

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

Fifteenth Monthly EM&A Report

12 September 2019

Environmental Resources Management
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Fifteenth Monthly EM&A Report

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Client: Gammon		Project No: 0463091			
Summary: This document presents the Fifteenth Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works.		Date: 12 September 2019			
		Approved by: 			
		Mr Craig Reid Partner			
		Certified by: 			
		Dr Jasmine Ng ET Leader			
	Fifteenth Monthly EM&A Report	CY	JN	CAR	12/9/19
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>			
		 			

13 September 2019

By Fax (2783 0155) and By Post

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

Attention: Mr. Desmond Fung

Dear Mr. Fung,

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

**Contract No. HY/2017/10
TM-CLKL – Northern Connection Tunnel Buildings, E&M Works
15th Monthly EM&A Report for August 2019**

Reference is made to the Environmental Team's submission of the monthly EM&A report for August 2019 (ET's ref.: "0463091_15th Monthly EM&A_20190912.doc" dated 12 September 2019) certified by the ET Leader and provided to us via e-mail on 12 September 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 very much your attention. Please feel free to contact the undersigned or the ENPO Leader, Mr. Y H Hui, should you require further information.

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



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

c.c.

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

Internal: DY, YH, RY, DF, HW, ENPO Site

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EXECUTIVE SUMMARY

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

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

This is the Fifteenth Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 31 August 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 Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Building structure at Fire Services Department Building;
- Building Structure at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;

- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Building Structure at Satellite Control Building;
- Building Structure at Kiosk S1; and
- Building Structure at Toll Booth.

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	27 days
Joint Environmental Site Inspection	5 sessions

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Levels of 1-hour TSP and 24-hour TSP was 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 September 2019 include the following:

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

Land-based Works

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

Future Key Issues

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

1.1

BACKGROUND

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

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

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

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

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

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

Plot File by: Jerry Wong 23-Jan-18
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PROJECT
 TUEN MUN -
 CHEK LAP KOK LINK

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

CLIENT

 路政署
 HIGHWAYS DEPARTMENT
 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
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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

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KEY PLAN

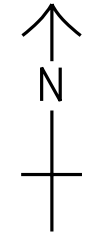
PROJECT NO. 60240249
 CONTRACT NO. HY/2017/10

SHEET TITLE
 OVERALL SITE PLAN

SHEET NUMBER
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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

HIGHWAYS DEPARTMENT
 路政署
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Figure 1.2a

ISSUE/REVISION

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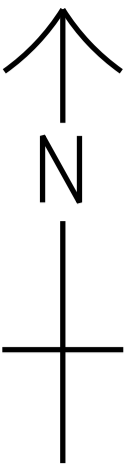
KEY PLAN
Key Plan

PROJECT NO.
60240249

CONTRACT NO.
HY/2017/10

SHEET TITLE
ZONING PLAN (SHEET 1)

SHEET NUMBER
60240249/C4/7061A



AECOM

PROJECT
 項目

**TUEN MUN -
 CHEK LAP KOK LINK**

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

CLIENT
 業主



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Figure 1.2b

ISSUE/REVISION
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I/R 修訂	DATE 日期	DESCRIPTION 修訂/修改	CHK. 核對
A	JAN.18	TENDER ADDENDUM NO.1	SYLC
-	DEC.17	TENDER DRAWING	SYLC

STATUS
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SCALE
 比例

A1 1 : 2500

DIMENSION UNIT
 尺寸單位

MILLIMETRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號

60240249

CONTRACT NO.
 合約編號

HY/2017/10

SHEET TITLE
 圖紙名稱

ZONING PLAN
 (SHEET 2)

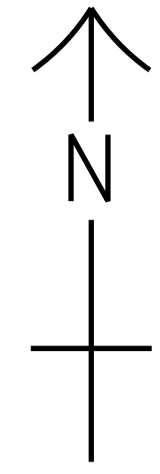
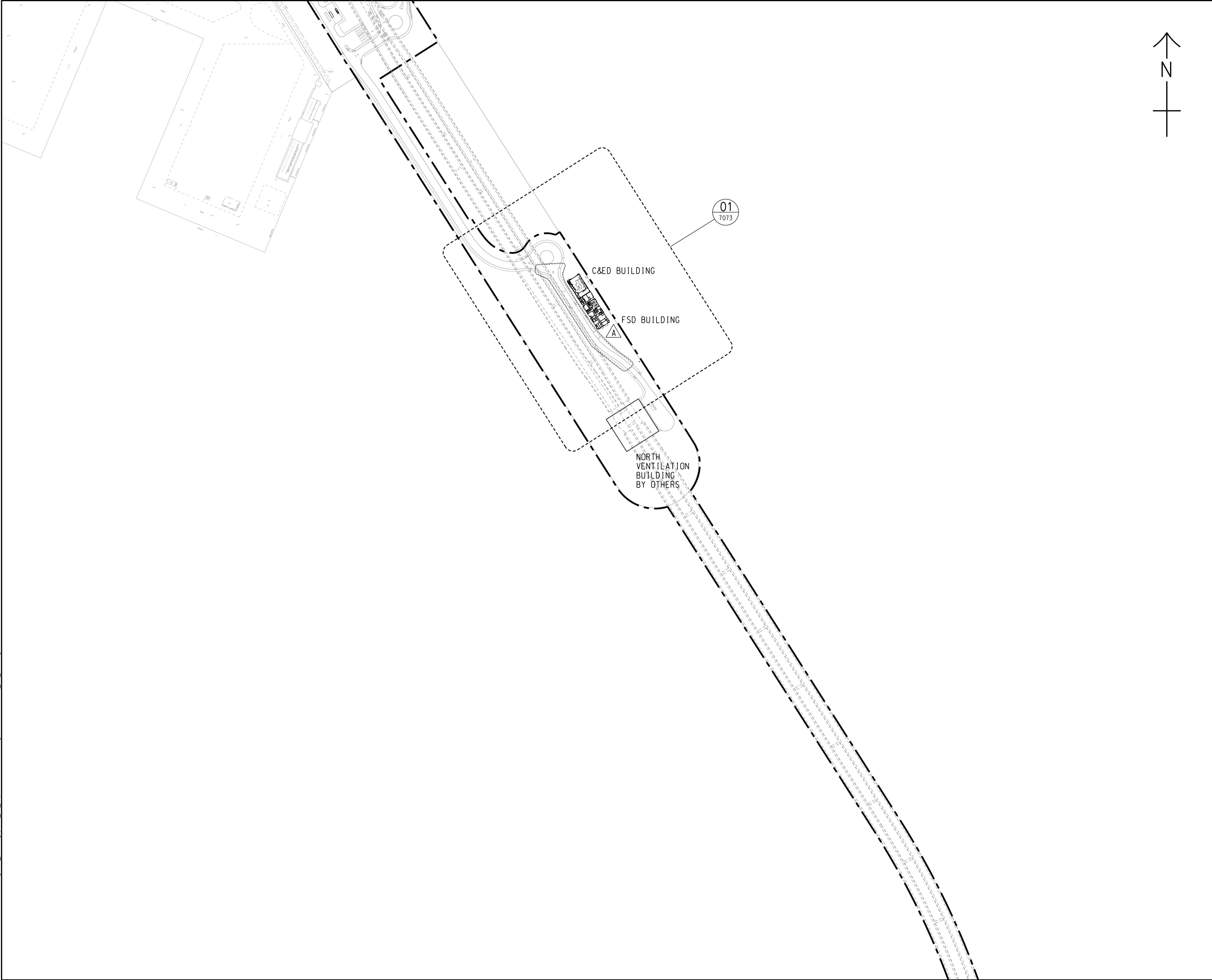
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PROJECT
 項目
TUEN MUN - CHEK LAP KOK LINK

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

CLIENT
 業主

 路政署
HIGHWAYS DEPARTMENT
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Figure 1.2c

ISSUE/REVISION
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I/R	DATE	DESCRIPTION	CHK.
修訂	日期	內容摘要	核校
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-	DEC.17	TENDER DRAWING	SYLC

STATUS
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SCALE
 比例
 A1 1 : 2500

DIMENSION UNIT
 尺寸單位
 MILLIMETRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號
 60240249

CONTRACT NO.
 合約編號
 HY/2017/10

SHEET TITLE
 圖紙名稱
 ZONING PLAN
 (SHEET 3)

SHEET NUMBER
 圖紙編號
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1.2 SCOPE OF REPORT

This is the Fifteenth 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 August 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

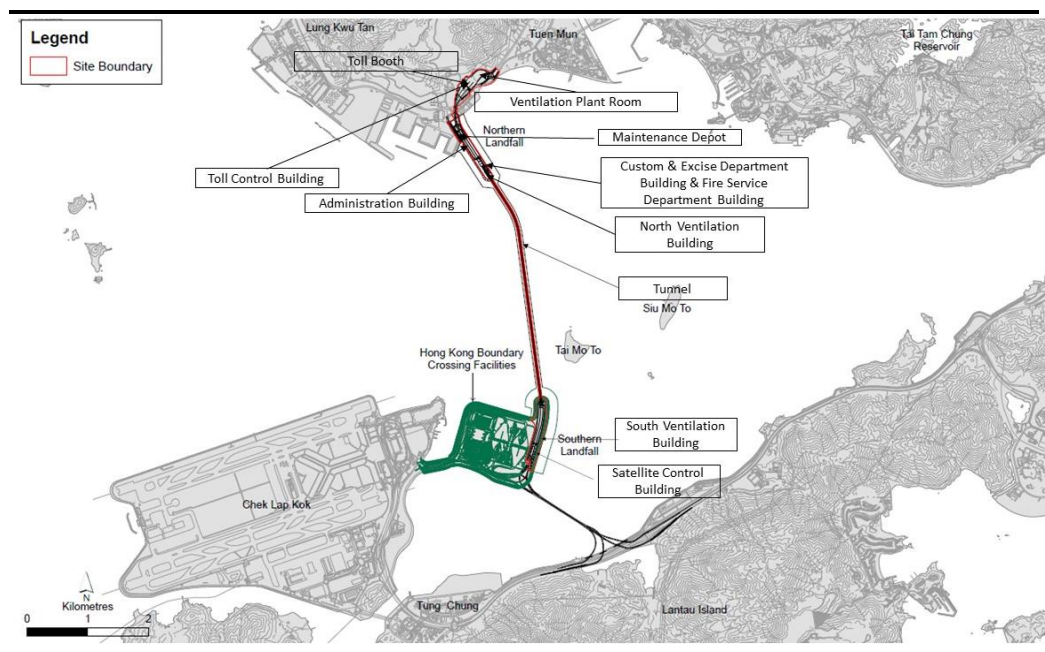
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at Toll Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at North Ventilation Building;

- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Administration Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Maintenance Depot;
- Building structure at Fire Services Department Building;
- Building Structure at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builders Work and Finishes at underpass at C3 area;
- Building Structure at Satellite Control Building;
- Building Structure at Kiosk S1; and
- Building Structure at Toll Booth.

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*



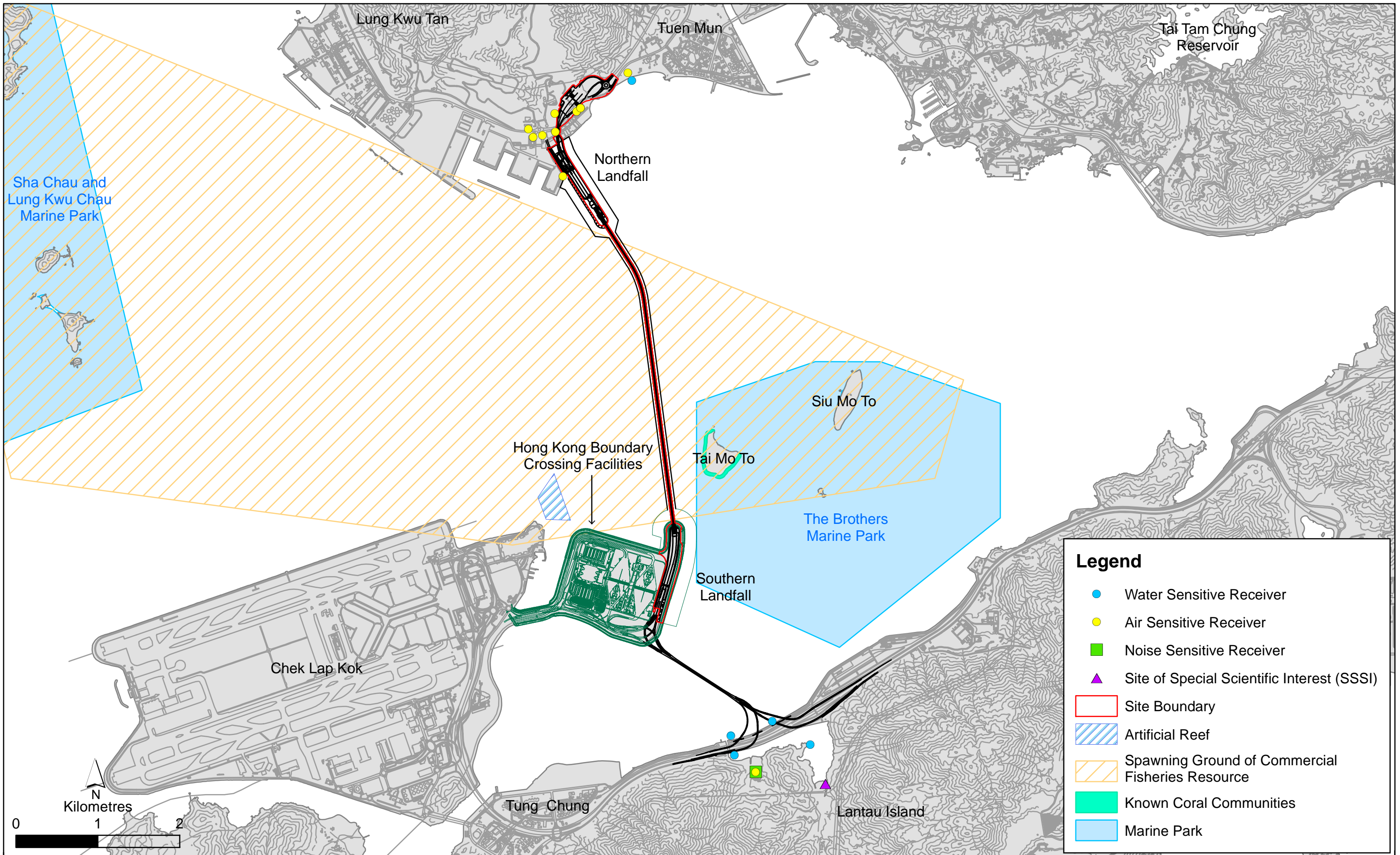


Figure 1.4

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 August 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/>

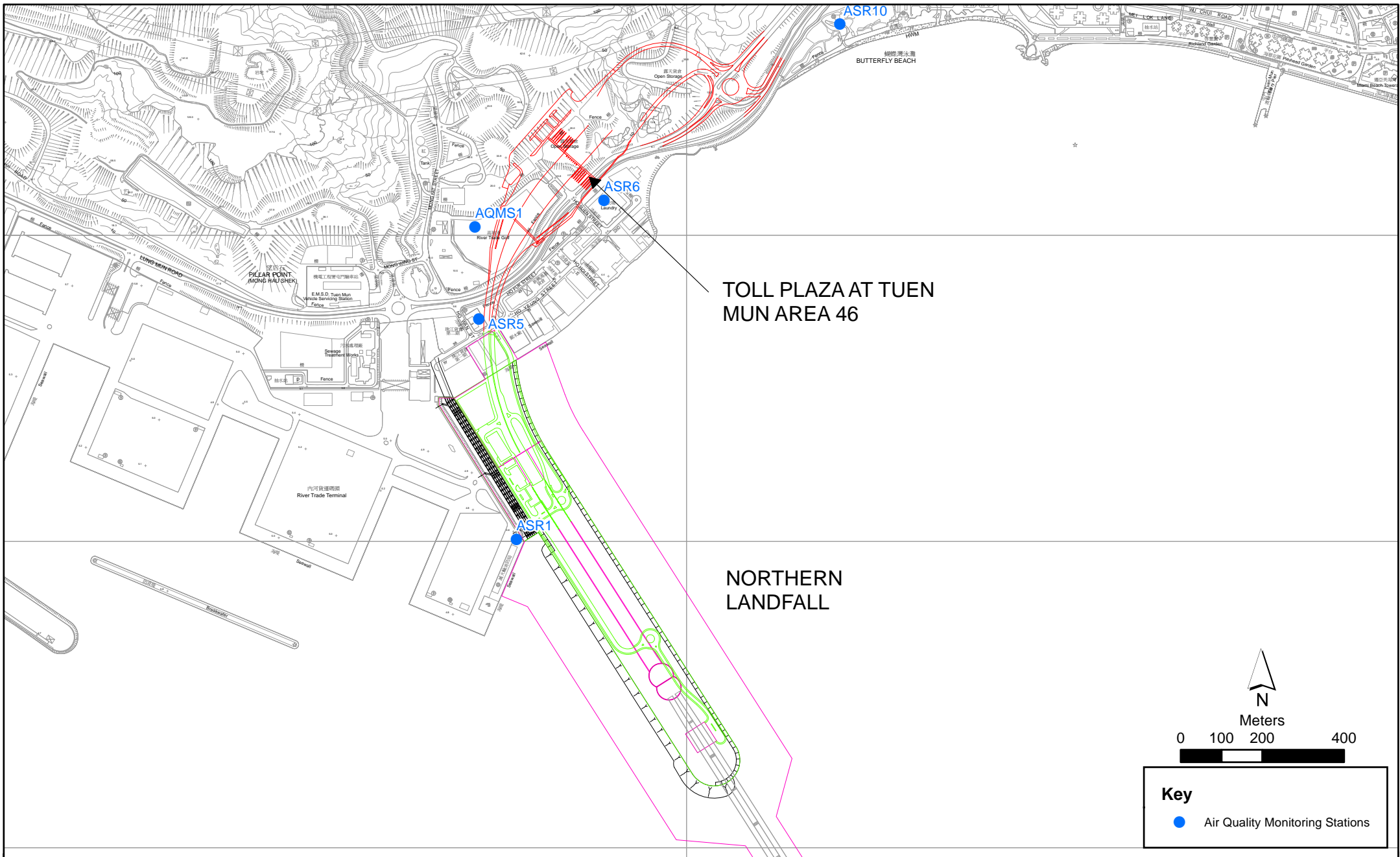


Figure 2.1

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)

Key

- Air Quality Monitoring Stations

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>)
ASR10		Butterfly Beach Park	Recreational uses	<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 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⁾.

No exceedance of Action and Limit Levels of 1-hour TSP and 24-hour TSP was recorded by the Environmental Team of *Contract No. HY/2012/08* during the reporting period. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

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 27 days of landfill gas hazard monitoring was conducted at Ventilation Plant Room during 1 to 31 August 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*.

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

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

	Average (%)	Range (%)	Action/ Limit Level (%)
Oxygen	20.9	20.8-20.9	19 / 18
Carbon Dioxide	0.03	0.03-0.04	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 2, 9, 16, 23 and 30 August 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
2 August 2019	Satellite Control Building <ul style="list-style-type: none"> Rubbish bin for general refuse should be capped. 	Satellite Control Building <ul style="list-style-type: none"> The Contractor was reminded that rubbish bin for general refuse should be capped.
9 August 2019	Maintenance Depot <ul style="list-style-type: none"> Chemical container should be placed in drip tray. General refuse should be disposed in capped rubbish bin. Accumulated general refuse should be cleared. Administration Building <ul style="list-style-type: none"> Stockpile concrete bags should be covered by tarpaulin. 	Maintenance Depot <ul style="list-style-type: none"> The Contractor was reminded to place chemical container in drip tray. The Contractor was reminded to dispose general refuse in capped rubbish bin. The Contractor was reminded to clear accumulated general refuse. Administration Building <ul style="list-style-type: none"> The Contractor was reminded to cover concrete bags by tarpaulin.
16 August 2019	Maintenance Depot <ul style="list-style-type: none"> General refuse should be disposed in capped rubbish bin. Chemical container should be placed in drip tray. 	Maintenance Depot <ul style="list-style-type: none"> The Contractor was reminded to dispose general refuse in capped rubbish bin. The Contractor was reminded to place chemical container in drip tray.
23 August 2019	Customs and Excise Building <ul style="list-style-type: none"> Drip tray should be provided for chemical container. Oil on the ground should be cleaned. 	Customs and Excise Building <ul style="list-style-type: none"> The Contractor was reminded to provide drip tray for the chemical containers. The Contractor was reminded to clean up the oil on the ground.
30 August 2019	No Observation.	Nil.

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)
August 2019	252	0	213,070	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-RW0267-19	21 June 2019	14 October 2019	GCL	For Toll Control Building, Administration Building, Maintenance Depot, FSD, C&ED, Boundary Wall, Tunnel, Approach ramp, NVB and WA18
Construction Noise Permit	GW-RS0340-19	18 April 2019	17 October 2019	GCL	For Kiosk S2 and SCB

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*

No exceedance of Action and Limit Levels of 1-hour TSP and 24-hour TSP was recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. 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 methane, oxygen and carbon dioxide was recorded during landfill gas hazard monitoring in the 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*.

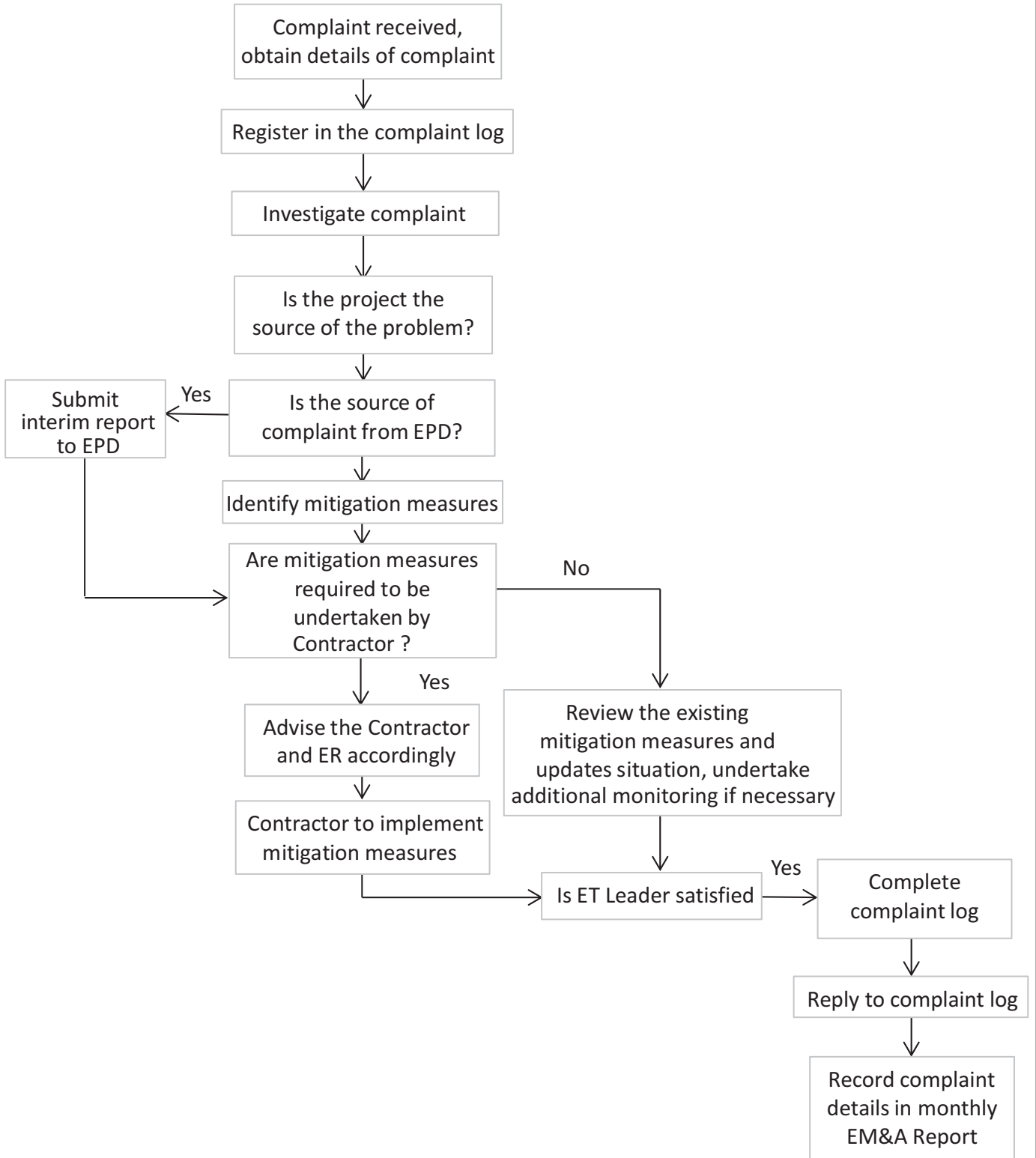


Figure 2.2

Environmental Complaint Handling Procedure

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

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

Land-based Works

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

3.2 KEY ISSUES FOR THE COMING MONTH

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

4.1 CONCLUSIONS

This Fifteenth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 31 August 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) monitoring were carried out in this reporting month.

No exceedance of Action and Limit Levels of 1-hour TSP and 24-hour TSP was recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. 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 was recorded for landfill gas hazard monitoring in the reporting month.

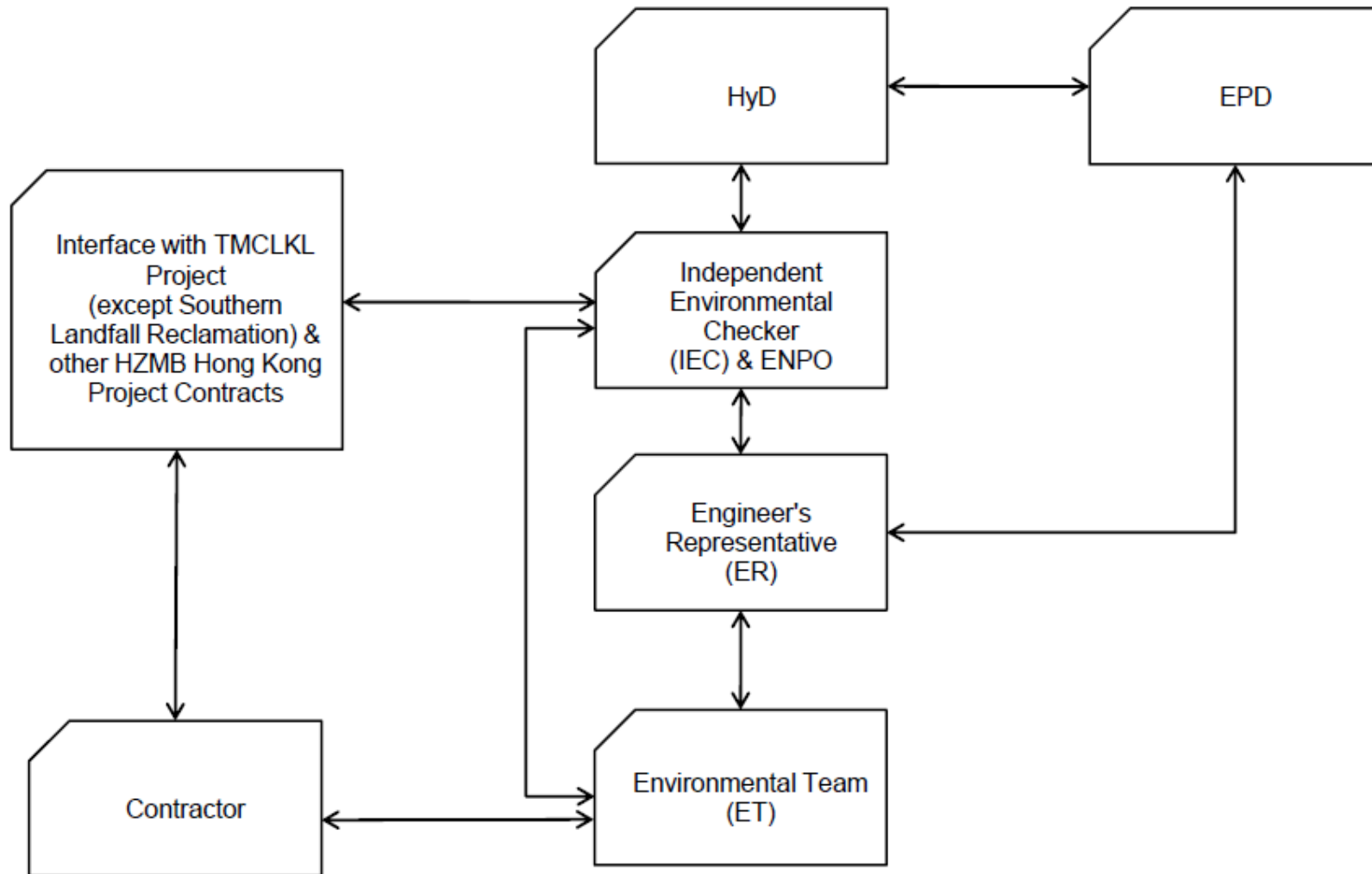
Environmental site inspection was carried out five (5) times in August 2019. Remedial actions recommended for the deficiencies identified during the site audits were properly implemented by the Contractor.

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					
							Aug	Sep	Oct	Nov		
HY2017/10 - Works Programme Three Month Rolling Programme 20-Aug-19												
Contract Dates												
Key Dates												
KD02	KD02 - Admin Bldg, Maintenance Depot, Kiosk N2, & TCSS Provision	0	0%	0								
Portion Access Dates												
P2010	Access to Portion VII SVB Basement BL1	0	0%	0								
P2020	Access to Portion VII SVB G/F	0	0%	0								
P2030	Access to Portion VII SVB 1/F	0	0%	0								
P2040	Access to Portion VII SVB 2/F	0	0%	0								
Portion Possession Dates												
P325	Possession to Portion XXII (Day 483)	0	0%	0								
P335	Possession to Portion XXIII (Day 483)	0	0%	0								
P345	Possession to Portion VIb (Day 483)	0	0%	0								
Portion Handover Dates												
H110	Vacate Portion XVIIb (Day 137 after Possession)	0	0%	0								
Major Design Submission & Approval												
Toll Control Building												
MVAC System												
TCB-EMD1095	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28								
TCB-EMD1115	Authorities Review and Comment of MVAC Pump head calculation	56	50%	28								
Electrical System												
TCB-EMD1015	Authorities Review and Comment of UPS and Battery Capacity Calculations	56	50%	28								
TCB-EMD1055	Authorities Review and Comment of Generator Calculation	56	50%	28								
TCB-EMD1335	ER Review and Approval of System Design of PV System	13	50%	7								
Fire Service System												
TCB-EMD1175	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28								
TCB-EMD1195	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28								
TCB-EMD1215	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28								
Plumbing & Drainage System												
TCB-EMD1235	Authorities Review and Comment of Pump Head Calculation	56	50%	28								
TCB-EMD1275	Authorities Review and Comment of Hot water system capacity calculation	56	50%	28								
TCB-EMD1395	Authorities Review and Comment of Drainage Sump Pumps and Pump Pits Calculation	56	50%	28								
Administration Building												
MVAC System												
ADB-EMD1015	Authorities Review and Comment of AC Cooling Capacity Calculation	56	50%	28								
ADB-EMD1035	Authorities Review and Comment of AHU/PAU Static Pressure Calculation	56	50%	28								
ADB-EMD1055	Authorities Review and Comment of Pump head calculation	56	50%	28								
ADB-EMD1075	Authorities Review and Comment of Mechanical Ventilation Capacity Calculation	56	50%	28								
Electrical System												
ADB-EMD1115	Authorities Review and Comment of Electrical Loading Demand Calculation	56	50%	28								
ADB-EMD1135	Authorities Review and Comment of Generator Calculation	56	50%	28								
ADB-EMD1335	ER Review and Approval of System Design of PV System	13	50%	7								
Fire Service System												
ADB-EMD1155	Authorities Review and Comment of FS Pump Head Calculation	56	50%	28								
ADB-EMD1175	Authorities Review and Comment of Sprinkler Pump Head Calculation	56	50%	28								
ADB-EMD1195	Authorities Review and Comment of FM200 System Design Calculation	56	50%	28								
Plumbing & Drainage System												
ADB-EMD1215	Authorities Review and Comment of Pump Head Calculation	56	50%	28								

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THREE MONTHLY PROGRAMME AS OF 20 AUG 2019

P 1/25	Date	Revision	Checked	Approved
	20-Aug-19			

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

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Date	Revision	Checked	Approved
20-Aug-19			

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

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Date	Revision	Checked	Approved
20-Aug-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Aug	Sep	Oct	Nov	
Major Material Submission & Approval											
GEN-EMM1020	Authorities Review and Comment of Technical Info. - Miscellaneous 1st fix Materials/ Equipment	28	50%	14							
GEN-EMM1050	Authorities Review and Comment of Technical Info. - Miscellaneous 2nd fix Materials/ Equipment	28	50%	14							
GEN-EMM1080	Authorities Review and Comment of Technical Info. - Miscellaneous final fix Materials/ Equipment	28	50%	14							
MVAC System											
MVAC-EMM1015	Authorities Review and Comment of Technical Info. - Chiller	56	50%	28							
MVAC-EMM1035	Authorities Review and Comment of Technical Info. - Chilled Water Pump	56	50%	28							
MVAC-EMM1075	Authorities Review and Comment of Technical Info. - Computer Room AC (CRAC) Unit	56	50%	28							
MVAC-EMM1095	Authorities Review and Comment of Technical Info. - AHU & PAU	56	50%	28							
MVAC-EMM1115	Authorities Review and Comment of Technical Info. - Staircase Pressurization Fan	56	50%	28							
Electrical System											
ELE-EMM1075	Authorities Review and Comment of Technical Info. - HV Cables	56	50%	28							
ELE-EMM1155	Authorities Review and Comment of Technical Info. - UPS and Battery	28	50%	14							
ELE-EMM1175	Authorities Review and Comment of Technical Info. - MCB & MCCB & Distribution Board	28	50%	14							
ELE-EMM1225	Authorities Review and Comment of Technical Info. - PV System	56	50%	28							
Fire Service System											
FS-EMM1015	Authorities Review and Comment of Technical Info. - FM200	56	50%	28							
FS-EMM1095	Authorities Review and Comment of Technical Info. - FR/ HR system	56	50%	28							
FS-EMM1115	Authorities Review and Comment of Technical Info. - Gas detection	56	50%	28							
Plumbing & Drainage System											
PD-EMM1015	Authorities Review and Comment of Technical Info. - Sump Pump	56	50%	28							
PD-EMM1035	Authorities Review and Comment of Technical Info. - Hot Water System	56	50%	28							
PD-EMM1055	Authorities Review and Comment of Technical Info. - LMCP (PD)	56	50%	28							
Tunnel Ventilation System											
TVS-EMM1035	Authorities Review and Comment of Technical Info. - Pressurization Fan	56	50%	28							
TVS-EMM1105	Authorities Review and Comment of Technical Info. - AQMS Equipment	56	50%	28							
TVS-EMM1155	Authorities Review and Comment of Technical Info. - MFSD	56	50%	28							
Tunnel and Road Lighting System											
TRLS-EMM1035	Authorities Review and Comment of Technical Info. - Road Lighting Fitting	56	50%	28							
CCMS, TCS and ELV System											
ELV-EMM1020	Authorities Review and Comment of Technical Info. - CMCS Equipment	56	50%	28							
ELV-EMM1040	ER Review and Approval of Technical Info. - TCS Equipment	40	90%	4							
ELV-EMM1050	Authorities Review and Comment of Technical Info. - TCS Equipment	56	50%	28							
ELV-EMM1080	Authorities Review and Comment of Technical Info. - other ELV Equipment	56	50%	28							
Drawing Submission & Approval											
Satellite Control Building											
Individual Shop Drawing											
SCB-ISD1040	Authorities Review and Comment of SCB ISD 1st batch	28	50%	14							
SCB-ISD1090	Authorities Review and Comment of SCB ISD 2nd batch	28	50%	14							
Custom & Excise Department Building											
Individual Shop Drawing											
CEDB-ISD1040	Authorities Review and Comment of C&EDB ISD 1st batch	28	50%	14							
CEDB-ISD1090	Authorities Review and Comment of C&EDB ISD 2nd batch	28	50%	14							
South Ventilation Building											
Individual Shop Drawing											
SVB-ISD1030	ER Review and Approval of SVB ISD 1st batch	7	50%	4							
SVB-ISD1080	ER Review and Approval of SVB ISD 2nd batch	7	50%	4							
Structural, Electrical & Mechanical Drawing											

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THREE MONTHLY PROGRAMME AS OF 20 AUG 2019

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Date	Revision	Checked	Approved
20-Aug-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Aug	Sep	Oct	Nov
SVB-SEM2020	Preparation and Resubmission of SVB SEM	12	50%	6						
SVB-SEM2030	ER Review and Approval of SVB SEM	7	0%	7						
Tunnel										
Individual Shop Drawing										
TUN-ISD1090	Authorities Review and Comment of Tunnel ISD 2nd batch	28	50%	14						
TUN-ISD1110	ER Review and Comment of Tunnel ISD 3rd batch	30	0%	30						
TUN-ISD1120	Preparation and Resubmission of Tunnel ISD 3rd batch	30	0%	30						
TUN-ISD1130	ER Review and Approval of Tunnel ISD 3rd batch	15	0%	15						
TUN-ISD1140	Authorities Review and Comment of Tunnel ISD 3rd batch	28	50%	14						
TUN-ISD1160	ER Review and Comment of Tunnel ISD 4th batch	30	0%	30						
TUN-ISD1170	Preparation and Resubmission of Tunnel ISD 4th batch	30	0%	30						
TUN-ISD1180	ER Review and Approval of Tunnel ISD 4th batch	15	0%	15						
TUN-ISD1190	Authorities Review and Comment of Tunnel ISD 4th batch	28	50%	14						
Fire Services Department Building										
Individual Shop Drawing										
FSDB-ISD1040	Authorities Review and Comment of FSDB ISD 1st batch	28	50%	14						
FSDB-ISD1090	Authorities Review and Comment of FSDB ISD 2nd batch	28	50%	14						
Vehicular Underpass										
Individual Shop Drawing										
VU-ISD1090	Authorities Review and Comment of Vehicular Underpass ISD 2nd batch	28	50%	14						
North Ventilation Building										
Individual Shop Drawing										
NVB-ISD1090	Authorities Review and Approval of NVB ISD - 2nd batch	28	50%	14						
E&M Manufacture & Delivery										
Toll Control Building										
MVAC System										
TCB-MD1050	Manufacture & Delivery to HK - AHU & PAU	90	71.11%	26						
Lift System										
TCB-MD1000	Manufacture & Delivery to HK - Lift System	120	90.83%	11						
CCMS, TCS and ELV System										
TCB-MD1200	Manufacture - CMCS Equipment	62	80.65%	12						
TCB-MD1202	FAT - CMCS Equipment	7	0%	7						
TCB-MD1205	Shipping to HK - CMCS Equipment	14	0%	14						
TCB-MD1210	Manufacture - TCS Equipment	180	18.33%	147						
TCB-MD1220	Manufacture & Delivery to HK - other ELV Equipment	83	63.86%	30						
Plumbing & Drainage System										
TCB-MD1110	Manufacture & Delivery to HK - Sump Pump	120	85.83%	17						
TCB-MD1120	Manufacture & Delivery to HK - Hot Water System	120	90.83%	11						
TCB-MD1130	Manufacture & Delivery to HK - LMCP (PD)	60	81.67%	11						
TCB-MD1140	Manufacture & Delivery to HK - Water Pump	90	88.89%	10						
Electrical System										
TCB-MD1062	FAT - LV Switchboard	10	100%	0						
TCB-MD1065	Shipping to HK - LV Switchboard	14	100%	0						
TCB-MD1072	FAT - Generator	4	100%	0						
TCB-MD1075	Shipping to HK - Generator	28	67.86%	9						
TCB-MD1085	Shipping to HK - UPS and Battery	42	100%	0						
TCB-MD1280	Manufacture & Delivery to HK - PV System Equipment	60	0%	60						
Fire Service System										

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Aug	Sep	Oct	Nov
							TCB-MD1150	Manufacture & Delivery to HK - FM200	150	72%
TCB-MD1170	Manufacture & Delivery to HK - FS Pump	120	75.83%	29						
Administration Building										
Electrical System										
ADB-MD1072	FAT - LV Switchboard	10	100%	0						
ADB-MD1075	Shipping to HK - LV Switchboard	14	71.43%	4						
ADB-MD1082	FAT - Generator	4	100%	0						
ADB-MD1085	Shipping to HK - Generator	28	7.14%	26						
ADB-MD1095	Shipping to HK - UPS and Battery	42	50%	21						
ADB-MD1310	Manufacture & Delivery to HK - PV System Equipment	60	0%	60						
MVAC System										
ADB-MD1050	Manufacture & Delivery to HK - Cooling Tower	100	74%	26						
Fire Service System										
ADB-MD1180	Manufacture & Delivery to HK - FS Pump	120	77.5%	27						
Plumbing & Drainage System										
ADB-MD1130	Manufacture & Delivery to HK - Hot Water System	120	65%	42						
ADB-MD1140	Manufacture & Delivery to HK - LMCP (PD)	60	50%	30						
ADB-MD1150	Manufacture & Delivery to HK - Water Pump	90	66.67%	30						
CCMS and ELV System										
ADB-MD1210	Manufacture - CMCS Equipment	62	46.77%	33						
ADB-MD1212	FAT - CMCS Equipment	7	0%	7						
ADB-MD1215	Shipping to HK - CMCS Equipment	14	0%	14						
ADB-MD1220	Manufacture & Delivery to HK - other ELV Equipment	83	63.86%	30						
Lift System										
ADB-MD1000	Manufacture & Delivery to HK - Lift System	120	90.83%	11						
North Ventilation Building										
Electrical System										
NVB-MD1042	FAT - LV Switchboard	10	100%	0						
NVB-MD1045	Shipping to HK - LV Switchboard	14	100%	0						
NVB-MD1052	FAT - Generator	4	100%	0						
NVB-MD1055	Shipping to HK - Generator	28	60.71%	11						
NVB-MD1065	Shipping to HK - UPS and Battery	42	76.19%	10						
Plumbing & Drainage System										
NVB-MD1100	Manufacture & Delivery to HK - Sump Pump	120	75%	30						
NVB-MD1110	Manufacture & Delivery to HK - LMCP (PD)	60	50%	30						
CCMS and ELV System										
NVB-MD1222	FAT - CMCS Equipment	7	100%	0						
NVB-MD1225	Shipping to HK - CMCS Equipment	14	50%	7						
NVB-MD1230	Manufacture - other ELV Equipment	62	74.19%	16						
NVB-MD1232	FAT - other ELV Equipment	7	0%	7						
NVB-MD1235	Shipping to HK - other ELV Equipment	7	0%	7						
Maintenance Depot										
Electrical System										
MD-MD1012	FAT - Generator	4	100%	0						
MD-MD1015	Shipping to HK - Generator	28	67.86%	9						
MD-MD1022	FAT - LV Switchboard	10	100%	0						
MD-MD1025	Shipping to HK - LV Switchboard	14	28.57%	10						
MD-MD1040	Manufacture & Delivery to HK - LV Cables	120	85%	18						

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019				
							Aug	Sep	Oct	Nov	
Fire Service System											
MD-MD1080	Manufacture & Delivery to HK - FM200	150	88%	18							
MD-MD1090	Manufacture & Delivery to HK - FS Pump	120	77.5%	27							
CCMS and ELV System											
MD-MD1130	Manufacture - CMCS Equipment	62	46.77%	33							
MD-MD1132	FAT - CMCS Equipment	7	0%	7							
MD-MD1135	Shipping to HK - CMCS Equipment	14	0%	14							
MD-MD1140	Manufacture & Delivery to HK - other ELV Equipment	83	63.86%	30							
Plumbing & Drainage System											
MD-MD1050	Manufacture & Delivery to HK - Sump Pump	120	75%	30							
MD-MD1060	Manufacture & Delivery to HK - Water Pump	90	66.67%	30							
MD-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	50%	30							
Satellite Control Building											
SCB-MD1175	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	88.89%	5							
SCB-MD1185	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	80%	9							
SCB-MD1195	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	68.89%	14							
Electrical System											
SCB-MD1020	Manufacture - Generator	118	82.2%	21							
SCB-MD1022	FAT - Generator	4	100%	0							
SCB-MD1025	Shipping to HK - Generator	28	0%	28							
SCB-MD1035	Shipping to HK - UPS and Battery	42	0%	42							
SCB-MD1040	Manufacture - LV Switchboard	86	79.07%	18							
SCB-MD1042	FAT - LV Switchboard	10	0%	10							
SCB-MD1045	Shipping to HK - LV Switchboard	14	0%	14							
SCB-MD1050	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	50%	30							
SCB-MD1060	Manufacture & Delivery to HK - LV Cables	120	64.17%	43							
MVAC System											
SCB-MD1010	Manufacture & Delivery to HK - Computer Room Air Conditioning (CRAC) Unit	120	50.83%	59							
Fire Service System											
SCB-MD1100	Manufacture & Delivery to HK - FM200	150	88.67%	17							
SCB-MD1110	Manufacture & Delivery to HK - FS Pump	120	60.83%	47							
SCB-MD1120	Manufacture & Delivery to HK - AFA System	100	0%	100							
SCB-MD1130	Manufacture & Delivery to HK - LMCP (FS)	60	0%	60							
SCB-MD1140	Manufacture & Delivery to HK - FR/ HR system	90	0%	90							
Plumbing & Drainage System											
SCB-PO1120	Manufacture & Delivery to HK - LMCP (PD)	60	0%	60							
SCB-PO1130	Manufacture & Delivery to HK - Water Pump	90	80%	18							
CCMS and ELV System											
SCB-MD1150	Manufacture - CMCS Equipment	62	0%	62							
SCB-MD1152	FAT - CMCS Equipment	7	0%	7							
SCB-MD1155	Shipping to HK - CMCS Equipment	14	0%	14							
SCB-MD1160	Manufacture & Delivery to HK - other ELV Equipment	83	38.55%	51							
Lift System											
SCB-MD1000	Manufacture & Delivery to HK - Lift System	120	80%	24							
Custom & Excise Department Building											
CEDB-MD1195	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	80%	9							
CEDB-MD1205	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	68.89%	14							
CEDB-MD1215	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	60%	18							

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							Aug	Sep	Oct	Nov	
Electrical System											
CEDB-MD1020	Manufacture - Generator	118	82.2%	21							
CEDB-MD1022	FAT - Generator	4	100%	0							
CEDB-MD1025	Shipping to HK - Generator	28	0%	28							
CEDB-MD1035	Shipping to HK - UPS and Battery	42	0%	42							
CEDB-MD1040	Manufacture - LV Switchboard	86	79.07%	18							
CEDB-MD1042	FAT - LV Switchboard	10	0%	10							
CEDB-MD1045	Shipping to HK - LV Switchboard	14	0%	14							
CEDB-MD1050	Manufacture & Delivery to HK - LV Cables	120	64.17%	43							
CEDB-MD1060	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	38	28.95%	27							
MVAC System											
CEDB-MD1010	Manufacture & Delivery to HK - AHU & PAU	60	18.33%	49							
Fire Service System											
CEDB-MD1090	Manufacture & Delivery to HK - FM200	120	35.83%	77							
CEDB-MD1100	Manufacture & Delivery to HK - FS Pump	120	60.83%	47							
CEDB-MD1110	Manufacture & Delivery to HK - AFA System	70	15.71%	59							
CEDB-MD1120	Manufacture & Delivery to HK - LMCP (FS)	51	21.57%	40							
CEDB-MD1130	Manufacture & Delivery to HK - FR/ HR system	90	34.44%	59							
Plumbing & Drainage System											
CEDB-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	68.33%	19							
CEDB-MD1080	Manufacture & Delivery to HK - Water Pump	90	41.11%	53							
CCMS and ELV System											
CEDB-MD1170	Manufacture - CMCS Equipment	62	0%	62							
CEDB-MD1172	FAT - CMCS Equipment	7	0%	7							
CEDB-MD1175	Shipping to HK - CMCS Equipment	14	0%	14							
CEDB-MD1180	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83							
Lift System											
CEDB-MD1000	Manufacture & Delivery to HK - Lift System	124	52.42%	59							
Fire Services Department Building											
FSDB-MD1155	Manufacture & Delivery to HK - Miscellaneous 1st fix Materials/ Equipment	45	80%	9							
FSDB-MD1165	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	68.89%	14							
FSDB-MD1175	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	68.89%	14							
Electrical System											
FSDB-MD1000	Manufacture - Generator	118	80.51%	23							
FSDB-MD1002	FAT - Generator	4	100%	0							
FSDB-MD1005	Shipping to HK - Generator	28	0%	28							
FSDB-MD1010	Manufacture - UPS and Battery	53	98.11%	1							
FSDB-MD1015	Shipping to HK - UPS and Battery	42	0%	42							
FSDB-MD1020	Manufacture - LV Switchboard	86	79.07%	18							
FSDB-MD1022	FAT - LV Switchboard	10	0%	10							
FSDB-MD1025	Shipping to HK - LV Switchboard	14	0%	14							
FSDB-MD1030	Manufacture & Delivery to HK - LV Cables	120	45%	66							
FSDB-MD1040	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	0%	60							
Fire Service System											
FSDB-MD1090	Manufacture & Delivery to HK - FS Pump	120	34.17%	79							
FSDB-MD1100	Manufacture & Delivery to HK - AFA System	100	41%	59							
FSDB-MD1110	Manufacture & Delivery to HK - LMCP (FS)	48	0%	48							
FSDB-MD1120	Manufacture & Delivery to HK - FR/ HR system	90	0%	90							

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							Aug	Sep	Oct	Nov
FSDB-MD1185	Manufacture & Delivery to HK - FM200	150	48.67%	77						
Plumbing & Drainage System										
FSDB-MD1060	Manufacture & Delivery to HK - Water Pump	90	30%	63						
FSDB-MD1070	Manufacture & Delivery to HK - LMCP (PD)	60	0%	60						
CCMS and ELV System										
FSDB-MD1130	Manufacture - CMCS Equipment	62	0%	62						
FSDB-MD1132	FAT - CMCS Equipment	7	0%	7						
FSDB-MD1135	Shipping to HK - CMCS Equipment	14	0%	14						
FSDB-MD1140	Manufacture & Delivery to HK - other ELV Equipment	83	0%	83						
South Ventilation Building										
SVB-MD1235	Manufacture & Delivery to HK - Miscellaneous 2nd fix Materials/ Equipment	45	50%	23						
SVB-MD1245	Manufacture & Delivery to HK - Miscellaneous final fix Materials/ Equipment	45	46.67%	24						
Electrical System										
SVB-MD1002	FAT - Generator	4	100%	0						
SVB-MD1005	Shipping to HK - Generator	28	0%	28						
SVB-MD1015	Shipping to HK - UPS and Battery	42	0%	42						
SVB-MD1020	Manufacture - HV/LV Transformer	92	65.22%	32						
SVB-MD1022	FAT - HV/LV Transformer	14	0%	14						
SVB-MD1025	Shipping to HK - HV/LV Transformer	14	0%	14						
SVB-MD1030	Manufacture - LV Switchboard	86	79.07%	18						
SVB-MD1032	FAT - LV Switchboard	10	0%	10						
SVB-MD1035	Shipping to HK - LV Switchboard	14	0%	14						
SVB-MD1040	Manufacture - HV Switchboard	92	83.69%	15						
SVB-MD1042	FAT - HV Switchboard	14	0%	14						
SVB-MD1045	Shipping to HK - HV Switchboard	14	0%	14						
SVB-MD1050	Manufacture & Delivery to HK - HV Cables	120	89.17%	13						
SVB-MD1060	Manufacture & Delivery to HK - Busduct	120	48.33%	62						
SVB-MD1070	Manufacture & Delivery to HK - LV Cables	120	70.83%	35						
SVB-MD1080	Manufacture & Delivery to HK - MCB & MCCB and Distribution Board	60	68.33%	19						
MVAC System										
SVB-MD1170	Manufacture - Tunnel Ventilation Fan	180	85.56%	26						
SVB-MD1175	Shipping to HK - Tunnel Ventilation Fan	45	0%	45						
SVB-MD1180	Manufacture & Delivery to HK - Staircase Pressurization Fan	60	48.33%	31						
Fire Service System										
SVB-MD1120	Manufacture & Delivery to HK - FM200	150	85%	23						
SVB-MD1130	Manufacture & Delivery to HK - FS Pump	120	75.83%	29						
SVB-MD1140	Manufacture & Delivery to HK - AFA System	100	41%	59						
SVB-MD1150	Manufacture & Delivery to HK - FR/ HR system	90	46.66%	48						
SVB-MD1160	Manufacture & Delivery to HK - LMCP (FS)	60	68.33%	19						
Plumbing & Drainage System										
SVB-MD1100	Manufacture & Delivery to HK - Water Pump	90	82.22%	16						
SVB-MD1110	Manufacture & Delivery to HK - LMCP (PD)	60	30%	42						
SVB-MD1255	Manufacture & Delivery to HK - Sump Pump	120	65%	42						
CCMS and ELV System										
SVB-MD1200	Manufacture - CMCS Equipment	62	19.35%	50						
SVB-MD1202	FAT - CMCS Equipment	7	0%	7						
SVB-MD1205	Shipping to HK - CMCS Equipment	14	0%	14						
SVB-MD1210	Manufacture & Delivery to HK - other ELV Equipment	83	38.55%	51						

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							Aug	Sep	Oct	Nov		
Lift System												
SVB-MD1190	Manufacture & Delivery to HK - Lift System	120	53.33%	56								
Vehicular Underpass												
VU-MD1030	Manufacture & Delivery to HK - Sump Pump	120	67.5%	39								
VU-MD1040	Manufacture & Delivery to HK - Water Pump	90	35.56%	58								
VU-MD1050	Manufacture & Delivery to HK - Gas detection	60	0%	60								
VU-MD1060	Manufacture - CMCS Equipment	62	80.65%	12								
VU-MD1062	FAT - CMCS Equipment	7	0%	7								
VU-MD1065	Shipping to HK - CMCS Equipment	21	0%	21								
VU-MD1070	Manufacture & Delivery to HK - other ELV Equipment	90	71.11%	26								
Tunnel												
TUN-MD1009	Manufacture - Tunnel Lighting System (4th Batch)	90	50%	45								
TUN-MD1015	Manufacture & Delivery to HK - Gas detection	90	0%	90								
TUN-MD1030	Manufacture & Delivery to HK - FS Pump	60	23.33%	46								
TUN-MD1040	Manufacture - CMCS Equipment	62	69.35%	19								
TUN-MD1042	FAT - CMCS Equipment	21	0%	21								
TUN-MD1045	Shipping to HK - CMCS Equipment	7	0%	7								
TUN-MD1050	Manufacture & Delivery to HK - other ELV Equipment	90	66.67%	30								
TUN-MD1060	Manufacture & Delivery to HK - Sump Pump	109	0%	109								
TUN-MD1070	Manufacture - AQMS Equipment	69	79.71%	14								
TUN-MD1080	FAT - AQMS Equipment	14	0%	14								
TUN-MD1090	Shipping to HK - AQMS Equipment	7	0%	7								
Approach Road												
AR-MD1000	Manufacture & Delivery to HK - Road Lighting Fitting	90	92.22%	7								
AR-MD1010	Manufacture - CMCS Equipment	62	93.55%	4								
AR-MD1015	FAT - CMCS Equipment	7	0%	7								
AR-MD1018	Shipping to HK - CMCS Equipment	14	0%	14								
AR-MD1020	Manufacture & Delivery to HK - other ELV Equipment	83	73.49%	22								
Key Date 1 - Toll Control Building (TCB) & TCSS Provision												
ABWF Works (for All)												
ATCB1010	Door and Window Frames	82	63.41%	30								
ATCB1080	ABWF Works to Toilets G/F	163	94.48%	9								
ATCB1081	ABWF Works to Toilets 1/F	163	94.48%	9								
ATCB1082	ABWF Works to Toilets 2/F	163	92.64%	12								
ATCB1120	External Cladding and Wall Plastering	94	77.66%	21								
Key Date 2 - Administration Building, Maintenance Depot, Kiosk N2, TCSS Provision												
Administration Building (ADB)												
ABWF Works (for All)												
AADB1130	Blockwork Walls	25	52%	12								
AADB1140	Door and Window Frames	19	0%	19								
AADB1150	ABWF Works to Plant Rooms G/F	52	76.92%	12								
AADB1151	ABWF Works to Plant Rooms 1/F	52	28%	37								
AADB1160	ABWF Works to Office and Corridors G/F	126	30%	88								
AADB1161	ABWF Works to Office and Corridors 1/F	126	28%	91								
AADB1170	ABWF Works to Toilets G/F	132	35%	86								
AADB1171	ABWF Works to Toilets 1/F	132	25%	99								
AADB1180	Waterproofing and Roofing	48	45%	26								
AADB1190	External Cladding and Wall Plastering	98	0%	98								

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							Aug	Sep	Oct	Nov		
Provision for TCSS Installation												
ADB250	Cable Containment Installation to enable TCSS installation	74	77.03%	17								
Maintenance Depot												
ABWF Works (for All)												
AMD1010	Door and Window Frames	10	0%	10								
AMD1020	ABWF Works to Plant Rooms	58	60%	23								
AMD1030	ABWF Works to Office and Corridors	132	65%	46								
AMD1040	ABWF Works to Toilets	144	60%	58								
AMD1050	Waterproofing and Roofing	51	65%	18								
AMD1060	External Cladding and Wall Plastering	98	0%	98								
AMD1070	ABWF second fix & final fix	80	0%	80								
Provision for TCSS Installation												
MD210	Cable Containment Installation to enable TCSS installation	62	70%	19								
MD220	KD2 Achieved	0	0%	0								
Kiosk N2												
N2-130	ABWF Works to enable TCSS installation	18	100%	0								
N2-140	Cable Containment Installation to enable TCSS installation	19	0%	19								
Key Date 6 - E&M Works for Administration Building, Maintenance Depot, North Vent Building, Kiosk N2												
E&M Works for Administration Building												
Installation												
G/F												
ADB-EMGF1010	E&M Installation - 1st fix - G/F	46	76%	11								
ADB-EMGF1020	E&M Installation - 2nd fix - G/F	40	0%	40								
ADB-EMGF1030	E&M Installation - Final fix - G/F	40	0%	40								
ADB-EMGF1050	E&M Installation - 11kV Switch & Tx Room 1 - G/F	46	20%	37								
ADB-EMGF1110	E&M Installation - 11kV Switch & Tx Room 2 - G/F	46	20%	37								
ADB-EMGF1120	Cabling from NVB	12	0%	12								
ADB-EMGF1160	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	100%	0								
ADB-EMGF1170	E&M Installation - LV Switch Room - G/F	34	25%	26								
ADB-EMGF1180	Cable laying - LV Switch Room - from G/F	24	0%	24								
ADB-EMGF1190	Sub-circuit Power On - LV Switch Room - G/F	0	0%	0								
ADB-EMGF1210	E&M Installation - Generator Room & Fuel Tank Room - G/F	70	0%	70								
ADB-EMGF1240	E&M Installation - MVAC Plant Rooms - G/F	76	0%	76								
ADB-EMGF1260	E&M Installation - FS Plant Rooms - G/F	60	0%	60								
ADB-EMGF1280	E&M Installation - PD Plant Rooms - G/F	50	0%	50								
ADB-EMGF1300	E&M Installation - ELV Plant Rooms - G/F	50	0%	50								
1/F												
ADB-EM1F1000	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	100%	0								
ADB-EM1F1010	E&M Installation - 1st fix - 1/F	40	18%	33								
ADB-EM1F1020	E&M Installation - 2nd fix - 1/F	40	0%	40								
ADB-EM1F1030	E&M Installation - Final fix - 1/F	40	0%	40								
ADB-EM1F1050	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - 1/F	0	100%	0								
ADB-EM1F1060	E&M Installation - MVAC Plant Rooms - 1/F	64	0%	64								
ADB-EM1F1070	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 1/F	0	100%	0								
ADB-EM1F1080	E&M Installation - Electrical Plant Rooms - 1/F	64	0%	64								
ADB-EM1F1090	ABWF Works ready for E&M Mobilization to ELV Plant Rooms - 1/F	0	100%	0								
ADB-EM1F1100	E&M Installation - ELV Plant Rooms - 1/F	52	0%	52								
Roof												

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							Aug	Sep	Oct	Nov	
							ADB-EMRF1000	ABWF Works ready for E&M Mobilization to General Areas - Roof	0	0%	0
ADB-EMRF1010	E&M Installation - 1st fix - Roof	25	0%	25							
ADB-EMRF1013	E&M Installation - 2nd fix - Roof	25	0%	25							
ADB-EMRF1016	E&M Installation - Final fix - Roof	25	0%	25							
ADB-EMRF1020	ABWF Works ready for E&M Mobilization to Cooling Tower Area - Roof	0	0%	0							
ADB-EMRF1030	E&M Installation - Cooling Tower Area - Roof	90	0%	90							
Lift Installation (L01)											
ADB-LF1010	Access to lift shaft and lift machine room	0	0%	0							
ADB-LF1020	Lift & lift machine room installation	80	0%	80							
Testing and Commissioning											
ADB-TC1000	T&C for Subcircuit Power On	18	0%	18							
E&M Works for Maintenance Depot											
Installation											
G/F											
MD-EMGF1010	E&M Installation - 1st fix - G/F	40	55%	18							
MD-EMGF1020	E&M Installation - 2nd fix - G/F	40	0%	40							
MD-EMGF1030	E&M Installation - Final fix - G/F	40	0%	40							
MD-EMGF1040	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	100%	0							
MD-EMGF1050	E&M Installation - LV Switch Room - G/F	90	10%	81							
MD-EMGF1080	ABWF Works ready for E&M Mobilization to Generator & Fuel Tank Rooms - G/F	0	0%	0							
MD-EMGF1090	E&M Installation - Generator & Fuel Tank Rooms - G/F	75	0%	75							
MD-EMGF1110	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	0%	0							
MD-EMGF1120	E&M Installation - Electrical Plant Rooms - G/F	70	0%	70							
MD-EMGF1130	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - G/F	0	0%	0							
MD-EMGF1140	E&M Installation - MVAC Plant Rooms - G/F	90	0%	90							
MD-EMGF1150	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	100%	0							
MD-EMGF1160	E&M Installation - FS Plant Rooms - G/F	90	5%	86							
MD-EMGF1170	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	0%	0							
MD-EMGF1180	E&M Installation - PD Plant Rooms - G/F	85	0%	85							
MD-EMGF1190	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - G/F	0	0%	0							
MD-EMGF1200	E&M Installation - Elv Plant Rooms - G/F	60	0%	60							
R/F											
MD-EMRF1000	ABWF Works ready for E&M Mobilization to R/F	0	0%	0							
MD-EMRF1010	E&M Installation - 1st fix - R/F	30	0%	30							
MD-EMRF1020	E&M Installation - 2nd fix - R/F	30	0%	30							
MD-EMRF1030	E&M Installation - Final fix - R/F	30	0%	30							
E&M Works for North Ventilation Building											
Installation											
TVF Installation											
SB-NVB-TVF3											
TVF-NVB0220	Preparation Works	6	100%	0							
TVF-NVB1480	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0							
TVF-NVB1490	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12							
TVF-NVB1500	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3							
TVF-NVB1510	Leakage test for TVF	8	0%	8							
SB-NVB-TVF4											
TVF-NVB0230	Preparation Works	6	0%	6							
TVF-NVB1520	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12							

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ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Aug	Sep	Oct	Nov
							TVF-NVB1530	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%
TVF-NVB1540	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1550	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-2										
TVF-NVB0110	Preparation Works	6	100%	0						
TVF-NVB1040	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0						
TVF-NVB1050	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1060	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3						
TVF-NVB1070	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-3										
TVF-NVB0120	Preparation Works	6	0%	6						
TVF-NVB1080	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12						
TVF-NVB1090	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1100	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1110	Leakage test for TVF	8	0%	8						
SB-NVB-TVF-1										
TVF-NVB0200	Preparation Works	6	0%	6						
TVF-NVB1400	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12						
TVF-NVB1410	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1420	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1430	Leakage test for TVF	8	0%	8						
SB-NVB-TVF-2										
TVF-NVB0210	Preparation Works	6	0%	6						
TVF-NVB1440	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12						
TVF-NVB1450	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1460	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1470	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-1										
TVF-NVB0100	Preparation Works	6	0%	6						
TVF-NVB1000	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12						
TVF-NVB1010	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1020	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1030	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-4										
TVF-NVB0130	Preparation Works	6	0%	6						
TVF-NVB1120	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	0%	12						
TVF-NVB1130	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
NB-NVB-TVF-5										
TVF-NVB0140	Preparation Works	6	100%	0						
TVF-NVB1160	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0						
TVF-NVB1170	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1180	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3						
TVF-NVB1190	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-6										
TVF-NVB1210	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1220	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3						
TVF-NVB1230	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-7										

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							Aug	Sep	Oct	Nov
TVF-NVB0160	Preparation Works	6	100%	0						
TVF-NVB1240	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0						
TVF-NVB1250	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1260	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3						
TVF-NVB1270	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-8										
TVF-NVB0170	Preparation Works	6	100%	0						
TVF-NVB1280	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	100%	0						
TVF-NVB1290	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1300	Ventilation fan and duct installation - Fan Room (G/F)	6	50%	3						
TVF-NVB1310	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-9										
TVF-NVB0180	Preparation Works	6	100%	0						
TVF-NVB1320	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	12	50%	6						
TVF-NVB1330	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	0%	12						
TVF-NVB1340	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1350	Leakage test for TVF	8	0%	8						
NB-NVB-TVF-10										
TVF-NVB1370	Damper/Silencer and duct installation - Lower Attenuator Room (B1/F)	12	50%	6						
TVF-NVB1380	Ventilation fan and duct installation - Fan Room (G/F)	6	0%	6						
TVF-NVB1390	Leakage test for TVF	8	0%	8						
B2/F										
NVB-EMB21010	E&M Installation - 1st fix - B2/F	50	90%	5						
NVB-EMB21020	E&M Installation - 2nd fix - B2/F	50	69%	16						
NVB-EMB21030	E&M Installation - Final fix - B2/F	50	21%	40						
NVB-EMB21060	E&M Installation - Electrical Plant Rooms - B2/F	90	45%	50						
NVB-EMB21080	E&M Installation - MVAC Plant Rooms - B2/F	60	30%	42						
NVB-EMB21100	E&M Installation - FS Plant Rooms - B2/F	45	20%	36						
NVB-EMB21120	E&M Installation - PD Plant Rooms - B2/F	60	0%	60						
NVB-EMB21140	E&M Installation - Elv Plant Rooms - B2/F	45	0%	45						
B1/F										
NVB-EMB11010	E&M Installation - 1st fix - B1/F	50	82%	9						
NVB-EMB11020	E&M Installation - 2nd fix - B1/F	50	63%	19						
NVB-EMB11030	E&M Installation - Final fix - B1/F	50	22%	39						
NVB-EMB11060	E&M Installation - Electrical Plant Rooms - B1/F	90	45%	50						
NVB-EMB11080	E&M Installation - MVAC Plant Rooms - B1/F	60	0%	60						
NVB-EMB11100	E&M Installation - Elv Plant Rooms - B1/F	45	0%	45						
G/F										
NVB-EMGF1010	E&M Installation - 1st fix - G/F	50	90%	5						
NVB-EMGF1020	E&M Installation - 2nd fix - G/F	50	60%	20						
NVB-EMGF1030	E&M Installation - Final fix - G/F	50	19%	41						
NVB-EMGF1080	Wiring Inspection with CLP	12	0%	12						
NVB-EMGF1090	Power On Energization by CLP	0	0%	0						
NVB-EMGF1120	E&M Installation - Genset Room & Fuel Tank Room - G/F	80	30%	56						
NVB-EMGF1140	E&M Installation - Electrical Plant Rooms - G/F	50	45%	28						
NVB-EMGF1160	E&M Installation - MVAC Plant Rooms - G/F	52	30%	36						
NVB-EMGF1180	E&M Installation - FS Plant Rooms - G/F	90	30%	63						
NVB-EMGF1200	E&M Installation - PD Plant Rooms - G/F	90	0%	90						

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							Aug	Sep	Oct	Nov		
1/F												
NVB-EM1F1010	E&M Installation - 1st fix - 1/F	50	91%	5								
NVB-EM1F1020	E&M Installation - 2nd fix - 1/F	50	64%	18								
NVB-EM1F1030	E&M Installation - Final fix - 1/F	50	19%	41								
NVB-EM1F1050	E&M Installation - LV Switch Room - 1/F	40	50%	20								
NVB-EM1F1060	Cable laying - LV Switch Room - 1/F	58	10%	52								
NVB-EM1F1090	E&M Installation - 11kV Switch & Tx Room 1 - 1/F	60	45%	33								
NVB-EM1F1150	E&M Installation - 11kV Switch & Tx Room 2 - 1/F	60	45%	33								
NVB-EM1F1220	E&M Installation - Electrical Plant Rooms - 1/F	50	40%	30								
NVB-EM1F1240	E&M Installation - MVAC Plant Rooms - 1/F	90	30%	63								
NVB-EM1F1260	E&M Installation - FS Plant Rooms - 1/F	90	30%	63								
2/F												
NVB-EM2F1010	E&M Installation - 1st fix - 2/F	50	77%	12								
NVB-EM2F1020	E&M Installation - 2nd fix - 2/F	50	50%	25								
NVB-EM2F1030	E&M Installation - Final fix - 2/F	50	21%	40								
NVB-EM2F1060	E&M Installation - Electrical Plant Rooms - 2/F	50	45%	28								
NVB-EM2F1080	E&M Installation - MVAC Plant Rooms - 2/F	60	20%	48								
NVB-EM2F1100	E&M Installation - Elv Plant Rooms - 2/F	45	0%	45								
Lift Installation (L01 & L02)												
NVB-LF1020	Lift & lift machine room installation	73	0%	73								
Testing & Commissioning												
NVB-TC1000	T&C for Subcircuit Power On	18	0%	18								
Remaining E&M Works for Kiosk N2 (Structure Completed under KD2)												
EN2120	ABWF Works (Door, windows, tiles)	30	0%	30								
EN2130	E&M Works	31	0%	31								
EN2140	Testing & Commissioning	12	0%	12								
Key Date 3 - Satellite Control Building & TCSS Provision												
Building Structure												
SCB170	Upper Roof Slab	15	0%	15								
SCB180	Handover Portion XVIIIb to HY/2012/08	0	0%	0								
ABWF Works (for All)												
ASCB1000	Blockwork Walls	19	0%	19								
ASCB1010	Door and Window Frames	19	0%	19								
ASCB1020	ABWF Works to Plant Rooms G/F	60	0%	60								
ASCB1021	ABWF Works to Plant Rooms 1/F	60	0%	60								
ASCB1022	ABWF Works to Plant Rooms 2/F	60	0%	60								
ASCB1030	ABWF Works to Office and Corridors G/F	95	0%	95								
ASCB1031	ABWF Works to Office and Corridors 1/F	95	0%	95								
ASCB1040	ABWF Works to Toilets 1/F	103	0%	103								
ASCB1050	Waterproofing and Roofing	50	0%	50								
ASCB1060	External Cladding and Wall Plastering	101	0%	101								
Provision for TCSS Installation												
SCB210	Cable Containment Installation to enable TCSS installation	62	0%	62								
Key Date 5 - E&M Works for TCB, Toll Area, Kiosk N1, Underpass, Plant Rm, and Approach Roads												
Carpark Canopy												
ETCB150	Steelwork for Canopy Structure	45	0%	45								
ETCB160	E&M 1st fix Installation for Canopy Structure	30	0%	30								
ETCB170	E&M 2nd fix and final fix Installation for Canopy Structure	30	0%	30								

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							Aug	Sep	Oct	Nov	
E&M Works for TCB											
Installation											
Basement											
TCB-EM1001	E&M Installation - 1st fix - Basement	60	81%	11							
TCB-EM1002	E&M Installation - 2nd fix - Basement	60	40%	36							
TCB-EM1003	E&M Installation - Final fix - Basement	60	5%	57							
G/F											
TCB-EMGF1010	E&M Installation - 1st fix - G/F	60	79%	13							
TCB-EMGF1020	E&M Installation - 2nd fix - G/F	60	50%	30							
TCB-EMGF1030	E&M Installation - Final fix - G/F	60	4%	58							
TCB-EMGF1070	Installation by CLP - CLP Tx Room - G/F	60	80%	12							
TCB-EMGF1110	E&M Installation - LV Switch Room - G/F	70	40%	42							
TCB-EMGF1120	Cable laying - LV Switch Room - from G/F	51	0%	51							
TCB-EMGF1140	ABWF Works ready for E&M Mobilization to Generator & Fuel Tank Rooms - G/F	0	100%	0							
TCB-EMGF1150	E&M Installation - Generator & Fuel Tank Rooms - G/F	90	0%	90							
TCB-EMGF1170	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	100%	0							
TCB-EMGF1190	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - G/F	0	100%	0							
TCB-EMGF1200	E&M Installation - MVAC Plant Rooms - G/F	90	0%	90							
TCB-EMGF1220	E&M Installation - FS Plant Rooms - G/F	90	30%	63							
TCB-EMGF1230	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	100%	0							
TCB-EMGF1240	E&M Installation - PD Plant Rooms - G/F	60	0%	60							
1/F											
TCB-EM1F1010	E&M Installation - 1st fix - 1/F	60	82%	11							
TCB-EM1F1020	E&M Installation - 2nd fix - 1/F	60	61%	23							
TCB-EM1F1030	E&M Installation - Final fix - 1/F	60	3%	58							
TCB-EM1F1050	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 1/F	0	100%	0							
TCB-EM1F1060	E&M Installation - Electrical Plant Rooms - 1/F	90	45%	50							
TCB-EM1F1080	E&M Installation - FS Plant Rooms - 1/F	90	30%	63							
TCB-EM1F1090	ABWF Works ready for E&M Mobilization to PD Plant Rooms - 1/F	0	0%	0							
TCB-EM1F1100	E&M Installation - PD Plant Rooms - 1/F	90	0%	90							
2/F											
TCB-EM2F1010	E&M Installation - 1st fix - 2/F	48	83%	8							
TCB-EM2F1020	E&M Installation - 2nd fix - 2/F	48	56%	21							
TCB-EM2F1030	E&M Installation - Final fix - 2/F	48	3%	47							
TCB-EM2F1050	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - 2/F	0	100%	0							
TCB-EM2F1060	E&M Installation - Electrical Plant Room - 2/F	60	45%	33							
TCB-EM2F1070	ABWF Works ready for E&M Mobilization to MVAC Plant Rooms - 2/F	0	100%	0							
TCB-EM2F1080	E&M Installation - MVAC Plant Rooms - 2/F	90	50%	45							
TCB-EM2F1090	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - 2/F	0	0%	0							
TCB-EM2F1100	E&M Installation - Elv Plant Rooms - 2/F	60	30%	42							
Roof											
TCB-EMRF1000	ABWF Works ready for E&M Mobilization to Roof	0	100%	0							
TCB-EMRF1010	E&M Installation - 1st fix - Roof	50	2%	49							
TCB-EMRF1020	E&M Installation - 2nd fix - Roof	50	0%	50							
Lift Installation (L01)											
TCB-LF1000	Access to lift shaft and lift machine room	0	100%	0							
TCB-LF1010	Lift & lift machine room installation	90	0%	90							
Toll Area											

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							Aug	Sep	Oct	Nov		
South Bound												
ETA120	Possess Portions IX, XIX, XX1a, XX1b	0	0%	0								
ETA130	Installation of South Bound Toll Booths	30	0%	30								
ETA140	South Bound Toll Booths - E&M installation 1st fix	36	0%	36								
ETA150	Toll Booth Subway - E&M installation 1st fix	48	50%	24								
North Bound												
ETA190	Possess Portion XI	0	0%	0								
ETA200	Installation of North Bound Toll Booths	30	0%	30								
ETA210	North Bound Toll Booths - E&M installation 1st fix	36	0%	36								
ETA220	Toll Booth Subway - E&M installation 1st fix	48	50%	24								
Kiosk N1												
EN120	Possess Portion IX	0	0%	0								
EN130	Structure	48	0%	48								
EN140	ABWF Works (Door, windows, tiles)	30	0%	30								
Underpass												
E&M Works at Underpass												
EU120	Remaining E&M Installations	37	25%	28								
EU130	Equipment Start-up T&C for FSI	12	0%	12								
VU110	Jet Fans installation	24	0%	24								
VU140	Dampers installation	24	0%	24								
VU150	Cabling Works	36	50%	18								
VU170	High Level works - Tunnel Lighting	39	40%	23								
VU180	Cladding Works	25	0%	25								
Plant Room												
E&M Works												
EPR130	E&M Installation	90	30%	63								
EPR140	External Works	82	0%	82								
VU160	Pressurization Fans Installation	24	0%	24								
Deck Void												
Bridge H1, G1, G2												
DV110	Possess Portions IX	0	0%	0								
DV120	Electrical Installation - Bridge H1	20	0%	20								
DV130	Electrical Installation - Bridge G1	20	0%	20								
DV140	Electrical Installation - Bridge G2	20	0%	20								
DV150	T&C for Electrical Installation	12	0%	12								
TD1, TD2, RB_W												
DV180	Possess Portions X, IX and XI	0	0%	0								
DV190	Electrical Installation - Bridge TD1	20	0%	20								
Approach Roads												
Under Portions IX, XI, XX												
AR130	Cabling works - Portion IX	40	0%	40								
AR133	Cabling works - Portion XI	40	0%	40								
AR140	Road lighting installation & termination - Portion IX	25	0%	25								
AR145	Road lighting installation & termination - Portion XI	25	0%	25								
Under Portion X												
AR180	Cabling works in portion X	90	92%	7								
AR190	Road lighting installation & termination in portion X	90	10%	81								
AR200	T&C of Roading Lighting in portion X	30	0%	30								

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							Aug	Sep	Oct	Nov		
Key Date 6B - E&M Works for South Vent Duct, Tunnel, and Approach Roads												
E&M Works												
Service Gallery												
Ch 7200 - 5000												
TNL-SG1000	Drilling works CH7200 - 5000	12	50%	6								
TNL-SG1010	Wall Mounted Pipe Module Installation CH7200 - 5000	30	50%	15								
TNL-SG1020	Ceiling Mounted Module Delivery CH7200 - 5000	30	50%	15								
TNL-SG1030	High Level 2nd Fix and Final Fix Installation CH7200 - 5000	46	0%	46								
TNL-SG1040	Cabling Works CH7200 - 5000	29	0%	29								
CH5000 - 3050												
TNL-SG1060	Drilling works CH5000 - 3050	12	45%	7								
TNL-SG1070	Wall Mounted Pipe Module Installation CH5000 - 3050	30	45%	17								
TNL-SG1080	Ceiling Mounted Module Delivery CH5000 - 3050	30	45%	17								
TNL-SG1100	Cabling Works CH5000 - 3050	28	0%	28								
CH3050 - 2500												
TNL-SG1120	Drilling works CH3050 - 2500	3	10%	3								
TNL-SG1130	Wall Mounted Pipe Module Installation CH3050 - 2500	12	10%	11								
TNL-SG1140	Ceiling Mounted Module Delivery CH3050 - 2500	12	10%	11								
Road Level & OHVD												
Ch 7200 - 5000												
Ch 7200 - 6700												
TNU-RL1770	Bracket fixing on side wall - CH7200 to 6700	8	85%	1								
TNU-RL1790	Lighting in the middle of tunnels - CH7200 to 6700	8	20%	6								
TNU-RL1800	FH/ HR pipe installation - CH7200 to 6700	8	76%	2								
TNU-RL1830	Cabling Works on Brackets - CH7200 to 6700	14	52%	7								
TNU-RL1880	High level wiring works and remaining High level works in the middle of tunnels - CH7200 to 6700	20	20%	16								
TNU-RL1910	Low level works - FS nicle module - CH7200 to 6700	10	0%	10								
TNU-RL1930	Low level works - FS nicle connection - CH7200 to 6700	10	0%	10								
TNU-RL1940	Final connection to small powers - CH7200 to 6700	10	0%	10								
TNU-RL1970	Cladding works - CH7200 to 6700	13	0%	13								
Ch 6700 - 6100												
TNU-RL1000	Bracket fixing on side wall - CH6700 to 6100	10	85%	2								
TNU-RL1010	Lighting in the middle of tunnels - CH6700 to 6100	9	90%	1								
TNU-RL1020	FH/ HR pipe installation - CH6700 to 6100	10	93%	1								
TNU-RL1030	Cabling Works on Brackets - CH6700 to 6100	17	34%	11								
TNU-RL1040	MSFD delivery in OHVD - CH6700 to 6100	11	95%	1								
TNU-RL1050	MSFD installation works in OHVD - CH6700 to 6100	11	95%	1								
TNU-RL1060	High level wiring works and remaining High level works in the middle of tunnels - CH6700 to 6100	24	20%	19								
TNU-RL1070	Low level works - FS nicle module - CH6700 to 6100	12	0%	12								
TNU-RL1080	Low level works - FS nicle connection - CH6700 to 6100	12	0%	12								
TNU-RL1090	Final connection to small powers - CH6700 to 6100	10	0%	10								
TNU-RL1100	Cladding works - CH6700 to 6100	15	0%	15								
Ch 6100 - 5600												
TNU-RL1110	Bracket fixing on side wall - CH6100 to 5600	8	85%	1								
TNU-RL1130	FH/ HR pipe installation - CH6100 to 5600	8	91.99%	1								
TNU-RL1140	Cabling Works on Brackets - CH6100 to 5600	14	65%	5								
TNU-RL1170	High level wiring works and remaining High level works in the middle of tunnels - CH6100 to 5600	20	20%	16								
TNU-RL1180	Low level works - FS nicle module - CH6100 to 5600	10	0%	10								

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							Aug	Sep	Oct	Nov
TNU-RL1190	Low level works - FS nicle connection - CH6100 to 5600	10	0%	10						
TNU-RL1200	Final connection to small powers - CH6100 to 5600	10	0%	10						
CH 5600 - 5000										
TNU-RL1220	Bracket fixing on side wall - CH5600 to 5000	10	85%	2						
TNU-RL1240	FH/ HR pipe installation - CH5600 to 5000	10	90%	1						
TNU-RL1250	Cabling Works on Brackets - CH5600 to 5000	17	71%	5						
TNU-RL1280	High level wiring works and remaining High level works in the middle of tunnels - CH5600 to 5000	24	20%	19						
TNU-RL1290	Low level works - FS nicle module - CH5600 to 5000	12	0%	12						
TNU-RL1300	Low level works - FS nicle connection - CH5600 to 5000	12	0%	12						
CH5000 - 3050										
CH5000 - 4500										
TNU-RL1780	Bracket fixing on side wall - CH5000 to 4500	8	85%	1						
TNU-RL1820	FH/ HR pipe installation - CH5000 to 4500	8	90%	1						
TNU-RL1850	Cabling Works on Brackets - CH5000 to 4500	14	78%	3						
TNU-RL1860	MSFD delivery in OHVD - CH5000 to 4500	9	63.99%	3						
TNU-RL1890	MSFD installation works in OHVD - CH5000 to 4500	9	63.99%	3						
TNU-RL1900	High level wiring works and remaining High level works in the middle of tunnels - CH5000 to 4500	20	20%	16						
CH4500 - 4000										
TNU-RL1330	Bracket fixing on side wall - CH4500 to 4000	8	85%	1						
TNU-RL1350	FH/ HR pipe installation - CH4500 to 4000	8	88.01%	1						
TNU-RL1360	Cabling Works on Brackets - CH4500 to 4000	14	70%	4						
TNU-RL1370	MSFD delivery in OHVD - CH4500 to 4000	9	48.99%	5						
TNU-RL1380	MSFD installation works in OHVD - CH4500 to 4000	9	48.99%	5						
TNU-RL1390	High level wiring works and remaining High level works in the middle of tunnels - CH4500 to 4000	20	20%	16						
CH4000 - 3500										
TNU-RL1440	Bracket fixing on side wall - CH4000 to 3500	8	85%	1						
TNU-RL1460	FH/ HR pipe installation - CH4000 to 3500	8	90%	1						
TNU-RL1470	Cabling Works on Brackets - CH4000 to 3500	14	60%	6						
TNU-RL1480	MSFD delivery in OHVD - CH4000 to 3500	9	52%	4						
TNU-RL1490	MSFD installation works in OHVD - CH4000 to 3500	9	52%	4						
TNU-RL1500	High level wiring works and remaining High level works in the middle of tunnels - CH4000 to 3500	20	20%	16						
CH3500 - 3050										
TNU-RL1550	Bracket fixing on side wall - CH3500 to 3050	8	83.01%	1						
TNU-RL1570	FH/ HR pipe installation - CH3500 to 3050	8	74%	2						
TNU-RL1580	Cabling Works on Brackets - CH3500 to 3050	14	42%	8						
TNU-RL1590	MSFD delivery in OHVD - CH3500 to 3050	9	8.99%	8						
TNU-RL1600	MSFD installation works in OHVD - CH3500 to 3050	9	8.99%	8						
TNU-RL1610	High level wiring works & remaining High level works in the tunnel middle - CH3500 to 3050	20	20%	16						
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										
GF										
SCB-EMGF10	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0						
SCB-EMGF10	E&M Installation - 1st fix - G/F	30	0%	30						
SCB-EMGF10	ABWF Works ready for E&M Mobilization to Generator Room & Fuel Tank Room - G/F	0	0%	0						
SCB-EMGF10	E&M Installation - Generator Room & Fuel Tank Room - G/F	70	0%	70						
SCB-EMGF10	ABWF Works ready for E&M Mobilization to LV Switch Room - G/F	0	0%	0						

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							Aug	Sep	Oct	Nov
SCB-EMGF10	E&M Installation - LV Switch Room - G/F	60	0%	60						
SCB-EMGF11	ABWF Works ready for E&M Mobilization to CLP Tx Room - G/F	0	0%	0						
SCB-EMGF11	E&M Installation - CLP Tx Room - G/F	18	0%	18						
SCB-EMGF11	Inspection & Handover to CLP	6	0%	6						
SCB-EMGF11	Installation by CLP - CLP Tx Room - G/F	68	0%	68						
SCB-EMGF11	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0						
SCB-EMGF11	E&M Installation - FS Plant Rooms - G/F	80	0%	80						
SCB-EMGF11	ABWF Works ready for E&M Mobilization to PD Plant Rooms - G/F	0	0%	0						
SCB-EMGF12	E&M Installation - PD Plant Rooms - G/F	90	0%	90						
1F										
SCB-EM1F10	ABWF Works ready for E&M Mobilization to General Areas - 1/F	0	0%	0						
SCB-EM1F10	E&M Installation - 1st fix - 1/F	30	0%	30						
SCB-EM1F10	ABWF Works ready for E&M Mobilization to Computer Room (TCSS) - 1/F	0	0%	0						
SCB-EM1F10	E&M Installation - Computer Room (TCSS) - 1/F	60	0%	60						
SCB-EM1F10	ABWF Works ready for E&M Mobilization to EL Room - 1/F	0	0%	0						
SCB-EM1F10	E&M Installation - EL Room - 1/F	90	0%	90						
SCB-EM1F10	ABWF Works ready for E&M Mobilization to FS Plant Rooms - 1/F	0	0%	0						
SCB-EM1F11	E&M Installation - FS Plant Rooms - 1/F	85	0%	85						
SCB-EM1F11	ABWF Works ready for E&M Mobilization to Elv Plant Room - 1/F	0	0%	0						
SCB-EM1F11	E&M Installation - ELV Plant Room - 1/F	70	0%	70						
Roof										
SCB-EMRF10	ABWF Works ready for E&M Mobilization to R/F	0	0%	0						
SCB-EMRF10	E&M Installation - 1st fix - R/F	25	0%	25						
SCB-EMRF10	ABWF Works ready for E&M Mobilization to FS Plant Rooms	0	0%	0						
SCB-EMRF10	E&M Installation - FS Plant Rooms	75	0%	75						
Lift Installation (L01)										
SCB-LF1010	Access to lift shaft and lift machine room	0	0%	0						
SCB-LF1020	Lift & lift machine room installation	75	0%	75						
Kiosk S2										
S2110	Possess Portion Vlb	0	0%	0						
S2120	Structure	30	0%	30						
S2130	ABWF Works (Door, windows, tiles)	15	0%	15						
S2140	E&M works	36	0%	36						
Key Date 6C - E&M Works for South Ventilation Building										
SVB-SEM1000	SEM Drawings ready for Structural Works for SVB	0	0%	0						
Installation										
TVF Installation										
NB-SVB-TVF-1										
SVB-TVF2000	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2010	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2020	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2030	Leakage test for TVF	8	0%	8						
NB-SVB-TVF-2										
SVB-TVF2040	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2050	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2060	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2070	Leakage test for TVF	8	0%	8						
NB-SVB-TVF-3										

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SVB-TVF2080	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2090	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2100	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2110	Leakage test for TVF	8	0%	8						
NB-SVB-TVF-4										
SVB-TVF2120	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2130	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	8	0%	8						
SVB-TVF2140	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2150	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-1										
SVB-TVF2160	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2170	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2180	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2190	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-2										
SVB-TVF2200	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2210	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2220	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2230	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-3										
SVB-TVF2240	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2250	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2260	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2270	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-4										
SVB-TVF2280	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2290	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	8	0%	8						
SVB-TVF2300	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2310	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-5										
SVB-TVF2320	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2330	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2340	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2350	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-6										
SVB-TVF2360	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2370	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2380	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2390	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-7										
SVB-TVF2400	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2410	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2420	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2430	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-8										
SVB-TVF2440	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2450	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2460	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						

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							Aug	Sep	Oct	Nov
SVB-TVF2470	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-9										
SVB-TVF2480	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2490	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	7	0%	7						
SVB-TVF2500	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2510	Leakage test for TVF	8	0%	8						
SB-SVB-TVF-10										
SVB-TVF2520	Silencer, splitter and duct installation - Upper Attenuator Room (1/F)	6	0%	6						
SVB-TVF2530	Damper/Silencer and duct installation - Lower Attenuator Room(B1/F)	8	0%	8						
SVB-TVF2540	Ventilation fan and duct installation - Fan Room (G/F)	2	0%	2						
SVB-TVF2550	Leakage test for TVF	8	0%	8						
B2/F										
SVB-EMB21010	E&M Installation - 1st fix - B2/F	25	10%	23						
SVB-EMB21020	E&M Installation - 2nd fix - B2/F	25	0%	25						
SVB-EMB21030	E&M Installation - Final fix - B2/F	25	0%	25						
SVB-EMB21060	E&M Installation - Electrical Plant Rooms- B2/F	40	0%	40						
SVB-EMB21080	E&M Installation - MVAC Palnt Rooms - B2/F	60	0%	60						
SVB-EMB21100	E&M Installation - FS Plant Rooms - B2/F	45	0%	45						
SVB-EMB21110	E&M Installation - PD Palnt Rooms - B2/F	60	0%	60						
B1/F										
SVB-EMB11000	E&M access to B1/F	0	0%	0						
SVB-EMB11010	E&M Installation - 1st fix - B1/F	25	0%	25						
SVB-EMB11020	E&M Installation - 2nd fix - B1/F	25	0%	25						
SVB-EMB11030	E&M Installation - Final fix - B1/F	25	0%	25						
SVB-EMB11060	E&M Installation - Electrical Plant Rooms - B1/F	40	0%	40						
SVB-EMB11080	E&M Installation - MVAC Plant Rooms - B1/F	60	0%	60						
SVB-EMB11100	E&M Installation - FS Plant Rooms - B1/F	48	0%	48						
SVB-EMB11120	E&M Installation - Elv Plant Rooms - B1/F	48	0%	48						
G/F										
SVB-EMGF1000	E&M access to G/F	0	0%	0						
SVB-EMGF1010	E&M Installation - 1st fix - G/F	25	0%	25						
SVB-EMGF1020	E&M Installation - 2nd fix - G/F	25	0%	25						
SVB-EMGF1030	E&M Installation - Final fix - G/F	25	0%	25						
SVB-EMGF1050	E&M Installation - CLPP HV Switch Room - G/F	12	0%	12						
SVB-EMGF1060	Inspection & Handover to CLP	5	0%	5						
SVB-EMGF1070	Installation by CLP - CLPP HV Switch Room - G/F	24	0%	24						
SVB-EMGF1120	E&M Installation - Genset Room & Fuel Tank Rooms - G/F	40	0%	40						
SVB-EMGF1140	E&M Installation - Electrical Plant Rooms - G/F	40	0%	40						
SVB-EMGF1160	E&M Installation - MVAC Plant Rooms - G/F	40	0%	40						
SVB-EMGF1180	E&M Installation - FS Plant Rooms - G/F	40	0%	40						
SVB-EMGF1200	E&M Installation - PD Plant Rooms - G/F	40	0%	40						
SVB-EMGF1220	E&M Installation - Elv Plant Rooms - G/F	48	0%	48						
1/F										
SVB-EM1F1000	E&M access to 1/F	0	0%	0						
SVB-EM1F1010	E&M Installation - 1st fix - 1/F	25	0%	25						
SVB-EM1F1020	E&M Installation - 2nd fix - 1/F	25	0%	25						
SVB-EM1F1030	E&M Installation - Final fix - 1/F	25	0%	25						
SVB-EM1F1050	E&M Installation - 11kV Switch & Tx Room 1 - 1/F	41	0%	41						

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SVB-EM1F1110	E&M Installation - 11kV Switch & Tx Room 2 - 1/F	41	0%	41						
SVB-EM1F1170	E&M Installation - LV Switch Room - 1/F	41	0%	41						
SVB-EM1F1180	Cable laying - from 1/F	16	0%	16						
SVB-EM1F1190	Sub-Circuit Power On - LV Switch Room - 1/F	0	0%	0						
SVB-EM1F1220	E&M Installation - Electrical Plant Rooms - 1/F	50	0%	50						
SVB-EM1F1240	E&M Installation - MVAC Plant Rooms - 1/F	60	0%	60						
SVB-EM1F1260	E&M Installation - FS Plant Rooms - 1/F	50	0%	50						
SVB-EM1F1280	E&M Installation - ELV Plant Rooms - 1/F	50	0%	50						
2/F										
SVB-EM2F1000	E&M access to 2F	0	0%	0						
SVB-EM2F1010	E&M Installation - 1st fix - 2/F	25	0%	25						
SVB-EM2F1020	E&M Installation - 2nd fix - 2/F	25	0%	25						
SVB-EM2F1060	E&M Installation - Electrical Plant Rooms - 2/F	40	0%	40						
SVB-EM2F1080	E&M Installation - MVAC Plant Rooms - 2/F	40	0%	40						
SVB-EM2F1100	E&M Installation - FS Plant Rooms - 2/F	40	0%	40						
SVB-EM2F1120	E&M Installation - PD Plant Rooms - 2/F	40	0%	40						
Lift Installation (L01 & L02)										
SVB-LF1010	Access to lift shaft and lift machine room	0	0%	0						
SVB-LF1020	Lift & lift machine room installation	50	0%	50						
Key Date 10 - FSD Building Structure & E&M Works										
Building Structure										
FSD230	Roof Slab	25	20%	20						
FSD240	Top Roof	18	0%	18						
ABWF Works										
AFSD1000	Blockwork Walls	25	0%	25						
AFSD1010	Door and Window Frames	19	0%	19						
AFSD1020	ABWF Works to Plant Rooms G/F	56	0%	56						
AFSD1021	ABWF Works to Plant Rooms 1/F	56	0%	56						
AFSD1030	ABWF Works to Office and Corridors G/F	124	0%	124						
AFSD1031	ABWF Works to Office and Corridors 1/F	124	0%	124						
AFSD1040	ABWF Works to Toilets G/F	136	0%	136						
AFSD1050	Waterproofing and Roofing	52	0%	52						
AFSD1060	External Cladding and Wall Plastering	101	0%	101						
E&M Works										
Installation										
FSDB-EMGF0001	E&M cast-in Installation	80	70%	24						
G/F										
FSDB-EMGF100	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0						
FSDB-EMGF101	E&M Installation - 1st fix - G/F	40	0%	40						
FSDB-EMGF102	ABWF Works ready for E&M Mobilization to CLP TX Room - G/F	0	0%	0						
FSDB-EMGF103	E&M Installation - CLP Tx Room - G/F	18	0%	18						
FSDB-EMGF104	Inspection & Handover to CLP	6	0%	6						
FSDB-EMGF105	Installation by CLP - CLP Tx Room - G/F	82	0%	82						
FSDB-EMGF111	ABWF Works ready for E&M Mobilization to Electrical Plant Rooms - G/F	0	0%	0						
FSDB-EMGF112	E&M Installation - Electrical Plant Rooms - G/F	60	0%	60						
FSDB-EMGF113	ABWF Works ready for E&M Mobilization to FS Plant Rooms - G/F	0	0%	0						
FSDB-EMGF114	E&M Installation - FS Plant Rooms - G/F	50	0%	50						
FSDB-EMGF115	ABWF Works ready for E&M Mobilization to Elv Plant Rooms - G/F	0	0%	0						

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

P 23/25

Date	Revision	Checked	Approved
20-Aug-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019						
							Aug	Sep	Oct	Nov			
Statutory Inspections and approvals													
FSDB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0									
FSDB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24									
Key Date 9 - C&ED Building & E&M Works													
Building Structure													
CED230	First Floor	25	40%	15									
CED240	Second Floor	25	0%	25									
CED250	Third Floor	32	0%	32									
CED260	Roof Slab	30	0%	30									
ABWF Works													
ACED1000	Blockwork Walls	54	0%	54									
ACED1010	Door and Window Frames	48	0%	48									
ACED1020	ABWF Works to Plant Rooms G/F	60	0%	60									
ACED1021	ABWF Works to Plant Rooms 1/F	60	0%	60									
ACED1030	ABWF Works to Office and Corridors G/F	133	0%	133									
ACED1031	ABWF Works to Office and Corridors 1/F	118	0%	118									
ACED1040	ABWF Works to Toilets G/F	142	0%	142									
E&M Works													
Installation													
C&EDB-GF0001	E&M cast-in Installation	90	60%	36									
G/F													
C&EDB-GF1000	ABWF Works ready for E&M Mobilization to General Areas - G/F	0	0%	0									
C&EDB-GF1010	E&M Installation - 1st fix - G/F	40	0%	40									
C&EDB-GF1040	ABWF Works ready for E&M Mobilization to CLP Tx Room - G/F	0	0%	0									
C&EDB-GF1050	E&M Installation - CLP Tx Room - G/F	18	0%	18									
Statutory Inspections and approvals													
C&EDB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0									
C&EDB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24									
Key Date 11 - Landscape Soft Works & Trees Protection													
Trees Protection													
SL197	Protection Existing Trees & Submit Report with Photographic Record No.8	41	53%	19									
SL198	Protection Existing Trees & Submit Report with Photographic Record No.9	41	0%	41									
SL199	Protection Existing Trees & Submit Report with Photographic Record No.10	41	0%	41									
Key Date 8 - All Works for Tunnel Commissioning & Opening													
Petrol Filling Station													
Structure													
PS110	Possess Portion Vc	0	0%	0									
PS120	Excavation	20	0%	20									
PS130	Footing	20	0%	20									
PS140	Petrol Filling Station Roof	14	0%	14									
PS150	Structure for Petrol Filling Station	36	0%	36									
PS160	Underground Fuel Tank Structure	36	0%	36									
Statutory Inspections and approvals													
Administration Building													
ADB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0									
ADB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24									
Maintenance Depot													
MD-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0									

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THREE MONTHLY PROGRAMME AS OF 20 AUG 2019

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Date	Revision	Checked	Approved
20-Aug-19			

ID	Activity	Duration (Days)	% Comp	Remaining Duration	Start	Finish	2019			
							Aug	Sep	Oct	Nov
							MD-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%
North Ventilation Building										
NVB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0						
NVB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24						
Underpass & Plant Room										
VUP-SI1060	Submit WWO46 Part IV for FS	0	0%	0						
Toll Control Building & Toll Collector Subway										
TCB-SI0010	Submission of Genset Exhaust Drawing to EPD	0	100%	0						
TCB-SI0015	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24						
Satellite Control Building										
SCB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0						
SCB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24						
South Ventilation Building										
SVB-SI1000	Submission of Genset Exhaust Drawing to EPD	0	100%	0						
SVB-SI1005	Review and Approval of Genset Exhaust Drawing by EPD	48	50%	24						
SVB-SI1090	Submit WWO46 Part IV for PD	0	0%	0						
SVB-SI1100	Submit WWO46 Part IV for FS	0	0%	0						

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THREE MONTHLY PROGRAMME AS OF 20 AUG 2019

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Date	Revision	Checked	Approved
20-Aug-19			

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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		✓

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

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

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Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
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						D	C	O	
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		N/A
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit.	All representative existing ASRs / throughout construction period	Contractor	EM&A Manual		Y		N/A (Results adopted from published EM&A data of Contract No. HY/2012/08)
WATER QUALITY (LAND WORKS)									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		N/A
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		N/A
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		N/A

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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	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		N/A
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		N/A
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to	Roadside/design and operation	Design	TM-EIAO	Y		Y	N/A

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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	
		discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.		Consultant/ Contractor					
6.10	Section 11	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
WASTE									
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.	Contract Mobilisation	Contractor	TMEIA		Y		✓
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		✓

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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	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: f suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; f Having a capacity of <450L unless the specifications have been approved by the EPD; and	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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						D	C	O	
		w Chinese according to the instructions prescribed in Schedule 2 of the Regulations. f Clearly labelled and used solely for the storage of chemical wastes; f Enclosed with at least 3 sides; f Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; f Adequate ventilation; f Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and f Incompatible materials are adequately separated.							
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
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		✓

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						D	C	O	
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
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 unobstrusive 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

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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	Compensatory tree planting shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006 (CM10)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Re-vegetation of affected woodland/shrubland with native species (OM1)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/L CSD
10.9	7.6	Tall buffer screen tree / shrub / climber planting should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/L CSD
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill (OM3)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD

*** Remarks:**

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

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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 August 2019)**

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

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

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

Appendix G

Calibration Certificate of Monitoring Equipment



The Safety Company

MSA Corporate Center • 1000 Cranberry Woods Drive • Cranberry Township, PA 16066

www.msasafety.com

Telephone: (800) MSA-2222

ALTAIR5X CERTIFICATE OF CALIBRATION

Serial Number: 145986

Part Number: A-ALT5X-B-N-K-0-0-B-0-T-0-0-0



Factory Calibration Date: 11/26/18

Set Points

	METHANE 0-100.00 %LEL	O2 0-30.00 %VOL				CO2 0-9.99 %VOL
↓ (Low)	10.00 %LEL	19.50 %VOL				0.50 %VOL
↑ (High)	20.00 %LEL	23.00 %VOL				1.50 %VOL
STEL						0.50 %VOL
TWA						1.50 %VOL
Calibrated Value	Methane 1.457 %VOL	O2 15.00 %VOL				CO2 2.502 %VOL
Cylinder Lot #	122- 401167301-1	122- 401167301-1				141- 401019452- 1N461052

Calibration Certification

All applicable inspections, testing, and calibrations were performed using NIST traceable equipment, where available, in accordance with MSA's ISO 9001 Certified Quality System. Each material, component, and/or instrument must be installed, operated and maintained in strict accordance with its labels, cautions, warnings, instructions, and within the limitations stated in the supplied instruction manual. Routine calibration checks, equipment inspections, and applicable preventative maintenance measures must be performed to verify that the materials, components, and/or instruments are operating properly. Failure to perform these tasks on a routine basis, or suggested intervals, with specified equipment or methods, may result in inaccurate readings.

Conformance Statement

MSA certifies that the materials, components, and/or instruments delivered in this shipment conform to all applicable specifications. The items delivered have been processed through the appropriate approved document controlled procedures for Receiving, Manufacturing and Inspection. The materials, components, and/or instruments were inspected, tested, and calibrated, as applicable, per the associated drawings, standards requirements, and/or specifications, and were deemed acceptable by appropriate authorized personnel.

Process Certified By:

Calibrated By: Ca. Mccandless

JIM HOFFMAN
QUALITY ENGINEER

Appendix H

Landfill Gas Monitoring
Results and Graphical
Presentation

Landfill Gas Monitoring Results on Methane Level

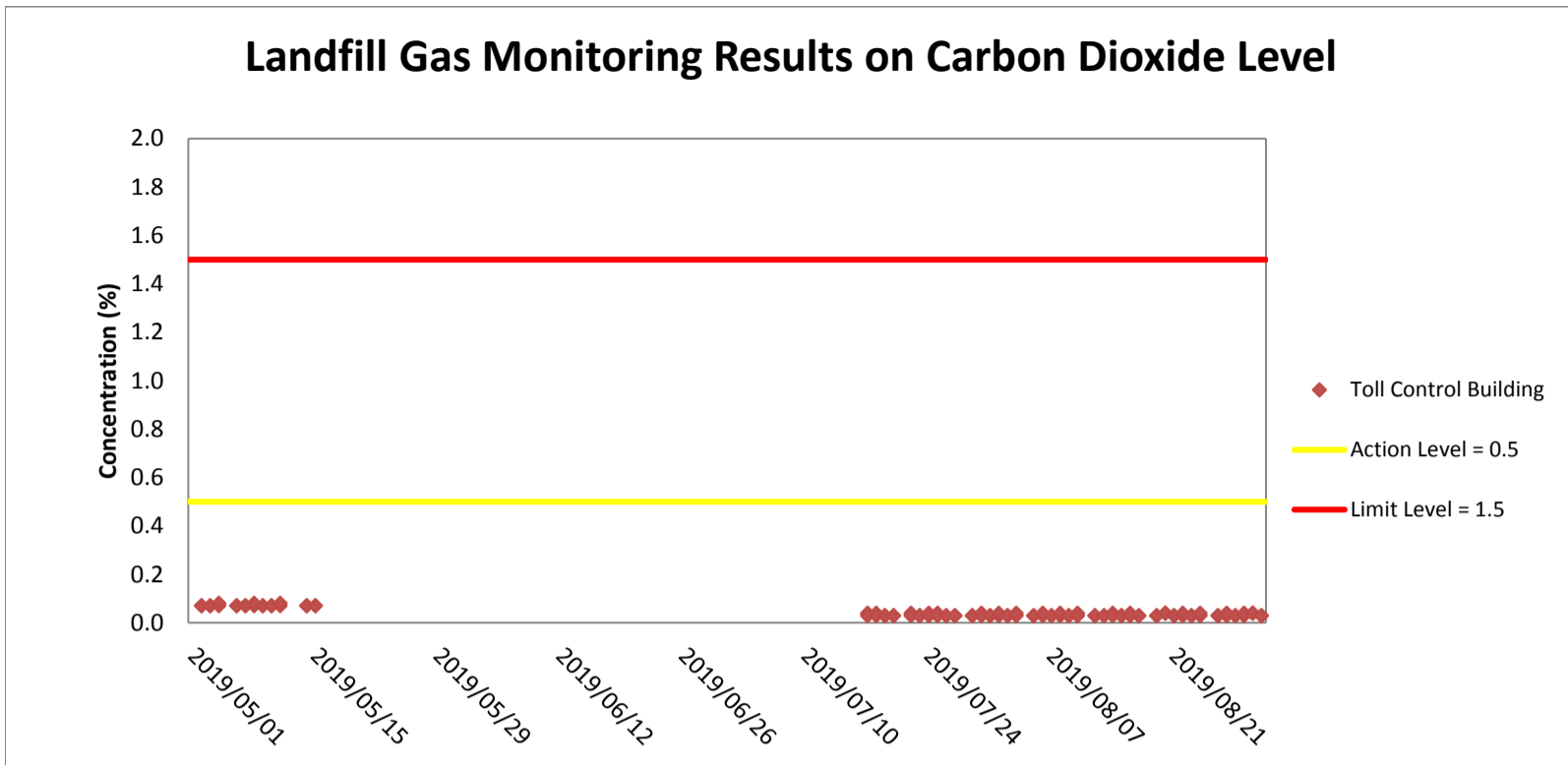
Project	Works	Date(yyyy-mm-dd)	Monitoring Location	Time (hh:mm, 24hour)	Results (%)	Action Level (%)	Limit Level (%)
TMCLKL	HY/2017/10	2019/08/01	Toll Control Building	8:15	0	10.0	20.0
TMCLKL	HY/2017/10	2019/08/01	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/02	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/02	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/03	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/03	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/05	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/05	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/06	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/06	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/07	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/07	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/08	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/08	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/09	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/09	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/10	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/10	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/12	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/12	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/13	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/13	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/14	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/14	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/15	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/15	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/16	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/16	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/17	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/17	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/19	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/19	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/20	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/20	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/21	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/21	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/22	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/22	Toll Control Building	13:15	0		
TMCLKL	HY/2017/11	2019/08/23	Toll Control Building	8:15	0		
TMCLKL	HY/2017/12	2019/08/23	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/24	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/24	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/26	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/26	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/27	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/27	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/28	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/28	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/29	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/29	Toll Control Building	13:15	0		
TMCLKL	HY/2017/10	2019/08/30	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/30	Toll Control Building	13:15	0		
TMCLKL	HY/2017/11	2019/08/31	Toll Control Building	8:15	0		
TMCLKL	HY/2017/10	2019/08/31	Toll Control Building	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	2019/08/01	Toll Control Building	8:15	20.8	19.0	18.0
TMCLKL	HY/2017/10	2019/08/01	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/02	Toll Control Building	8:15	20.8		
TMCLKL	HY/2017/10	2019/08/02	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/03	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/03	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/05	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/05	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/06	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/06	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/07	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/07	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/08	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/08	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/09	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/09	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/10	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/10	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/12	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/12	Toll Control Building	13:15	20.8		
TMCLKL	HY/2017/10	2019/08/13	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/13	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/14	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/14	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/15	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/15	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/16	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/16	Toll Control Building	13:15	20.8		
TMCLKL	HY/2017/10	2019/08/17	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/17	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/19	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/19	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/20	Toll Control Building	8:15	20.8		
TMCLKL	HY/2017/10	2019/08/20	Toll Control Building	13:15	20.8		
TMCLKL	HY/2017/10	2019/08/21	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/21	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/22	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/22	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/11	2019/08/23	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/12	2019/08/23	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/24	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/24	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/26	Toll Control Building	8:15	20.8		
TMCLKL	HY/2017/10	2019/08/26	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/27	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/27	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/28	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/28	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/29	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/29	Toll Control Building	13:15	20.9		
TMCLKL	HY/2017/10	2019/08/30	Toll Control Building	8:15	20.8		
TMCLKL	HY/2017/10	2019/08/30	Toll Control Building	13:15	20.8		
TMCLKL	HY/2017/11	2019/08/31	Toll Control Building	8:15	20.9		
TMCLKL	HY/2017/10	2019/08/31	Toll Control Building	13:15	20.9		
					Average	20.9	
					Min.	20.8	
					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	2019/08/01	Toll Control Building	8:15	0.03	0.5	1.5
TMCLKL	HY/2017/10	2019/08/01	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/02	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/02	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/03	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/03	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/05	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/05	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/06	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/06	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/07	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/07	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/08	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/08	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/09	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/09	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/10	Toll Control Building	8:15	0.04		
TMCLKL	HY/2017/10	2019/08/10	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/12	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/12	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/13	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/13	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/14	Toll Control Building	8:15	0.04		
TMCLKL	HY/2017/10	2019/08/14	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/15	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/15	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/16	Toll Control Building	8:15	0.04		
TMCLKL	HY/2017/10	2019/08/16	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/17	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/17	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/19	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/19	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/20	Toll Control Building	8:15	0.04		
TMCLKL	HY/2017/10	2019/08/20	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/21	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/21	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/22	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/22	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/11	2019/08/23	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/12	2019/08/23	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/24	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/24	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/26	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/26	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/27	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/27	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/28	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/28	Toll Control Building	13:15	0.03		
TMCLKL	HY/2017/10	2019/08/29	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/29	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/10	2019/08/30	Toll Control Building	8:15	0.04		
TMCLKL	HY/2017/10	2019/08/30	Toll Control Building	13:15	0.04		
TMCLKL	HY/2017/11	2019/08/31	Toll Control Building	8:15	0.03		
TMCLKL	HY/2017/10	2019/08/31	Toll Control Building	13:15	0.03		
					Average	0.03	
					Min.	0.03	
					Max.	0.04	



Weather condition within the reporting period was sunny to rainy
 Major construction works undertaken within the reporting period include Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Toll Control Building, Administration Building, Maintenance Depot, Underpass at C3 area, Kiosk N2 and Tunnel, Electrical and Mechanical Works at Ventilation Plant Room and North Ventilation Room, Building Structure at Fire Services Building, Customs and Excise Building, Satellite Control Building, Kiosk S1 and Toll Booth.

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	2.089	-	0.150	-	1.939	-	-	74.680	47.620	-	0.077	-
Feb	2.474	0.008	0.345	-	2.129	-	-	67.230	-	-	0.056	-
Mar	0.079	0.060	-	-	0.079	-	-	73.690	23.310	-	-	-
Apr	0.013	-	-	-	0.013	-	-	56.730	18.020	-	0.056	-
May	-	-	-	-	-	-	-	62.240	-	-	0.056	-
Jun	0.011	0.004	-	-	0.011	-	-	118.070	-	-	0.077	-
SUB-TOTAL	4.666	0.072	0.495	0.000	4.172	0.000	0.000	452.640	88.950	0.000	0.322	0.000
Jul	0.058	-	-	-	0.058	-	-	148.880	-	-	0.070	-
Aug	0.252	0.146	-	-	0.252	-	-	213.070	-	-	-	-
Sep	-	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	4.976	0.218	0.495	0.000	4.482	0.000	0.000	814.590	88.950	0.000	0.392	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	0	27
	Limit	0	3
24-Hr TSP	Action	0	2
	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 (August 2019)	0	0	0
Total No. received since contract commencement	1	0	0