. - PV System	56	0%	56	20-Mar-19	29-May-19					
ELE-EMM1235	Submission of Technical Info. - Motor Control Centre	0	100%	0	25-Feb-19 A	25-Feb-19 A					
ELE-EMM1265	ER Review and Approval of Technical Info. - Motor Control Centre	8	50%	4	27-Nov-18 A	23-Mar-19					
ELE-EMM1275	Authorities Review and Comment of Technical Info. - Motor Control Centre	36	50%	18	26-Sep-18 A	10-Apr-19					
Fire Service System											
FS-EMM1015	Authorities Review and Comment of Technical Info. - FM200	56	50%	28	20-Aug-18 A	25-Apr-19					
FS-EMM1095	Authorities Review and Comment of Technical Info. - FR/ HR system	56	50%	28	24-Sep-18 A	25-Apr-19					
FS-EMM1115	Authorities Review and Comment of Technical Info. - Gas detection	56	50%	28	05-Dec-18 A	25-Apr-19					
FS-EMM1132	Preparation and Resubmission of Technical Info. - LMCP (FS)	26	100%	0	08-Mar-19 A	08-Mar-19 A					

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							Mar	Apr	May	Jun
FS-EMM1133	ER Review and Approval of Technical Info. - LMCP (FS)	13	100%	0	08-Mar-19 A	08-Mar-19 A				
FS-EMM1135	Authorities Review and Comment of Technical Info. - LMCP (FS)	56	50%	28	11-Jan-19 A	25-Apr-19				
FS-EMM1145	Submission of Technical Info. - Foam Spray System	0	100%	0	25-Feb-19 A	25-Feb-19 A				
FS-EMM1185	Authorities Review and Comment of Technical Info. - Foam Spray System	56	50%	28	31-Oct-18 A	25-Apr-19				
Plumbing & Drainage System										
PD-EMM1013	ER Review and Approval of Technical Info. - Sump Pump	13	50%	7	27-Feb-19 A	27-Mar-19				
PD-EMM1015	Authorities Review and Comment of Technical Info. - Sump Pump	56	50%	28	25-Oct-18 A	25-Apr-19				
PD-EMM1032	Preparation and Resubmission of Technical Info. - Hot Water System	26	50%	13	09-Feb-19 A	03-Apr-19				
PD-EMM1033	ER Review and Approval of Technical Info. - Hot Water System	13	0%	13	04-Apr-19	23-Apr-19				
PD-EMM1035	Authorities Review and Comment of Technical Info. - Hot Water System	56	50%	28	11-Nov-18 A	25-Apr-19				
PD-EMM1052	Preparation and Resubmission of Technical Info. - LMCP (PD)	26	100%	0	08-Mar-19 A	08-Mar-19 A				
PD-EMM1053	ER Review and Approval of Technical Info. - LMCP (PD)	13	100%	0	08-Mar-19 A	08-Mar-19 A				
PD-EMM1055	Authorities Review and Comment of Technical Info. - LMCP (PD)	56	50%	28	16-Jan-19 A	25-Apr-19				
PD-EMM1073	ER Review and Approval of Technical Info. - Water Pump	13	100%	0	23-Feb-19 A	12-Mar-19 A				
PD-EMM1075	Authorities Review and Comment of Technical Info. - Water Pump	56	50%	28	28-Nov-18 A	25-Apr-19				
Lift System										
LT-EMM1013	ER Review and Approval of Technical Info. - Lift System	13	50%	7	11-Jan-19 A	27-Mar-19				
LT-EMM1020	Authorities Review and Comment of Technical Info. - Lift System	56	50%	28	12-Sep-18 A	25-Apr-19				
Tunnel Ventilation System										
TVS-EMM1015	Authorities Review and Comment of Technical Info. - Tunnel Ventilation Fan	56	50%	28	25-Jun-18 A	25-Apr-19				
TVS-EMM1035	Authorities Review and Comment of Technical Info. - Pressurization Fan	56	50%	28	19-Jul-18 A	25-Apr-19				
TVS-EMM1095	ER Review and Approval of Technical Info. - AQMS Equipment	13	50%	7	08-Dec-18 A	27-Mar-19				
TVS-EMM1105	Authorities Review and Comment of Technical Info. - AQMS Equipment	56	50%	28	29-Oct-18 A	25-Apr-19				
TVS-EMM1155	Authorities Review and Comment of Technical Info. - MFSD	56	50%	28	26-Jul-18 A	25-Apr-19				
Tunnel and Road Lighting System										
TRLS-EMM1015	Authorities Review and Comment of Technical Info. - Tunnel Lighting System	56	50%	28	15-Aug-18 A	25-Apr-19				
TRLS-EMM1035	Authorities Review and Comment of Technical Info. - Road Lighting Fitting	56	50%	28	09-Oct-18 A	25-Apr-19				
CCMS, TCS and ELV System										
ELV-EMM1013	ER Review and Approval of Technical Info. - CMCS Equipment	13	50%	7	22-Jan-19 A	27-Mar-19				
ELV-EMM1020	Authorities Review and Comment of Technical Info. - CMCS Equipment	56	50%	28	09-Oct-18 A	25-Apr-19				
ELV-EMM1040	ER Review and Approval of Technical Info. - TCS Equipment	13	50%	7	28-Dec-18 A	27-Mar-19				
ELV-EMM1050	Authorities Review and Comment of Technical Info. - TCS Equipment	56	50%	28	09-Oct-18 A	25-Apr-19				
ELV-EMM1072	Preparation and Resubmission of Technical Info. - other ELV Equipment	26	50%	13	30-Jan-19 A	03-Apr-19				
ELV-EMM1080	Authorities Review and Comment of Technical Info. - other ELV Equipment	56	50%	28	28-Dec-18 A	25-Apr-19				
Drawing Submission & Approval										
Toll Control Building										
Individual Shop Drawing										
TCB-ISD1070	Preparation and Resubmission of TCB ISD - 2nd batch	26	50%	13	12-Jan-19 A	03-Apr-19				
TCB-ISD1080	ER Review and Approval of TCB ISD - 2nd batch	13	50%	7	12-Jan-19 A	12-Apr-19				
TCB-ISD1090	Authorities Review and Comment of TCB ISD - 2nd batch	58	50%	29	16-Aug-18 A	26-Apr-19				
North Ventilation Building										
Individual Shop Drawing										
NVB-ISD1000	Submission of NVB ISD - 1st batch	24	94%	1	27-Jul-18 A	21-Mar-19				
NVB-ISD1010	ER Review and Comment of NVB ISD - 1st batch	16	50%	8	24-Aug-18 A	30-Mar-19				
NVB-ISD1020	Preparation and Resubmission of NVB ISD - 1st batch	16	50%	8	12-Sep-18 A	10-Apr-19				
NVB-ISD1030	ER Review and Approval of NVB ISD - 1st batch	9	50%	5	03-Oct-18 A	15-Apr-19				
NVB-ISD1050	Submission of NVB ISD - 2nd batch	7	92.99%	0	19-Sep-18 A	20-Mar-19				
NVB-ISD1060	ER Review and Comment of NVB ISD - 2nd batch	30	50%	15	28-Sep-18 A	08-Apr-19				

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							Mar	Apr	May	Jun	
NVB-ISD1070	Preparation and Resubmission of NVB ISD - 2nd batch	30	50%	15	05-Nov-18 A	29-Apr-19					
NVB-ISD1080	ER Review and Approval of NVB ISD - 2nd batch	15	50%	8	10-Dec-18 A	08-May-19					
NVB-ISD1090	Authorities Review and Approval of NVB ISD - 2nd batch	28	50%	14	16-Jun-18 A	06-Apr-19					
Administration Building											
Structural, Electrical & Mechanical Drawing											
ADB-SEM1020	Preparation and Resubmission of ADB SEM	12	100%	0	25-Feb-19 A	25-Feb-19 A					
ADB-SEM1030	ER Review and Approval of ADB SEM	7	100%	0	25-Feb-19 A	25-Feb-19 A					
Individual Shop Drawing											
ADB-ISD1020	Preparation and Resubmission of ADB ISD 1st batch	12	50%	6	15-Nov-18 A	26-Mar-19					
ADB-ISD1030	ER Review and Approval of ADB ISD 1st batch	7	0%	7	14-Mar-19 A	03-Apr-19					
ADB-ISD1070	Preparation and Resubmission of ADB ISD 2nd batch	12	0%	12	20-Mar-19	02-Apr-19					
ADB-ISD1080	ER Review and Approval of ADB ISD 2nd batch	7	0%	7	03-Apr-19	11-Apr-19					
ADB-ISD1090	Authorities Review and Comment of ADB ISD 2nd batch	28	50%	14	10-Aug-18 A	04-Apr-19					
Maintenance Depot											
Individual Shop Drawing											
MD-ISD1090	Authorities Review and Comment of MD ISD 2nd batch	28	50%	14	10-Aug-18 A	04-Apr-19					
Satellite Control Building											
Structural, Electrical & Mechanical Drawing											
SCB-SEM1010	ER Review and Comment of SCB SEM	12	0%	12	20-Mar-19	02-Apr-19					
SCB-SEM1020	Preparation and Resubmission of SCB SEM	12	0%	12	03-Apr-19	17-Apr-19					
SCB-SEM1030	ER Review and Approval of SCB SEM	7	0%	7	18-Apr-19	29-Apr-19					
Individual Shop Drawing											
SCB-ISD1020	Preparation and Resubmission of SCB ISD 1st batch	12	0%	12	20-Mar-19	02-Apr-19					
SCB-ISD1030	ER Review and Approval of SCB ISD 1st batch	7	0%	7	03-Apr-19	11-Apr-19					
SCB-ISD1040	Authorities Review and Comment of SCB ISD 1st batch	28	0%	28	10-Aug-18 A	25-Apr-19					
SCB-ISD1070	Preparation and Resubmission of SCB ISD 2nd batch	12	0%	12	20-Mar-19	02-Apr-19					
SCB-ISD1080	ER Review and Approval of SCB ISD 2nd batch	7	0%	7	03-Apr-19	11-Apr-19					
SCB-ISD1090	Authorities Review and Comment of SCB ISD 2nd batch	28	0%	28	10-Aug-18 A	25-Apr-19					
Custom & Excise Department Building											
Structural, Electrical & Mechanical Drawing											
CEDB-SEM1000	Submission of C&EDB SEM	0	0%	0	20-Mar-19*						
CEDB-SEM1010	ER Review and Comment of C&EDB SEM	12	0%	12	20-Mar-19	02-Apr-19					
CEDB-SEM1020	Preparation and Resubmission of C&EDB SEM	12	0%	12	03-Apr-19	17-Apr-19					
CEDB-SEM1030	ER Review and Approval of C&EDB SEM	7	0%	7	18-Apr-19	29-Apr-19					
Individual Shop Drawing											
CEDB-ISD1030	ER Review and Approval of C&EDB ISD 1st batch	7	0%	7	20-Mar-19	27-Mar-19					
CEDB-ISD1040	Authorities Review and Comment of C&EDB ISD 1st batch	28	0%	28	20-Mar-19	25-Apr-19					
CEDB-ISD1070	Preparation and Resubmission of C&EDB ISD 2nd batch	12	0%	12	20-Mar-19	02-Apr-19					
CEDB-ISD1080	ER Review and Approval of C&EDB ISD 2nd batch	7	0%	7	03-Apr-19	11-Apr-19					
CEDB-ISD1090	Authorities Review and Comment of C&EDB ISD 2nd batch	28	0%	28	03-Sep-18 A	25-Apr-19					
South Ventilation Building											
Individual Shop Drawing											
SVB-ISD1020	Preparation and Resubmission of SVB ISD 1st batch	12	0%	12	20-Mar-19	02-Apr-19					
SVB-ISD1030	ER Review and Approval of SVB ISD 1st batch	7	0%	7	03-Apr-19	11-Apr-19					
SVB-ISD1040	Authorities Review and Comment of SVB ISD 1st batch	28	0%	28	20-Sep-18 A	25-Apr-19					
SVB-ISD1070	Preparation and Resubmission of SVB ISD 2nd batch	12	0%	12	20-Mar-19	02-Apr-19					
SVB-ISD1080	ER Review and Approval of SVB ISD 2nd batch	7	0%	7	03-Apr-19	11-Apr-19					
Structural, Electrical & Mechanical Drawing											

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SVB-SEM2000	Submission of SVB SEM	0	0%	0	20-Mar-19*					
SVB-SEM2010	ER Review and Comment of SVB SEM	12	0%	12	20-Mar-19	02-Apr-19				
SVB-SEM2020	Preparation and Resubmission of SVB SEM	12	0%	12	03-Apr-19	17-Apr-19				
SVB-SEM2030	ER Review and Approval of SVB SEM	7	0%	7	18-Apr-19	29-Apr-19				
Tunnel										
Individual Shop Drawing										
TUN-ISD1000	Submission of Tunnel ISD 1st batch	6	85%	1	10-Aug-18 A	20-Mar-19				
TUN-ISD1010	ER Review and Comment of Tunnel ISD 1st batch	30	85%	5	10-Aug-18 A	26-Mar-19				
TUN-ISD1020	Preparation and Resubmission of Tunnel ISD 1st batch	30	85%	5	13-Sep-18 A	30-Mar-19				
TUN-ISD1030	ER Review and Approval of Tunnel ISD 1st batch	15	85%	2	13-Sep-18 A	03-Apr-19				
TUN-ISD1040	Authorities Review and Comment of Tunnel ISD 1st batch	28	50%	14	10-Aug-18 A	06-Apr-19				
TUN-ISD1060	ER Review and Comment of Tunnel ISD 2nd batch	30	85%	5	16-Aug-18 A	25-Mar-19				
TUN-ISD1070	Preparation and Resubmission of Tunnel ISD 2nd batch	30	85%	5	16-Feb-19 A	29-Mar-19				
TUN-ISD1080	ER Review and Approval of Tunnel ISD 2nd batch	15	85%	2	29-Aug-18 A	02-Apr-19				
TUN-ISD1090	Authorities Review and Comment of Tunnel ISD 2nd batch	28	50%	14	16-Aug-18 A	04-Apr-19				
TUN-ISD1110	ER Review and Comment of Tunnel ISD 3rd batch	30	0%	30	20-Mar-19	27-Apr-19				
TUN-ISD1120	Preparation and Resubmission of Tunnel ISD 3rd batch	30	0%	30	29-Apr-19	03-Jun-19				
TUN-ISD1130	ER Review and Approval of Tunnel ISD 3rd batch	15	0%	15	04-Jun-19	21-Jun-19				
TUN-ISD1140	Authorities Review and Comment of Tunnel ISD 3rd batch	28	0%	28	10-Dec-18 A	25-Apr-19				
TUN-ISD1160	ER Review and Comment of Tunnel ISD 4th batch	30	0%	30	20-Mar-19	27-Apr-19				
TUN-ISD1170	Preparation and Resubmission of Tunnel ISD 4th batch	30	0%	30	29-Apr-19	03-Jun-19				
TUN-ISD1180	ER Review and Approval of Tunnel ISD 4th batch	15	0%	15	04-Jun-19	21-Jun-19				
TUN-ISD1190	Authorities Review and Comment of Tunnel ISD 4th batch	28	0%	28	31-Oct-18 A	25-Apr-19				
Fire Services Department Building										
Structural, Electrical & Mechanical Drawing										
FSDB-SEM1020	Preparation and Resubmission of FSDB SEM	12	0%	12	20-Mar-19	02-Apr-19				
FSDB-SEM1030	ER Review and Approval of FSDB SEM	7	0%	7	03-Apr-19	11-Apr-19				
Individual Shop Drawing										
FSDB-ISD1020	Preparation and Resubmission of FSDB ISD 1st batch	12	0%	12	20-Mar-19	02-Apr-19				
FSDB-ISD1030	ER Review and Approval of FSDB ISD 1st batch	7	0%	7	03-Apr-19	11-Apr-19				
FSDB-ISD1040	Authorities Review and Comment of FSDB ISD 1st batch	28	50%	14	05-Sep-18 A	04-Apr-19				
FSDB-ISD1070	Preparation and Resubmission of FSDB ISD 2nd batch	12	0%	12	20-Mar-19	02-Apr-19				
FSDB-ISD1080	ER Review and Approval of FSDB ISD 2nd batch	7	0%	7	03-Apr-19	11-Apr-19				
FSDB-ISD1090	Authorities Review and Comment of FSDB ISD 2nd batch	28	50%	14	05-Sep-18 A	04-Apr-19				
Vehicular Underpass										
Individual Shop Drawing										
VU-ISD1020	Preparation and Resubmission of Vehicular Underpass ISD 1st batch	12	50%	6	05-Feb-19 A	26-Mar-19				
VU-ISD1030	ER Review and Approval of Vehicular Underpass ISD 1st batch	7	0%	7	27-Mar-19	03-Apr-19				
VU-ISD1070	Preparation and Resubmission of Vehicular Underpass ISD 2nd batch	12	50%	6	05-Feb-19 A	26-Mar-19				
VU-ISD1080	ER Review and Approval of Vehicular Underpass ISD 2nd batch	7	0%	7	27-Mar-19	03-Apr-19				
E&M Procurement										
General Procurement										
Electrical System										
GEN-PO1030	Place Order - MCB & MCCB and Distribution Board	12	0%	12	06-Apr-19	23-Apr-19				
Fire Service System										
GEN-PO1050	Place Order - AFA System	12	100%	0	28-Feb-19 A	28-Feb-19 A				
GEN-PO1060	Place Order - FR/ HR system	12	100%	0	28-Feb-19 A	28-Feb-19 A				
GEN-PO1070	Place Order - LMCP (FS)	12	0%	12	26-Apr-19	10-May-19				

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Mar	Apr	May	Jun	
							TUN-PO1040	Place Order - LHD system	12	0%	12
Plumbing & Drainage System											
GEN-PO1080	Place Order - LMCP (PD)	12	0%	12	26-Apr-19	10-May-19					
Design Related Procurement											
Toll Control Building											
Electrical System											
TCB-PO1170	Place Order - PV System	12	100%	0	20-Feb-19 A	20-Feb-19 A					
MVAC System											
TCB-PO1040	Place Order - AHU & PAU	12	0%	12	26-Apr-19	10-May-19					
Fire Service System											
TCB-PO1090	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
Plumbing & Drainage System											
TCB-PO1100	Place Order - Hot Water System	12	0%	12	26-Apr-19	10-May-19					
TCB-PO1110	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19					
TCB-PO1120	Place Order - Sump Pump	12	0%	12	26-Apr-19	10-May-19					
CCMS, TCS and ELV System											
TCB-PO1140	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
TCB-PO1150	Place Order - TCS Equipment	12	0%	12	26-Apr-19	10-May-19					
Administration Building											
MVAC System											
ADB-PO1040	Place Order - AHU & PAU	12	0%	12	26-Apr-19	10-May-19					
Fire Service System											
ADB-PO1090	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
Plumbing & Drainage System											
ADB-PO1100	Place Order - Hot Water System	12	0%	12	26-Apr-19	10-May-19					
ADB-PO1120	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19					
CCMS and ELV System											
ADB-PO1140	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
North Ventilation Building											
MVAC System											
NVB-PO1010	Place Order - Staircase Pressurization Fan	12	100%	0	19-Mar-19 A	19-Mar-19 A					
Fire Service System											
NVB-PO1080	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
Plumbing & Drainage System											
NVB-PO1090	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19					
NVB-PO1100	Place Order - Sump Pump	12	0%	12	26-Apr-19	10-May-19					
CCMS and ELV System											
NVB-PO1120	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
Maintenance Depot											
MVAC System											
MD-PO1000	Place Order - AHU & PAU	12	0%	12	26-Apr-19	10-May-19					
Fire Service System											
MD-PO1030	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
Plumbing & Drainage System											
MD-PO1050	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19					
MD-PO1060	Place Order - Sump Pump	12	0%	12	26-Apr-19	10-May-19					
CCMS and ELV System											
MD-PO1070	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					

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							Mar	Apr	May	Jun	
Satellite Control Building											
<i>Fire Service System</i>											
SCB-PO1040	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
<i>Plumbing & Drainage System</i>											
SCB-PO1110	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19	█		█		
<i>CCMS and ELV System</i>											
SCB-PO1090	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
Custom & Excise Department Building											
<i>MVAC System</i>											
CEDB-PO1000	Place Order - AHU & PAU	12	0%	12	26-Apr-19	10-May-19			█		
<i>Fire Service System</i>											
CEDB-PO1050	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
<i>Plumbing & Drainage System</i>											
CEDB-PO1060	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19	█		█		
<i>CCMS and ELV System</i>											
CEDB-PO1080	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
Fire Services Department Building											
<i>Fire Service System</i>											
FSDB-PO1030	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
<i>Plumbing & Drainage System</i>											
FSDB-PO1050	Place Order - Water Pump	12	50%	6	13-Mar-19 A	03-May-19	█		█		
<i>CCMS and ELV System</i>											
FSDB-PO1070	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
South Ventilation Building											
<i>MVAC System</i>											
SVB-PO1010	Place Order - Staircase Pressurization Fan	12	100%	0	19-Mar-19 A	19-Mar-19 A					
<i>Fire Service System</i>											
SVB-PO1070	Place Order - FS Pump	12	100%	0	18-Mar-19 A	18-Mar-19 A					
<i>Plumbing & Drainage System</i>											
SVB-PO1090	Place Order - Water Pump	6	0%	6	26-Apr-19	03-May-19			█		
SVB-PO1140	Place Order - Sump Pump	12	0%	12	26-Apr-19	10-May-19			█		
<i>CCMS and ELV System</i>											
SVB-PO1120	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
Vehicular Underpass											
<i>Fire Service System</i>											
VU-PO1040	Place Order - Gas detection	12	0%	12	26-Apr-19	10-May-19			█		
<i>Plumbing & Drainage System</i>											
VU-PO1050	Place Order - Water Pump	12	0%	12	11-Jun-19	24-Jun-19				█	
VU-PO1060	Place Order - Sump Pump	12	0%	12	11-Jun-19	24-Jun-19				█	
<i>Tunnel Ventilation System</i>											
VU-PO1010	Place Order - Pressurization Fan	10	100%	0	19-Mar-19 A	19-Mar-19 A					
<i>CCMS and ELV System</i>											
VU-PO1070	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A					
Tunnel											
<i>Fire Service System</i>											
TUN-PO1015	Place Order - Gas detection	12	0%	12	26-Apr-19	10-May-19			█		
<i>Plumbing & Drainage System</i>											
TUN-PO1020	Place Order - FS Pump	12	0%	12	25-May-19	08-Jun-19				█	

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							Mar	Apr	May	Jun
TUN-PO1100	Place Order - Sump Pump	12	0%	12	26-Apr-19	10-May-19				
Tunnel Ventilation System										
TUN-PO1110	Place Order - AQMS Equipment	12	100%	0	06-Mar-19 A	06-Mar-19 A				
CCMS and ELV System										
TUN-PO1080	Place Order - CMCS Equipment	12	100%	0	28-Feb-19 A	21-Mar-19 A				
Approach Road										
CCMS and ELV System										
AR-PO1010	Place Order - CMCS Equipment	12	100%	0	21-Mar-19 A	21-Mar-19 A				
E&M Manufacture & Delivery										
Toll Control Building										
TCB-MD1260	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	50%	23	17-Nov-18 A	27-Apr-19				
TCB-MD1270	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	0%	45	05-Apr-19	19-May-19				
MVAC System										
TCB-MD1010	Manufacture & Delivery to HK - Chiller	150	15%	128	06-Mar-19 A	31-Aug-19				
TCB-MD1020	Manufacture & Delivery to HK - Chilled Water Pump	100	15%	85	06-Mar-19 A	19-Jul-19				
TCB-MD1030	Manufacture & Delivery to HK - Computer Room Air Conditioning (CRAC) Unit	120	0%	120	26-Apr-19	23-Aug-19				
TCB-MD1040	Manufacture & Delivery to HK - Cooling Tower (R/F)	100	40%	60	06-Mar-19 A	24-Jun-19				
TCB-MD1050	Manufacture & Delivery to HK - AHU & PAU	90	0%	90	11-May-19	08-Aug-19				
Electrical System										
TCB-MD1060	Manufacture - LV Switchboard	86	0%	86	14-May-19	07-Aug-19				
TCB-MD1070	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				
TCB-MD1080	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
TCB-MD1082	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				
TCB-MD1090	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	0%	60	04-May-19	02-Jul-19				
TCB-MD1100	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	11-Aug-19				
TCB-MD1280	Manufacture & Delivery to HK - PV System Equipment	60	0%	60	11-Jun-19	09-Aug-19				
Fire Service System										
TCB-MD1150	Manufacture & Delivery to HK - FM200	150	20%	120	24-Dec-18 A	23-Aug-19				
TCB-MD1160	Manufacture & Delivery to HK - AFA System	100	20%	80	02-Mar-19 A	07-Jun-19				
TCB-MD1170	Manufacture & Delivery to HK - FS Pump	120	0%	120	19-Mar-19 A	23-Aug-19				
TCB-MD1180	Manufacture & Delivery to HK - FR/ HR system	90	0%	90	26-May-19	23-Aug-19				
TCB-MD1190	Manufacture & Delivery to HK - LMCP (FS)	60	0%	60	11-May-19	09-Jul-19				
Plumbing & Drainage System										
TCB-MD1110	Manufacture & Delivery to HK - Sump Pump	120	0%	120	11-May-19	07-Sep-19				
TCB-MD1120	Manufacture & Delivery to HK - Hot Water System	120	0%	120	11-May-19	07-Sep-19				
TCB-MD1130	Manufacture & Delivery to HK - LMCP (PD)	60	0%	60	11-May-19	09-Jul-19				
TCB-MD1140	Manufacture & Delivery to HK - Water Pump	90	0%	90	04-May-19	01-Aug-19				
Lift System										
TCB-MD1000	Manufacture & Delivery to HK - Lift System	150	0%	150	26-Apr-19	22-Sep-19				
CCMS, TCS and ELV System										
TCB-MD1200	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
TCB-MD1210	Manufacture - TCS Equipment	62	0%	62	11-May-19	11-Jul-19				
TCB-MD1220	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	26-Apr-19	17-Jul-19				
Administration Building										
ADB-MD1280	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	50%	23	16-Jan-19 A	27-Apr-19				
ADB-MD1290	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	0%	45	05-Apr-19	19-May-19				
ADB-MD1300	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	0%	45	05-Apr-19	19-May-19				
Electrical System										

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							Mar	Apr	May	Jun
ADB-MD1060	Manufacture & Delivery to HK - Busduct	60	0%	60	26-Apr-19	24-Jun-19				
ADB-MD1070	Manufacture - LV Switchboard	86	0%	86	14-May-19	07-Aug-19				
ADB-MD1080	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				
ADB-MD1090	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
ADB-MD1092	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				
ADB-MD1100	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	0%	60	13-Jun-19	11-Aug-19				
ADB-MD1110	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	11-Aug-19				
ADB-MD1310	Manufacture & Delivery to HK - PV System Equipment	60	0%	60	11-Jun-19	09-Aug-19				
MVAC System										
ADB-MD1010	Manufacture & Delivery to HK - Chiller	150	15%	128	06-Mar-19 A	31-Aug-19				
ADB-MD1020	Manufacture & Delivery to HK - Chilled Water Pump	100	15%	85	06-Mar-19 A	19-Jul-19				
ADB-MD1030	Manufacture & Delivery to HK - Computer Room Air Conditioning (CRAC) Unit	120	0%	120	26-Apr-19	23-Aug-19				
ADB-MD1040	Manufacture & Delivery to HK - AHU & PAU	90	0%	90	11-May-19	08-Aug-19				
ADB-MD1050	Manufacture & Delivery to HK - Cooling Tower	100	10%	90	06-Mar-19 A	24-Jul-19				
Fire Service System										
ADB-MD1160	Manufacture & Delivery to HK - FM200	150	40%	90	24-Dec-18 A	24-Jul-19				
ADB-MD1170	Manufacture & Delivery to HK - AFA System	100	10%	90	02-Mar-19 A	17-Jun-19				
ADB-MD1180	Manufacture & Delivery to HK - FS Pump	120	30%	84	19-Mar-19 A	18-Jul-19				
ADB-MD1190	Manufacture & Delivery to HK - FR/ HR system	90	0%	90	15-Jun-19	12-Sep-19				
ADB-MD1200	Manufacture & Delivery to HK - LMCP (FS)	60	0%	60	11-May-19	09-Jul-19				
Plumbing & Drainage System										
ADB-MD1130	Manufacture & Delivery to HK - Hot Water System	120	0%	120	11-May-19	07-Sep-19				
ADB-MD1140	Manufacture & Delivery to HK - LMCP (PD)	60	0%	60	11-May-19	09-Jul-19				
ADB-MD1150	Manufacture & Delivery to HK - Water Pump	90	0%	90	04-May-19	01-Aug-19				
CCMS and ELV System										
ADB-MD1210	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
ADB-MD1220	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	26-Apr-19	17-Jul-19				
Lift System										
ADB-MD1000	Manufacture & Delivery to HK - Lift System	180	0%	180	26-Apr-19	22-Oct-19				
North Ventilation Building										
Electrical System										
NVB-MD1010	Manufacture - HV/LV Transformer	92	90%	9	17-Jan-19 A	05-May-19				
NVB-MD1014	Preparation and Resubmission of Special Type Test Procedure - HV/LV Transformer	26	100%	0	04-Mar-19 A	04-Mar-19 A				
NVB-MD1015	ER Review and Approve of Special Type Test Procedure - HV/LV Transformer	13	100%	0	04-Mar-19 A	04-Mar-19 A				
NVB-MD1016	FAT - HV/LV Transformer	14	0%	14	05-May-19	19-May-19				
NVB-MD1018	Shipping to HK - HV/LV Transformer	14	0%	14	19-May-19	02-Jun-19				
NVB-MD1020	Manufacture - HV Switchboard	92	80%	18	17-Jan-19 A	14-May-19				
NVB-MD1022	FAT - HV Switchboard	14	0%	14	14-May-19	28-May-19				
NVB-MD1025	Shipping to HK - HV Switchboard	14	0%	14	28-May-19	11-Jun-19				
NVB-MD1030	Manufacture - HV Cables	106	50%	53	05-Jan-19 A	17-Jun-19				
NVB-MD1032	FAT - HV Cables	2	0%	2	17-May-19	18-May-19				
NVB-MD1035	Shipping to HK - HV Cables	14	0%	14	18-Jun-19	01-Jul-19				
NVB-MD1040	Manufacture - LV Switchboard	86	0%	86	26-Apr-19	20-Jul-19				
NVB-MD1050	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				
NVB-MD1060	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
NVB-MD1062	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				
NVB-MD1070	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	0%	60	04-May-19	02-Jul-19				
NVB-MD1080	Manufacture & Delivery to HK - Busduct	60	50%	30	15-Feb-19 A	25-May-19				

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							Mar	Apr	May	Jun
NVB-MD1090	Manufacture - LV Cables	106	50%	53	20-Nov-18 A	17-Jun-19				
NVB-MD1095	Shipping to HK - LV Cables	14	0%	14	18-Jun-19	01-Jul-19				
MVAC System										
NVB-MD1180	Manufacture - Tunnel Ventilation Fan	180	50%	90	29-Nov-18 A	24-Jul-19				
NVB-MD1190	FAT - Tunnel Ventilation Fan	15	0%	15	19-Jun-19	03-Jul-19				
NVB-MD1210	Manufacture & Delivery to HK - Staircase Pressurization Fan	60	0%	60	26-Apr-19	24-Jun-19				
Fire Service System										
NVB-MD1130	Manufacture & Delivery to HK - FM200	150	55%	68	24-Dec-18 A	02-Jul-19				
NVB-MD1140	Manufacture & Delivery to HK - AFA System	100	20%	80	02-Mar-19 A	07-Jun-19				
NVB-MD1150	Manufacture & Delivery to HK - FR/ HR system	90	0%	90	26-Apr-19	24-Jul-19				
NVB-MD1160	Manufacture & Delivery to HK - FS Pump	120	50%	60	19-Mar-19 A	24-Jun-19				
NVB-MD1170	Manufacture & Delivery to HK - LMCP (FS)	60	0%	60	11-May-19	09-Jul-19				
Plumbing & Drainage System										
NVB-MD1100	Manufacture & Delivery to HK - Sump Pump	120	0%	120	11-May-19	07-Sep-19				
NVB-MD1110	Manufacture & Delivery to HK - LMCP (PD)	60	0%	60	11-May-19	09-Jul-19				
NVB-MD1120	Manufacture & Delivery to HK - Water Pump	90	0%	90	04-May-19	01-Aug-19				
CCMS and ELV System										
NVB-MD1220	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
NVB-MD1230	Manufacture - other ELV Equipment	62	0%	62	26-Apr-19	26-Jun-19				
Lift System										
NVB-MD1000	Manufacture & Delivery to HK - Lift System	180	0%	180	26-Apr-19	22-Oct-19				
Maintenance Depot										
MD-MD1155	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	50%	23	15-Feb-19 A	27-Apr-19				
MD-MD1165	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	0%	45	05-Apr-19	19-May-19				
MD-MD1175	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	0%	45	05-Apr-19	19-May-19				
Electrical System										
MD-MD1010	Manufacture - Generator	118	0%	118	05-Apr-19	31-Jul-19				
MD-MD1020	Manufacture - LV Switchboard	86	0%	86	14-May-19	07-Aug-19				
MD-MD1040	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	11-Aug-19				
MVAC System										
MD-MD1000	Manufacture & Delivery to HK - AHU & PAU	90	0%	90	11-May-19	08-Aug-19				
Fire Service System										
MD-MD1080	Manufacture & Delivery to HK - FM200	150	0%	150	26-Apr-19	22-Sep-19				
MD-MD1090	Manufacture & Delivery to HK - FS Pump	120	30%	84	19-Mar-19 A	18-Jul-19				
MD-MD1100	Manufacture & Delivery to HK - AFA System	100	0%	100	30-Apr-19	07-Aug-19				
CCMS and ELV System										
MD-MD1130	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
MD-MD1140	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	26-Apr-19	17-Jul-19				
Plumbing & Drainage System										
MD-MD1050	Manufacture & Delivery to HK - Sump Pump	120	0%	120	11-May-19	07-Sep-19				
MD-MD1060	Manufacture & Delivery to HK - Water Pump	90	0%	90	04-May-19	01-Aug-19				
MD-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	0%	60	05-Jun-19	03-Aug-19				
Satellite Control Building										
SCB-MD1175	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	0%	45	07-Jun-19	21-Jul-19				
Electrical System										
SCB-MD1020	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				
SCB-MD1030	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
SCB-MD1032	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				

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							Mar	Apr	May	Jun
SCB-MD1040	Manufacture - LV Switchboard	86	0%	86	14-May-19	07-Aug-19				
SCB-MD1060	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	05-Oct-19				
MVAC System										
SCB-MD1010	Manufacture & Delivery to HK - Computer Room Air Conditioning (CRAC) Unit	120	0%	120	26-Apr-19	23-Aug-19				
Fire Service System										
SCB-MD1100	Manufacture & Delivery to HK - FM200	150	0%	150	03-May-19	29-Sep-19				
SCB-MD1110	Manufacture & Delivery to HK - FS Pump	120	0%	120	19-Mar-19 A	23-Aug-19				
CCMS and ELV System										
SCB-MD1160	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	24-May-19	14-Aug-19				
Lift System										
SCB-MD1000	Manufacture & Delivery to HK - Lift System	180	0%	180	26-Apr-19	22-Oct-19				
Custom & Excise Department Building										
CEDB-MD1195	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	0%	45	17-Jun-19	31-Jul-19				
Electrical System										
CEDB-MD1020	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				
CEDB-MD1030	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
CEDB-MD1032	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				
CEDB-MD1040	Manufacture - LV Switchboard	86	0%	86	14-May-19	07-Aug-19				
CEDB-MD1050	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	05-Oct-19				
Fire Service System										
CEDB-MD1090	Manufacture & Delivery to HK - FM200	150	0%	150	26-Apr-19	22-Sep-19				
CEDB-MD1100	Manufacture & Delivery to HK - FS Pump	120	0%	120	19-Mar-19 A	23-Aug-19				
Plumbing & Drainage System										
CEDB-MD1080	Manufacture & Delivery to HK - Water Pump	90	0%	90	03-Jun-19	31-Aug-19				
CCMS and ELV System										
CEDB-MD1180	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	04-May-19	25-Jul-19				
Lift System										
CEDB-MD1000	Manufacture & Delivery to HK - Lift System	180	0%	180	22-May-19	17-Nov-19				
Fire Services Department Building										
FSDB-MD1155	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	0%	45	13-May-19	26-Jun-19				
FSDB-MD1165	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	0%	45	09-Jun-19	23-Jul-19				
FSDB-MD1175	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	0%	45	08-Jun-19	22-Jul-19				
Electrical System										
FSDB-MD1000	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				
FSDB-MD1010	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
FSDB-MD1012	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				
FSDB-MD1020	Manufacture - LV Switchboard	86	0%	86	14-May-19	07-Aug-19				
FSDB-MD1030	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	25-Oct-19				
Fire Service System										
FSDB-MD1090	Manufacture & Delivery to HK - FS Pump	120	0%	120	19-Mar-19 A	09-Nov-19				
FSDB-MD1185	Manufacture & Delivery to HK - FM200	150	0%	150	12-Jun-19	08-Nov-19				
Plumbing & Drainage System										
FSDB-MD1060	Manufacture & Delivery to HK - Water Pump	90	0%	90	24-May-19	21-Aug-19				
CCMS and ELV System										
FSDB-MD1140	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	03-Jun-19	24-Aug-19				
South Ventilation Building										
Electrical System										
SVB-MD1000	Manufacture - Generator	118	0%	118	26-Apr-19	21-Aug-19				

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							Mar	Apr	May	Jun
SVB-MD1010	Manufacture - UPS and Battery	53	0%	53	26-Apr-19	17-Jun-19				
SVB-MD1012	FAT - UPS and Battery	10	0%	10	18-Jun-19	27-Jun-19				
SVB-MD1020	Manufacture - HV/LV Transformer	92	0%	92	26-Apr-19	26-Jul-19				
SVB-MD1030	Manufacture - LV Switchboard	86	0%	86	30-May-19	23-Aug-19				
SVB-MD1040	Manufacture - HV Switchboard	92	0%	92	26-Apr-19	26-Jul-19				
SVB-MD1070	Manufacture & Delivery to HK - LV Cables	120	10%	108	20-Nov-18 A	24-Dec-19				
MVAC System										
SVB-MD1180	Manufacture & Delivery to HK - Staircase Pressurization Fan	60	0%	60	26-Apr-19	24-Jun-19				
Fire Service System										
SVB-MD1120	Manufacture & Delivery to HK - FM200	150	0%	150	26-Apr-19	22-Sep-19				
SVB-MD1130	Manufacture & Delivery to HK - FS Pump	120	0%	120	19-Mar-19 A	10-Sep-19				
Plumbing & Drainage System										
SVB-MD1100	Manufacture & Delivery to HK - Water Pump	90	0%	90	04-May-19	01-Aug-19				
SVB-MD1255	Manufacture & Delivery to HK - Sump Pump	120	0%	120	11-May-19	07-Sep-19				
Lift System										
SVB-MD1190	Manufacture & Delivery to HK - Lift System	180	0%	180	22-May-19	17-Nov-19				
Vehicular Underpass										
VU-MD1000	Manufacture & Delivery to HK - Pressurization Fan	90	0%	90	26-Apr-19	24-Jul-19				
VU-MD1010	Manufacture - Jet Fan	62	10%	56	19-Dec-18 A	14-May-19				
VU-MD1012	FAT - Jet Fan	14	0%	14	14-May-19	28-May-19				
VU-MD1015	Shipping to HK- Jet Fan	14	0%	14	28-May-19	11-Jun-19				
VU-MD1020	Manufacture & Delivery to HK - Tunnel Lighting System	100	60%	40	20-Dec-18 A	04-Jun-19				
VU-MD1055	Manufacture & Delivery to HK - Foam Spray System	90	0%	90	20-Mar-19	10-Jul-19				
VU-MD1060	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
VU-MD1070	Manufacture & Delivery to HK - other ELV Equipment	90	0%	90	26-Apr-19	24-Jul-19				
Tunnel										
TUN-MD1001	FAT - Tunnel Lighting System (1st Batch)	10	0%	10	26-Apr-19	05-May-19				
TUN-MD1002	Shipping to HK - Tunnel Lighting System (1st Batch)	14	0%	14	06-May-19	19-May-19				
TUN-MD1003	Manufacture - Tunnel Lighting System (2nd Batch)	66	70%	20	28-Jan-19 A	15-May-19				
TUN-MD1004	FAT - Tunnel Lighting System (2nd Batch)	10	0%	10	15-May-19	25-May-19				
TUN-MD1005	Shipping to HK - Tunnel Lighting System (2nd Batch)	14	0%	14	25-May-19	08-Jun-19				
TUN-MD1006	Manufacture - Tunnel Lighting System (3rd Batch)	66	0%	66	26-Apr-19	30-Jun-19				
TUN-MD1009	Manufacture - Tunnel Lighting System (4th Batch)	66	0%	66	26-Apr-19	30-Jun-19				
TUN-MD1015	Manufacture & Delivery to HK - Gas detection	90	0%	90	11-May-19	08-Aug-19				
TUN-MD1017	Manufacture & Delivery to HK - Foam Spray System	90	0%	90	20-Mar-19	10-Jul-19				
TUN-MD1020	Manufacture & Delivery to HK - LHD system	90	0%	90	03-May-19	31-Jul-19				
TUN-MD1030	Manufacture & Delivery to HK - FS Pump	120	0%	120	09-Jun-19	06-Oct-19				
TUN-MD1040	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
TUN-MD1050	Manufacture & Delivery to HK - other ELV Equipment	90	0%	90	26-Apr-19	24-Jul-19				
TUN-MD1060	Manufacture & Delivery to HK - Sump Pump	120	0%	120	11-May-19	07-Sep-19				
TUN-MD1100	Manufacture - MFSD	78	10%	70	10-Jan-19 A	05-Jul-19				
Approach Road										
AR-MD1010	Manufacture - CMCS Equipment	62	0%	62	26-Apr-19	26-Jun-19				
AR-MD1020	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83	26-Apr-19	17-Jul-19				
Tunnel Cladding										
CL-D1050	Manufacture and Delivery (1st Batch)	89	64.04%	32	25-Dec-18 A	21-Apr-19				
Method Statements										
Tunnel Cladding										

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							Mar	Apr	May	Jun	
MS1290	Prepare & Submit MS for Tunnel Cladding	24	70.83%	7	28-Jan-19 A	27-Mar-19					
MS1300	ER Approval of MS for Tunnel Cladding	12	0%	12	28-Mar-19	11-Apr-19					
Key Date 4A - FSD Building Substructure, Boundary Wall, and C&ED Building Substructure											
FSD Building Substructure											
FSD155	Excavation/Trim Pile Head	12	50%	6	15-Feb-19 A	26-Mar-19					
FSD160	Building Substructure	22	0%	22	20-Mar-19	15-Apr-19					
FSD170	Removal of ELS	16	0%	16	16-Apr-19	08-May-19					
Boundary Wall for FSD Building											
FSD190	Boundary Wall for FSD Building (9 Bays)	58	75%	15	24-Dec-18 A	06-Apr-19					
FSD250	Backfilling	6	0%	6	06-Apr-19	13-Apr-19					
C&ED Building Substructure											
CED170	Loading Test & Proof Drilling	14	100%	0	20-Feb-19 A	05-Mar-19 A					
CED175	Excavation/Trim Pile Head	12	25%	9	06-Mar-19 A	29-Mar-19					
CED180	Building Substructure	15	5%	14	19-Mar-19 A	09-Apr-19					
CED190	Removal of ELS	6	0%	6	09-Apr-19	16-Apr-19					
CED200	KD4A Achieved	0	0%	0		08-May-19					
Key Date 1 - Toll Control Building (TCB) & TCSS Provision											
ABWF Works (for All)											
ATCB1000	Blockwork Walls	60	83.33%	10	28-Nov-18 A	01-Apr-19					
ATCB1010	Door and Window Frames	58	0%	58	20-Mar-19	31-May-19					
ATCB1020	ABWF Works to Plant Rooms G/F	81	80%	16	11-Dec-18 A	09-Apr-19					
ATCB1021	ABWF Works to Plant Rooms 1/F	81	60%	32	18-Dec-18 A	02-May-19					
ATCB1022	ABWF Works to Plant Rooms 2/F	81	50%	41	27-Dec-18 A	11-May-19					
ATCB1050	ABWF Works to Office and Corridors G/F	152	60%	61	11-Dec-18 A	04-Jun-19					
ATCB1051	ABWF Works to Office and Corridors 1/F	152	60%	61	27-Dec-18 A	04-Jun-19					
ATCB1052	ABWF Works to Office and Corridors 2/F	152	50%	76	11-Jan-19 A	22-Jun-19					
ATCB1080	ABWF Works to Toilets G/F	163	50%	82	18-Feb-19 A	29-Jun-19					
ATCB1081	ABWF Works to Toilets 1/F	163	50%	82	18-Feb-19 A	29-Jun-19					
ATCB1082	ABWF Works to Toilets 2/F	163	50%	82	18-Feb-19 A	15-Jul-19					
ATCB1110	Waterproofing and Roofing	47	0%	47	01-Apr-19	31-May-19					
ATCB1120	External Cladding and Wall Plastering	94	0%	94	01-Apr-19	27-Jul-19					
TCSS Provision											
TCB220	Cable Containment Installation to enable TCSS installation	90	16%	76	15-Feb-19 A	22-Jun-19					
Key Date 4 - E&M Works in Vehicular Underpass Area & TCSS Provision											
E&M Works											
VU110	Jet Fans installation	24	0%	24	11-Jun-19	10-Jul-19					
VU120	Cable containment Installation	24	0%	24	04-Apr-19	07-May-19					
VU130	Post Drill and Bracket Fixing	18	0%	18	08-May-19	28-May-19					
VU140	Dampers installation	24	0%	24	08-May-19	04-Jun-19					
VU150	Cabling Works	36	0%	36	29-May-19	11-Jul-19					
VU200	Possess Portion XI	0	0%	0	31-May-19						
Key Date 2 - Administration Building, Maintenance Depot, Kiosk N2, TCSS Provision											
Administration Building (ADB)											
Building Structure											
ADB160	Foundations and backfill	33	96.97%	1	10-Jan-19 A	20-Mar-19					
ADB180	Ground Floor	27	75%	7	31-Jan-19 A	27-Mar-19					
ADB190	First Floor	30	15%	26	13-Mar-19 A	23-Apr-19					
ADB200	Roof Slab	28	0%	28	12-Apr-19	20-May-19					

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ADB210	Top Roof	11	0%	11	20-May-19	01-Jun-19				
ABWF Works (for All)										
AADB1130	Blockwork Walls	25	0%	25	08-May-19	06-Jun-19				
AADB1140	Door and Window Frames	19	0%	19	08-May-19	30-May-19				
AADB1150	ABWF Works to Plant Rooms G/F	52	0%	52	15-May-19	17-Jul-19				
AADB1151	ABWF Works to Plant Rooms 1/F	52	0%	52	29-May-19	31-Jul-19				
AADB1160	ABWF Works to Office and Corridors G/F	126	0%	126	15-May-19	15-Oct-19				
AADB1161	ABWF Works to Office and Corridors 1/F	126	0%	126	29-May-19	29-Oct-19				
AADB1170	ABWF Works to Toilets G/F	132	0%	132	15-May-19	22-Oct-19				
AADB1171	ABWF Works to Toilets 1/F	132	0%	132	29-May-19	05-Nov-19				
AADB1180	Waterproofing and Roofing	48	0%	48	22-May-19	19-Jul-19				
AADB1190	External Cladding and Wall Plastering	98	0%	98	22-May-19	17-Sep-19				
Provision for TCSS Installation										
ADB250	Cable Containment Installation to enable TCSS installation	74	0%	74	23-May-19	20-Aug-19				
Maintenance Depot										
Depot Structure										
MD160	Ground Floor	39	74.36%	10	14-Jan-19 A	30-Mar-19				
MD170	Roof Slab	44	30%	31	13-Mar-19 A	29-Apr-19				
MD180	Top Roof	16	0%	16	06-Apr-19	29-Apr-19				
ABWF Works (for All)										
AMD1000	Blockwork Walls	16	0%	16	29-Apr-19	18-May-19				
AMD1010	Door and Window Frames	10	0%	10	02-May-19	14-May-19				
AMD1020	ABWF Works to Plant Rooms	58	0%	58	14-May-19	23-Jul-19				
AMD1030	ABWF Works to Office and Corridors	132	0%	132	14-May-19	21-Oct-19				
AMD1040	ABWF Works to Toilets	144	0%	144	17-May-19	07-Nov-19				
AMD1050	Waterproofing and Roofing	51	0%	51	11-May-19	12-Jul-19				
AMD1060	External Cladding and Wall Plastering	98	0%	98	11-May-19	05-Sep-19				
Provision for TCSS Installation										
MD210	Cable Containment Installation to enable TCSS installation	62	0%	62	17-Jun-19	29-Aug-19				
Kiosk N2										
N2-130	ABWF Works to enable TCSS installation	18	0%	18	20-Mar-19	10-Apr-19				
N2-140	Cable Containment Installation to enable TCSS installation	19	0%	19	11-Apr-19	07-May-19				
Key Date 6 - E&M Works for Administration Building, Maintenance Depot, North Vent Building, Kiosk N2										
ABWF Works for Administration Building (Structure Completed under KD2)										
EADB110	ADB First Floor Completed with Scaffolding Removed	0	0%	0		08-May-19				
E&M Works for Administration Building										
Installation										
ADB-EMGF0001	E&M cast-in Installation	42	69.05%	13	31-Jan-19 A	03-Apr-19				
G/F										
ADB-EMGF1000	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0	18-May-19					
ADB-EMGF1040	ABWF Works ready for E&M Mobilization to 11kV Switch & Tx Room 1 - G/F	0	0%	0	01-Jun-19					
ADB-EMGF1050	E&M Installation - 11kV Switch & Tx Room 1 - G/F	46	0%	46	01-Jun-19	27-Jul-19				
ADB-EMGF1100	ABWF Works ready for E&M Mobilization to 11kV Switch & Tx Room 2 - G/F	0	0%	0	01-Jun-19					
ADB-EMGF1110	E&M Installation - 11kV Switch & Tx Room 2 - G/F	46	0%	46	01-Jun-19	27-Jul-19				
ADB-EMGF1160	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	0%	0	01-Jun-19					
ADB-EMGF1200	ABWF Works ready for E&M Mobilization to Generator Room & Fuel Tank Room - G/F	0	0%	0	01-Jun-19					
ADB-EMGF1230	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - G/F	0	0%	0	01-Jun-19					
ADB-EMGF1250	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0	01-Jun-19					

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ADB-EMGF1270	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	0%	0	01-Jun-19						
ADB-EMGF1290	ABWF Works ready for E&M Mobilization to ELV Plant Rooms - G/F	0	0%	0	01-Jun-19						
1/F											
ADB-EM1F1000	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	0%	0	13-Jun-19						
ADB-EM1F1050	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - 1/F	0	0%	0	17-Jun-19						
ADB-EM1F1070	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 1/F	0	0%	0	17-Jun-19						
ADB-EM1F1090	ABWF Works ready for E&M Mobilization to ELV Plant Rooms - 1/F	0	0%	0	17-Jun-19						
E&M Works for Maintenance Depot											
Installation											
MD-EMGF0001	E&M cast-in Installation	30	69%	9	14-Jan-19 A	30-Mar-19					
G/F											
MD-EMGF1000	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0	31-May-19						
MD-EMGF1010	E&M Installation - 1st fix - G/F	40	0%	40	31-May-19	19-Jul-19					
MD-EMGF1040	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	0%	0	01-Jun-19						
MD-EMGF1080	ABWF Works ready for E&M Mobilization to Generator & Fuel Tank Rooms - G/F	0	0%	0	19-Jun-19						
MD-EMGF1110	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	0%	0	19-Jun-19						
MD-EMGF1130	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - G/F	0	0%	0	19-Jun-19						
MD-EMGF1150	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0	19-Jun-19						
MD-EMGF1170	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	0%	0	19-Jun-19						
MD-EMGF1190	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - G/F	0	0%	0	19-Jun-19						
E&M Works for North Ventilation Building											
Installation											
TVF Installation											
NB-NVB-TVF-1											
TVF-NVB1000	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	06-Apr-19	12-Apr-19					
TVF-NVB1010	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	09-May-19	16-May-19					
NB-NVB-TVF-2											
TVF-NVB1040	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	13-Apr-19	23-Apr-19					
TVF-NVB1050	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	17-May-19	24-May-19					
NB-NVB-TVF-3											
TVF-NVB1080	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	24-Apr-19	30-Apr-19					
TVF-NVB1090	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	25-May-19	01-Jun-19					
NB-NVB-TVF-4											
TVF-NVB1120	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	02-May-19	08-May-19					
TVF-NVB1130	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	03-Jun-19	11-Jun-19					
NB-NVB-TVF-5											
TVF-NVB1160	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	06-Apr-19	12-Apr-19					
TVF-NVB1170	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	23-May-19	30-May-19					
NB-NVB-TVF-6											
TVF-NVB1200	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	13-Apr-19	23-Apr-19					
TVF-NVB1210	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	31-May-19	08-Jun-19					
NB-NVB-TVF-7											
TVF-NVB1240	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	24-Apr-19	30-Apr-19					
TVF-NVB1250	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	10-Jun-19	17-Jun-19					
NB-NVB-TVF-8											
TVF-NVB1280	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	02-May-19	08-May-19					
TVF-NVB1290	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	18-Jun-19	25-Jun-19					
NB-NVB-TVF-9											

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							Mar	Apr	May	Jun
TVF-NVB1320	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	09-May-19	15-May-19				
NB-NVB-TVF-10										
TVF-NVB1360	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	16-May-19	22-May-19				
SB-NVB-TVF-1										
TVF-NVB1400	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	06-Apr-19	12-Apr-19				
TVF-NVB1410	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	09-May-19	16-May-19				
SB-NVB-TVF-2										
TVF-NVB1440	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	13-Apr-19	23-Apr-19				
TVF-NVB1450	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	17-May-19	24-May-19				
SB-NVB-TVF-3										
TVF-NVB1480	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	24-Apr-19	30-Apr-19				
TVF-NVB1490	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	25-May-19	01-Jun-19				
SB-NVB-TVF-4										
TVF-NVB1520	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6	02-May-19	08-May-19				
TVF-NVB1530	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	7	0%	7	03-Jun-19	11-Jun-19				
B2/F										
NVB-EMB21010	E&M Installation - 1st fix - B2/F	50	74%	13	21-Nov-18 A	24-Apr-19				
NVB-EMB21020	E&M Installation - 2nd fix - B2/F	50	48%	26	28-Nov-18 A	25-May-19				
NVB-EMB21030	E&M Installation - Final fix - B2/F	50	3%	49	24-Jan-19 A	03-Aug-19				
NVB-EMB21060	E&M Installation - Electrical Plant Rooms - B2/F	90	0%	90	06-Apr-19	26-Jul-19				
NVB-EMB21080	E&M Installation - MVAC Plant Rooms - B2/F	90	0%	90	06-Apr-19	26-Jul-19				
B1/F										
NVB-EMB11010	E&M Installation - 1st fix - B1/F	50	76%	12	19-Nov-18 A	23-Apr-19				
NVB-EMB11020	E&M Installation - 2nd fix - B1/F	50	46%	27	26-Nov-18 A	25-May-19				
NVB-EMB11030	E&M Installation - Final fix - B1/F	50	2%	49	24-Jan-19 A	24-Jul-19				
NVB-EMB11060	E&M Installation - Electrical Plant Rooms - B1/F	90	0%	90	06-Apr-19	26-Jul-19				
NVB-EMB11080	E&M Installation - MVAC Plant Rooms - B1/F	90	0%	90	06-Apr-19	26-Jul-19				
G/F										
NVB-EMGF1010	E&M Installation - 1st fix - G/F	50	75%	13	01-Aug-18 A	24-Apr-19				
NVB-EMGF1020	E&M Installation - 2nd fix - G/F	50	41%	30	08-Aug-18 A	09-Jul-19				
NVB-EMGF1030	E&M Installation - Final fix - G/F	50	3%	49	24-Jan-19 A	03-Sep-19				
NVB-EMGF1070	Installation by CLP - CLPP HV Switch Room - G/F	82	20%	66	14-Feb-19 A	27-Jun-19				
1/F										
NVB-EM1F1010	E&M Installation - 1st fix - 1/F	50	46%	27	03-Sep-18 A	11-May-19				
NVB-EM1F1020	E&M Installation - 2nd fix - 1/F	50	37%	32	10-Sep-18 A	08-Aug-19				
NVB-EM1F1030	E&M Installation - Final fix - 1/F	50	3%	49	31-Jan-19 A	05-Oct-19				
NVB-EM1F1240	E&M Installation - MVAC Plant Rooms - 1/F	90	0%	90	06-Apr-19	26-Jul-19				
2/F										
NVB-EM2F1010	E&M Installation - 1st fix - 2/F	50	74%	13	08-Oct-18 A	24-Apr-19				
NVB-EM2F1020	E&M Installation - 2nd fix - 2/F	50	43%	29	15-Oct-18 A	29-May-19				
NVB-EM2F1030	E&M Installation - Final fix - 2/F	50	3%	49	07-Feb-19 A	26-Jul-19				
Lift Installation (L01 & L02)										
NVB-LF1010	Access to lift shaft and lift machine room	0	0%	0	20-Mar-19					
Remaining E&M Works for Kiosk N2 (Structure Completed under KD2)										
EN2120	ABWF Works (Door, windows, tiles)	30	0%	30	20-Mar-19	27-Apr-19				
EN2130	E&M Works	31	0%	31	29-Apr-19	04-Jun-19				
EN2140	Testing & Commissioning	12	0%	12	05-Jun-19	19-Jun-19				

Key Date 3 - Satellite Control Building & TCCS Provision

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							Mar	Apr	May	Jun	
Building Structure											
SCB100	Possess Portion XVIIa	0	100%	0	18-Mar-19 A						
SCB110	Possess Portion XVIIb	0	100%	0	18-Mar-19 A						
SCB115	Excavation	12	0%	12	20-Mar-19	02-Apr-19					
SCB120	Foundations	12	0%	12	30-Apr-19	14-May-19					
SCB130	Ground Floor	12	0%	12	15-May-19	28-May-19					
SCB140	First Floor	12	0%	12	29-May-19	12-Jun-19					
SCB150	Lower Roof Slab	12	0%	12	13-Jun-19	26-Jun-19					
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	90	0%	90	20-Mar-19	10-Jul-19					
E&M Works for TCB											
Installation											
Basement											
TCB-EM1000	ABWF Works ready for E&M Mobilization to Basement	0	0%	0	20-Mar-19						
TCB-EM1001	E&M Installation - 1st fix - Basement	60	0%	60	06-Apr-19	20-Jun-19					
G/F											
TCB-EMGF1010	E&M Installation - 1st fix - G/F	60	10%	54	15-Feb-19 A	13-Jun-19					
TCB-EMGF1070	Installation by CLP - CLP Tx Room - G/F	60	20%	48	14-Feb-19 A	16-Jul-19					
TCB-EMGF1100	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	0%	0	20-Mar-19						
TCB-EMGF1140	ABWF Works ready for E&M Mobilization to Generator & Fuel Tank Rooms - G/F	0	0%	0	20-Mar-19						
TCB-EMGF1170	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	0%	0	20-Mar-19						
TCB-EMGF1190	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - G/F	0	0%	0	20-Mar-19						
TCB-EMGF1210	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0	20-Mar-19						
TCB-EMGF1230	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	0%	0	20-Mar-19						
1/F											
TCB-EM1F1000	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	0%	0	08-May-19						
TCB-EM1F1010	E&M Installation - 1st fix - 1/F	60	0%	60	08-May-19	18-Jul-19					
TCB-EM1F1050	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 1/F	0	0%	0	20-Mar-19						
TCB-EM1F1070	ABWF Works ready for E&M Mobilization to FS Plant Rooms - 1/F	0	0%	0	20-Mar-19						
TCB-EM1F1090	ABWF Works ready for E&M Mobilization to PD Plant Rooms - 1/F	0	0%	0	20-Mar-19						
2/F											
TCB-EM2F1000	ABWF Works ready for E&M Mobilization to General Areas - 2/F	0	0%	0	08-Jun-19						
TCB-EM2F1010	E&M Installation - 1st fix - 2/F	48	0%	48	08-Jun-19	03-Aug-19					
TCB-EM2F1050	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 2/F	0	0%	0	02-Apr-19						
TCB-EM2F1070	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - 2/F	0	0%	0	02-Apr-19						
TCB-EM2F1090	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - 2/F	0	0%	0	02-Apr-19						
Roof											
TCB-EMRF1000	ABWF Works ready for E&M Mobilization to Roof	0	0%	0	31-May-19						
Lift Installation (L01)											
TCB-LF1000	Access to lift shaft and lift machine room	0	0%	0	31-May-19						
Toll Area											
South Bound											
ETA120	Possess Portions IX, XIX, XX1a, XX1b	0	0%	0	31-May-19						
ETA130	Installation of South Bound Toll Booths	30	0%	30	31-May-19	06-Jul-19					
North Bound											
ETA190	Possess Portion XI	0	0%	0	31-May-19						
ETA200	Installation of North Bound Toll Booths	30	0%	30	31-May-19	06-Jul-19					

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							Mar	Apr	May	Jun	
Kiosk N1											
EN120	Possess Portion IX	0	0%	0	31-May-19						◆
EN130	Structure	48	0%	48	31-May-19	27-Jul-19					
Plant Room											
E&M Works											
EPR120	Blockwork Wall & ABWF Works	90	60%	36	02-Nov-18 A	06-May-19					
EPR130	E&M Installation	90	10%	81	03-Jan-19 A	31-Jan-20					
Deck Void											
TD1, TD2, RB_W											
DV180	Possess Portions X, IX and XI	0	0%	0	31-May-19						◆
Bridge H1, G1, G2											
DV110	Possess Portions IX	0	0%	0	31-May-19						◆
DV120	Electrical Installation - Bridge H1	28	0%	28	31-May-19	04-Jul-19					
Approach Roads											
Under Portions IX, XI, XX											
AR120	Possess Portions IX and XI	0	0%	0	31-May-19						◆
AR130	Cabling works - Portion IX	45	0%	45	20-Mar-19	16-May-19					
AR133	Cabling works - Portion XI	45	0%	45	17-May-19	10-Jul-19					
AR140	Road lighting installation & termination - Portion IX	25	0%	25	18-Apr-19	21-May-19					
AR145	Road lighting installation & termination - Portion XI	25	0%	25	15-Jun-19	15-Jul-19					
Under Portion X											
AR170	Possess Portions X	0	0%	0	31-May-19						◆
AR174	Site Measurement	61	50%	31	12-Feb-19 A	29-Apr-19					
AR176	Underground Cable Duct Installation (by others)	61	0%	61	29-Apr-19	12-Jul-19					
Key Date 6B - E&M Works for South Vent Duct, Tunnel, and Approach Roads											
E&M Works											
SVD110	Access to Portions I	0	0%	0	31-Mar-19						◆
Service Gallery											
Ch 7200 - 5000											
TNL-SG1000	Drilling works CH7200 - 5000	12	0%	12	01-Apr-19	15-Apr-19					
Road Level & OHVD											
Ch 7200 - 5000											
Ch 7200 - 6700											
TNU-RL1770	Bracket fixing on side wall - CH7200 to 6700	8	0%	8	23-Apr-19	02-May-19					
TNU-RL1775	Installation Works by Others (to be coordinated)	107	0%	107	03-May-19	06-Sep-19					
TNU-RL1790	Lighting in the middle of tunnels - CH7200 to 6700	8	0%	8	20-May-19	28-May-19					
TNU-RL1800	FH/ HR pipe installation - CH7200 to 6700	8	0%	8	29-May-19	06-Jun-19					
TNU-RL1830	Cabling Works on Brackets - CH7200 to 6700	14	0%	14	08-Jun-19	24-Jun-19					
Ch 6700 - 6100											
TNU-RL1000	Bracket fixing on side wall - CH6700 to 6100	10	0%	10	03-May-19	14-May-19					
TNU-RL1005	Installation Works by Others (to be coordinated)	121	0%	121	15-May-19	08-Oct-19					
TNU-RL1010	Lighting in the middle of tunnels - CH6700 to 6100	9	0%	9	29-May-19	08-Jun-19					
TNU-RL1020	FH/ HR pipe installation - CH6700 to 6100	10	0%	10	10-Jun-19	20-Jun-19					
Ch 6100 - 5600											
TNU-RL1110	Bracket fixing on side wall - CH6100 to 5600	8	0%	8	15-May-19	23-May-19					
TNU-RL1115	Installation Works by Others (to be coordinated)	133	0%	133	24-May-19	31-Oct-19					
TNU-RL1120	Lighting in the middle of tunnels - CH6100 to 5600	8	0%	8	10-Jun-19	18-Jun-19					
CH 5600 - 5000											

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							Mar	Apr	May	Jun
TNU-RL1220	Bracket fixing on side wall - CH5600 to 5000	10	0%	10	24-May-19	04-Jun-19				
TNU-RL1225	Installation Works by Others (to be coordinated)	147	0%	147	05-Jun-19	28-Nov-19				
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										
SCB-EMGF1210	E&M cast-in Installation	18	0%	18	29-May-19	19-Jun-19				
Key Date 6C - E&M Works for South Ventilation Building										
SVB-SEM1000	SEM Drawings ready for Structural Works for SVB	0	0%	0	30-Apr-19					
Key Date 10 - FSD Building Structure & E&M Works										
Building Structure										
FSD200	ELS Removed for FSD Substructure (under KD 4A)	0	0%	0		08-May-19				
FSD210	Ground Floor	28	0%	28	09-May-19	11-Jun-19				
FSD220	First Floor	30	0%	30	12-Jun-19	17-Jul-19				
E&M Works										
Installation										
FSDB-EMGF0001	E&M cast-in Installation	80	0%	80	23-May-19	26-Aug-19				
Statutory Inspections and approvals										
FSDB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					
FSDB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				
Key Date 9 - C&ED Building & E&M Works										
Building Structure										
CED210	ELS Removed for C&ED Substructure (under KD 4A)	0	0%	0		16-Apr-19				
CED220	Ground Floor	30	0%	30	30-Apr-19	04-Jun-19				
CED230	First Floor	33	0%	33	05-Jun-19	15-Jul-19				
E&M Works										
Installation										
C&EDB-GF0001	E&M cast-in Installation	90	0%	90	15-May-19	29-Aug-19				
Statutory Inspections and approvals										
C&EDB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					
C&EDB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				
Key Date 11 - Landscape Soft Works & Trees Protection										
Trees Protection										
SL193	Protection Existing Trees & Submit Report with Photographic Record No.4	41	92.68%	3	03-Jan-19 A	23-Mar-19				
SL194	Protection Existing Trees & Submit Report with Photographic Record No.5	41	0%	41	23-Mar-19	16-May-19				
SL195	Protection Existing Trees & Submit Report with Photographic Record No.6	41	0%	41	16-May-19	05-Jul-19				
Key Date 8 - All Works for Tunnel Commissioning & Opening										
Petrol Filling Station										
Structure										
PS110	Possess Portion Vc	0	0%	0		02-May-19				
PS120	Excavation	20	0%	20	02-May-19	24-May-19				
PS130	Footing	20	0%	20	25-May-19	18-Jun-19				
PS140	Petrol Filling Station Roof	14	0%	14	19-Jun-19	05-Jul-19				
PS150	Structure for Petrol Filling Station	36	0%	36	19-Jun-19	31-Jul-19				
PS160	Underground Fuel Tank Structure	36	0%	36	19-Jun-19	31-Jul-19				
Statutory Inspections and approvals										
Administration Building										
ADB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					

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							Mar	Apr	May	Jun
ADB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				
Maintenance Depot										
MD-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	20-Mar-19					
MD-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	20-Mar-19	20-May-19				
North Ventilation Building										
NVB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					
NVB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				
Toll Control Building & Toll Collector Subway										
TCB-SI0010	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					
TCB-SI0015	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				
Satellite Control Building										
SCB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					
SCB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				
South Ventilation Building										
SVB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	0%	0	26-Apr-19					
SVB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	0%	48	26-Apr-19	22-Jun-19				

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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		✓
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.

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	
									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		✓
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		✓

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

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

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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	
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: <i>f</i> suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; <i>f</i> 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. <i>f</i> Clearly labelled and used solely for the storage of chemical wastes; <i>f</i> Enclosed with at least 3 sides; <i>f</i> 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; <i>f</i> Adequate ventilation; <i>f</i> Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and <i>f</i> Incompatible materials are adequately separated.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
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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Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
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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	
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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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		N/A
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		N/A
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		✓
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

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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	
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

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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 E1 Event/ Action Plan for Air Quality

EVENT	ET ⁽¹⁾	ACTION		
		IEC ⁽¹⁾	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, ER - Engineer's Representative, 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
Landfill Gas Monitoring Schedule (1 to 31 March 2019)**

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

Appendix G

Calibration Certificate of Monitoring Equipment

Calibration Certificate

GD 005

Cert. Ref. No.: BW/XT/B/12943

Date: 2018 04 10

Customer: Gammon Construction Ltd.

Purchase Order No.: 1578603 OL

28/F., Devon House,

Date: 2018 04 12 INVOICE NO: AP

Taikoo Place 979 King's Road,

Email: Jessica.Lau@gammonconstruction.com

Hong Kong.

Attn: Jessica Lau

Tel: 3520 0392

Fax: 3520 0488

Mobile Phone

User Details:

Gas Detector Model: XT-XWHM-Y-OR

Serial No.: MA218-000709

Pump S/N: 101801

Calibration Record:

Inspection before calibration	Visual inspection	Functional Test
Basic Unit - Case, Clip & Display etc.	OK	OK
Battery and charge etc.	OK	OK
Authorized Pump	OK	OK
Other items		

Type of Sensor	Expiry Date		
Oxygen Sensor	2020	04	12
CO & H2S Sensor	2020	04	12
Combustible(LEL) Sensor	2020	04	12

Type of calibration	Date of calibration	H2S (ppm)	CO (ppm)	O2 (%)	LEL (%)
Sensor Calibration	2018 04 10	25	100	20.9	50
Result of Calibration		OK	OK	OK	OK

Calibration Cost: (As per attached invoice) F.O.C

Calibration remarks:

Next calibration date of this instrument will be :

2019 04 10

IMPORTANT NOTES TO BW GAS DETECTOR USERS

USERS MUST READ THE OPERATOR'S MANUAL THOROUGHLY BEFORE OPERATING THIS EQUIPMENT AND FOLLOW THEIR OWN SAFETY SUPERVISOR'S INSTRUCTION TO WORK.

All gas detection instrumentation on the market requires periodic calibration to accurately measure gas. Calibration is only as accurate as the test gas used. BW Technologies quality test gases are made to the highest accuracy and trace-ability to N. I.S.T. Standards.



Calibrated By: Sara Tse

Service Hotline: 2592 2120 Ms. Tse - Service Dept.

Asia Pacific Industrial Safety Equipment

Unit B, 1/F., Hing Yip Centre,
31 Hing Yip Street, Kwun Tong, Kowloon.
Tel: 2592 2100 Fax: 3165 8960

Asia Technologies

亞洲科技

Appendix H

Landfill Gas Monitoring
Results and Graphical
Presentation

Landfill Gas Monitoring Results on Methane Level

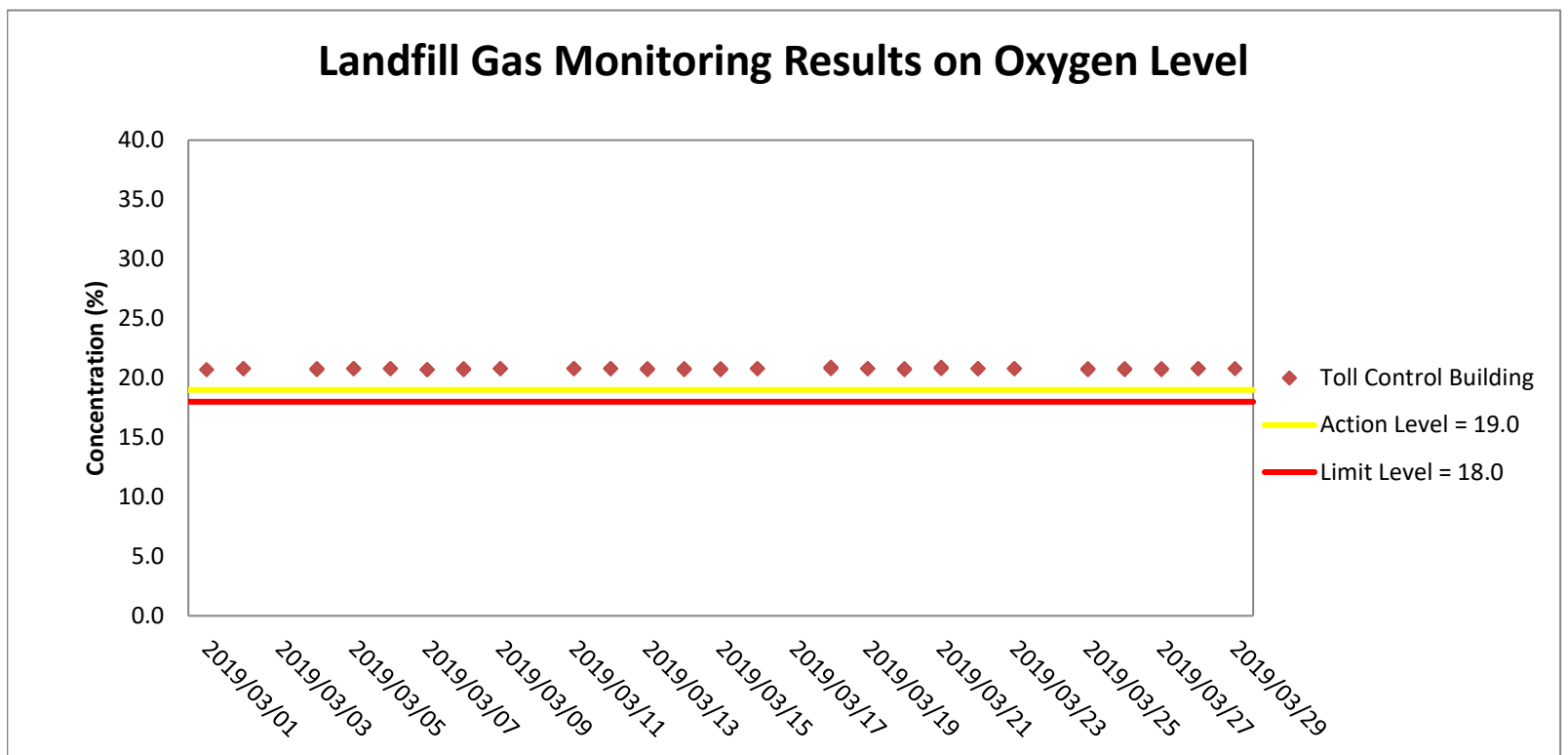
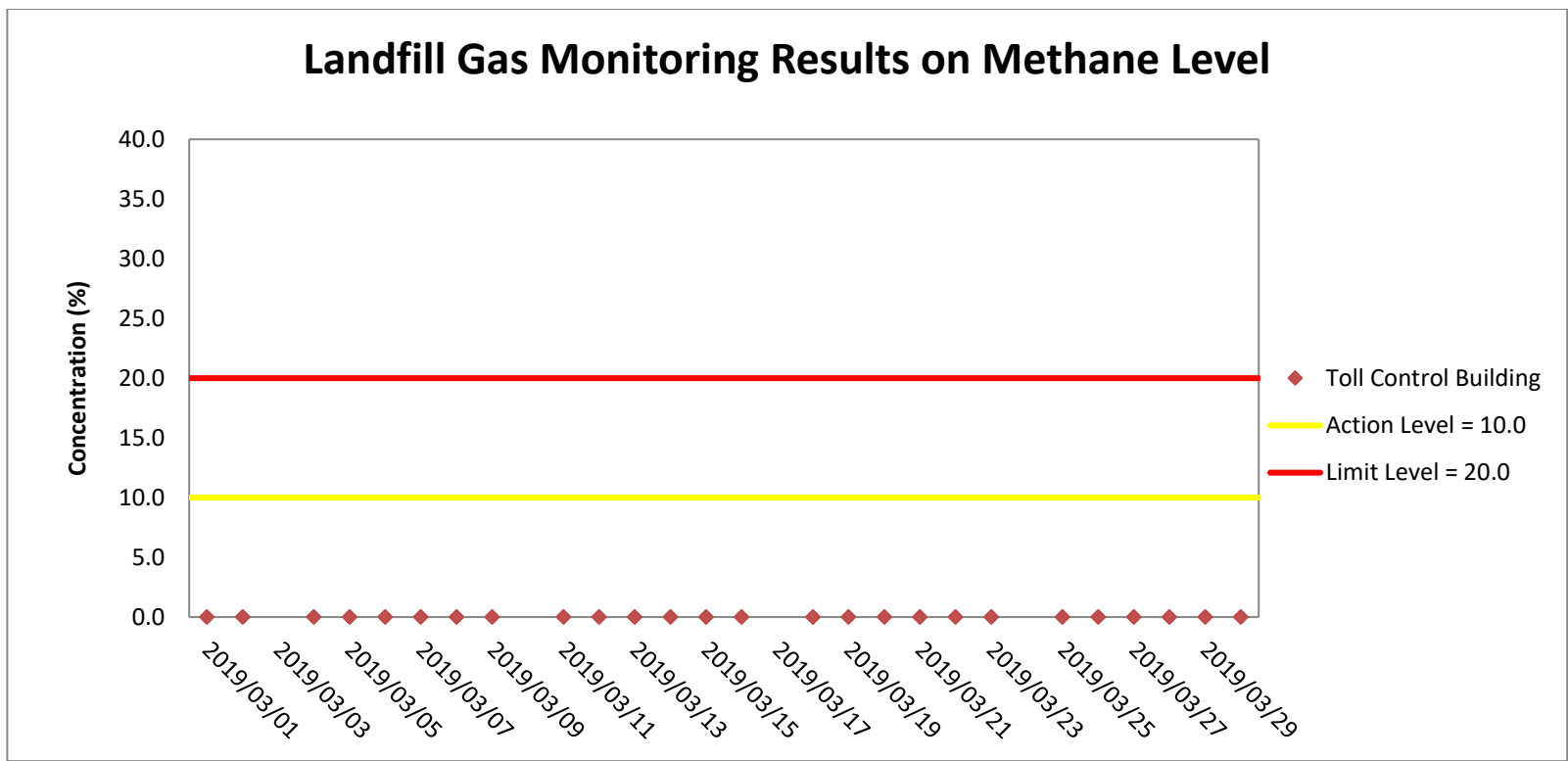
Project	Works	Date(yyyy-mm-dd)	Monitoring Location	Time (hh:mm, 24hour)	Results (%)	Action Level (%)	Limit Level (%)		
TMCLKL	HY/2017/10	2019/03/01	Ventilation Plant Room	8:15	0	10.0	20.0		
TMCLKL	HY/2017/10	2019/03/01	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/02	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/02	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/04	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/04	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/05	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/05	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/06	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/06	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/07	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/07	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/08	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/08	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/09	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/09	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/11	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/11	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/12	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/12	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/13	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/13	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/14	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/14	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/15	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/15	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/16	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/16	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/18	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/18	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/19	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/19	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/20	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/20	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/21	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/21	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/22	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/22	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/23	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/23	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/25	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/25	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/26	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/26	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/27	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/27	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/28	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/28	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/29	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/29	Ventilation Plant Room	13:15	0				
TMCLKL	HY/2017/10	2019/03/30	Ventilation Plant Room	8:15	0				
TMCLKL	HY/2017/10	2019/03/30	Ventilation Plant Room	13:15	0				
					Average			0	
					Min.			0	
					Max.			0	

Landfill Gas Monitoring Results on Oxygen Level

Project	Works	Date(yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Results (%)	Action Level (%)	Limit Level (%)
TMCLKL	HY/2017/10	2019/03/01	Ventilation Plant Room	8:15	20.8	19.0	18.0
TMCLKL	HY/2017/10	2019/03/01	Ventilation Plant Room	13:15	20.7		
TMCLKL	HY/2017/10	2019/03/02	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/02	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/04	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/04	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/05	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/05	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/06	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/06	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/07	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/07	Ventilation Plant Room	13:15	20.7		
TMCLKL	HY/2017/10	2019/03/08	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/08	Ventilation Plant Room	13:15	20.7		
TMCLKL	HY/2017/10	2019/03/09	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/09	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/11	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/11	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/12	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/12	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/13	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/13	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/14	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/14	Ventilation Plant Room	13:15	20.7		
TMCLKL	HY/2017/10	2019/03/15	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/15	Ventilation Plant Room	13:15	20.7		
TMCLKL	HY/2017/10	2019/03/16	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/16	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/18	Ventilation Plant Room	8:15	20.9		
TMCLKL	HY/2017/10	2019/03/18	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/19	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/19	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/20	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/20	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/21	Ventilation Plant Room	8:15	20.9		
TMCLKL	HY/2017/10	2019/03/21	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/22	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/22	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/23	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/23	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/25	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/25	Ventilation Plant Room	13:15	20.7		
TMCLKL	HY/2017/10	2019/03/26	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/26	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/27	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/27	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/28	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/28	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/29	Ventilation Plant Room	8:15	20.8		
TMCLKL	HY/2017/10	2019/03/29	Ventilation Plant Room	13:15	20.8		
TMCLKL	HY/2017/10	2019/03/30	Ventilation Plant Room	8:15	20.7		
TMCLKL	HY/2017/10	2019/03/30	Ventilation Plant Room	13:15	20.7		
					Average	20.8	
					Min.	20.7	
					Max.	20.9	

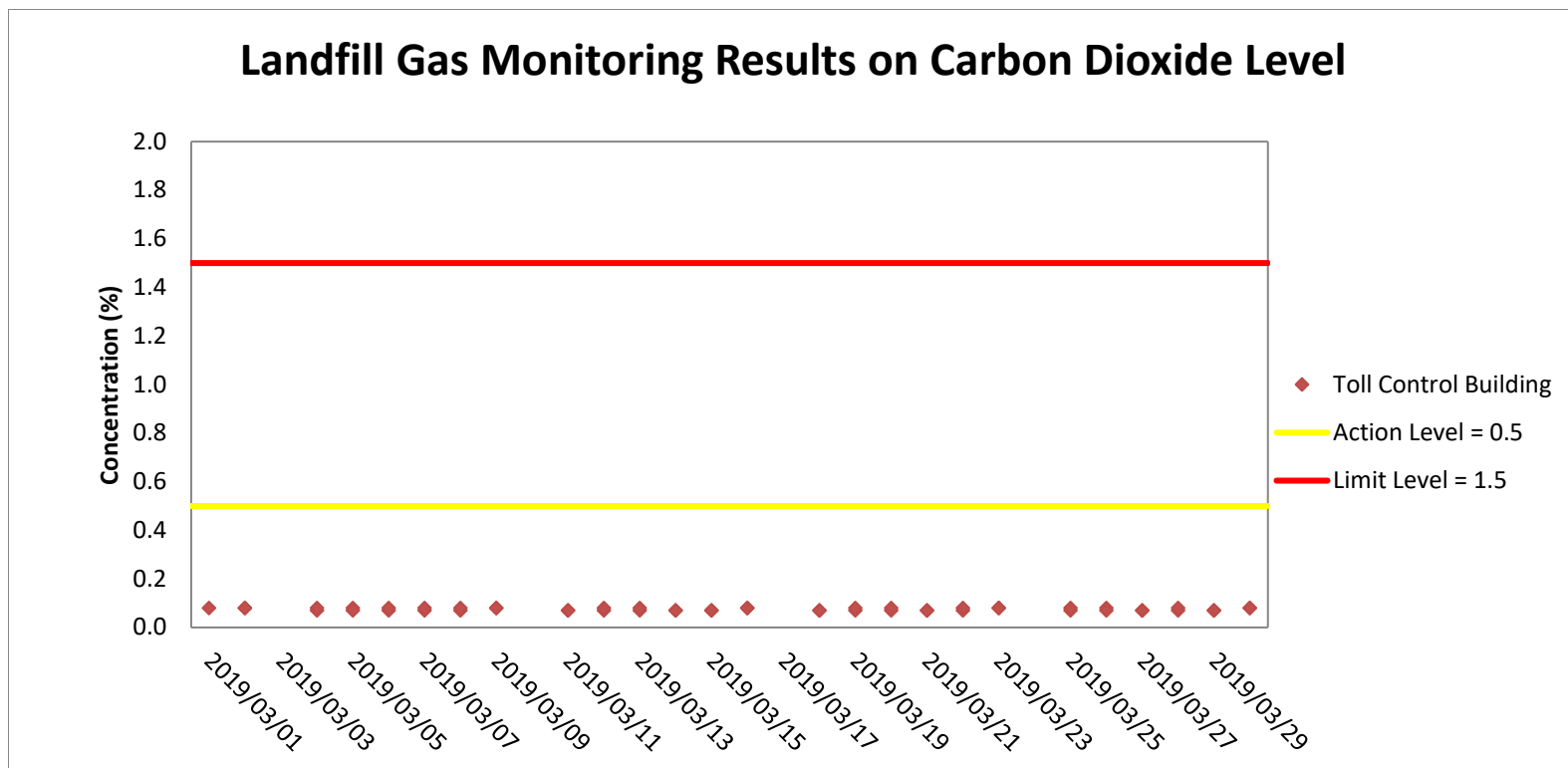
Landfill Gas Monitoring Results on Carbon Dioxide Level

Project	Works	Date(yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Results (%)	Action Level (%)	Limit Level (%)
TMCLKL	HY/2017/10	2019/03/01	Ventilation Plant Room	8:15	0.08	0.5	1.5
TMCLKL	HY/2017/10	2019/03/01	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/02	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/02	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/04	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/04	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/05	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/05	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/06	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/06	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/07	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/07	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/08	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/08	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/09	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/09	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/11	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/11	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/12	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/12	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/13	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/13	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/14	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/14	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/15	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/15	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/16	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/16	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/18	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/18	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/19	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/19	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/20	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/20	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/21	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/21	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/22	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/22	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/23	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/23	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/25	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/25	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/26	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/26	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/27	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/27	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/28	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/28	Ventilation Plant Room	13:15	0.08		
TMCLKL	HY/2017/10	2019/03/29	Ventilation Plant Room	8:15	0.07		
TMCLKL	HY/2017/10	2019/03/29	Ventilation Plant Room	13:15	0.07		
TMCLKL	HY/2017/10	2019/03/30	Ventilation Plant Room	8:15	0.08		
TMCLKL	HY/2017/10	2019/03/30	Ventilation Plant Room	13:15	0.07		
					Average	0.07	
					Min.	0.07	
					Max.	0.08	



Weather condition within the reporting period was sunny to cloudy.

Major construction works undertaken within the reporting period include Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Toll Control Building, Electrical and Mechanical Works at Ventilation Plant Room and North Ventilation Room, Building Structure at Administration Building, Maintenance Depot, Fire Services Building and Customs and Exercise Building and Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2.



Weather condition within the reporting period was sunny to cloudy.

Major construction works undertaken within the reporting period include Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Toll Control Building, Electrical and Mechanical Works at Ventilation Plant Room and North Ventilation Room, Building Structure at Administration Building, Maintenance Depot, Fire Services Building and Customs and Excise Building and Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2.

Appendix I

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	1.939	-	-	-	1.939	-	-	74.680	-	-	0.042	-
Feb	2.129	0.008	-	-	2.129	-	-	67.230	-	-	0.049	-
Mar	0.079	0.060	-	-	0.079	-	-	73.690	-	-	-	-
Apr	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-
Jun	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL	4.147	0.068	0.000	0.000	4.147	0.000	0.000	215.600	0.000	0.000	0.091	0.000
Jul	-	-	-	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-	-	-	-
Sep	-	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	4.147	0.068	0.000	0.000	4.147	0.000	0.000	215.600	0.000	0.000	0.091	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 J

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

Appendix J1 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting month	Total No. recorded since contract commencement
1-Hr TSP	Action	2	23
	Limit	0	2
24-Hr TSP	Action	0	1
	Limit	0	0

Appendix J2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (March 2018)	0	0	0
Total No. received since contract commencement	0	0	0

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

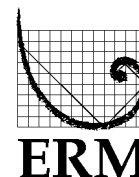
From ERM- Hong Kong, Limited

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 4 April 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



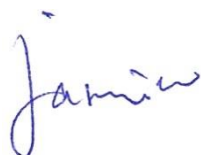
Dear Sir/ Madam,

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

Action Level Exceedance
0463091_27March2019_1hrTSP_Station ASR1

One (1) exceedance was recorded on 27 March 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_27March2019_1hrTSP_Station ASR1 [Total No. of Exceedances = 1]	
Date	27 March 2019 (Measured) 4 April 2019 (Results obtained from ENPO Website)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10, AQMS1	
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
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
Measured Levels	Refer to the attached data sheet.	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 27 March 2019 included: <ul style="list-style-type: none"> ▪ Building structure at Administration Building and Maintenance Depot (<i>refer to Contractor's photo</i>) 	
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are 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 13:33-14:33 on 27 March 2019, all 1hr-TSP levels and other 24-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. • Watering record provided by the Contractor was reviewed. Watering was maintained on unpaved and dry road on 27 March 2019 (<i>refer to Contractor's Photo and watering record</i>). • Recorded wind speed during the works period was zero. Dust generated from the construction works, if any, will be localized within the site area and was not likely to be dispersed to station ASR1. <p>Based on the above, the exceedances are 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 including water spraying at unpaved road. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 27 March 2019 and locations of air quality monitoring stations are attached. The location of the works area under this Contract is attached. The attached wind data on 27 March 2019 is sourced from <i>Contract No. HY/2012/08</i> for reference.	

Results of Air Quality Monitoring

Project	Works	Date (yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-03-27	AQMS1	13:44	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2019-03-27	AQMS1	14:46	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2019-03-27	AQMS1	15:48	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR1	13:33	1-hour TSP	412	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR1	14:35	1-hour TSP	213	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR1	15:37	1-hour TSP	274	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR10	13:01	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR10	14:03	1-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR10	15:05	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR5	13:22	1-hour TSP	121	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR5	14:24	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR5	15:26	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR6	13:11	1-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR6	14:13	1-hour TSP	88	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR6	15:15	1-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2019-03-27	AQMS1	16:50	24-hour TSP	67	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR1	16:39	24-hour TSP	129	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR10	16:07	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR5	16:28	24-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2019-03-27	ASR6	16:17	24-hour TSP	73	ug/m3

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

PHOTO BY CONTRACTOR ON 27 MARCH 2019

Photo 1 - Building structure was conducted at works area of Administration Building and Maintenance Depot



Photo 2- Watering of unpaved roads near Administration Building and Maintenance Depot



WATERING RECORD ON 27 MARCH 2019

27 th Mar		Location: AAB & MD	
Period		Time	Sign
7-8			
8-9	/	8:07	Man
9-10	//	9:34 9:58	Man
10-11	/	10:41	Man
11-12	/	11:38	Man
12-13	/	12:50	Man
13-14	/	13:21	Man
14-15	//	14:03 14:44	Man
15-16	/	15:36	Man
16-17	/	16:21	Man
17-18	/	17:40	Man
18-19			

Meteorological Data for Impact Monitoring in the reporting period*			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Director (degree)
19/03/27	0:00	0.4	95
19/03/27	1:00	0	-
19/03/27	2:00	0.4	68
19/03/27	3:00	0	-
19/03/27	4:00	0	-
19/03/27	5:00	0	-
19/03/27	6:00	0	-
19/03/27	7:00	1.3	96
19/03/27	8:00	1.3	101
19/03/27	9:00	0	-
19/03/27	10:00	0.4	109
19/03/27	11:00	0	-
19/03/27	12:00	0	-
19/03/27	13:00	0	-
19/03/27	14:00	0	-
19/03/27	15:00	0	-
19/03/27	16:00	0	-
19/03/27	17:00	0	-
19/03/27	18:00	0	-
19/03/27	19:00	0	-
19/03/27	20:00	0	-
19/03/27	21:00	0	-
19/03/27	22:00	0	-
19/03/27	23:00	0	-

*Wind data is sourced from Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-sea Tunnel Section

Legend

Site Boundary

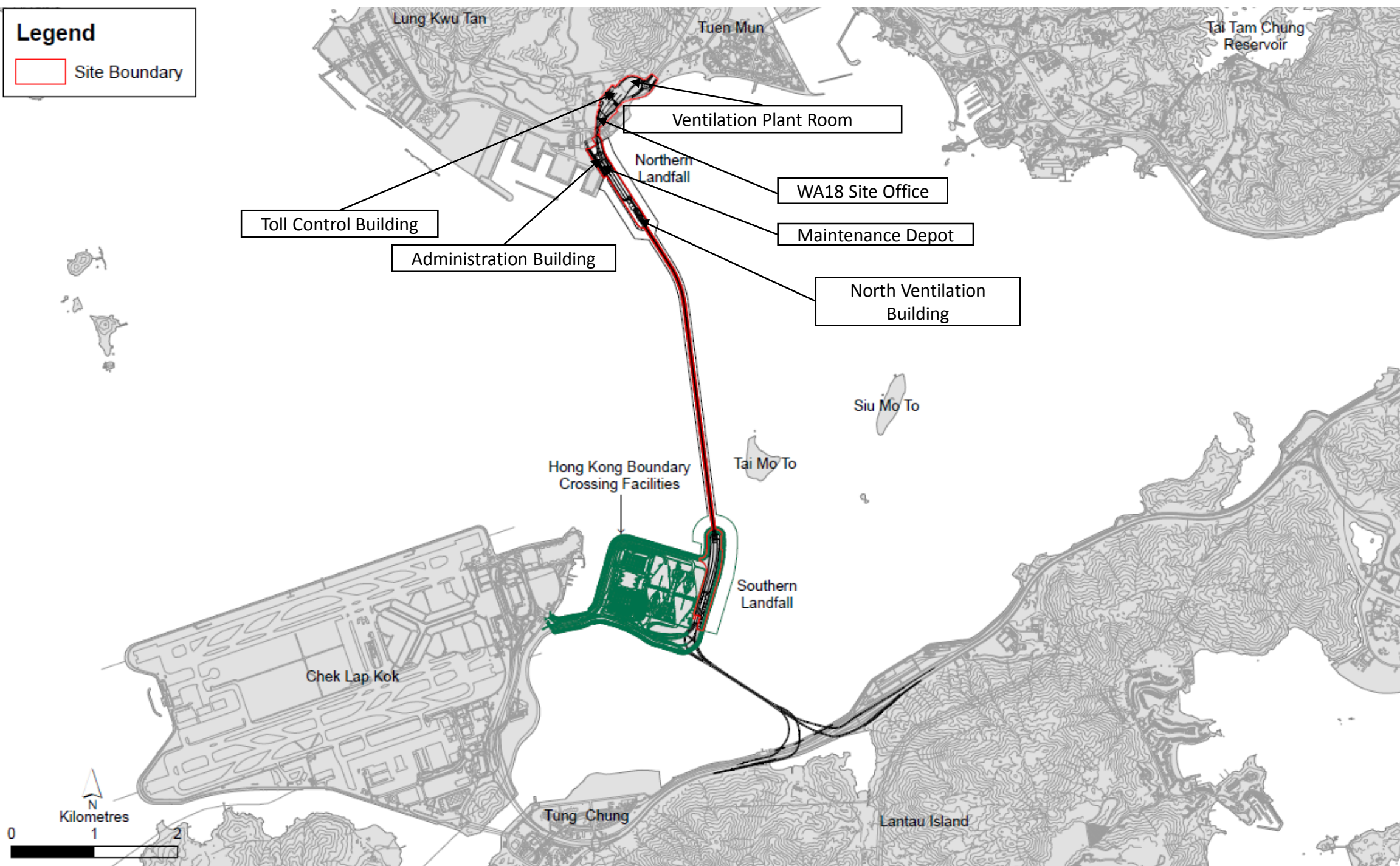




Figure 2.1

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)

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

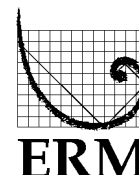
From ERM- Hong Kong, Limited

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 9 April 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_30March2019_1hrTSP_Station ASR1

One (1) exceedance was recorded on 30 March 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_30March2019_1hrTSP_Station ASR1 [Total No. of Exceedances = 1]	
Date	30 March 2019 (Measured) 9 April 2019 (Results obtained from ENPO Website)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10, AQMS1	
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
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
Measured Levels	Refer to the attached data sheet.	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 30 March 2019 included: <ul style="list-style-type: none"> ▪ Building structure at Administration Building and Maintenance Depot (<i>refer to Contractor's photo</i>) 	
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are 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 10:48-11:48 on 30 March 2019, all 1hr-TSP levels and other 24-hr TSP levels at all monitoring stations were in compliance with the Action and Limit Levels on the same day. • Watering record provided by the Contractor was reviewed. Watering was maintained on unpaved and dry road on 30 March 2019 (<i>refer to Contractor's Photo and watering record</i>). • With reference to the recorded wind direction (ranged between 110° and 114°, blowing from an easterly direction) during the works period, no works area under this contract is located upstream of Station ASR1. <p>Based on the above, the exceedances are 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 including water spraying at unpaved road. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 30 March 2019 and locations of air quality monitoring stations are attached. The location of the works area under this Contract is attached. The attached wind data on 30 March 2019 is sourced from <i>Contract No. HY/2012/08</i> for reference.	

Results of Air Quality Monitoring

Project	Works	Date (yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Parameter	Results	Unit
TMCLKL	HY/2012/08	2019-03-30	AQMS1	8:55	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2019-03-30	AQMS1	9:57	1-hour TSP	128	ug/m3
TMCLKL	HY/2012/08	2019-03-30	AQMS1	10:59	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR1	8:44	1-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR1	9:46	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR1	10:48	1-hour TSP	374	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR10	8:10	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR10	9:12	1-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR10	10:14	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR5	8:32	1-hour TSP	142	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR5	9:34	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR5	10:36	1-hour TSP	121	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR6	8:20	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR6	9:22	1-hour TSP	124	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR6	10:24	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2019-03-30	AQMS1	12:01	24-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR1	11:50	24-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR10	11:16	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR5	11:38	24-hour TSP	69	ug/m3
TMCLKL	HY/2012/08	2019-03-30	ASR6	11:26	24-hour TSP	66	ug/m3

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

PHOTO BY CONTRACTOR ON 30 MARCH 2019

Photo 1 - Building structure was conducted at works area of Administration Building and Maintenance



Photo 2- Watering of unpaved roads near Administration Building and Maintenance Depot



WATERING RECORD ON 27 MARCH 2019

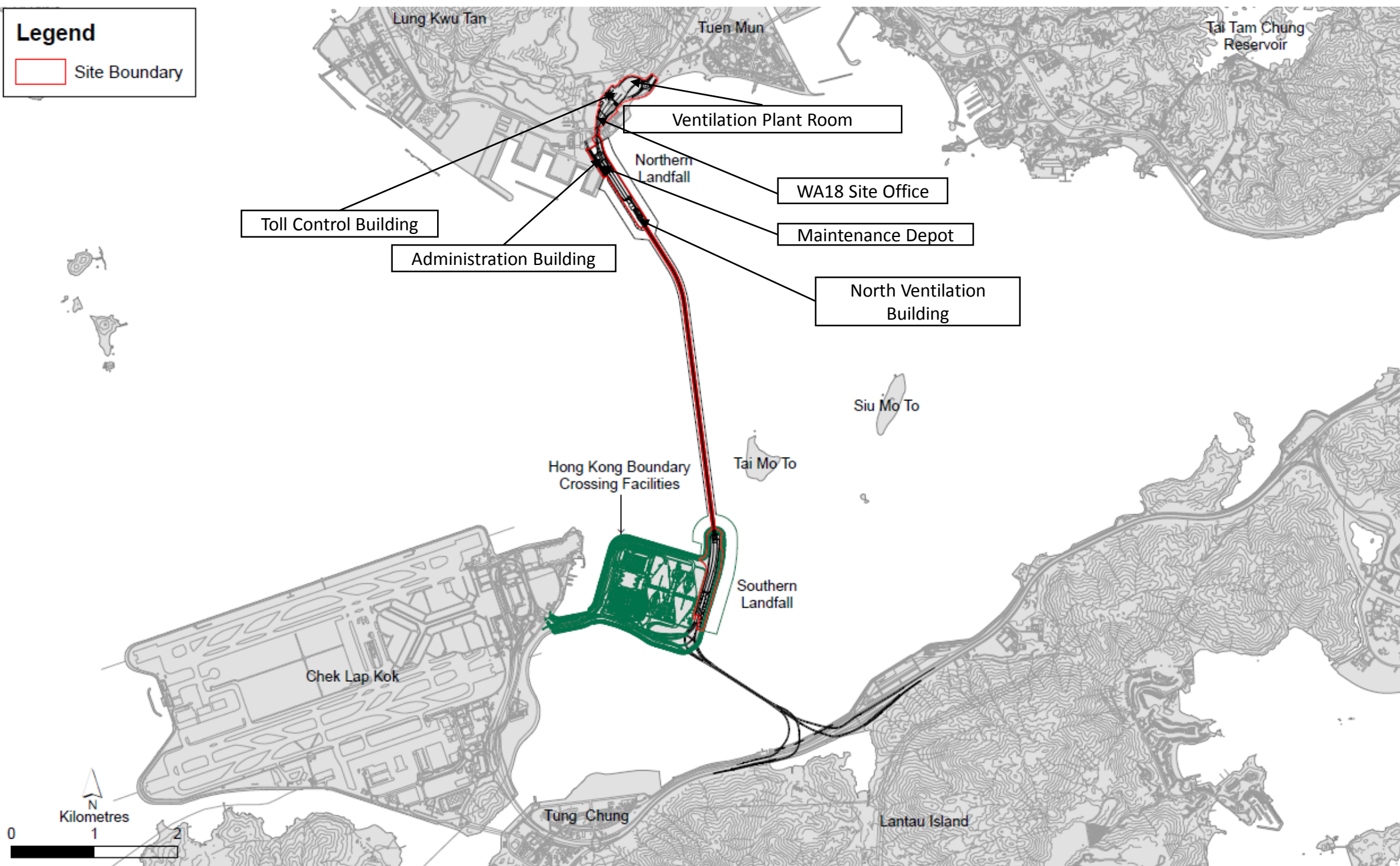
30 th Mar		Location	
Period		Time	Sign
7-8	/	7:56	Alan
8-9	/	8:41	Alan
9-10	/	9:36	Alan
10-11	/	10:27	Alan
11-12	/	11:31	Alan
12-13	/	12:09	Alan
13-14	/	13:04 13:49	Alan
14-15	/	14:42	Alan
15-16	/	15:33	Alan
16-17	/	16:13	Alan
17-18	/	17:06	Alan
18-19			

Meteorological Data for Impact Monitoring in the reporting period*			
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Director (degree)
19/03/30	0:00	0	-
19/03/30	1:00	0	-
19/03/30	2:00	0	-
19/03/30	3:00	0	-
19/03/30	4:00	0	-
19/03/30	5:00	0	-
19/03/30	6:00	0	-
19/03/30	7:00	0	-
19/03/30	8:00	0	-
19/03/30	9:00	0	-
19/03/30	10:00	1.8	110
19/03/30	11:00	1.8	114
19/03/30	12:00	0.9	119
19/03/30	13:00	2.2	105
19/03/30	14:00	0.9	113
19/03/30	15:00	2.7	108
19/03/30	16:00	2.7	109
19/03/30	17:00	2.2	103
19/03/30	18:00	1.8	121
19/03/30	19:00	1.3	120
19/03/30	20:00	0	-
19/03/30	21:00	0.4	101
19/03/30	22:00	0.4	83
19/03/30	23:00	0.4	81

*Wind data is sourced from Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-sea Tunnel Section

Legend

Site Boundary



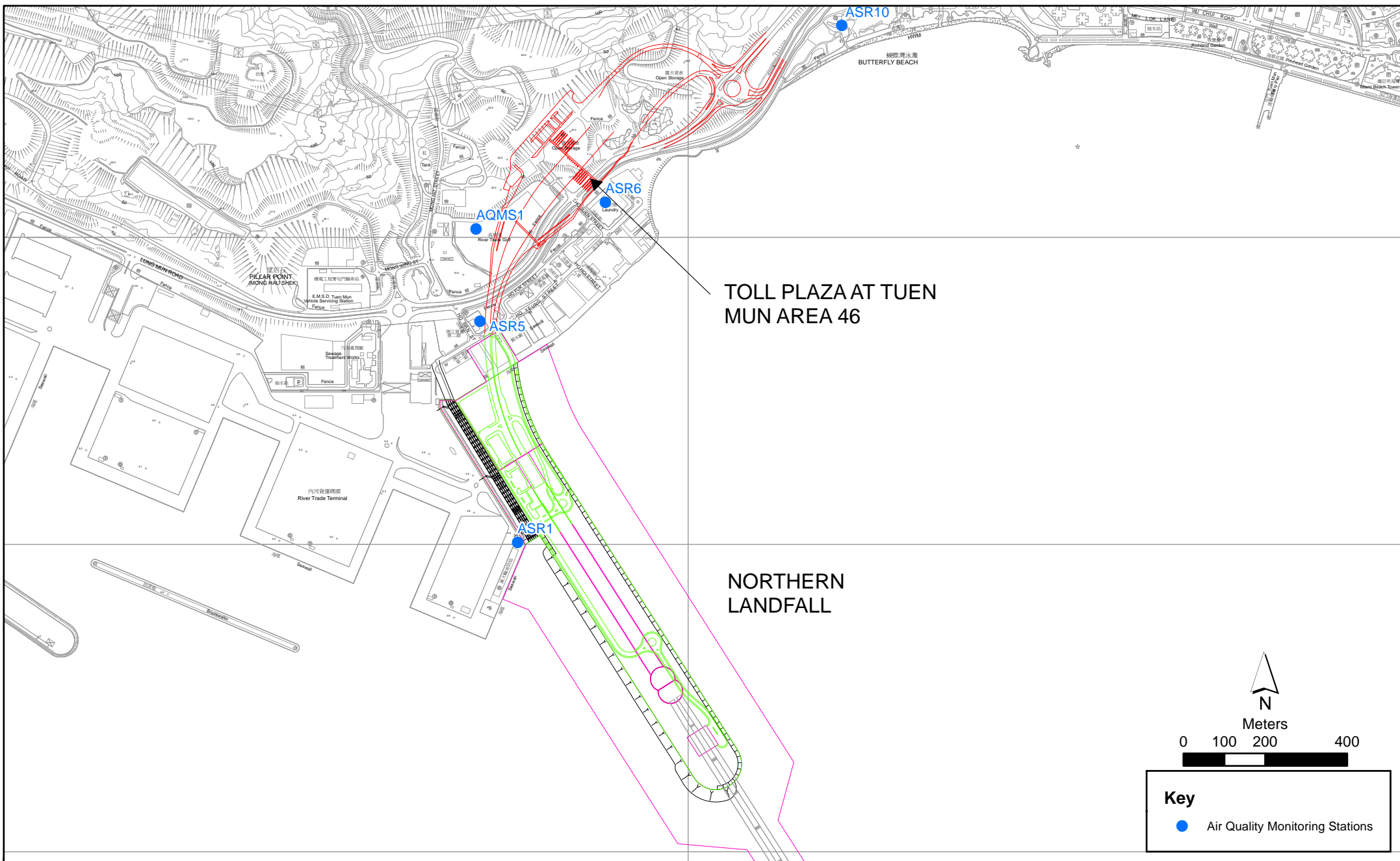


Figure 2.1

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)