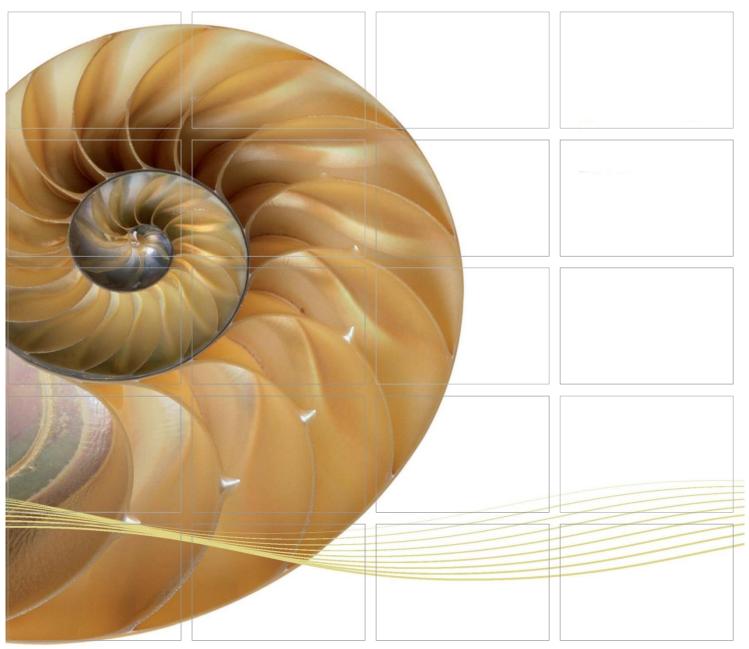
REPORT



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

Sixth Monthly EM&A Report

14 December 2018

Environmental Resources Management 2507, 25/F One Harbourfront 18 Tak Fung Street Hunghom, Kowloon Hong Kong Telephone 2271 3000 Facsimile 2723 5660



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

Environmental Resources Management

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Sixth Monthly EM&A Report

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Client:		Project N	0:			
Gammo	n	0463091				
Summary:		Date:				
		14 Dece	ember 20	18		
		Approved	by:			
This document presents the Sixth Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works.			C.S.			
		Mr Crai	g Reid			
		Partner				
		Certified I	by:			
		Jam				
		Dr Jasn ET Leade	•			
	Sixth Monthly EM&A Report	CY	JN	CAR	14/12/18	
Revision	Description	Ву	Checked	Approved	Date	
This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.			Distribution Distribution Internal OHSAS 18001:2007 Certificate No. OHS 51595 Public			
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AECOM

Ref.: HYDHZMBEEM00 0 7065L.18

14 December 2018

By Fax (2783 0155) and By Post

Engineer's Representative's Office No. 8 Mong Fat Street, Tuen Mun New Territories, Hong Kong

Attention: Mr. Desmond Fung

Dear Mr. Fung,

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

Contract No. HY/2017/10 TM-CLKL Northern Connection Tunnel **Buildings, Electrical and Mechanical Works** Sixth Monthly EM&A Report (November 2018)

Reference is made to the Sixth Monthly Environmental Monitoring and Audit (EM&A) Report (Nov. 2018) (ET's ref.: "0463091_6th Monthly EM&A_20181214.doc" dated 14 Dec. 2018) certified by the ET Leader and provided to us via e-mail on 14 Dec. 2018.

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

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

Yours sincerely,

Fragfalles g

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

C.C.

HyD – Mrs. Joanna Kwok Tam Yuk Ying (By Fax: 3188 6614) HyD – Mr. Tony Pang (By Fax: 3188 6614) AECOM – Mr. Conrad Ng (By Fax: 3922 9797) ERM – Dr. Jasmine Ng (By Fax: 2723 5660) Gammon – Mr. Max Poon (By Fax: 3520 0486)

Internal: DY, YH, DF, ENPO Site

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Ramboll Hong Kong Limited 英環香港有限公司

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

This is the Sixth Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 30 November 2018 for the *Contract No. HY/2017/10 Northern Connection Tunnel Buildings, Electrical and Mechanical Works* (the "Project") 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

- Bar bending, timber formwork and concreting at Toll Control Building;
- Architectual, Builder's Work and Finishing and Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at Northern Ventilation Building;
- Excavation at Administration Building;
- Excavation at Maintainence Depot;
- Pre-drilling and socket H-piling at Customs & Excise Department Building; and
- Trial pits, pre-drilling and socket H-piling at Fire Service Department Building.

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
Joint Environmental Site Inspection	5 sessions

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

Six (6) Action Level exceedances for 1-hour TSP were recorded by the Environmental Team of Contract No. *HY*/2012/08 during the reporting period.

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 December 2018 include the following:

Land-based Works

- Bar bending, timber formwork and concreting at Toll Control Building;
- Architectual, Builder's Work and Finishing and Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at Northern Ventilation Building;
- Foundation building at Administration Building;
- Foundation building at Maintenance Depot; and
- Socket H-piling at Fire Services Department Building and Customs and Excise Department Building.

Future Key Issues

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

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of December 2018 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.*





TUEN MUN -CHEK LAP KOK LINK

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





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Figure 1.1

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KEY PLAN

PROJECT NO.

CONTRACT NO.

60240249

HY/2017/10

SHEET TITLE

OVERALL SITE PLAN

SHEET NUMBER

60240249/C4/7051A





TUEN MUN -CHEK LAP KOK LINK

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

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Figure 1.2a

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PROJECT NO.

60240249

CONTRACT NO. HY/2017/10

SHEET TITLE

ZONING PLAN (SHEET 1)

SHEET NUMBER

60240249/C4/7061A





TUEN MUN -

CHEK LAP KOK LINK

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

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Figure 1.2b

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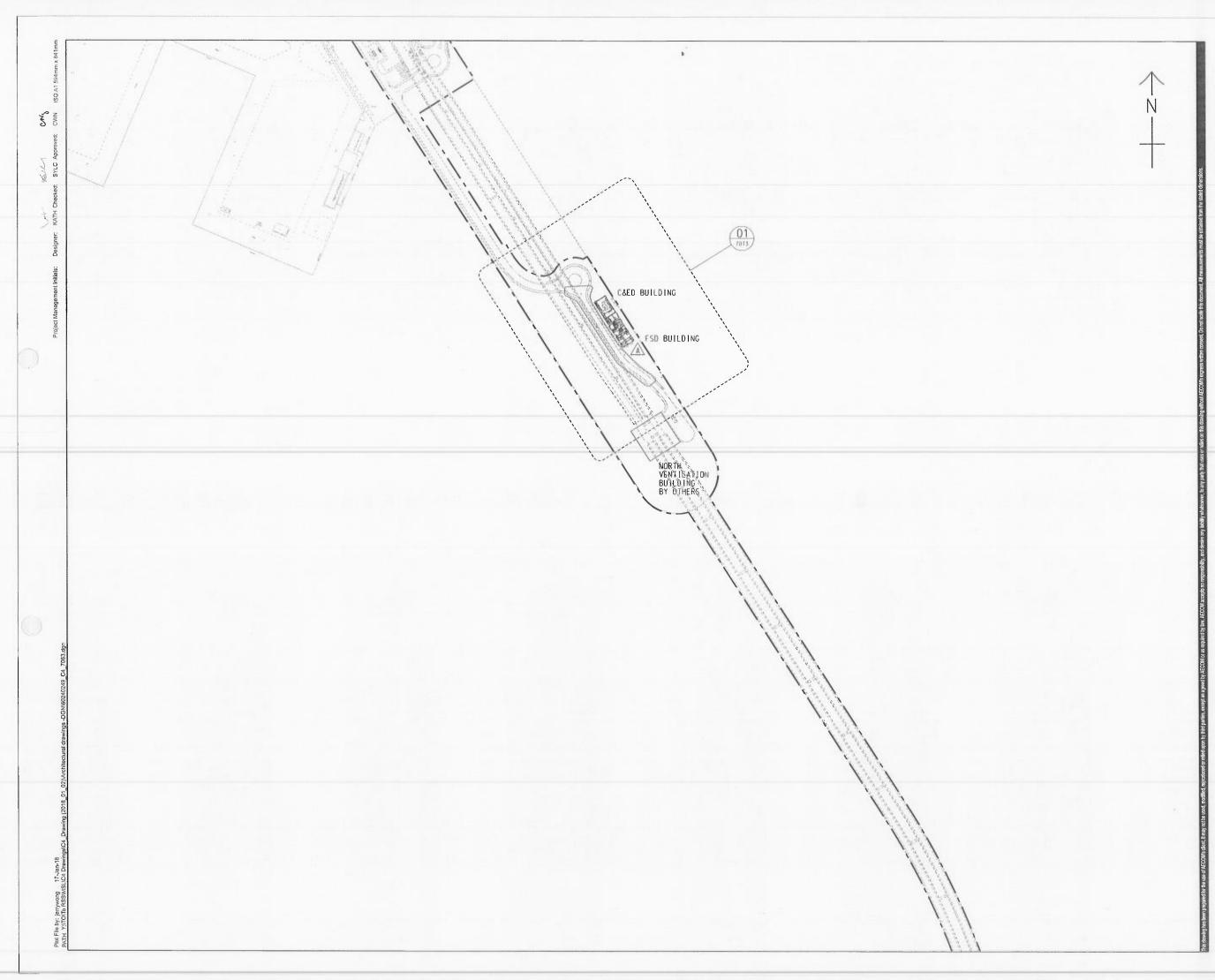
CONTRACT NO. HY/2017/10

SHEET TITLE

ZONING PLAN (SHEET 2)

SHEET NUMBER

60240249/C4/7062A





TUEN MUN -CHEK LAP KOK LINK

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

CLIENT



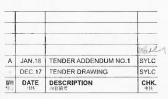
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Figure 1.2c

ISSUE/REVISION



STATUS

DIMENSION UNIT

MILLIMETRES

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KEY PLAN

PROJECT NO. 60240249

CONTRACT NO. HY/2017/10

SHEET TITLE

ZONING PLAN (SHEET 3)

SHEET NUMBER

60240249/C4/7063A

1.2 SCOPE OF REPORT

This is the Sixth 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 November 2018.

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.

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	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
Ltd.)	IEC	Dr. F.C. Tsang	3465 2851	3465 2899
Contractor (Gammon	Site Agent	Kenneth Tai	9039 4723	-
Construction Limited)	Environmental Officer	Max Poon	9103 6303	-
ET (ERM-HK)	ET Leader	Dr. Jasmine Ng	2271 3311	2723 5660

Table 1.1Contact Information of Key Personnel

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

- Bar bending, timber formwork and concreting at Toll Control Building;
- Architectual, Builder's Work and Finishing and Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at Northern Ventilation Building;

- Excavation at Administration Building;
- Excavation at Maintainence Depot;
- Pre-drilling and socket H-piling at Customs & Excise Department Building; and
- Trial pits, pre-drilling and socket H-piling at Fires Service Department Building.

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

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

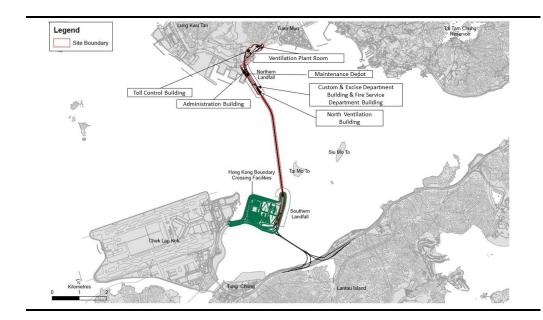
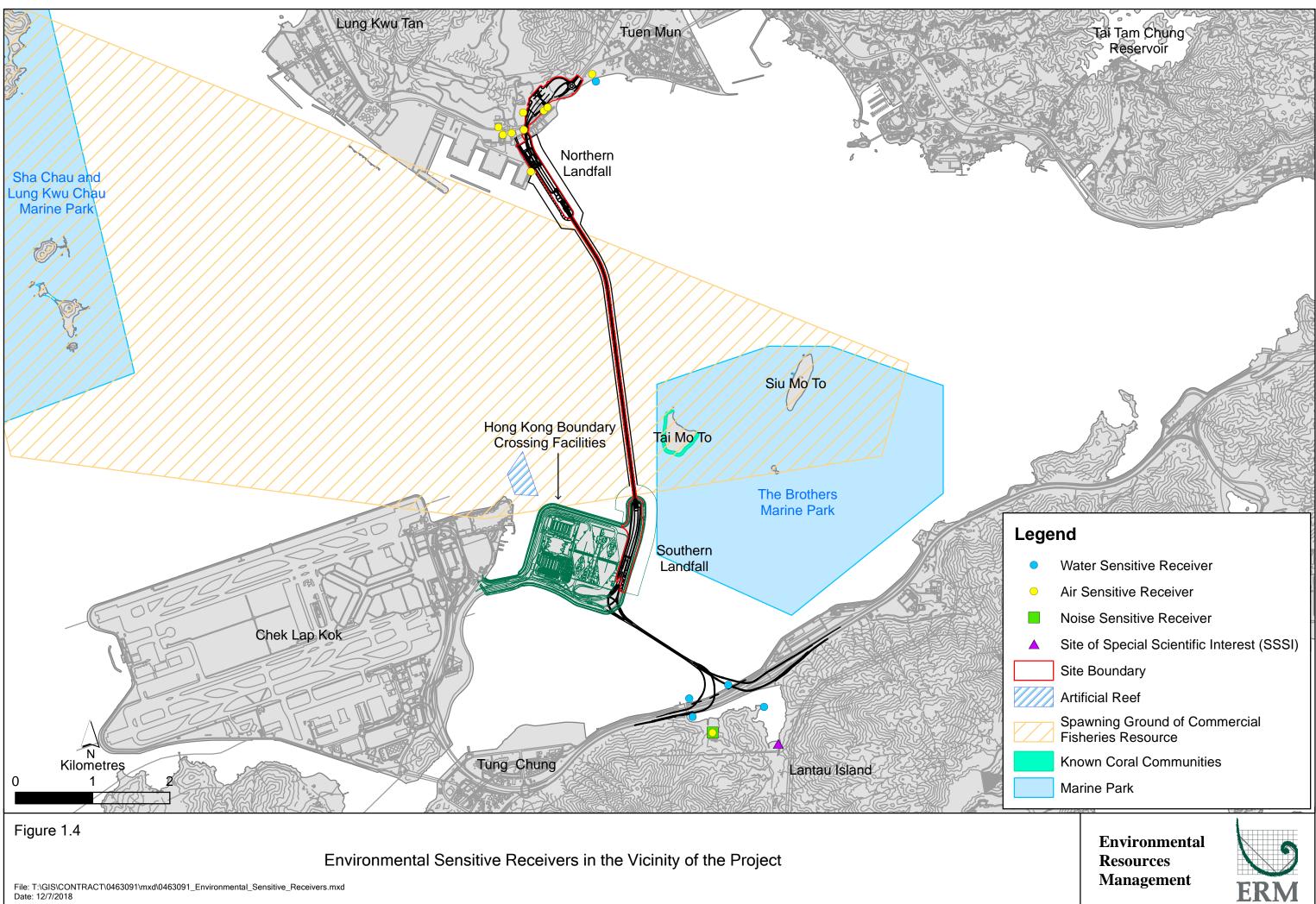


Figure 1.3 Locations of Major Construction Activities in the Reporting Month



2 EM&A RESULTS

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 24hr 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 2.1Locations of Impact Air Quality Monitoring Stations and and its
Corresponding Monitoring Requirements

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR1	3, 6, 9, 12, 15, 18, 21,	Tuen Mun	Office	TSP monitoring
	24, 27 and 30	Fireboat Station		 1-hour Total Suspended
	November 2018			Particulates (1-hour TSP,
ASR5		Pillar Point Fire	Office	μ g/m ³), 3 times in every 6 days
		Station		24-hour Total Suspended
				Particulates (24-hour TSP,
AQMS1		Previous River	Bare ground	μ g/m ³), daily for 24-hour in
		Trade Golf		every 6 days
				Enhanced TSP monitoring

 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/

ENVIRONMENTAL RESOURCES MANAGEMENT 0463091_6TH MONTHLY EM&A_181214.DOC



Monitoring Station Monitoring Dates	Location	Description	Parameters & Frequency
ASR6	Butterfly Beach	Office	(commenced on 24 October 2014
	Laundry		under Contract No. HY/2012/08)
			1-hour Total Suspended
ASR10	Butterfly Beach	Recreational	Particulates (1-hour TSP,
	Park	uses	μ g/m ³), 3 times in every 3 days
			• 24-hour Total Suspended
			Particulates (24-hour TSP,
			μ g/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⁾.

Six (6) Action Level exceedances for 1-hour TSP on 6 and 12 November 2018 were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix G*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*. The exceedance recorded on 31 October 2018 was under investigation during the preparation of the last Monthly EM&A report, thus the investigation report is also presented in *Appendix G*.

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

2.2 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting month, five (5) site inspections were carried out on 2, 9, 16, 23 and 30 November 2018.

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

Inspection Date	Observations	Recommendations/ Remarks
2 November 2018	 Administration Building Stagnant water in drip tray should be cleared. Stagnant water is observed near grouting station. Toll Control Building The refuse skip should be cleared regularly to prevent overloading. 	 Administration Building Clear stagnant water in drip tray Improve the drainage near the works area of the grouting station. Toll Control Building The refuse skip should be cleared regularly to prevent overloading.
9 November 2018	 Administration Builiding Stockpile of cement bags should be covered with tarpaulin. Stagnant water in drip tray should be discharged. 	 Administration Building. The Contractor was reminded to cover stockpile of cement bags with tarpaulin. The Contractor was reminded to discharge stagnant water in drip tray.
	Fire Services Department BuildingOil leakage was observed in the pipe of the water pump.	Fire Services Department BuildingThe Contractor has been reminded to fix the oil leakage in the pipe of the water pump.
16 November 2018	Fire Services Department BuildingDecolorized NRMM label should be replaced on the generator.	Fire Services Department BuildingThe Contractor has been reminded to replace NRMM label on the generator.
23 November 2018	Maintenance DepotWater should be applied on unpaved road.	Maintenance DepotThe Contractor has been reminded to water unpaved road.
	North Ventilation BuildingAccumulated refuse should be cleared.	North Ventilation BuildingThe Contractor has been reminded to clear accumulated refuse.
30 November 2018	 Toll Control Building General refuse and silt should be cleared in the drainage. General refuse bin should be properly placed on the ground. 	 Toll Control Building The Contractor has been reminded to clear general refuse and silt in the drainage. The Contractor has been reminded to place general refuse bin properly on the ground.

Table 2.2Specific Observations and Recommendations during the Weekly SiteInspection in this Reporting Month

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

2.3 LANDFILL GAS HAZARD MONITORING

No excavation work was conducted at the excavation area in November 2018 and thus landfill gas hazard monitoring was temporary suspended in November 2018.

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 F*). The quantities of different types of wastes are summarized in *Table 2.3*.

Table 2.3Quantities 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 (m³)	Recyclable Materials ^(c) (kg)	Chemical Wastes (kg)
November 2018	253	10	11,720	0	0	0
	Notes:					
	(a) Inert const	truction wastes ir	nclude hard rock a	and large broken co	oncrete, and mater	ials disposed as public fill.
				al refuse disposed		

(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 2.4* below.

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	433493	14 May 2018	N/A	GCL	For Tuen Mun working area
Notification					
Construction Waste Billing	7030836	15 May 2018	N/A	GCL	N/A
Account					
Chemical Waste Producer	5213-422-G2827-01	13 June 2018	N/A	GCL	N/A
Registration					
WPCO Licence for	WT00031783-2018	22 October 2018	31 October 2023	GCL	Sampling Frequency: Bimonthly
Buildings at C2 area					
WPCO Licence for	WT00032062-2018	30 October 2018	31 October 2023	GCL	Sampling Frequency: Quarterly
Buildings at C3 area					
Construction Noise Permit	GW-RW0451-18	2 November 2018	25 April 2019	GCL	For Toll Control Building, Administration
					Building, Maintenance Depot and WA18

Table 2.4Summary of Environmental Licensing and Permit Status

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

Six (6) Action Level exceedances for 1-hour TSP were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix G*. The exceedance recorded on 31 October 2018 was under investigation during the preparation of the last Monthly EM&A report, thus the investigation report is also presented in *Appendix G*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

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

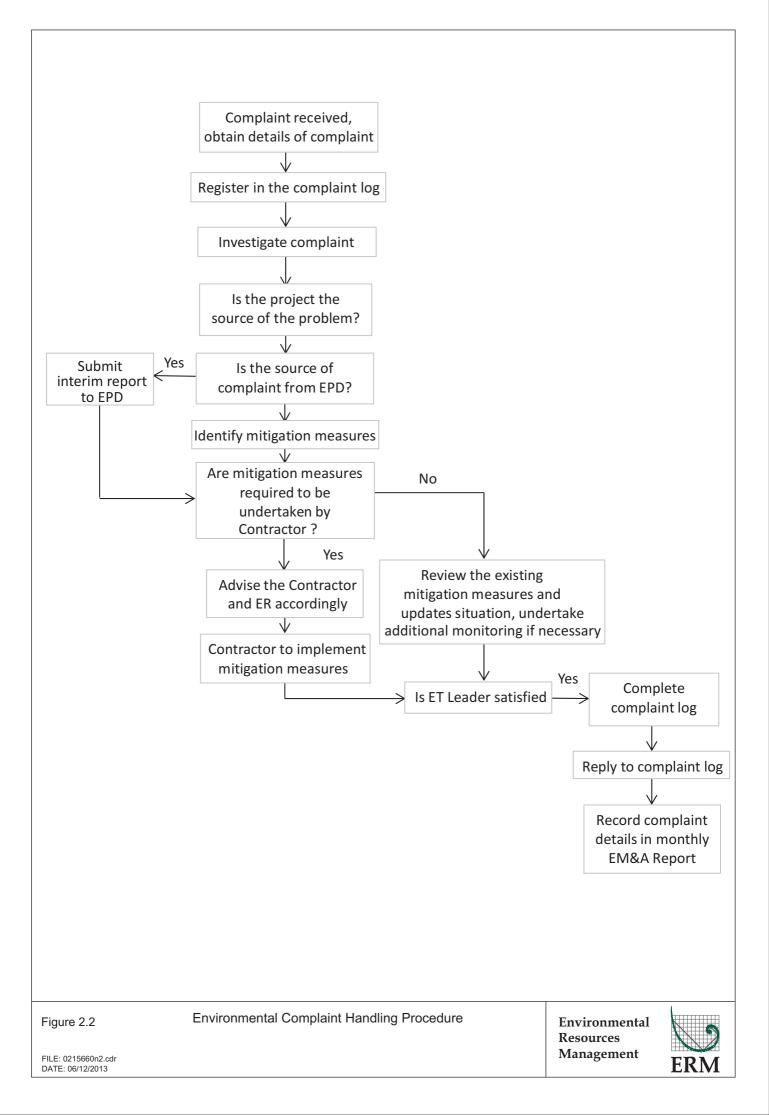
Cumulative statistics are provided in *Appendix G*.

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 G*.



3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

As informed by the Contractor, the major works for the Project in December 2018 will be:

Land-based Works

- Bar bending, timber formwork and concreting at Toll Control Building;
- Architectual, Builder's Work and Finishing and Electrical and Mechanical Works at Ventilation Plant Room;
- Electrical and Mechanical Works at Northern Ventilation Building;
- Foundation building at Administration Building;
- Foundation building at Maintenance Depot; and
- Socket H-piling at Fire Services Department Building and Customs and Excise Department Building.

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of December 2018 are mainly associated with dust and waste management issues.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Sixth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 30 November 2018, 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) was carried out in this reporting month.

Six (6) Action Level exceedances for 1-hour TSP were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix G*. The exceedance recorded on 31 October 2018 was under investigation during the preparation of the last Monthly EM&A report, thus the investigation report is also presented in *Appendix G*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

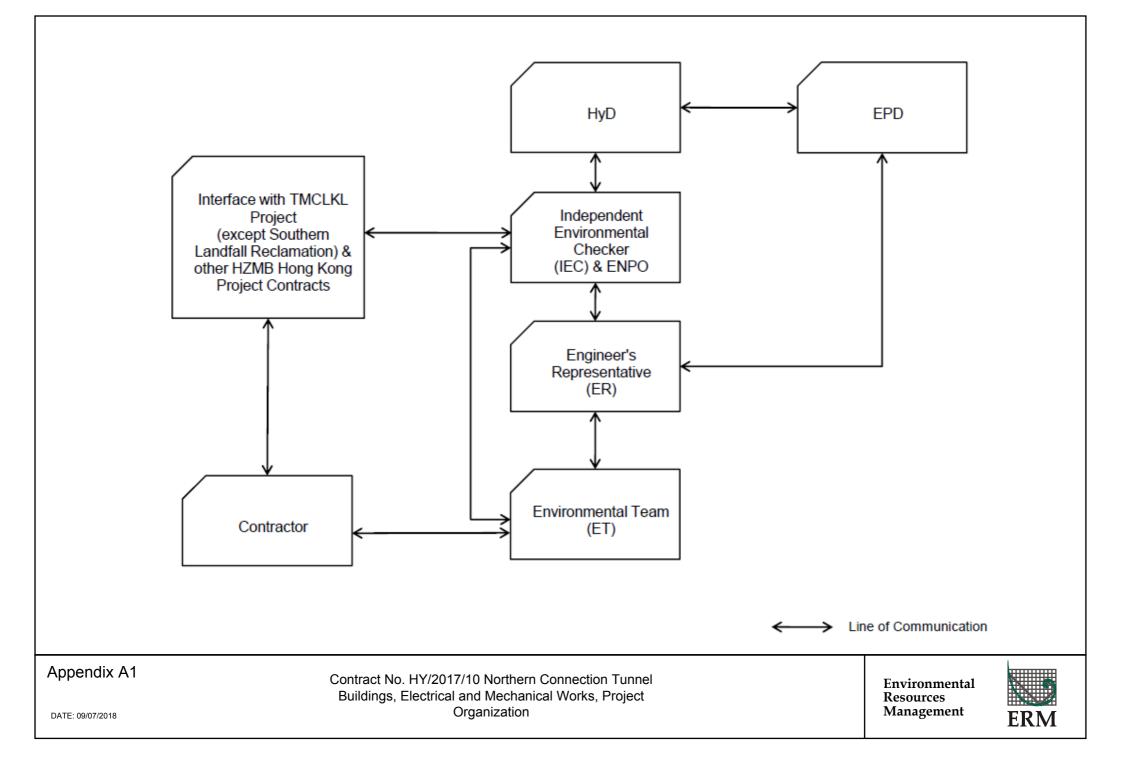
No exceedance of Action and Limit Levels for 24-hour TSP was recorded in the reporting month.

Environmental site inspection was carried out five (5) times in November 2018. 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



Appendix B

Construction Programme

ID	Activity	Days	Start	Finish			•		20	18						201	9		
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					22	29	05	12	19	26	03 10	1/	24	31	0/ 14	1 21	28	04	11 8
	thly Programme 20/11/18 - 20/02/19													÷					
Contract Da												- <u> </u>		 					
Portion Act		0.4	01 lan 10											_					
P230	Access to Portion X (Day 240)	0d	01-Jan-19											Į					
	ssession Dates	0.4	00 Dec 10		·								•	<u> </u>					
P205	Possession to Portion XVb (Day 236)	0d	28-Dec-18																
P215	Possession to Portion XVIb (Day 236)	0d	28-Dec-18		· · · · · ·								•						
P225	Possession to Portion XVa (Day 236)	0d	28-Dec-18																
P235	Possession to Portion XVIa (Day 236)	0d	28-Dec-18					ļļ						ļ					
Method St																			
· · · · · · · · · · · · · · · · · · ·														ļ					
	Prepare & Submit MS for Administration Building (Civil)	24d	20-Sep-18 A		- de a a a a d														
	ICE & ER Approval of MS for Administration Building (Civil)	12d		03-Nov-18 A	فيستعد والمراج									ļļ					
	Prepare & Submit MS for Administration Building (E&M)	24d		13-Nov-18 A															
	ICE & ER Approval of MS for Administration Building (E&M)	12d	14-Nov-18 A	27-Nov-18															
Maintenar			i			_								1			ļ		
	Prepare & Submit MS for Maintenance Depot (Civil)	24d	02-Oct-18 A																
	ICE & ER Approval of MS for Maintenance Depot (Civil)	12d		13-Nov-18 A															
MS1210	Prepare & Submit MS for Maintenance Depot (E&M)	24d	14-Nov-18 A	11-Dec-18															
MS1220	ICE & ER Approval of MS for Maintenance Depot (E&M)	12d	12-Dec-18	28-Dec-18									<u> </u>						
	Excise Department Building																		
MS1090	Prepare & Submit MS for C&ED Building (Civil)	24d	31-Oct-18 A	27-Nov-18		-	-												
MS1100	ICE & ER Approval of MS for C&ED Building (Civil)	12d	28-Nov-18	11-Dec-18															
MS1230	Prepare & Submit MS for C&ED Building (E&M)	24d	12-Dec-18	12-Jan-19															
MS1240	ICE & ER Approval of MS for C&ED Building (E&M)	12d	14-Jan-19	26-Jan-19									-						
Fire Service	es Department Building																		
MS1110	Prepare & Submit MS for Fire Services Building (Civil)	24d	28-Nov-18	28-Dec-18								1	-						
MS1120	ICE & ER Approval of MS for Fire Services Building (Civil)	12d	29-Dec-18	12-Jan-19										<u></u>					
MS1250	Prepare & Submit MS for Fire Services Building (E&M)	24d	14-Jan-19	13-Feb-19											_		··		
MS1260	ICE & ER Approval of MS for Fire Services Building (E&M)	12d	14-Feb-19	27-Feb-19															
Satellite Co	ontrol Building		,,														÷		
MS1130	Prepare & Submit MS for Satellite Control Building (Civil)	24d	29-Dec-18	26-Jan-19															
										P1	Date	Ī	Revi	sion		hecke	d	Appro	oved
	THREE MONTH									. 1	20/11/18								
	HY/2017/10 TM-CLKL - Northern Con	nection 1	Tunnel Building	s, Electrical a	nd Med	chan	nical \	Norks											
	20/1	1/18 -	20/02/19]
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ID	Activity	Days	Start	Finish		-	·)18							2019		
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MS1140	ICE & ER Approval of MS for Satellite Control Building (Civil)	12d	28-Jan-19	13-Feb-19			00 12			00	10 1			0,			-	
MS1270	Prepare & Submit MS for Satellite Control Building (E&M)	24d	14-Feb-19	13-Mar-19														
E&M Design								1										
	Funnel Ventilation System																	
A015	Design Proposal of Tunnel Ventilation System - Approval	31d	17-Oct-18 A	16-Nov-18 A														
A020	Tunnel Ventilation Fan Pressure Calculations	60d	29-Sep-18 A	27-Nov-18				-1										
A025	Tunnel Ventilation Fan Pressure Calculations - Approval	28d	28-Nov-18	25-Dec-18														
A030	Acoustic Calculations	60d	28-Nov-18*	26-Jan-19														
A035	Acoustic Calculations - Approval	28d	27-Jan-19	23-Feb-19														
A040	TVS -Smoke Extraction Fan Static Calculation for Service Gallery	60d	13-Sep-18 A	11-Nov-18 A	; ;													
A045	TVS -Smoke Extraction Fan Static Calculation for Service Gallery - Approval	28d	12-Nov-18 A	09-Dec-18			_		;									
A060	Pressurization Fan Static Calculation for Vehicle Underpass	60d	22-Aug-18 A	20-Oct-18 A														
A065	Pressurization Fan Static Calculation for Vehicle Underpass - Approval	28d	21-Oct-18 A	17-Nov-18 A														
A070	Design Proposal of Power Loading Assessment of TVS	60d	02-Dec-18*	30-Jan-19														
A075	Design Proposal of Power Loading Assessment of TVS - Approval	28d	31-Jan-19	27-Feb-19												ſ		
A080	TVS -Design Proposal including the Smoke Extraction Strategy	60d	13-Sep-18 A	11-Nov-18 A		- +!												
A088	TVS -Design Proposal including the Smoke Extraction Strategy - Approval	28d	12-Nov-18 A	09-Dec-18				- - <mark></mark>										
A090	TVS -Control Logic Review with FSD	60d	13-Sep-18 A	11-Nov-18 A	-ii-													
A095	TVS -Control Logic Review with FSD - Approval	28d	12-Nov-18 A	09-Dec-18				-}	;									· • • • • • • • • • • • • • • • • • • •
A100	TVS -Cable Sizing and Voltage Drop for TVFs	60d	18-Dec-18*	15-Feb-19														
A105	TVS -Cable Sizing and Voltage Drop for TVFs - Approval	28d	16-Feb-19	15-Mar-19														
A110	TVS -Structural Calculation -Fan Support	60d	15-Jan-19*	15-Mar-19		-												
A120	TVS -Structural Calculation -Duct Support	60d	15-Jan-19*	15-Mar-19														· · · · · ·
A130	TVS -Structural Calculation -Ceiling Mounted Fan Supports	60d	15-Jan-19*	15-Mar-19				1										
A140	TVS -Structural Calculation -Vertical Fan Supports	60d	15-Jan-19*	15-Mar-19				-										
A150	TVS -Structural Calculation -Horizontal Air Duct Supports	60d	15-Jan-19*	15-Mar-19														
A160	Tunnel Cable Sizing and Voltage Drop Verification	60d	06-Oct-18 A	04-Dec-18		-+		- - <mark></mark>	:	-								
A165	Tunnel Cable Sizing and Voltage Drop Verification - Approval	30d	05-Dec-18	03-Jan-19				-			·i		····i					
A170	Tunnel Cable Containment Calculation	60d	03-Nov-18 A	01-Jan-19					·;	;	· · · · · · · · · · · ·							
A175	Tunnel Cable Containment Calculation - Approval	30d	02-Jan-19	31-Jan-19														
Section B - T	Funnel Lighting and Road Lighting System																	
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B015	Design Proposal of Tunnel Lighting System (TLS) - Approval	30d	03-Oct-18 A	01-Nov-18 A	22	29	05	12	19 1	26 0	3 1	0 1	1 2	24 31	07	14	21 2	28 (04 11 8
B013 B020	Tunnel lighting control	60d		06-Nov-18 A	·														
B020	Tunnel lighting control - Approval	30d	07-Nov-18 A																
B023	TLS -Lux Calculation	60d		06-Nov-18 A															
B030 B035	TLS -Lux Calculation - Approval		07-Nov-18 A																
B035 B040		30d	07-N0V-18 A 08-Sep-18 A									···-							
	TLS -Structure support design calculation for tunnel lighting	60d	· ·																
B045	TLS -Structure support design calculation for tunnel lighting - Approval	30d	07-Nov-18 A																
B050	Design Proposal of Road / Street Lighting System	60d	27-Sep-18 A																
B055	Design Proposal of Road / Street Lighting System - Approval	30d	26-Nov-18	25-Dec-18															
B060	Road Lighting Lux Calculation	60d	17-Nov-18 A														<u> </u>	<u></u>	<u></u>
B065	Road Lighting Lux Calculation - Approval	30d	16-Jan-19	14-Feb-19															
	Building Services of MVAC System																		
тсв С015	TCB -AC Cooling Capacity Calculation - Approval	28d	29-Sep-18 A	26 Oct 19 A															
C015	TCB -Pump head calculation		03-Oct-18 A																
		60d									+								
C035	TCB -Pump head calculation - Approval	28d	02-Dec-18	29-Dec-18															
C055	TCB -Fan Static Pressure Calculation - Approval	28d	27-Sep-18 A		· · · · ·														
C060	TCB - Acoustic Performance Calculation	60d	30-Sep-18 A																
C065	TCB - Acoustic Performance Calculation - Approval	28d	29-Nov-18	26-Dec-18															
ADB	ADB -AHU/PAU Static Pressure Calculation	604	07 Son 19 A	05-Nov-18 A															
C080		60d								<u></u>									
C085	ADB -AHU/PAU Static Pressure Calculation - Approval	28d	06-Nov-18 A																
C090	ADB -Pump head calculation	60d	27-Aug-18 A																
C095	ADB -Pump head calculation - Approval	28d	26-Oct-18 A									·							
C105	ADB - Mechanical Ventilation Capacity Calculation - Approval	28d	· ·	21-Oct-18 A		<u></u> _													
C110	ADB - Fan Static Pressure Calculation	60d		04-Nov-18 A															
C115	ADB - Fan Static Pressure Calculation - Approval	28d	05-Nov-18 A																
C120	ADB - Acoustic Performance Calculation	60d	08-Nov-18 A														<u></u>		
C125	ADB - Acoustic Performance Calculation - Approval	28d	07-Jan-19	03-Feb-19															
NVB		CO 4	10 Oca 10 A	11 Nov 10 A															
C130	NVB -AC Cooling Capacity Calculation	60d	13-Sep-18 A	11-INOV-18 A	: :							-			-				
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C135	NVB -AC Cooling Capacity Calculation - Approval		12-Nov-18 A	09-Dec-18	22	29	0 05	5 12	19	26	03	10	17	2	4 31	1 07	/ 14	21	28	04	11 8
C140	NVB - Mechanical Ventilation Capacity Calculation	60d		11-Nov-18 A	. į į																
C145	NVB -Mechanical Ventilation Capacity Calculation - Approval	28d	12-Nov-18 A																		
C145 C150	NVB - Fan Static Pressure Calculation		25-Oct-18 A																		
		60d										<u> </u>									
C155	NVB -Fan Static Pressure Calculation - Approval	28d	24-Dec-18	20-Jan-19			¦ ¦					¦								;	
C160	NVB - Acoustic Performance Calculation	60d	· ·	15-Nov-18 A																	
C165	NVB - Acoustic Performance Calculation - Approval	28d	16-Nov-18 A																		
C170	NVB - Refrigerant Pipes Sizing Calculation	60d	· ·	19-Nov-18 A								¦	<u> </u>								
C175	NVB -Refrigerant Pipes Sizing Calculation - Approval	28d	20-Nov-18	17-Dec-18								¦									
C180	NVB -Staircase Pressurization System Calculation	60d	· ·	11-Nov-18 A								¦									
C185	NVB -Staircase Pressurization System Calculation - Approval	28d	12-Nov-18 A	09-Dec-18	J				į) 						ļ			
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C240	SVB -Staircase Pressurization System Calculation	60d	19-Jan-19*	19-Mar-19								¦						ļ			
CEDB																					
C250	CEDB -AC Cooling Capacity Calculation	60d	09-Nov-18 A	07-Jan-19								¦									
C255	CEDB -AC Cooling Capacity Calculation - Approval	28d	08-Jan-19	04-Feb-19														ļ		1	
C260	CEDB - Mechanical Ventilation Capacity Calculation	60d	11-Dec-18*	08-Feb-19																	
C265	CEDB - Mechanical Ventilation Capacity Calculation - Approval	28d	09-Feb-19	08-Mar-19								-								; 📫	
C270	CEDB - Fan Static Pressure Calculation	60d	22-Jan-19*	22-Mar-19								}							-	_	
FSDB																					
C300	FSDB -AC Cooling Capacity Calculation	60d	09-Nov-18 A	07-Jan-19			I									-					
C305	FSDB -AC Cooling Capacity Calculation - Approval	28d	08-Jan-19	04-Feb-19									-	-				1		P	
C310	FSDB -Mechanical Ventilation Capacity Calculation	60d	11-Dec-18*	08-Feb-19					1												
C315	FSDB -Mechanical Ventilation Capacity Calculation - Approval	28d	09-Feb-19	08-Mar-19																Ē	
C320	FSDB -Fan Static Pressure Calculation	60d	22-Jan-19*	22-Mar-19	1																
SCB			1									+							};		
C350	SCB -AC Cooling Capacity Calculation	60d	16-Jan-19*	16-Mar-19										1					;;; ·		
C360	SCB -Mechanical Ventilation Capacity Calculation	60d	17-Feb-19*	17-Apr-19								÷									
MD												+							}		
C400	MD -AC Cooling Capacity Calculation	60d	13-Sep-18 A	11-Nov-18 A			;			[!									
C405	MD -AC Cooling Capacity Calculation - Approval	28d	12-Nov-18 A	09-Dec-18				-	; ;	;	· · · · · · · · · · · · · · · · · · ·	ļ							 		
C410	MD -AHU/PAU Static Pressure Calculation	60d	10-Oct-18 A	08-Dec-18					5	<u>}</u> -		+							;;		
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Application Approval Objection	ID	Activity	Days	Start	Finish			•		20	18							201	19		
C415 MD -AHU/PM Usate Pressure Calculation - Approval 286 09-Dec-18 05-Dec-18 25-Dec-18 25-Dec-18 <td></td> <td></td> <td></td> <td></td> <td></td> <td>er</td> <td></td> <td>Janu</td> <td>ary</td> <td></td> <td></td> <td></td>						er											Janu	ary			
Other Model Model <th< td=""><td>C415</td><td>MD -AHU/PAU Static Pressure Calculation - Approval</td><td>28d</td><td>09-Dec-18</td><td>05-Jan-19</td><td>22</td><td>29</td><td>05</td><td>12</td><td>19</td><td>26</td><td>03</td><td>10</td><td>17</td><td>24 3</td><td></td><td>07 14</td><td>+ 21</td><td>28</td><td>04</td><td>11 8</td></th<>	C415	MD -AHU/PAU Static Pressure Calculation - Approval	28d	09-Dec-18	05-Jan-19	22	29	05	12	19	26	03	10	17	24 3		07 14	+ 21	28	04	11 8
C425 MD -Mechanical Ventilation Capacity Calculation - Approval 284 27-Oct 18.0 23-Nov 18 23-Nov 18 C435 MD -Fan Static Pressure Calculation - Approval 280 09-Oct 18.0 07-Nov 18 07-Nov 18 C445 MD -Acoustic Performance Calculation - Approval 280 09-Oct 18.0 07-Nov 18 07-Nov 18 C445 MD -Acoustic Performance Calculation - Approval 284 09-Feb-19 08-Mar 19 C455 Mehide Undepass -Mechanical Ventilation Capacity Calculation - Approval 284 07-Oct 18.4 13-Nov 18.4 C455 Ventile Undepass -Fan Static Pressure Calculation - Approval 284 29-Nov 18 25-Nov 18 C455 Ventile Undepass -Fan Static Pressure Calculation - Approval 284 29-Nov 18 25-Nov 18 C475 Vehicle Undepass -Fan Static Pressure Calculation - Approval 284 29-Nov 18 25-Nov 18 C475 Vehicle Undepass -Fan Static Pressure Calculation - Approval 284 29-Nov 18 25-Nov 18 C475 Vehicle Undepass -Acoustic Performance Calculation - Approval 284 20-Nov 18 25-Nov 18 C475 Vehicle Undepass -Acoustic Performance Calculation - Approval 304 00-S		••				·															
G40 MD - Fan Static Pressure Calculation - Aproval Revisition G40 MD - Fan Static Pressure Calculation - Aproval Revisition G40 G40 MD - Acoustic Performance Calculation - Approval Revisition G40 G40 MD - Acoustic Performance Calculation - Approval G40 G				-			÷														
C435 MD -Fan Static Pressure Calculation - Approval 28d 08-Dec 18 04-Jan 19 C446 MD -Acoustic Performance Calculation - Approval 28d 08-Dec 18 04-Jan 19 C455 Vehicle Underpass -Mechanical Ventilation Capacity Calculation - Approval 28d 17-Oct 18 A 13-Nov-18A C455 Vehicle Underpass -Fan Static Pressure Calculation 600 29-Sep 18A 27-Nov-18A C475 Vehicle Underpass -Fan Static Pressure Calculation - Approval 28d 28-Nov-18 25-Dec 18 C475 Vehicle Underpass -Acoustic Performance Calculation - Approval 28d 28-Nov-18 25-Dec 18 C475 Vehicle Underpass -Acoustic Performance Calculation - Approval 30d 22-Sep 18A 27-Nov-18 Section 5-aulding Sortices of Electrical Loading Demand Calculation - Approval 30d 22-Sep 18A 21-Oct 18A 4 <																					
C440 MD - Acoustic Performance Calculation 60d 11-Dac 18 08-Feb 19 C445 MD - Acoustic Performance Calculation - Approval 284 09-Feb 19 09-Feb 18 04-Feb 14 04-Feb 14														į-							
C445 MD - Acoustic Performance Calculation - Approval 28d 0.9-Feb-19 0.8-Mar 19 Vehicle Underpass Mechanical Ventilation Capacity Calculation - Approval 28d 17-Oct-18.A 13-Nov-18.A C465 Vehicle Underpass - Fan Static Pressure Calculation - Approval 28d 17-Oct-18.A 13-Nov-18.A C465 Vehicle Underpass - Acoustic Performance Calculation - Approval 28d 29-Nov-18 29-Dec-18 C470 Vehicle Underpass - Acoustic Performance Calculation - Approval 28d 30-Jan-19 26-Feb-19 Sector- 5-Building Services of Bectrical Loading Demand Calculation - Approval 20d 22-Sep-18.A 21-Oct-18.A D045 TCB - Bectrical Loading Demand Calculation - Approval 30d 22-Sep-18.A 21-Oct-18.A D070 TCB - Cable Containment Calculation - Approval 30d 22-Sep-18.A 21-Oct-18.A 41-Nov-18.A D075 TCB - Cable Containment Calculation - Approval 30d 64-Oct-18.A 42-Nov-18.A 42-Nov-18.A D075 TCB - Cable Containment Calculation - Approval 30d 63-Oct-18.A 42-Nov-18.A 42-Nov-18.A D075		••								•••••									÷	÷	
Vehicular Underpass																					
C455 Vehicle Underpass -Mechanical Ventilation Capacity Calculation - Approval 28d 17-Oct-18.A 13-Nov-18.A C460 Vehicle Underpass -Fan Static Pressure Calculation 60d 29-Sept.18 27-Nov-18 C470 Vehicle Underpass -Fan Static Pressure Calculation - Approval 28d 32-Jan-19 25-Feb.18 C470 Vehicle Underpass -Acoustic Performance Calculation - Approval 28d 30-Jan-19 26-Feb.19 Section D- Building Services of Field/rical System Tem Tem Tem Tem D025 TC8 -Electrical Loading Demog Verification - Approval 30d 22-Sep.18 A 21-Oct-18 A Pice D027 TC8 -Cable Szing and Voltage Drop Verification - Approval 30d 60-Oct-18 A 04-Nov-18 A D035 TC8 -Cable Szing and Voltage Drop Verification - Approval 30d 05-Oct-18 A 04-Nov-18 A D035 TC8 -Cable Szing and Voltage Drop Verification - Approval 30d 06-Oct-18 A 04-Nov-18 A D036 TC8 -Cable Szing and Voltage Drop Verification - Approval 30d 06-Oct-18 A 04-Nov-18 A D036 CB -Earthing Resistance Calculation - Approval <td></td> <td>••</td> <td></td> <td></td> <td></td> <td></td> <td>+</td> <td></td> <td></td> <td>•••••</td> <td></td>		••					+			•••••											
C460 Vehicle Underpass -Fan Static Pressure Calculation - Approval 28d 29-Nov-18 27-Nov-18 C470 Vehicle Underpass - Fan Static Pressure Calculation - Approval 28d 29-Nov-18 25-Dec-18 1 <t< td=""><td></td><td></td><td>28d</td><td>17-Oct-18 A</td><td>13-Nov-18 A</td><td></td><td></td><td></td><td></td><td>•••••</td><td></td><td></td><td>++</td><td></td><td></td><td></td><td></td><td></td><td></td><td>÷</td><td></td></t<>			28d	17-Oct-18 A	13-Nov-18 A					•••••			++							÷	
C465 Vehicle Underpass -Fan Static Pressure Calculation - Approval 28d 28-Nov-18 25-Dec-18 C470 Vehicle Underpass - Acoustic Performance Calculation - Approval 28d 29-Jan-19 29-Jan-19 C475 Vehicle Underpass - Acoustic Performance Calculation - Approval 28d 30-Jan-19 26-Feb-19 Section D- Building Services of Electrical System TG TG TG TG TG D025 TC8 - Electrical Loading Demand Calculation - Approval 30d 22-Sep-18A 21-Oct-18A D070 TC8 - Cable Containment Calculation - Approval 30d 06-Oct-18A 04-Nov-18A D075 TC8 - Cable Containment Calculation - Approval 30d 06-Oct-18A 04-Nov-18A D075 TC8 - Eactring Pesistance Calculation - Approval 30d 06-Oct-18A 04-Nov-18A D075 TC8 - Bewer Factor Correction & Harmonic Current AnalysisCalculation - Approval 30d 06-Oct-18A 04-Nov-18A D085 TC8 - Beter Calculation - Approval 30d 06-Oct-18A 0-Nov-18A D105 ADB - Lux Level Calculation - Approval 30d 06-Oct-18A 0-Nov-18A D126 ADB - Lux Level Calculation - Approva	C460		60d																		
C470 Vehicle Underpass -Acoustic Performance Calculation 60d 01-Dec.18* 29-Jan-19 26 26 30-Jan-19 26-Feb-19 Section J-Building Services of Electrical System 28d 30-Jan-19 26-Feb-19 1 <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>•••••</td> <td></td> <td></td> <td>·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				•						•••••			·								
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D175 ADB - Earthing Resistance Calculation - Approval 30d 29-Nov-18 28-Dec-18 Date Revision Checked Approved THREE MONTHLY ROLLING PROGRAMME P5 Date Revision Checked Approved HY/2017/10 TM-CLKL - Northern Connection Tunnel Buildings, Electrical and Mechanical Works	D165	ADB -Cable Containment Calculation - Approval	30d	09-Dec-18	07-Jan-19							ſ									
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	D185	ADB -Power Factor Correction & Harmonic Current Analysis Calculation - Appr	30d	29-Nov-18	28-Dec-18															
	NVB	ADD -1 Owen 1 actor correction a harmonic current Analysis calculation - Appr	500	29-1100-10	20-Dec-10															
	D225	NVB -Cable Sizing and Voltage Drop Verification - Approval	30d	10-Oct-18 A	08-Nov-18 A			<u></u>				+								
	D250	NVB - Cable Containment Calculation	60d		17-Nov-18 A	والمستعد والمرابع														
	D255	NVB -Cable Containment Calculation - Approval	30d	18-Nov-18 A									1							
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	D265 D275	NVB -Power Factor Correction & Harmonic Current AnalysisCalculation - Approval	30d		08-Nov-18 A			<u>.</u>				+								
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		NVB -HV Electrical Loading Calculation - Approval	300	10-001-16 A	00-INUV-10 A			÷												
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	D430	SCB -Fuel Tank Calculation	60d 60d	28-Dec-18*	25-Feb-19 25-Feb-19															
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	D490 D495	CEDB - Electrical Loading Demand Calculation	60d 30d	12-Jan-19	10-Feb-19															
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	D510	CEDB -Cable Sizing and Voltage Drop Verification	60d		16-Apr-19			÷				+								
	D520	CEDB -Calculation of Total Electrical Load	60d	13-Nov-18 A	11-Jan-19															
	D525	CEDB - Calculation of Total Electrical Load - Approval	30d	12-Jan-19	10-Feb-19															
	D530	CEDB -Generator Calculation	60d	15-Dec-18*	12-Feb-19			÷				+								
	D535	CEDB - Generator Calculation - Approval	30d	13-Feb-19	14-Mar-19							<u>.</u>								
	D540	CEDB -Fuel Tank Calculation	60d	15-Dec-18*	12-Feb-19															
	D545	CEDB -Fuel Tank Calculation - Approval	30d	13-Feb-19	14-Mar-19															
	D560	CEDB - Earthing Resistance Calculation	60d	16-Feb-19*	16-Apr-19															
	D570	CEDB -Power Factor Correction & Harmonic Current Analysis Calculation	60d	16-Feb-19*	16-Apr-19			ļļ												
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	D580	FSDB -UPS and Battery Capacity Calculations	60d	26-Dec-18*	23-Feb-19						<u> </u>	¦								
	D590	FSDB -Electrical Loading Demand Calculation	60d	13-Nov-18 A	11-Jan-19				1	1		1		: :		•				
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D393	FSDB -Luc Level Calculation	60d	23-Jan-19*	23-Mar-19																<u> </u>
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D610	FSDB -Cable Sizing and Voltage Drop Verification	60d		•																
D620	FSDB -Calculation of Total Electrical Load	60d	13-Nov-18 A																	_
D625	FSDB -Calculation of Total Electrical Load - Approval	30d	12-Jan-19	10-Feb-19																<u></u>
D630	FSDB -Generator Calculation	60d	22-Dec-18*	19-Feb-19		ļ														
D640	FSDB -Fuel Tank Calculation	60d	22-Dec-18*	19-Feb-19																
D660	FSDB -Earthing Resistance Calculation	60d	17-Feb-19*	17-Apr-19																·····
D670	FSDB -Power Factor Correction & Harmonic Current Analysis Calculation	60d	17-Feb-19*	17-Apr-19																
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D685	MD -Electrical Loading Demand Calculation - Approval	30d	29-Sep-18 A																	
D690	MD -Lux Level Calculation	60d		18-Nov-18 A												ļ				
D695	MD -Lux Level Calculation - Approval	30d	19-Nov-18 A		ļ <u>.</u>															
D700	MD -Cable Sizing and Voltage Drop Verification	60d	26-Oct-18 A		L	ļ														
D705	MD -Cable Sizing and Voltage Drop Verification - Approval	30d	25-Dec-18	23-Jan-19																
D715	MD -Generator Calculation - Approval	30d		18-Nov-18 A																
D725	MD -Fuel Tank Calculation - Approval	30d	20-Oct-18 A	18-Nov-18 A																
D730	MD -Cable Containment Calculation	60d	14-Nov-18 A	12-Jan-19							- <u> </u>									
D735	MD -Cable Containment Calculation - Approval	30d	13-Jan-19	11-Feb-19												5				
D740	MD -Earthing Resistance Calculation	60d	26-Oct-18 A	24-Dec-18					-		-		-	-						
D745	MD -Earthing Resistance Calculation - Approval	30d	25-Dec-18	23-Jan-19				-		-	-									
D750	MD -Power Factor Correction & Harmonic Current Analysis Calculation	60d	26-Oct-18 A	24-Dec-18		:	;	:	:	;	;	;	;	-						
D755	MD -Power Factor Correction & Harmonic Current Analysis Calculation - Apprc	30d	25-Dec-18	23-Jan-19											:					
Section E -	Building Services of Fire Services System																			
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E010	FS and Sprinkler Water Tanks Effective Volumes Calculation	60d	16-Oct-18 A	14-Dec-18					1				1							
E015	FS and Sprinkler Water Tanks Effective Volumes Calculation - Approval	30d	15-Dec-18	13-Jan-19									-			-				
E020	FS Pump Head Calculation for Tunnel	60d	14-Oct-18 A	12-Dec-18					-	:										
E025	FS Pump Head Calculation for Tunnel - Approval	30d	13-Dec-18	11-Jan-19									:	:	:					
E030	FS Pump Head Calculation for Services Gallery	60d	14-Oct-18 A	12-Dec-18																
E035	FS Pump Head Calculation for Services Gallery - Approval	30d	13-Dec-18	11-Jan-19																
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	E040 E045	Sprinkler Pump Head Calculation for Services Gallery - Approval	30d	13-Dec-18	11-Jan-19															
		Sprinkier Fullip Head Calculation for Services Gallery - Approvar	300	13-Dec-16	11-Jan-19															
	TCB E060	TCB -FS Pump Head Calculation	60d	13-Sep-18 A	11-Nov-18 A			<u></u>												
	E065	TCB -FS Pump Head Calculation - Approval	30d	12-Nov-18 A																
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	E125	ADB -Battery Capacity Calculation - Approval	30d	27-Sep-18 A		ļ														
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	E210	SVB -FM200 System Design Calculation	60d	22-Jan-19*	22-Mar-19	h													<u> </u>	
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	E240	SCB -Battery Capacity Calculation	60d	07-Feb-19*	07-Apr-19															
	E250	SCB -FM200 System Design Calculation	60d	22-Oct-18 A	20-Dec-18															
	E255	SCB -FM200 System Design Calculation - Approval	30d	21-Dec-18	19-Jan-19															
	CEDB																			
	E260	CEDB -FS Pump Head Calculation	60d	16-Feb-19*	16-Apr-19							+								
	E270	CEDB -Sprinkler Pump Head Calculation	60d	16-Feb-19*	16-Apr-19															
	E280	CEDB -Battery Capacity Calculation	60d	27-Nov-18*	25-Jan-19															
	E285	CEDB -Battery Capacity Calculation - Approval	30d	26-Jan-19	24-Feb-19														·	
	E290	CEDB -FM200 System Design Calculation	60d	22-Nov-18*	20-Jan-19							÷	¦							
	E295	CEDB -FM200 System Design Calculation - Approval	30d	21-Jan-19	19-Feb-19							+							<u></u>	
	FSDB																			
	E300	FSDB -FS Pump Head Calculation	60d	28-Nov-18*	26-Jan-19							+ ,	;							
	E305	FSDB -FS Pump Head Calculation - Approval	30d	27-Jan-19	25-Feb-19					·		+ -	+ 					····	+	
								- I I I			Da	te		Revis	ion		Chec	cked	A	pproved
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	E310	FSDB -Sprinkler Pump Head Calculation	60d	28-Nov-18*	26-Jan-19	22	29	05	12	19 /	26 1	J3 I	0 17	24	31	07 1	4 21	28	04	11 8
	E315	FSDB -Sprinkler Pump Head Calculation - Approval	30d	27-Jan-19	25-Feb-19				····-	····										
	E320	FSDB -Battery Capacity Calculation	60d	28-Nov-18*	26-Jan-19															
	E325	FSDB -Battery Capacity Calculation - Approval	30d	27-Jan-19	25-Feb-19					····										
	MD	1 ODD Dattory Suparity Subdition 7 pprova	000	27 0011 10	2010010					····-										
	E335	MD -FS Pump Head Calculation - Approval	30d	20-Oct-18 A	18-Nov-18 A				<u> </u>	····										
	E345	MD -Sprinkler Pump Head Calculation - Approval	30d		18-Nov-18 A															
	E355	MD -Battery Capacity Calculation - Approval	30d		18-Nov-18 A		,			····-					+					
	E360	MD -FM200 System Design Calculation	60d	22-Nov-18*	20-Jan-19	·								· · · · · · ·						
	E365	MD -FM200 System Design Calculation - Approval	30d	21-Jan-19	19-Feb-19					····										
Ľ		Building Services of Plumbing & Drainage System	oou	Li ban ib		·			····.	· · · · · .										
	Tunnel	Building Schrees of Humbing & Brainage System				·				····										
	F020	Water Storage Tank Calculation	60d	16-Oct-18 A	14-Dec-18				· ¦-	· · · · · ·			•							
	F025	Water Storage Tank Calculation - Approval	30d	15-Dec-18	13-Jan-19				 											
	ТСВ					1			·	····										
	F030	TCB - Pump Head Calculation	60d	13-Oct-18 A	11-Dec-18				·	· · · · · ·										
	F035	TCB - Pump Head Calculation - Approval	30d	12-Dec-18	10-Jan-19															
	F040	TCB - Pressure Vessel Calculation	60d	13-Oct-18 A	11-Dec-18	· -{			·}	·		+								
	F045	TCB - Pressure Vessel Calculation - Approval	30d	12-Dec-18	10-Jan-19	ļ			·	·			· į							
	F055	TCB - Rainwater Analysis and Pipe Work Calculation - Approval	30d	30-Sep-18 A	29-Oct-18 A															
	F075	TCB - Hot water system capacity calculation - Approval	30d	-	05-Nov-18 A															
	ADB														1					
	F080	ADB - Pump Head Calculation	60d	09-Nov-18 A	07-Jan-19			_												
	F085	ADB - Pump Head Calculation - Approval	30d	08-Jan-19	06-Feb-19										1					
	F090	ADB - Pressure Vessel Calculation	60d	09-Nov-18 A	07-Jan-19				· ¦-	· · · · · ·										
	F095	ADB - Pressure Vessel Calculation - Approval	30d	08-Jan-19	06-Feb-19				} 			+			1				—	
	F100	ADB - Rainwater Analysis and Pipe Work Calculation	60d	07-Oct-18 A	05-Dec-18				· }- 			i								
	F105	ADB - Rainwater Analysis and Pipe Work Calculation - Approval	30d	06-Dec-18	04-Jan-19							i 			+					
	F115	ADB - Hydraulic Analysis of Waste Water Systems - Approval	30d	07-Oct-18 A	05-Nov-18 A			•							1					
	F125	ADB - Hot water system capacity calculation - Approval	30d	07-Oct-18 A	05-Nov-18 A		 			····-					1					
	F130	ADB - Drainage Sump Pumps and Pump Pits Calculation	60d	18-Oct-18 A					;- ;	····		<u>+</u>	_						+	
	F135	ADB - Drainage Sump Pumps and Pump Pits Calculation - Approval	30d	17-Dec-18	15-Jan-19				·	····										
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NVB F140	NVB - Pump Head Calculation	60d	18-Oct-18 A	16-Dec-18										 3								
F145	· ·		17-Dec-18	15-Jan-19															+			
F145 F150	NVB - Pump Head Calculation - Approval NVB - Pressure Vessel Calculation	30d	17-Dec-18 18-Oct-18 A																			
		60d															<u></u>					
F155	NVB - Pressure Vessel Calculation - Approval	30d	17-Dec-18	15-Jan-19						 											·····	
F165	NVB - Rainwater Analysis and Pipe Work Calculation - Approval	30d	15-Oct-18 A	13-NOV-18 A																		
CEDB	CEDD Lludroulia Analysia of Marta Mater Outama	C04	04 Dec 10*	01 Fab 10													<u></u>			<u>i. L.</u>	<u></u>	·
F260	CEDB - Hydraulic Analysis of Waste Water Systems	60d	24-Dec-18*	21-Feb-19																		
FSDB	FODD - Understein Arrahasia of Masta Materia Customer	0.04	04 Dec 10*	01 Esh 10										·			<u></u>			<u></u>	<u></u>	<u></u>
F300	FSDB - Hydraulic Analysis of Waste Water Systems	60d	24-Dec-18*	21-Feb-19									¦ 									
MD F310	MD - Drainage Sump Pumps and Pump Pits Calculation	60d	19-Dec-18*	16-Feb-19																<u> </u>		
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F315	MD - Drainage Sump Pumps and Pump Pits Calculation - Approval	30d	17-Feb-19	18-Mar-19													<u></u>			<u></u>	<u></u>	
F320	MD - Pump Head Calculation	60d	19-Dec-18*	16-Feb-19						 				·	- 							
F325	MD - Pump Head Calculation - Approval	30d	17-Feb-19	18-Mar-19																<u></u>		
F330	MD - Pressure Vessel Calculation	60d	19-Dec-18*	16-Feb-19										·								
F335	MD - Pressure Vessel Calculation - Approval	30d	17-Feb-19	18-Mar-19	ļ												<u></u>					
F340	MD - Rainwater Analysis and Pipe Work Calculation	60d	09-Nov-18 A	07-Jan-19																	<u></u>	
F345	MD - Rainwater Analysis and Pipe Work Calculation - Approval	30d	08-Jan-19	06-Feb-19																		
F350	MD - Hydraulic Analysis of Waste Water Systems	60d	10-Sep-18 A																			
F355	MD - Hydraulic Analysis of Waste Water Systems - Approval	30d	09-Nov-18 A	08-Dec-18																		
	Underpass																					
F360	Vehicular underpass - Drainage Sump Pumps and Pump PitsCalculation	60d	18-Nov-18 A																			
F365	Vehicular underpass - Drainage Sump Pumps and Pump PitsCalculation - App	30d	17-Jan-19	15-Feb-19																		
F370	Vehicular underpass - Pump Head Calculation	60d	18-Nov-18 A	16-Jan-19					-								<u> </u>					
F375	Vehicular underpass - Pump Head Calculation - Approval	30d	17-Jan-19	15-Feb-19																		
F380	Vehicular underpass - Pressure Vessel Calculation	60d	18-Nov-18 A	16-Jan-19											-		-	-				
F385	Vehicular underpass - Pressure Vessel Calculation - Approval	30d	17-Jan-19	15-Feb-19											-				1			
F390	Vehicular underpass - Rainwater Analysis and Pipe WorkCalculation	60d	30-Oct-18 A	28-Dec-18										:								
F395	Vehicular underpass - Rainwater Analysis and Pipe WorkCalculation - Approva	30d	29-Dec-18	27-Jan-19														!	:	{		
F400	Vehicular underpass - Hydraulic Analysis of Waste Water Systems	60d	31-Aug-18 A	29-Oct-18 A									;									
F405	Vehicular underpass - Hydraulic Analysis of Waste Water Systems - Approval	30d	30-Oct-18 A	28-Nov-18																		
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G020	System Design for CMCS	60d	02-Sep-18 A	31-Oct-18 A	-i														
G025	System Design for CMCS - Approval	30d	01-Nov-18 A	30-Nov-18]									
G030	System Design for Access Control System	60d	02-Sep-18 A	31-Oct-18 A															
G035	System Design for Access Control System - Approval	30d	01-Nov-18 A	30-Nov-18]									
G040	System Design for CCTV	60d	04-Oct-18 A	02-Dec-18						<u> -</u>									
G045	System Design for CCTV - Approval	30d	03-Dec-18*	01-Jan-19															
G050	System Design for IT System	60d	01-Sep-18 A	30-Oct-18 A	 !														
G055	System Design for IT System - Approval	30d	31-Oct-18 A	29-Nov-18															
G060	System Design for PABX System	60d	15-Sep-18 A	13-Nov-18 A															
G065	System Design for PABX System - Approval	30d	14-Nov-18 A	13-Dec-18						1-5									
G070	System Design for PA System	60d	15-Sep-18 A	13-Nov-18 A															
G075	System Design for PA System - Approval	30d	14-Nov-18 A	13-Dec-18										1					
G080	System Design for BRI System	60d	15-Sep-18 A	13-Nov-18 A															
G085	System Design for BRI System - Approval	30d	14-Nov-18 A	13-Dec-18	1					1-2	-								
G090	System Design for Audio Recording System	60d	15-Sep-18 A	13-Nov-18 A															
G095	System Design for Audio Recording System - Approval	30d	14-Nov-18 A	13-Dec-18															
G100	System Design for Communication Network System System	60d	15-Sep-18 A	13-Nov-18 A															
G105	System Design for Communication Network System System - Approval	30d	14-Nov-18 A	13-Dec-18															
G110	System Design for Building Management System	60d	24-Oct-18 A	22-Dec-18															
G115	System Design for Building Management System - Approval	30d	23-Dec-18*	21-Jan-19								L				1			
Key Date 44	A - FSD Building Substructure, Boundary Wall, and C&ED Building Substructure																		
FSD Building	gSubstructure]][]					
FSD101	Trial Pits	4d	02-Nov-18 A	04-Nov-18 A															
FSD102	Predrilling (No.1)	1d	05-Nov-18 A	05-Nov-18 A															
FSD103	Predrilling (No.2)	1d	06-Nov-18 A	06-Nov-18 A			1												
FSD104	Predrilling (No.3)	1d	07-Nov-18 A	07-Nov-18 A			1]					
FSD105	Predrilling (No.4)	1d	08-Nov-18 A	08-Nov-18 A	<u> </u>										 				
FSD106	Predrilling (No.5)	1d	09-Nov-18 A	09-Nov-18 A															
FSD107	Predrilling (No.6)	1d	10-Nov-18 A	10-Nov-18 A			1												
FSD108	Predrilling (No.7)	1d	11-Nov-18 A	11-Nov-18 A			1												
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ECD100	Dradvilling (No. 9)	1 -1	10 Nov 10 A	10 Nov 10 A	22	29	0 05	5 12	19	26	03	10	17	24	31	07	14	21	28	04 1	
	Predrilling (No.8) Predrilling (No.9)	1d		12-Nov-18 A									¦ 	ļ	¦						
		1d	13-Nov-18 A		++									ļ							
	Predrilling (No.10)	1d		14-Nov-18 A																	
	Predrilling (No.11)	1d		15-Nov-18 A										ļ	<u> </u>			ļļ			
	Predrilling (No.12)	1d		16-Nov-18 A									; ;								
	Predrilling (No.13)	1d	17-Nov-18 A																		
	Predrilling (No.14)	1d		18-Nov-18 A	ļļ									ļ							
	Demobilization	3d		20-Nov-18 A											<u> </u>						
	Socket H-Piles (Pile No. 1-7)	12d	20-Nov-18	03-Dec-18											<u> </u>						
FSD141	Socket H-Piles (Pile No. 8-14)	12d	04-Dec-18	17-Dec-18									.								
FSD142	Socket H-Piles (Pile No. 15-21)	12d	18-Dec-18	04-Jan-19																	
FSD143	Socket H-Piles (Pile No. 22-28)	12d	05-Jan-19	18-Jan-19												1	-				
FSD144	Socket H-Piles (Pile No. 29-35)	12d	19-Jan-19	01-Feb-19														: :	-		
FSD145	Socket H-Piles (Pile No. 36-37)	3d	02-Feb-19	08-Feb-19															-		
FSD150	Loading Test	14d	09-Feb-19	25-Feb-19]						Ż
C&ED Build	ling Substructure														; ;						
CED140	Predrilling (No.1-6)	10d	05-Nov-18 A	10-Nov-18 A																	
CED141	Predrilling (No. 7-12)	11d	11-Nov-18 A	20-Nov-18 A										1							
CED150	Socket H-Piling (No. 1-8)	11d	20-Nov-18	01-Dec-18	1								+ -		 			1			
CED151	Socket H-Piling (No. 9-16)	11d	03-Dec-18	14-Dec-18	1 1								+								
CED152	Socket H-Piling (No. 17-24)	11d	15-Dec-18	31-Dec-18			!				L				•						
CED153	Socket H-Piling (No. 25-32)	11d	02-Jan-19	14-Jan-19													 	1			
	Socket H-Piling (No. 33-40)	11d	15-Jan-19	26-Jan-19									+		; ;						
	Socket H-Piling (No. 41-48	11d	28-Jan-19	12-Feb-19	1								+		+ 			1			
	Socket H-Piling (No. 49-52)	10d	13-Feb-19	23-Feb-19	++												· 	++			
	- Toll Control Building (TCB) & TCSS Provision																				
	Building (TCB)														¦			++			
	Remaining portion of G/F Slab	12d	20-Oct-18 A	05-Nov-18 A	·										 						
	Remaining portion of 1/F Slab	12d	03-Nov-18 A	24-Nov-18											 						
	Level 2 Slab	12d	15-Nov-18 A	28-Nov-18																	
	Remove 2/F Slab Formwork	2d	29-Nov-18																		
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	TOD175	Roof Columns & Scaffolding	10d	01-Dec-18	12-Dec-18	22	29	9 1	05 12	2 1	9 2	26	03	10	1/	24	31	07	14	21	28	04	11 8
		Roof Slab	12d	13-Dec-18	29-Dec-18																		
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		Top Roof	12d	13-Dec-18	29-Dec-18						···												
	TCSS Provisi		104	17 Nov 10 A	00 Nev 10		÷																
		Blockwork Walls and Plaster (G/F) ABWF Works to enable TCSS installation	12d	17-Nov-18 A			÷								¦								<u> </u>
			90d	03-Jan-19	25-Apr-19																		
I		Blockwork Walls and Plaster (1/F - East Side)	12d	01-Dec-18	14-Dec-18										¦		<u></u>						
		Blockwork Walls and Plaster (1/F - Middle Area)	12d	15-Dec-18	02-Jan-19										<u> </u>								
		Blockwork Walls and Plaster (1/F - West Side)	12d	03-Jan-19	16-Jan-19	ļ	÷								¦					ļļ			
		Blockwork Walls and Plaster (2/F - East Side)	12d	17-Jan-19	30-Jan-19		ļ								ļ								
		Blockwork Walls and Plaster (2/F - Middle Area)	12d	31-Jan-19	16-Feb-19																		
		Blockwork Walls and Plaster (2/F - West Side)	12d	18-Feb-19	02-Mar-19										ļ								
	Key Date 4	- E&M Works in Vehicular Underpass Area & TCSS Provision					<u>.</u>								¦					ļļ			
I.	E&M Works																						
	VU120	Jet Fans installation	24d	07-Jan-19*	02-Feb-19													_					
	VU130	Post Drill and Bracket Fixing	18d	04-Feb-19	27-Feb-19										¦								
	VU170	Cable containment in Ventilation Duct	24d	07-Jan-19*	02-Feb-19																		
	VU180	Dampers installation in Ventilation Duct	24d	04-Feb-19	06-Mar-19																		
	Key Date 2	- Administration Building, Maintenance Depot, Kiosk N2, TCSS Provision		_																			
		ion Building (ADB)					<u>.</u>													ļļ			
	Piling Work														ļ					ļ			
		Socket H-Piling (No. 31-36) - 1Rig	12d	19-Oct-18 A																			
		Socket H-Piling (No.37-42) - 1Rig	12d	30-Oct-18 A		<u> </u>													<u>]</u>				
	ADB148	Socket H-Piling (No. 43-49) - 1Rig	12d	07-Nov-18 A	16-Nov-18 A			1															
	ADB150	Loading Test	14d	17-Nov-18 A	01-Dec-18					-													
	Building St	ructure																					
	ADB160	Foundations	12d	03-Dec-18	15-Dec-18																		
	ADB170	Erect Tower Crane (ADB)	3d	13-Dec-18	15-Dec-18														-				
	ADB180	Ground Floor	14d	17-Dec-18	05-Jan-19											1							
	ADB190	First Floor	21d	07-Jan-19	30-Jan-19														:				
	ADB200	Roof Slab	28d	31-Jan-19	07-Mar-19																	_	
I	Provision fo	or TCSS Installation																					
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	Deslavark Walls and Diseter	704	10 Eab 10	15 May 10	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28)4	1 8
	Blockwork Walls and Plaster	70d	18-Feb-19	15-May-19											¦	¦					
Maintena	•																				
Piling Wo		10d	00 Oct 10 A	00 Nov 10 A																	
	Socket H-Piling (No. 17-33), 2 Rigs	12d		08-Nov-18 A																	
	Setting Up for Loading Test	7d		13-Nov-18 A																	
	Loading Test and Report	7d	14-Nov-18 A	20-Nov-18 A																	
Depot St				00 N (0																	
	Foundations	10d	20-Nov-18	30-Nov-18	ļ	<u> </u>							<u>.</u>	ļ							
	Ground Floor	14d	01-Dec-18	17-Dec-18																	
	Roof Slab	24d	18-Dec-18	18-Jan-19									; 			ļ					
MD180	Top Roof	18d	19-Jan-19	12-Feb-19										<u>.</u>							
	for TCSS Installation																				
MD190	Blockwork Walls and Plaster	60d	13-Feb-19	27-Apr-19	<u>.</u>											<u>.</u>	<u> </u>				
Kiosk N2																					
N2-125	Excavation	6d	20-Oct-18 A	26-Oct-18 A	:																
N2-126	Kiosk Structure - Raft	12d	13-Nov-18 A	21-Nov-18				_													
N2-127	Kiosk Structure - Wall	12d	22-Nov-18	05-Dec-18																	
N2-128	Kiosk Structure - Roof	12d	06-Dec-18	19-Dec-18																	
N2-130	ABWF Works to enable TCSS installation	18d	20-Dec-18	14-Jan-19							+			!	• !						
N2-140	E&M Works to enable TCSS installation	18d	15-Jan-19	04-Feb-19										1							
Key Date 6	- E&M Works for Administration Building, Maintenance Depot, North Vent Building, K	(iosk N2											+		; ;						
	rs for Administration Building (Structure Completed under KD2)					() 	· · · · · · · · · · · · · · · · · · ·		}				¦		{ {						·
	ADB First Floor Completed with Scaffolding Removed	0d		16-Feb-19																	٠
	ABWF Works	133d	18-Feb-19	30-Jul-19	1	(* • • • •)			}												
E&M Wor	s for Maintemance Depot (Structure Completed under KD2)																				
	Maintenance Depot Structure Completed	0d		12-Feb-19																•	,
	ABWF Works	104d	13-Feb-19	20-Jun-19																	
	s for North Ventilation Building																				
E&M Wo															¦						
ENVB1	E&M Installation - G/F	150d	23-Oct-18 A	08-May-19		·				<u>-</u>	į			<u>.</u>						<u>-</u> -	
ENVB1-	E&M Installation - 1/F		31-Oct-18 A	-										1			1				
	E&M Installation - B2/F		21-Dec-18	-									:								
			2.200.0	20 00			1									<u> </u>					
	THREE MONTH	ILY RO	OLLING P	ROGRAM	ME				P		Dat			Revis	sion		Ch	ecked	A	ppro	/ed
	HY/2017/10 TM-CLKL - Northern Con					chani	nal M	lorke		2	20/11	/18							_		
						onarin		0113		-									-		
	20/1	I/IØ-	20/02/19							F									+		
										-									-		

D	Activity	Days	Start	Finish					201	8						2	2019		
					er			ovemb				emb				nuary		Febr	
		450.4	00.1	04 1 40	22	29	05	12	19	26	03 10) 17	7 2	4 31	07	14 2	21 28	04	11 8
	E&M Installation - B1/F	150d	26-Jan-19	31-Jul-19				ļļ							<u></u>				
	TVF Installation	68d	09-Jan-19*	01-Apr-19															
	and Statutory Inspections (except FSD)							ļ											
	Liaison with CLP	12d	21-Dec-18	08-Jan-19	ļ														
	E&M Installation in Transformer Room	24d	09-Jan-19	08-Feb-19							ļ								
	M Works for Kiosk N2 (Structure Completed under KD2)																		
	Kiosk Structure Completed	0d		19-Dec-18								•							
EN2120	ABWF Works (Door, windows, tiles)	30d	20-Dec-18	28-Jan-19															
EN2130	E&M Works	30d	29-Jan-19	07-Mar-19															_
Key Date 5 -	E&M Works for TCB, Toll Area, Kiosk N1, Underpass, Plant Rm, and Approach Roads		, ,																
E&M Works	for TCB																		
ETCB11	First Floor Completed at TCB with Scaffolding Removed	0d		20-Nov-18															
ETCB11	Remaining Blockwork Walls and Plaster (G/F)	12d	20-Nov-18	03-Dec-18															
ETCB12	Blockwork Walls and Plaster (1/F)	12d	04-Dec-18	17-Dec-18															
ETCB12	Remaining Blockwork Walls	12d	18-Dec-18	04-Jan-19															
	Remaining Plaster	12d	05-Jan-19	18-Jan-19											·				
	Remaining ABWF Works	210d	05-Jan-19	19-Sep-19							+								
	and Statutory Inspections (except FSD)			<u> </u>															
	Liaison with CLP	12d	20-Nov-18	03-Dec-18	ļi			·	į										
	E&M Installation in Transformer Room - 1st Fix	12d	04-Dec-18	17-Dec-18															
	E&M Installation in Transformer Room - 2nd Fix	12d	18-Dec-18	04-Jan-19															
	CLP Installation Works	82d	05-Jan-19	15-Apr-19												·····			
Kiosk N1		0Ed																	
	Trim Formation	2d	20-Nov-18	21-Nov-18															
	Cast Concrete Base	6d	22-Nov-18	28-Nov-18															
	Steel Structure - Columns	11d	29-Nov-18	11-Dec-18							· · · · · · · · · · · · · · · · · · ·								
	Steel Structure - Roof	11d	12-Dec-18	27-Dec-18	· {· · · · }									·					
	Steel Structure - Panels	12d	28-Dec-18	11-Jan-19							·								
	ABWF Works - 1st Fix	12d	12-Jan-19	25-Jan-19															
		-		12-Feb-19							·								.
	E&M works - Stage 1	12d	26-Jan-19	26-Feb-19							·								
	E&M works - Stage 2	12d	13-Feb-19	26-FeD-19															
Plant Room												-							<u> </u>
	THREE MONTH	LY RO	OLLING PI	ROGRAM	ME				P		Date	_	Re	evision		Cheo	cked	Appr	oved
	HY/2017/10 TM-CLKL - Northern Con					chai	nical V	Norks			20/11/18	+							
			20/02/19	,e, Electrical a		Jindi						+			-+				
	20/1	1/10 -	20/02/19																

E&M Works EPR120 Blo EPR130 E& EPR140 Ext		Days	Start	Finish						018		_				2019	
EPR120 Blo EPR130 E&I					er			oven							Januar		Februar 3 04 11
EPR120 Blo EPR130 E&I					22	29	05	12	19	20	03	10	17 24	31	07 14	21 28	5 04 11
EPR130 E&	ockwork Wall	12d	20-Oct-18 A	02-Nov-18 A													
		90d	12-Dec-18	03-Apr-19													
		82d	11-Feb-19	22-May-19	. <u>.</u>			+									
	WF Works	78d	03-Nov-18 A	-								·					
Approach Roads		700	03-110V-10 A	03-1 60-13													
Under Portions					·												
AR130 Cal		238d	07-Jan-19*	25-Oct-19													
	ad lighting installation & termination	238d		22-Nov-19													
Under Portion >		2000	0410010	22110113		<u></u>		+		·							
	cess Portions X	0d		01-Jan-19										•			
	bling works in portion X	260d	02-Jan-19	15-Nov-19										÷			
	ad lighting installation & termination in portion X	260d		29-Nov-19													
		2000	10-Jan-19	29-1100-19													
	&M Works for Approach Roads at South Side																
Design and Proce DP810 Tur	nnel and Approach Road Lighting System	2064	01-Nov-18 A	15 Jul 10													
			01-Nov-18 A									ļļ.					
	ACS System and ELV System																
	etrical System		01-Nov-18 A				 										
	ilding Services System		01-Nov-18 A														
	umbing and Drainage System (Tunnel and Roads)		01-Nov-18 A							. .		¦					
	e Services System		01-Nov-18 A									ļļ.		į			
	her Related Works to enable E&M Works	206d	01-Nov-18 A	15-Jul-19													
Key Date 11 - La	andscape Soft Works & Trees Protection																
Trees Protection																	
SL190 Pro	otection of Existing Trees	613d	06-Aug-18 A	28-Aug-20	-			-	-		1			<u> </u>			

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-Chep Lap Kok Link – Investigation. Updated EM&A Manual for Tuen Mun-Chek Lap Kok Link)

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Imp	lementa Stages	tion	Status *
	Reference					D	С	0	
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.		Contractor	TMEIA Avoid dust generation		Y		1
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.	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.		Contractor	TMEIA Avoid smoke impacts and disturbance		Y		~
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	construction period	Contractor	TMEIA Avoid dust generation		Y		~
4.8.1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.		Contractor	TMEIA Avoid dust generation		Y		~
4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.		Contractor	TMEIA Avoid dust generation		Y		~
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	construction period	Contractor	TMEIA Avoid dust generation		Y		\$
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.		Contractor	TMEIA Avoid dust		Y		~
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		~
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>

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

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Imp	lementa Stages	tion	Status *
	Reference					D	С	0	
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		~
WATER QUAL	ITY (LAND V	VORKS)							
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	construction period	Contractor	TM-EIAO		Y		√
6.10	-	Sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	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.		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.	, i i i i i i i i i i i i i i i i i i i	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	Contractor	TM-EIAO		Y		~
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		~
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.		Contractor	TM-EIAO		Y		~
6.10	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	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		~

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Im	plementa Stages	tion	Status *
	Reference					D	C	0	
6.10	-	All vehicles and plant should be cleaned before they leave the a construction site to ensure that no earth, mud or debris is deposited by a them on roads. A wheel washing bay should be provided at every site exit.		Contractor	TM-EIAO		Y		V
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before a being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		~
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		~
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication a facilities shall be located under roofed areas. The drainage in a 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.		Contractor	TM-EIAO		Y		N/A
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and a ensure that leakages or spillages are contained and cleaned up o immediately.		Contractor	TM-EIAO		Y		1
6.10	-	Waste oil should be collected and stored for recycling or disposal,	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 a 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.		Contractor	TM-EIAO		Y		Ý
6.10	-	Surface run-off from bunded areas should pass through oil/grease a traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		~
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to l discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Y	~
6.10	Section 11	All construction works shall be subject to routine audit to ensure a implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		1
WASTE 12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		~

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

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Imj	olementa	tion	Status *
	Reference			Agent	of Requirement	D	Stages C	0	
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.		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.		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.	0	Contractor	TMEIA		Y		√
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		√
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	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		~

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Im	plementa Stages	ition	Status *
	Reference					D	С	0	Ī
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	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.	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.	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		1
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: <i>f</i> suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; <i>f</i> Having a capacity of <450L unless the specifications have been approved by the EPD; and w Chinese according to the instructions prescribed in Schedule 2 of the Regulations. <i>f</i> Clearly labelled and used solely for the storage of chemical wastes; <i>f</i> Enclosed with at least 3 sides; <i>f</i> Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; <i>f</i> Adequate ventilation;	construction period	Contractor	TMEIA		Y		

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

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Imj	plementa Stages	tion	Status *
	Reference					D	С	0	
		<i>f</i> Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and <i>f</i> Incompatible materials are adequately separated.							
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	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.	construction period	Contractor	TMEIA		Y		~
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.		Contractor	EM&A Manual		Y		~
LANDSCAPE A	AND VISUAI								
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)	during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A

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

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Im	plementa Stages	tion	Status *
	Reference					D	C	0	
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)	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)		Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		√
10.9	7.6	Recycle/ Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6		All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Ŷ		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 implement ed by AFCD/Hy D/L CSD

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

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Imj	plementa Stages	tion	Status *
	Reference					D	C	0	1
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 implement ed by AFCD/Hy D/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 implement ed by HyD/LCS D
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	Υ	Y	Y	n/a. To be implement ed by HyD/LCS D
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 implement ed by HyD

* Remarks:

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

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

Appendix D

Summary of Action and Limit Levels

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

Table D1Action and Limit Levels for 1-hour and 24-hour TSP

Appendix E

Event Action Plan

Appendix E1Event/Action Plan for Air Quality

	ACTION							
EVENT	ET ⁽¹⁾	IEC ⁽¹⁾	ER ⁽¹⁾	Contractor				
Action Level								
1. Exceedance for one	1. Identify the source.	1. Check monitoring data submitted	1. Notify Contractor.	1. Rectify any unacceptable practice				
sample	2. Inform the IEC and the ER.	by the ET.		2. Amend working methods if				
	Repeat measurement to confirm finding.	Check Contractor's working method.		appropriate				
	 Increase monitoring frequency to daily. 							
2. Exceedance for two	1. Identify the source.	1. Check monitoring data	1. Confirm receipt of notification of	1. Submit proposals for remedial				
or more consecutive	2. Inform the IEC and the ER.	$_{\rm rm}$ 2. Check the Contractor's working 2. N	failure in writing.	actions to IEC within 3 working				
samples	3. Repeat measurements to confirm		2. Notify the Contractor.	days of notification				
	findings.	method.	3. Ensure remedial measures properly	2. Implement the agreed proposals				
	 Increase monitoring frequency to daily. 	3. Discuss with the ET and the Contractor on possible remedial	implemented.	3. Amend proposal if appropriate				
	5. Discuss with the IEC and the	measures.						
	Contractor on remedial actions required.	 Advise the ER on the effectiveness of the proposed remedial measures. 						
	6. If exceedance continues, arrange	5. Supervise implementation of						
	meeting with the IEC and the ER.	remedial measures.						
	If exceedance stops, cease additional monitoring.							

	ACTION							
EVENT	ET ⁽¹⁾	IEC ⁽¹⁾	ER ⁽¹⁾	Contractor				
Limit Level								
1. Exceedance for one sample	1. Identify the source.	1. Check monitoring data submitted	1. Confirm receipt of notification of	1. Take immediate action to avoid				
Sample	 Inform the ER and the DEP. Repeat measurement to confirm finding. Increase monitoring frequency to daily. Assess effectiveness of Contractor's remedial actions and keep the IEC, the DEP and the ER informed of the results. 	 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 the second second	failure in writing.2. Notify the Contractor.3. Ensure remedial measures are properly implemented.	further exceedance2. Submit proposals for remedial actions to IEC within 3 working days of notification3. Implement the agreed proposals4. Amend proposal if appropriate				
2. Exceedance for two or more consecutive samples	 Notify the IEC, the ER, the DEP and the Contractor. Identify the source. Repeat measurements to confirm findings. Increase monitoring frequency to daily. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. Arrange meeting with the IEC and the ER to discuss the remedial actions to be taken. Assess effectiveness of the Contractor's remedial actions 	 remedial measures. 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. 	 Confirm receipt of notification of failure in writing. Notify the Contractor. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. Ensure remedial measures are properly implemented. 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. 	 Take immediate action to avoid further exceedance. Submit proposals for remedial actions to IEC within 3 working days of notification. Implement the agreed proposals. Resubmit proposals if problem stin not under control. 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

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 2018 (Year)

		Actual	Quantities of Inert C	&D Materials Genera	tion		Actual Quantities of C&I	D wastes Generation	Actu	al Quantities of F	ecyclables Genera	ation
Month\Material	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	-	0.000	-	-	-	-	-	-	-	-	-	-
Feb	-	0.000	-	-	-	-	-	-	-	-	-	-
Mar	-	0.000	-	-	-	-	-	-	-	-	-	-
Apr	-	0.000	-	-	-	-	-	-	-	-	-	-
Мау	0.397	0.000	-	0.397	-	-	-	-	-	-	-	-
Jun	2.085	0.008	-	-	2.085	-	-	3.750	-	-	-	-
SUB-TOTAL	2.482	0.008	0.000	0.397	2.085	0.000	-	3.750	-	0.000	-	-
Jul	0.830	0.050	-	-	0.830	-	-	15.190	-	-	-	-
Aug	0.825	0.046	-	-	0.825	-	-	103.420	-	-	-	-
Sep	0.205	-	-	-	0.205	-	-	22.150	-	-	-	-
Oct	0.720	-	-	-	0.720	-	-	26.280	-	-	0.063	-
Nov	0.253	0.011	0.010	-	0.243	-	-	11.720	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	5.315	0.115	0.010	0.397	4.908	-		182.510	-	-	0.063	-

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 G

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

Appendix G1 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting month	Total No. recorded since project commencement
1-Hr TSP	Action	6	13
	Limit	0	1
24-Hr TSP	Action	0	0
	Limit	0	0

Appendix G2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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

Email message		Environmental Resources Management
То	Ramboll Hong Kong Limited (ENPO)	2507, 25/F One Harbourfront, 18 Tak Fung Street,
From	ERM- Hong Kong, Limited	Hung Hom, Hong Kong Telephone: (852) 2271 3113 Facsimile: (852) 2723 5660
Ref/Project number	Contract No. HY/2017/10 Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works	E-mail: jasmine.ng@erm.com
Subject	Notification of Exceedance for Air Quality Impact Monitoring	ERM
Date	12 November 2018	

Dear Sir/ Madam,

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

Action Level Exceedance 0463091_31 October 2018_1hrTSP_Station ASR5

A total of one (1) exceedance was recorded on 31 October 2018.

Regards,

Jamin

Dr Jasmine Ng Environmental Team Leader

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ERM-Hong Kong, Limited

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

Air Quality Impact Monitoring

Notification of Exceedance

Log No.						
		Action Level Exceedance				
	0463	3091_31 October 2018_1hrTSP_Station ASR5				
		[Total No. of Exceedances = 1]				
Date	31 October 2018 (Measured)					
	12 November 2018 (Results obtained from ENPO Website)					
Monitoring Station		ASR1, ASR5, ASR6, ASR10, AQMS1				
Parameter(s) with	1-hr TSP					
Exceedance(s)		-				
Action Levels	1-hr TSP (μg/m ³)	ASR1 = 331				
		ASR5 = 340 ASR6 = 338				
		ASR0 = 558 ASR10 = 335				
		AQMS1 = 337				
Limit Levels	1-hr TSP (μg/m ³)	500				
Measured Levels	Refer to the attached data sheet.					
Works Undertaken (at	Works undertaken under this Contract on 31 October 2018 included:					
the time of monitoring	Socket H-piling at Administration Building and Maintenance Depot; and					
event)	Erection of formwork and fixing of steer bar at Toll Control Building.					
Possible Reason for	The exceedance is unlikely to be due to the Project, in view of the following:					
Action or Limit Level	• Apart from exceedances of 1 hour TSP (13:45 - 14:45) at ASR5, other 1hr-TSP levels and all 24-					
Exceedance(s)	hr TSP at all monitoring stations were in compliance with the Action and Limit Levels on the					
	same day.					
	• Watering record provided by the Contractor was reviewed. Watering was maintained on					
	unpaved and dry road on 31 October 2018 (refer to Contractor's Photo and watering record).					
	• According to ET's site inspection on 2 November 2018, no particular findings was observed					
	at the works area near ASR5 (refer to ET's Site Inspection Photo). Unpaved roads at the works					
	area were in wet condition.					
	Based on the above, the exceedances are unlikely to be due to the Project.					
Actions Taken / To Be	The Contractor has been reminded to ensure all dust suppression measures are implemented at the					
Taken	site area including water spraying at unpaved road. The ET will monitor for future trends in					
	exceedances.					
Dust Remarks	The monitoring results on 31 October 2018 and locations of air quality monitoring stations are					
	attached. Works area under this Contract is attached. The attached wind data on 31 October 2018					
	is sourced from Contract No. HY/2012/08 for reference.					

Results of Air Quality Monitoring

				Time (hh:mm,			
Project	Works	Date (yyyy-mm-dd)	Station	24hour)	Parameter	Results	Unit
TMCLKL	HY/2012/08	2018/10/31	AQMS1	14:08	1-hour TSP	161	ug/m3
TMCLKL	HY/2012/08	2018/10/31	AQMS1	15:10	1-hour TSP	210	ug/m3
TMCLKL	HY/2012/08	2018/10/31	AQMS1	16:12	1-hour TSP	169	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR1	13:57	1-hour TSP	197	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR1	14:59	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR1	16:01	1-hour TSP	134	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR10	13:22	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR10	14:24	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR10	15:26	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR5	13:45	1-hour TSP	371	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR5	14:47	1-hour TSP	293	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR5	15:49	1-hour TSP	303	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR6	13:33	1-hour TSP	234	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR6	14:35	1-hour TSP	194	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR6	15:37	1-hour TSP	210	ug/m3
TMCLKL	HY/2012/08	2018/10/31	AQMS1	17:14	24-hour TSP	90	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR1	17:03	24-hour TSP	121	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR10	16:28	24-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR5	16:51	24-hour TSP	193	ug/m3
TMCLKL	HY/2012/08	2018/10/31	ASR6	16:39	24-hour TSP	130	ug/m3

Note:

Indicates Exceedance of Action Level Indicates Exceedance of Limit Level

Meteorological Data for Impact Monitoring in the reporting period*					
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Director (degree)		
18/10/31	0:00	2.2	342		
18/10/31	1:00	2.2	355		
18/10/31	2:00	2.7	346		
18/10/31	3:00	3.1	14		
18/10/31	4:00	3.1	32		
18/10/31	5:00	2.2	37		
18/10/31	6:00	1.8	18		
18/10/31	7:00	2.2	6		
18/10/31	8:00	3.6	33		
18/10/31	9:00	3.6	13		
18/10/31	10:00	1.8	284		
18/10/31	11:00	1.8	36		
18/10/31	12:00	3.1	46		
18/10/31	13:00	3.6	29		
18/10/31	14:00	2.2	27		
18/10/31	15:00	1.8	39		
18/10/31	16:00	2.2	39		
18/10/31	17:00	1.8	22		
18/10/31	18:00	2.2	339		
18/10/31	19:00	0.9	324		
18/10/31	20:00	0.9	118		
18/10/31	21:00	2.7	4		
18/10/31	22:00	3.1	357		
18/10/31	23:00	2.2	334		

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

PHOTO BY CONTRACTOR ON 31 OCTOBER 2018

Photo 1 - Watering of unpaved roads to maintain a wet condition (31 October 2018)



PHOTO BY CONTRACTOR ON 31 OCTOBER 2018

PHOTO BY ET ON 2 NOVEMBER 2018

Photo 2 - Unpaved roads were maintained in a wet condition (2 November 2018)

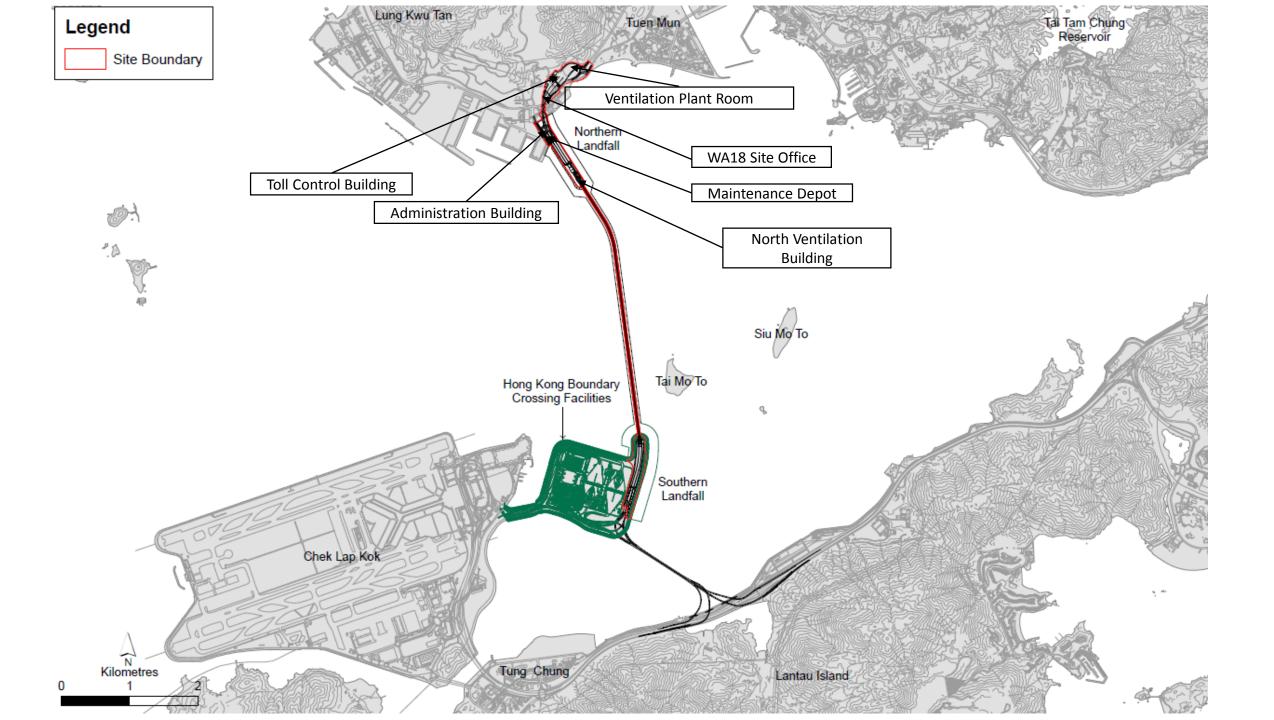


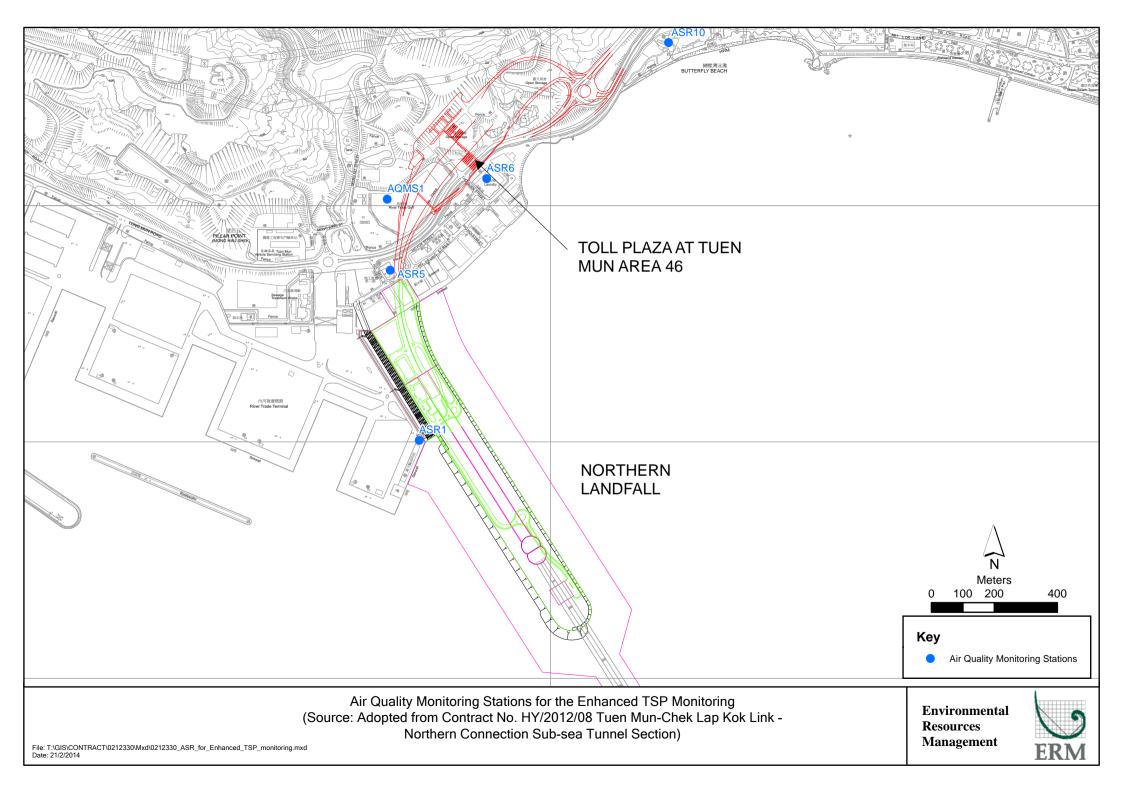
Photo 3 - No dust emission works were conducted at Toll Control Building.



WATERING RECORD ON 31 OCTOBER 2018

)ate= Location: 1B&MD Waterlig the Erlod Senative toky 8:09 9:10 9:49 0) / San 10:47 0-(Esty 11:50 toby 12:51 1 toky 13:42 1 thy 13ep toby JJ 14:09 14:53 21-41 N: 49 6 16:52 top 17:45 toby 8 0





Email message

message		Management
То	Ramboll Hong Kong Limited (ENPO)	2507, 25/F One Harbourfront, 18 Tak Fung Street,
From	ERM- Hong Kong, Limited	Hung Hom, Hong Kong Telephone: (852) 2271 3113 Facsimile: (852) 2723 5660
Ref/Project number	Contract No. HY/2017/10	E-mail: jasmine.ng@erm.com
	Tuen Mun - Chek Lap Kok Link - Northern	
	Connection Tunnel Buildings, Electrical and	
	Mechanical Works	ł
Subject	Notification of Exceedance for Air Quality Impact Monitoring	ERM
Date	22 November 2018	

Environmental

Recourses

Dear Sir/ Madam,

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

<u>Action Level Exceedance</u> 0463091_6 November 2018_1hrTSP_Station ASR1

A total of one (1) exceedance was recorded on 6 November 2018.

Regards,

famin

Dr Jasmine Ng Environmental Team Leader

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ERM-Hong Kong, Limited

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

Air Quality Impact Monitoring

Notification of Exceedance

Log No.				
	<u>Action Level Exceedance</u> 0463091_6 November 2018_1hrTSP_Station ASR1			
		[Total No. of Exceedances = 1]		
Date		6 November 2018 (Measured)		
	22 Novem	ber 2018 (Results obtained from ENPO Website)		
Monitoring Station		ASR1, ASR5, ASR6, ASR10, AQMS1		
Parameter(s) with		1-hr TSP		
Exceedance(s)		1-11 1-51		
Action Levels	1 - hr TSP (μg/m ³)	ASR1 = 331		
		ASR5 = 340 ASR6 = 338		
		ASR0 = 335		
		AQMS1 = 337		
Limit Levels	1-hr TSP (μg/m³)	500		
Measured Levels	Refer to the attached data sheet			
Works Undertaken (at	Works undertaken under this C	Contract on 6 November 2018 included:		
the time of monitoring	 Socket H-piling at Adminis 			
event)	Formwork at Toll Control Building.			
Possible Reason for	The exceedance is unlikely to be due to the Project, in view of the following:			
Action or Limit Level	• Apart from exceedances of 1 hour TSP (14:50 - 15:50) at ASR1, other 1hr-TSP levels and all 24-			
Exceedance(s)	hr TSP at all monitoring stations were in compliance with the Action and Limit Levels on the			
	same day.			
	• Watering record provided by the Contractor was reviewed. Watering was maintained on			
	unpaved and dry road on 6 November 2018 (refer to Contractor's Photo and watering record).			
	No outdoor construction works was conducted under this Contract in the wind direction			
	(south-easterly wind) during the time that exceedance was recorded.			
	• According to ET's site inspection on 9 November 2018, no particular findings was observed			
	at the works area near ASR1 (<i>refer to ET's Site Inspection Photo</i>). Unpaved roads at the works			
	area were in wet condition.			
	Based on the above, the exceedances are unlikely to be due to the Project.			
Actions Taken / To Be	The Contractor has been reminded to ensure all dust suppression measures are implemented at the			
Taken	site area including water spraying at unpaved roads. The ET will monitor for future trends in			
	exceedances.			
Remarks	The monitoring results on 6 November 2018 and locations of air quality monitoring stations are			
	attached. The location of the works area under this Contract is attached. The attached wind data			
	on 6 November 2018 is sourced from Contract No. HY/2012/08 for reference.			

Results of Air Quality Monitoring

				Time (hh:mm,			
Project	Works	Date (yyyy-mm-dd)	Station	24hour)	Parameter	Results	Unit
TMCLKL	HY/2012/08	2018/11/06	AQMS1	13:59	1-hour TSP	82	ug/m3
TMCLKL	HY/2012/08	2018/11/06	AQMS1	15:01	1-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2018/11/06	AQMS1	16:03	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR1	13:48	1-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR1	14:50	1-hour TSP	376	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR1	15:52	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR10	13:13	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR10	14:15	1-hour TSP	50	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR10	15:17	1-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR5	13:37	1-hour TSP	181	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR5	14:39	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR5	15:41	1-hour TSP	138	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR6	13:25	1-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR6	14:27	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR6	15:29	1-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2018/11/06	AQMS1	17:05	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR1	16:54	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR10	16:19	24-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR5	16:43	24-hour TSP	90	ug/m3
TMCLKL	HY/2012/08	2018/11/06	ASR6	16:31	24-hour TSP	65	ug/m3

Note:

Indicates Exceedance of Action Level Indicates Exceedance of Limit Level

Photo 1 - Watering of unpaved roads near Administration Building and Maintenance Depot to maintain a wet condition (6 November 2018)



Photo 2 - Watering of unpaved roads near Fire Services Department Building and Customs & Excise Department Building to maintain a wet condition (6 November 2018)

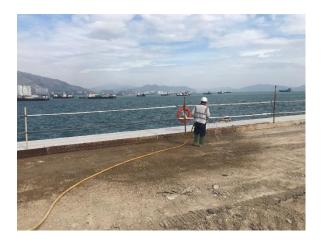
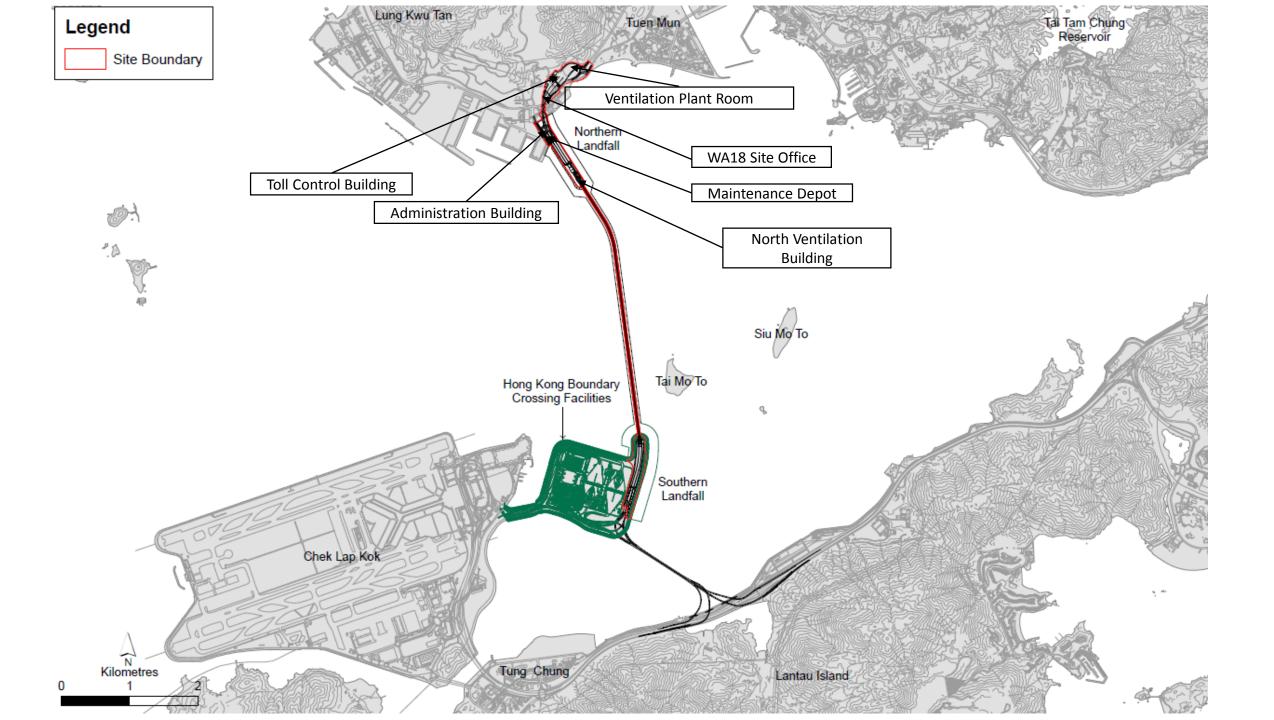


PHOTO BY ET ON 9 NOVEMBER 2018

Photo 3 - Unpaved roads were maintained in a wet condition (9 November 2018)



Date : AdB & MD Time of watering Brood 7-8 1 8:05 Tony 8-9 tom - 9:06 9-10 ton (0=03 10-11 - 11:05 11-12 12:06 12-13 tony tohy 13:04 13-14 - 14:01 1453 14-15 15:53 15-16 tony 16=45 16-17 17=44 17-18 18=30 18-19 toby





Meteorological Data for Impact Monitoring in the reporting period*					
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Director (degree)		
18/11/06	0:00	2.7	95		
18/11/06	1:00	2.7	93		
18/11/06	2:00	2.2	98		
18/11/06	3:00	0.9	62		
18/11/06	4:00	1.3	95		
18/11/06	5:00	0.4	312		
18/11/06	6:00	0.9	53		
18/11/06	7:00	1.3	51		
18/11/06	8:00	1.3	76		
18/11/06	9:00	3.1	101		
18/11/06	10:00	3.1	132		
18/11/06	11:00	4.0	144		
18/11/06	12:00	3.6	124		
18/11/06	13:00	3.6	143		
18/11/06	14:00	2.7	139		
18/11/06	15:00	2.2	131		
18/11/06	16:00	1.3	120		
18/11/06	17:00	1.8	97		
18/11/06	18:00	2.2	101		
18/11/06	19:00	1.3	121		
18/11/06	20:00	1.3	80		
18/11/06	21:00	1.3	93		
18/11/06	22:00	2.2	93		
18/11/06	23:00	1.3	81		

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

Email message

message		Resources Management
То	Ramboll Hong Kong Limited (ENPO)	2507, 25/F One Harbourfront, 18 Tak Fung Street,
From	ERM- Hong Kong, Limited	Hung Hom, Hong Kong Telephone: (852) 2271 3113 Facsimile: (852) 2723 5660
Ref/Project number	Contract No. HY/2017/10	E-mail: jasmine.ng@erm.com
	Tuen Mun - Chek Lap Kok Link - Northern	
	Connection Tunnel Buildings, Electrical and	
	Mechanical Works	
Subject	Notification of Exceedance for Air Quality	
	Impact Monitoring	ERM
Date	22 November 2018	-

Environmental

Dear Sir/ Madam,

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

Action Level Exceedance 0463091_12 November 2018_1hrTSP_Station ASR1 0463091_12 November 2018_1hrTSP_Station ASR5 0463091_12 November 2018_1hrTSP_Station ASR5 0463091_12 November 2018_1hrTSP_Station ASR5 0463091_12 November 2018_1hrTSP_Station ASR6

A total of five (5) exceedances were recorded on 12 November 2018.

Regards,

famin

Dr Jasmine Ng Environmental Team Leader

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ERM-Hong Kong, Limited

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

Air Quality Impact Monitoring

Notification of Exceedance

T NT	<u> </u>			
Log No.	Action Level Exceedance			
	0212330_12November2018_1hrTSP_Station ASR1			
	0212330_12November2018_1hrTSP_Station ASR5			
	0212330_12November2018_1hrTSP_Station ASR5			
	0212330_12November2018_1hrTSP_Station ASR5			
	0212330	0_12November2018_1hrTSP_Station ASR6		
		[Total No. of Exceedances = 5]		
Date		12 November 2018 (Measured)		
	22 Novemb	ber 2018 (Results obtained from ENPO Website)		
Monitoring Station		ASR1, ASR5, ASR6, ASR10, AQMS1		
Parameter(s) with		1-hr TSP		
Exceedance(s)		1-10 151		
Action Levels	1-hr TSP ($\mu g/m^3$)	ASR1 = 331		
		ASR5 = 340		
		ASR6 = 338		
		ASR10 = 335 AQMS1 = 337		
Limit Levels	1-hr TSP (μg/m ³)	500		
Measured Levels	Refer to the attached data sheet.			
Works Undertaken (at		ontract on 12 November 2018 included:		
the time of monitoring	 Socket H-piling at Adminis 			
event)	Formwork at Toll Control B			
Possible Reason for	The exceedances are unlikely to be due to the Project, in view of the following:			
Action or Limit Level	• Although five (5) Action	Levels Exceedances of 1-hour TSP were recorded, including		
Exceedance(s)	exceedances recorded at ASR1 (15:02-16:02), ASR-5 (13:49-14:49; 14:51-15:51; 15:53-16:53) and			
	ASR6 (14:40– 15:40), no works area under this Contract are located upstream of stations ASR1			
	and ASR5 and only the works area of Toll Control Building (TCB) are located upstream of			
	station ASR6 in the wind direction (ranged between 217° and 304° blowing from a Westerly			
	direction) during the period when 1-hour TSP exceedances were observed.			
	 Only one (1) Action Level Exceedance of 1- hour TSP was recorded at station ASR6 			
	 Only one (1) Action Level Exceedance of 1- nour 15P was recorded at station ASR6 downstream of the TCB when exceedance was recorded, works at TCB were formworks 			
	which are not dust generating.Watering record provided by the Contractor was reviewed. Watering was maintained on			
		-		
	unpaved and dry road on 12 November 2018 (refer to Contractor's Photo and watering record).			
	With reference to the recorded wind Based on the above, the exceedances are unlikely to be due to			
Actions Talson / To Pa	the Project.	lad to anour all dust suppression measures are implemented at the		
Actions Taken / To Be	The Contractor has been reminded to ensure all dust suppression measures are implemented at the			
Taken	site area including water spraying at unpaved road. The ET will monitor for future trends in			
	exceedances.			
Remarks	The monitoring results on 12 November 2018 and locations of air quality monitoring stations are			
	attached. The location of the works area under this Contract is attached. The attached wind data			
	on 12 November 2018 is sourced	from <i>Contract No. HY/2012/08</i> for reference.		

Results of Air Quality Monitoring

				Time (hh:mm,			
Project	Works	Date (yyyy-mm-dd)	Station	24hour)	Parameter	Results	Unit
TMCLKL	HY/2012/08	2018/11/12	AQMS1	14:12	1-hour TSP	311	ug/m3
TMCLKL	HY/2012/08	2018/11/12	AQMS1	15:14	1-hour TSP	272	ug/m3
TMCLKL	HY/2012/08	2018/11/12	AQMS1	16:16	1-hour TSP	292	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR1	14:00	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR1	15:02	1-hour TSP	395	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR1	16:04	1-hour TSP	193	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR10	13:26	1-hour TSP	242	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR10	14:28	1-hour TSP	164	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR10	15:30	1-hour TSP	197	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR5	13:49	1-hour TSP	371	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR5	14:51	1-hour TSP	425	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR5	15:53	1-hour TSP	377	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR6	13:38	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR6	14:40	1-hour TSP	343	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR6	15:42	1-hour TSP	259	ug/m3
TMCLKL	HY/2012/08	2018/11/12	AQMS1	17:18	24-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR1	17:06	24-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR10	16:32	24-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR5	16:55	24-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2018/11/12	ASR6	16:44	24-hour TSP	103	ug/m3

Note:

Indicates Exceedance of Action Level Indicates Exceedance of Limit Level

Photo 1 - Watering of unpaved roads at works area near Administration Building and Maintenance Depot to maintain a wet condition

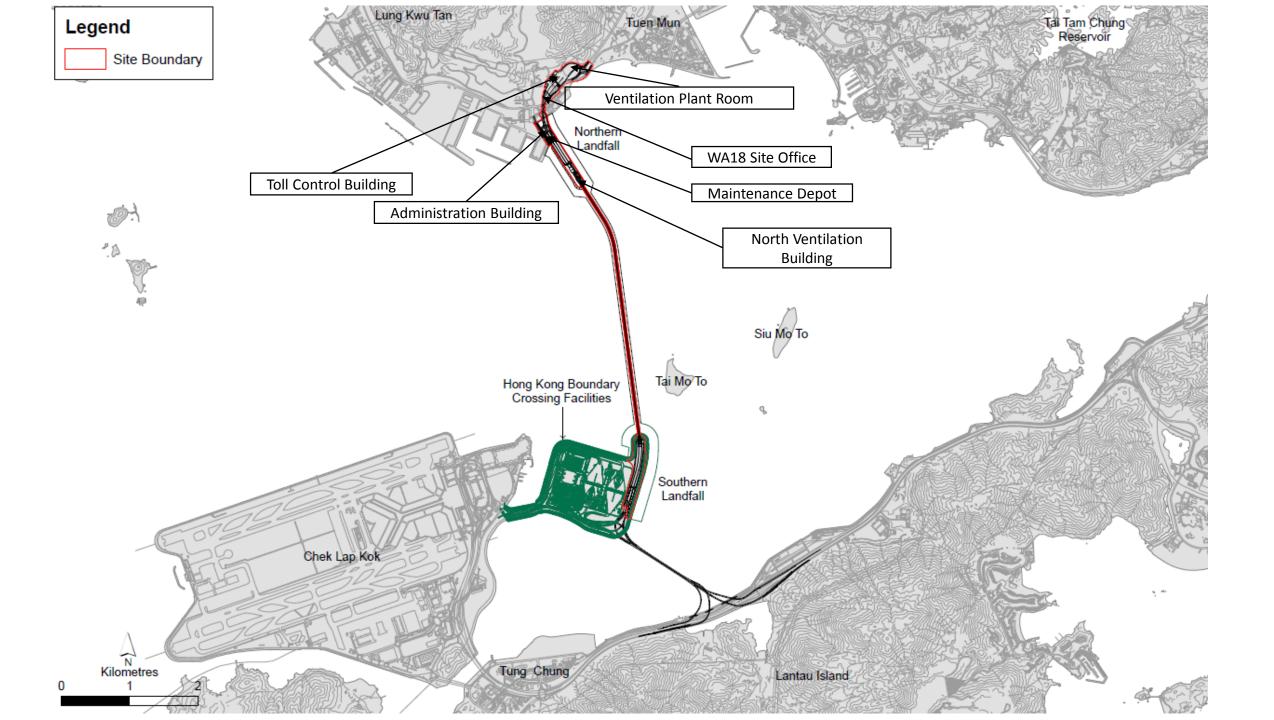


Photo 2 - Watering of unpaved roads at works areas near Fire Service Department Building and Customs & Excise Department Building to maintain a wet condition



WATERING RECORD ON 12 NOVEMBER 2018

AdB & MD the Nor Sign Watering the ein 7:50 7-8 8-9 8=54 tohy toby 9=40 9-10 10-4 toby 10=56. 22=11=01=13 11-12 tob 12:56 12-13 sey 13-14 13-56 ster 14-15 14:50 ton 15-16 15:52 16-17 16=51 topy 17-18 17:54 the 18-19





	Meteorological Data for Impact Monitoring in the reporting period*					
Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Director (degree)			
18/11/12	0:00	0.4	301			
18/11/12	1:00	0.4	285			
18/11/12	2:00	0.4	296			
18/11/12	3:00	0.9	100			
18/11/12	4:00	2.2	94			
18/11/12	5:00	1.3	93			
18/11/12	6:00	0.9	313			
18/11/12	7:00	0.9	329			
18/11/12	8:00	0.9	288			
18/11/12	9:00	1.3	303			
18/11/12	10:00	1.3	133			
18/11/12	11:00	1.8	200			
18/11/12	12:00	1.3	131			
18/11/12	13:00	1.3	217			
18/11/12	14:00	1.3	281			
18/11/12	15:00	1.8	262			
18/11/12	16:00	0.9	291			
18/11/12	17:00	0.9	304			
18/11/12	18:00	1.3	79			
18/11/12	19:00	1.8	93			
18/11/12	20:00	1.3	99			
18/11/12	21:00	0.9	93			
18/11/12	22:00	0.9	68			
18/11/12	23:00	0.9	92			

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