中國港灣工程有限責任公司
香港代表： 振華工程有限公司
CHINA HARBOUR ENGINEERING COMPANY LIMITED
HONG KONG REPRESENTATIVE: ZHEN HUA ENGINEERING CO., LTD.

Date : 21 November 2017
Our Ref. : CHEC300/OUT/2017/11/04.05/033470

By Fax (3922 9797) & By Hand

AECOM Asia Company Limited
8/F Grand Central Plaza
Tower 2, 138 Shatin Rural Committee Road
Shatin, Hong Kong

Attn: Mr. Ng Wang Shek
The Engineer's Representative

Dear Sir,

Contract No. HY/2013/03
Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities
EP Condition 5.4 – Monthly EM&A Report (October 2017)

Pursuant to the Condition 5.4 of the EP-353/2009/K, we are pleased to submit one soft copy and three hard copies of the certified Monthly EM&A Report (Rev.3) for October 2017 for your on-ward submission.

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
China Harbour Engineering Co. Ltd.

Paul Pui
Site Agent

PP/FH/MC/ac

Encl.

RAMBOLL ENVIRON

Ref.: HYDHZMBEEM00_0_6024L.17

21 November 2017

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd.
The PRE's Office
5 Ying Hei Road, Tung Chung, Lantau
Hong Kong

Attention: Mr. W.S. Ng

Dear Sir,

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

Contract No. HY/2013/03 – HZMB HKBCF – Vehicle Clearance Plazas and Ancillary Buildings and Facilities
Monthly Environmental Monitoring & Audit Report for October 2017

Reference is made to the Environmental Team's submission of Monthly Environmental Monitoring & Audit Report for October 2017 (Rev. 3) certified by the ET Leader (ET's ref.: "MCL/ED/0618/2017/C" dated 21 November 2017) and provided to us via e-mail on 21 November 2017.

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

The ET Leader is reminded that it is the ET's responsibility to ensure the report be timely submitted to the Director of Environmental Protection and the reported information be true, valid and correct as per Conditions 5.4 and 5.5 of EP-353/2009/K respectively.

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

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

Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Vico Cheung	(By Fax: 3188 6614)
	HyD	Mr. Ken Woo	(By Fax: 3188 6614)
	MCL	Mr. Arthur Cheng	(By Fax: 2450 8032)
	CHEC	Mr. Johnason Ko	(By Fax: 2887 3014)

Internal: DY, YH, ENPO Site

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Ramboll Environ Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.Ramboll-Environ.com

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong
Tel : +852-2450 8238
Fax : +852-2450 8032
E-mail : mcl@fugro.com.hk
Website : www.materialab-consultant.com

Date 21 November 2017
Our Ref. MCL/ED/0618/2017/C

Ramboll Environ Hong Kong Limited
(formerly ENVIRON Hong Kong Limited)
21/F, BEA Harbour View Centre
56 Gloucester Road, Wan Chai
Hong Kong

BY HAND

Attn.: Mr. Raymond Dai, IEC

Dear Sir,

EP Condition 5.4 – Monthly EM&A Report for
Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities –
Vehicle Clearance Plazas and Ancillary Buildings and Facilities (Contract No. HY/2013/03)

Pursuant to Condition 5.4 of the Environmental Permit (EP-353/2009/K) for the captioned project, we are pleased to submit the certified Monthly EM&A Report for October 2017 (Rev.3) for your verification.

Should you require further information, please do not hesitate to contact our Mr. Vincent Lu at 3565 4371 or the undersigned at 3565 4115.

Yours faithfully,
for and on behalf of
MATERIALAB CONSULTANTS LIMITED

Arthur Cheng
Environmental Team Leader

AC/vl

c.c. AECOM – Mr. P.K. Lee, Mr. W.S. Ng, Mr. Dominic Mow
RAMBOLL ENVIRON – Mr. Ray Yan, Mr. Harris Wong
CHEC – Mr. Marko Chan

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT (Rev. 3)

October 2017

Client: China Harbour Engineering Co., Ltd.

Project: Contract No. HY/2013/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities -
Vehicle Clearance Plazas and
Ancillary Buildings and Facilities

Report No.: 0165/15/ED/0944

Prepared by: Vincent Lu

Certified by: _____
Arthur Cheng
Environmental Team Leader

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APPENDICES

FIGURES

EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2013/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities" (includes the construction works of Contract No. HY/2013/06 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System" within Contract No. HY/2013/03 works area) (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2013/03 was awarded to China Harbour Engineering Co. Limited (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited within Contract No. HY/2013/03 works area) (hereafter referred to as "the Contractor") and MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) is part of the "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities" (HZMB HKBCF) Project which is a "Designated Project" under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register.

Commencement of Contract No. HY/2013/03 took place on 10 April 2015 while the construction works and the EM&A programme of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015 while the construction works and the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area commenced on 13 September 2016).

MateriaLab Consultants Limited (MCL) has been appointed by the Contractor to implement the Environmental Monitoring & Audit (EM&A) programme for the Contract in accordance with the Updated EM&A Manual for HKBCF (Version 1.0) and will be providing environmental team services for the Contract.

This is the 26th Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 October 2017 to 31 October 2017 (includes the findings of the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area during the reporting period from 1 October 2017 to 31 October 2017) (the "reporting period"). The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2013/01 "Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building" and Contract No. HY/2011/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7, noise monitoring at NMS2 and NMS3B, water quality monitoring at the locations shown in **Figure 3** and ecological monitoring as shown in **Figure 4** as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2013/01 and HY/2011/03. However, this is subject to ENPO's final decision on which ET should carry out the monitoring work at these stations.

The dates of site inspection for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) during the reporting period are listed below:

Environmental Site Inspection: 6, 12, 19 and 27 October 2017.

Breaches of Action and Limit Levels

Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

There were Action and Limit Level exceedances of suspended solids and dissolved oxygen recorded on seven days by the Environmental Team of Contract No. HY/2013/01 during reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03. There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations shown as shown at **Table 4.1** by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

Ecological monitoring results at all transects are reported in the EM&A report prepared by Contract No. HY/2013/01.

Complaint Log

There was one complaint received in relation to the environmental impact during the reporting period.

Log No.	Environmental Complaint Ref. No.	Date of Complaint Receipt	Description
013	ENPO-C0127	27 October 2017	Water discharge

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

There was no reporting change during the reporting period.

Future Key Issues

The future key issues to be undertaken in the upcoming month are:

<u>For Contract No. HY/2013/03</u>

1. Building at Portion A1, B, G, N, J, STP & Pumping Stations;
2. CUE Construction at Portion B, C & J;
3. Drainage & Sewerage Work, Water Main & Cable Duct at Portion B, H1, H2, J, P, G & A1;
4. Radiation Screen Wall at Portion B, E P, N,M,C;
5. Sign Gantry Footing at Portion B;
6. Sewerage Pumping Station, High Mast Lighting Foundation & Box Culvert C at Portion G;
7. Bridge Works at A1 to A9;
8. Site Foundation Works at Portion K;
9. Cover Walkway at Portion H1 & H2;
10. Box Culvert B at Portion N; Shuttle kiosk & Subway at Portion E)

<u>For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area</u>

1. CUE, Kiosk & Building 037

1. INTRODUCTION

1.1 Background

1.1.1 MateriaLab Consultants Limited was commissioned by China Harbour Engineering Co. Limited (also referred to as "the Contractor") to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for Contract No. HY/2013/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities" (includes the construction works of Contract No. HY/2013/06 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System" within Contract No. HY/2013/03 works area) ("the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR).

1.1.2 Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) is part of Hong Kong–Zhuhai–Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) which is "Designated Projects", under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499) and for which an EIA Report (Register No. AEIAR-145-2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP- 353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance. The general layout of the Project area is shown in **Appendix A**.

1.1.3 This is the twenty-sixth EM&A report to document the findings of site inspection activities and EM&A programme carried out by the Contractor of Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) from 1 October 2017 to 30 October 2017 (reporting period) under Contract No. HY/2013/03 (from 1 October 2017 to 30 October 2017 for the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) and is submitted to fulfil Condition 5.4 of the EP.

1.2 Project Description

1.2.1 The works to be executed under Contract No. HY/2013/03 include the following major items:

a. Cargo clearance facilities including kiosks for clearance of good vehicles, customs inspection platforms, X-ray building, etc.;

b. Passenger related facilities including processing kiosks and examination facilities for private cars and coaches, annexure for examination of accompanying passengers of private cars, etc.;

c. Accommodation/offices for the facilities (like fire station, police station, buildings for Immigration Department [ImmD], Hong Kong Customs and Excise Department [C&ED], Agriculture, Fisheries and Conservation Department [AFCD], Food and Environmental Hygiene Department [FEHD], Department of Health [DofH] etc.) of the Government departments providing services in connection with the HKBCF;

d. Provision of transport and miscellaneous facilities inside the HKBCF including public transport interchange (PTI), transport drop-off and pick-up areas, vehicle holding areas, passenger queuing areas, road networks, footbridges, fencing, sewerage and drainage

systems, sewage treatment plant and treated effluent disposal facilities, water supply system, building services works, electronic system, and traffic control and information system including traffic control and surveillance system (TCSS), etc.;

e. Provision of roads connecting the BCF to the Hong Kong Link Road (HKLR), the Tuen Mun – Chek Lap Kok Link (TM-CLKL) and the Hong Kong International Airport (HKIA), expect the part of road works in HKIA entrusted to the HKLR project; and

f. Reprovisioning of the affected HKIA's facilities, expect those affected by the Automated People Mover (APM) system such as the existing east rescue berth.

1.2.2 The works to be executed under Contract No. HY/2013/06 within Contract No. HY/2013/03 works area include the following major items:

a. The Automatic Vehicle Clearance Support System amid to increasing traffic flow for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities;

b. Responsible for designs and develops a set of tailor-made computer monitoring and control systems to for daily security operation; and

c. The Clearance Workstations at 72 vehicle clearance kiosks, Customs and Excise's inbound and outbound traffic control centers as well as a Vehicle Tracking System.

1.3 Project Organisation

1.3.1 The Project Organisation for Environmental Works of Contract No. HY/2013/03 is shown in **Appendix B**. The contact person and telephone numbers of key personnel for the captioned project are shown in **Table 1.1**:

Table 1.1 Contact Persons and Telephone Numbers of Key Personnel (for Contract No. HY/2013/03)

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Mr. W. S. Ng	3958 7400	3902 8800
Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3547 2133	3465 2899
	Independent Environmental Checker (IEC)	Mr. Raymond Dai	3465 2888	3465 2899
	Environmental Site Supervisor	Mr. Ray Yan	5181 8165	3465 2899
Contractor (China Harbour Engineering Co. Ltd)	Site Agent	Mr. Paul Pui	9125 0700	2512 0427
	Environmental Officer	Mr. Marko Chan	9427 2879	2512 0427
Environmental Team (MateriaLab Consultants Limited)	Environmental Team Leader (ETL)	Mr. Arthur Cheng	3565 4115	2450 8032
24-hr Complaint Hotline	--	--	5236 7111	--

1.3.2 The Project Organisation for Environmental Works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area is shown in **Appendix B**. The contact person and telephone numbers of key personnel for the captioned project are shown in **Table 1.2**:

Table 1.2 Contact Persons and Telephone Numbers of Key Personnel (for Contract No. HY/2013/06 within Contract No. HY/2013/03 works area)

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Mr. W. S. Ng	3958 7400	3902 8800
Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3547 2133	3465 2899
	Independent Environmental Checker (IEC)	Mr. Raymond Dai	3465 2888	3465 2899
	Environmental Site Supervisor	Mr. Ray Yan	5181 8165	3465 2899
Contractor (ATAL Technologies Limited)	Site Agent	Mr. Eric Yim	2565 3355	3162 5217
	Environmental Officer	Mr. W. Li	2565 3137	3162 5217
Environmental Team (MateriaLab Consultants Limited)	Environmental Team Leader (ETL)	Mr. Arthur Cheng	3565 4115	2450 8032
24-hr Complaint Hotline	--	--	6509 0375	--

1.3.3 The Contract HY/2013/03 has commenced on 10 April 2015. The commencement of construction works and the EM&A programme have commenced on 29 August 2015.

1.3.4 The Contract HY/2013/06 has commenced on 14 August 2015. The commencement of construction works and the EM&A programme have commenced on 13 September 2016 within Contract No. HY/2013/03 works area.

1.4 Construction Programme

1.4.1 The construction programme for Contract No. HY/2013/03 (includes the construction works of HY/2013/06 within Contract No. HY/2013/03 works area) are provided in **Appendix C**.

1.5 Construction Works Undertaken during the Reporting Period

1.5.1 The construction works of Contract No. HY/2013/03 commenced on 29 August 2015 (includes the construction works of Contract No. HY/2013/06 commenced on 13 September 2016 within Contract No. HY/2013/03 works area). During this reporting period, the following major site activities were commenced:

For Contract No. HY/2013/03

1. Building at Portion A1, B, G, N, J, STP & Pumping Stations;
2. CUE Construction at Portion B, C & J;
3. Drainage & Sewerage Work, Water Main & Cable Duct at Portion B, H1, H2, J, P, G & A1;

4. Radiation Screen Wall at Portion B, E P, N,M,C;
5. Sign Gantry Footing at Portion B;
6. Sewerage Pumping Station, High Mast Lighting Foundation & Box Culvert C at Portion G;
7. Bridge Works at A1 to A9;
8. Site Foundation Works at Portion K;
9. Cover Walkway at Portion H1 & H2;
10. Box Culvert B at Portion N; Shuttle kiosk & Subway at Portion E
11. Deployment, maintenance and inspection of silt curtain;
12. Construction of water outfall of box culvert; and
13. Marine sediment excavation activities from the land-based works and corresponding disposal at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee.

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

1. Conduits & Wiring installation at Building 037, kiosk and CUE works area.

2. AIR QUAILITY MONITORING

2.1 Monitoring Locations

2.1.1 The air quality monitoring works for the Contract are covered by Contract No. HY/2013/01 "Hong Kong-Zhuhai-Macao-Bridge HKBCF – Passenger Clearance Building" and Contract No. HY/2011/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract No. HY/2013/01 and HY/2011/03. **Figure 1** shows the locations of air monitoring stations.

Table 2.1 Air Quality Monitoring Location

Air Monitoring Station	Location
AMS6	Dragonair/CNAC (Group) Building (A80)
AMS7	Hong Kong SkyCity Marriott Hotel

2.2 Monitoring Requirements

2.2.1 The monitoring requirements, equipment, parameters, frequency and duration, methodology, schedule, and meteorological information are described in the monthly EM&A Reports prepared for Contract No. HY/2013/01 and HY/2011/03.

2.2.2 The Action and Limit levels for 1-hr TSP and 24-hr TSP are summarized in **Table 2.2**.

Table 2.2 Action and Limit Levels for Air Quality

Monitoring Station	Action Level (μg/m³)	Limit Level (μg/m³)
1 hour TSP		
AMS6	360	500
AMS7	370	
24 hours TSP		
AMS6	173	260
AMS7	183	

2.2.3 The event and action plan is provided in **Appendix D**.

2.2.4 If exceedance(s) at these stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

2.3 Monitoring Results

2.3.1 The monitoring results for AMS6 and AMS7 are reported in the monthly EM&A Reports prepared for Contract No. HY/2011/03 and HY/2013/01 respectively.

2.3.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

2.3.3 There was no Action and Limit Level exceedances of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

3. NOISE MONITORING

3.1 Monitoring Locations

3.1.1 The noise monitoring works for the Contract are covered by Contract No. HY/2013/01 "Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building". The ET of the Contract or another ET of the HZMB project is required to conduct noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2013/01. **Figure 2** shows the locations of noise monitoring stations.

Table 3.1 Construction Noise Monitoring Location

ID No.	Description
NMS2	Seaview Crescent
NMS3B	Site Boundary of Site Office Area at WA2

3.2 Monitoring Requirements

3.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology and monitoring schedule are detailed in the monthly EM&A Reports prepared for Contract No. HY/2013/01.

3.2.2 The Action and Limit Levels for construction noise are defined in **Table 3.2**.

Table 3.2 Action and Limit Level for Construction Noise

Monitoring Station	Action Level	Limit Level
For the Time Period 0700-1900 hrs. on Normal Weekdays		
NMS2	When one documented complaint is received	75.0 dB (A) Leq (30 min.)
NMS3B		70.0 dB (A) Leq (30 min.)*

Notes: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

* Reduce to 70 dB(A) for schools and 65 dB(A) during school examination period

3.3 Monitoring Results

3.3.1 The monitoring results for NMS2 and NMS3B are reported in the monthly EM&A Reports prepared for Contract No. HY/2013/01. No noise exceedance was recorded at stations NMS2 and NMS3B by the ET of Contract No. HY/2013/01 during the reporting period.

4. WATER QUALITY MONITORING

4.1 Monitoring Locations

4.1.1 The water monitoring works for the Contract are covered by Contract No. HY/2013/01 "Hong Kong-Zhuhai-Macao-Bridge HKBCF – Passenger Clearance Building". The ET of the Contract or another ET of the HZMB project is required to conduct impact water quality monitoring at the stations shown in **Table 4.1** and **Figure 3**.

Table 4.1 Water Quality Monitoring Stations

Station	Description	Easting	Northing
IS5	Impact Station (Close to HKBCF construction site)	811579	817106
IS(Mf)6	Impact Station (Close to HKBCF construction site)	812101	817873
IS7	Impact Station (Close to HKBCF construction site)	812244	818777
IS8	Impact Station (Close to HKBCF construction site)	814251	818412
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850
IS10(N)	Impact Station (Close to HKBCF construction site)	812942	820881
IS(Mf)11	Impact Station (Close to HKBCF construction site)	813562	820716
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497
IS17	Impact Station (Close to HKBCF construction site)	814539	820391
SR3	Sensitive receivers (San Tau SSSI)	810525	816456
SR4(N)	Sensitive receivers (Tai Ho)	814705	817859
SR5(N)	Control Station	812569	821475
SR6	Sensitive receivers (Sha Chau and Lung Kwu Chau Marine Park)	805837	821818
SR7	Sensitive receivers (Tai Mo Do)	814293	821431
SR10A(1)	Sensitive receivers(Ma Wan FCZ) 1	823741	823495
SR10B(N)(1)	Sensitive receivers(Ma Wan FCZ) 2	823683	823187
CS(Mf)3(N)	Control Station	808814	822355
CS(Mf)5	Control Station	817990	821129
CS4	Control Station	810025	824004
CS6	Control Station	817028	823992
CSA(2)	Control Station	818103	823064

Note:
(1) Additional monitoring station for ma Wan FCZ
(2) Additional control monitoring station for Ma Wan FCZ

Remarks:
The ET of the Contract should conduct impact water quality monitoring at the WQMs listed in the table as part of EM&A programme according to latest notification from ENPO if water quality monitoring is no longer covered by another ET of the HZMB project. The ET of the Contract shall communicate and share the monitoring data to the ET(s) of the other contracts if the water quality monitoring station(s) is/are as part of EM&A programme.

4.2 Monitoring Requirements

4.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared by Contract No. HY/2013/01.

4.2.2 The event and action plan is provided in **Appendix D**.

4.2.3 The Action and Limit Levels for Water Quality are provided in **Table 4.2**.

Table 4.2 Action and Limit Levels for Water Quality

Parameters	Action	Limit
DO in mg/L (Surface, Middle & Bottom)	Surface and Middle 5.0 Bottom 4.7	Surface and Middle = 4.2 (except 5 mg/L for FCZ) Bottom = 3.6
SS in mg/L (depth-averaged) at all monitoring stations and control stations	23.5 and 120% of upstream control station's SS at the same tide of the same day*	34.4 and 130% of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes*
Turbidity in NTU (depth-averaged)	27.5 and 120% of upstream control station's turbidity at the same tide of the same day*	47.0 and 130% of upstream control station's turbidity at the same tide of the same day*

* Remarks: Reference is made to EPD approval of adjustment of water quality assessment criteria issued and became effective on 18 February 2013.

Notes:
1."depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
4. All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.
5. The 1%-ile of baseline data for dissolved oxygen (surface and middle) and dissolved oxygen (bottom) are 4.2mg/L and 3.6mg/L respectively.

4.2.4 If exceedance(s) at these stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

4.3 Monitoring Results

4.3.1 The monitoring results for the monitoring stations showed in **Table 4.1** are reported in the monthly EM&A Report prepared for Contract No. HY/2013/01. There was Action and Limit Level exceedance recorded at different WQM stations during mid-ebb and mid-flood tide on twelve days. The summary of water quality exceedances are shown in **Table 4.3**.

Table 4.3 Action and Limit Levels for Water Quality

Station	Exceedance Level	DO (S&M)		DO (Bottom)		Turbidity		SS	
		Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood
IS5	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS(Mf6)	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS7	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS8	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS(Mf)9	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS10(N)	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS(Mf)11	Action	0	0	0	0	0	0	0	1 (20 Oct)
	Limit	0	0	0	0	0	0	0	0
IS(Mf)16	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
IS17	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
SR3	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
SR4(N)	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0

Station	Exceedance Level	DO (S&M)		DO (Bottom)		Turbidity		SS	
		Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood
SR5(N)	Action	0	0	0	0	0	0	0	3 (18 Oct, 20 Oct, 23 Oct)
	Limit	0	0	0	0	0	0	0	0
SR6	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
SR7	Action	0	0	0	0	0	0	0	1 (20 Oct)
	Limit	0	0	0	0	0	0	0	0
SR10A	Action	0	0	2 (2 Oct, 4 Oct)	2 (2 Oct, 4 Oct)	0	0	0	0
	Limit	1 (4 Oct)	1 (4 Oct)	0	0	0	0	0	0
SR10B(N)	Action	0	0	0	3 (2 Oct, 4 Oct, 6 Oct)	0	0	0	0
	Limit	2 (4 Oct, 6 Oct)	4 (2 Oct, 4 Oct, 6 Oct, 9 Oct)	0	0	0	0	0	0

Note: S&M: Surface & Middle

4.3.2 Regarding the exceedance on 2 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood and mid-ebb tide on 2 October 2017.

4.3.3 Regarding the exceedance on 4 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood and mid-ebb tide on 4 October 2017.

4.3.4 Regarding the exceedance on 6 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of

the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood and mid-ebb tide on 6 October 2017.

4.3.5 Regarding the exceedance on 9 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood on 9 October 2017.

4.3.6 Regarding the exceedance on 18 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused SS exceedance recorded at the concerned WQM station during mid-flood tide on 18 October 2017.

4.3.7 Regarding the exceedance on 20 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. For SS exceedance recorded at the WQM station SR7, there was no SS exceedance recorded at the same WQM station under similar work environment on 18 October 2017 and 23 October 2017. For SS exceedance recorded at the WQM station SR5(N), the concerned WQM stations where the exceedances were recorded were not close to the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS10(N). For SS exceedance recorded at the WQM station IS(Mf)11 closer to the works area Box Culvert B, there was no SS exceedance recorded at the same WQM station under similar work environment on 18 October 2017 and 23 October 2017. There was a complaint received by EPD with discharge concern around the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no

discharge activities during the complained period. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused SS exceedance recorded at the concerned WQM station during mid-flood tide on 20 October 2017.

4.3.8 Regarding the exceedance on 23 October 2017, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused SS exceedance recorded at the concerned WQM station during mid-flood tide on 23 October 2017.

5. ECOLOGY MONITORING

5.1 Monitoring Locations

5.1.1 The ecological monitoring works for the Contract are covered by Contract No. HY/2013/01 "Hong Kong-Zhuhai-Macao-Bridge HKBCF – Passenger Clearance Building". The ET of the Contract or another ET of the HZMB project is required to conduct dolphin monitoring at 24 transects as part of EM&A programme if these transects are no longer covered under Contract No. HY/2013/01. The ecological monitoring should adopt line-transect vessel survey method. The survey follows pre-set and fixed transect lines in the two areas defined by AFCD as: Northeast Lantau survey area; and Northwest Lantau survey area. **Figure 4** shows the co-ordinates for the transect lines and layout map.
Remarks:
The ET of this Contract should conduct impact ecological monitoring as part of EM&A programme according to latest notification from ENPO when the monitoring transect(s) is/are no longer covered by another ET of the HZMB project.

5.2 Monitoring Requirements

5.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared by Contract No. HY/2013/01.

5.2.2 The event and action plan is provided in **Appendix D**.

5.2.3 The Action and Limit Levels for Chinese White Dolphin Monitoring are provided in **Table 5.1(a)** & **Table 5.1(b)**.

Table 5.1(a) Action and Limit Levels for Chinese White Dolphin Monitoring - Approach to Define Action Level (AL) and Limit Level (LL)

	North Lantau Social Cluster	
	NEL	**NWL**
Action Level	(STG < 70% of baseline) & (ANI < 70% of baseline)	(STG < 70% of baseline) & (ANI < 70% of baseline)
Limit Level	[(STG < 40% of baseline) & (ANI < 40% of baseline)] AND [(STG < 40% of baseline) & (ANI < 40% of baseline)]	

For North Lantau Social Cluster, action level will be trigger if either NEL or NWL fall below the criteria; limit level will be triggered if both NEL and NWL fall below the criteria.

Table 5.2(b) Derived Value of Action Level (AL) and Limit Level (LL) for Chinese White Dolphin Monitoring

	North Lantau Social Cluster	
	NEL	**NWL**
Action Level	(STG < 4.2) & (ANI < 15.5)	(STG < 6.9) & (ANI < 31.3)
Limit Level	[(STG < 2.4) & (ANI <8.9)] AND [(STG < 3.9) & (ANI < 17.9)]	

5.2.4 If exceedance(s) at these transects is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

5.3 Monitoring Result

5.3.1 The dolphin survey results for all transects are reported in the monthly EM&A Reports prepared by Contract No. HY/2013/01.

6. DISPOSAL OF MARINE SEDIMENT EXTRACTED FROM BORED PILING WORKS

6.1 Background

6.1.1 After the acceptance of the review of the approved Sediment Quality Report (SQR) for this Project under EPD letter dated 19 August 2015, an approval to dispose the marine sediment extracted from bored piling for this Project was then approved under memo from Secretary, Marine Fill Committee of CEDD dated 20 August 2015 for the disposal of marine sediment extracted from bored piling works. The disposal site allocated to this Project is the Mud Pit CMP Vd of the Confined Marine Sediment Disposal Facility to the East of Sha Chau (ESC) during this reporting period.

6.1.2 No extracted marine sediment was treated using cement solidification/stabilisation (Cement S/S) techniques under Contract No. HY/2013/03 during this reporting period. The marine sediment extracted from this Contract was disposed to the MFC allocated disposal sites directly without treatment during this reporting period. As a practical means, the disposal operation is managed by one contractor who is also responsible for applying dumping permit and its subsequent extension applications from EPD. Contract No. HY/2013/03 has been assigned to coordinate and arrange for disposal of extracted marine sediment from all three Contracts (Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04).

6.2 Dumping Arrangements

6.2.1 The barge for disposal of marine sediment was morn at the temporary loading and unloading at the east shore of the HKBCF Island, which has been being used by reclamation contractor (Contract No. HY/2010/02) for reclamation activities. In terms of safety consideration and to avoid mixing of sediment between contracts, each dumping date was allocated to one Contract. The quantity of marine sediment disposed on each date was from one Contract.

6.2.2 During dumping, Contractor of Contract No. HY/2013/03 is responsible for transporting the marine sediment from the site area of Contract No. HY/2013/03 to the barge. The estimated quantity of marine sediment in each truck is confirmed by Resident Site Staff of Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04. The trip tickets for transportation and disposal of marine sediment are collected and checked. Contract No. HY/2013/03 as the dumping permit holder is responsible for reporting to EPD the quantity disposed of as the condition stipulated in the dumping permit. The disposal site allocated to this Project is the Mud Pit CMP Vd of the Confined Marine Sediment Disposal Facility to the East of Sha Chau (ESC) during this reporting period.

6.3 Quantity Disposed

6.3.1 No marine sediment extracted from bored piling from this Contract was disposed to allocated dumping site in September 2017. As confirmed by RSS, all marine sediments extracted from HY/2013/02, HY/2013/03 and HY/2013/04 have been completed with the last batch disposal on 30 August 2017. The total disposed quantity up to the last batch is 114.088 (in‘000m^3). The summary of marine sediment disposed up to end August 2017 is shown in the following table:

Table 6.1 Summary of Marine Sediment Disposed to Dumping Site

Month/Year	Quantity disposed (in'000m^3)			
	HY/2013/02	HY/2013/03	HY/2013/04	Total
Jan 2016	1.272	1.950	0.800	4.022
Feb 2016	2.816	2.328	0.704	5.848
Mar 2016	0.600	2.464	3.942	7.006
Apr 2016	5.128	5.602	5.028	15.758
May 2016	0.000	0.000	0.000	0.000
Jun 2016	1.200	4.584	1.578	7.362
Sub-Total	11.016	16.928	12.052	39.996
Jul 2016	0.728	10.728	3.690	15.146
Aug 2016	1.784	1.544	4.428	7.756
Sep 2016	2.328	6.816	3.888	13.032
Oct 2016	1.096	2.376	5.286	8.758
Nov 2016	0.000	0.000	0.000	0.000
Dec 2016	1.568	4.960	2.538	9.066
Cat L in Dec 2016	0.000	2.792	3.570	6.362
Sub-Total	18.520	46.144	35.452	100.116
Jan 2017	0.000	0.656	6.552	7.208
Feb 2017	0.088	0.264	1.380	1.732
Mar 2017	0.000	0.000	0.000	0.000
Apr 2017	0.624	1.288	0.000	1.912
May 2017	0.000	1.440	0.000	1.440
June 2017	1.432	0.000	0.000	1.432
July 2017	0.000	0.000	0.000	0.000
August 2017	0.000	0.248	0.000	0.248
Total	20.664	50.040	43.384	114.088

Note: All sediments are in Type II disposal method except Cat L (in Type I)

7. ENVIRONMENTAL SITE INSPECTION AND AUDIT

7.1 Site Inspection

7.1.1 Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.

7.1.2 The joint site audits for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) were conducted on 6, 12, 19 and 27 October 2017 by the representatives of Engineer, Contractor, ET and IEC (IEC for 27 October 2017).

7.1.3 Particular observations during the site inspection and corrective actions undertaken by the Contractor are described below:

For Contract No. HY/2013/03

25 September 2017

1. The Contractor was reminded to remove general waste accumulated at Building 038 and Building 039. Subsequently, general waste was removed. The observation was closed on 6 October 2017.

2. The Contractor was reminded to provide watering for dust suppression on site. Subsequently, watering was provided. The observation was closed on 6 October 2017.

6 October 2017

1. The Contractor was reminded to provide watering for dust suppression on the road next to Building 040. Subsequently, watering was provided. The observation was closed on 12 October 2017.

2. The Contractor was reminded to remove general waste accumulated at Building 040. Subsequently, construction waste was removed. The observation was closed on 12 October 2017.

12 October 2017

1. The Contractor was reminded to remove general waste and stagnant water accumulated at Building 047, 048 and 049. Subsequently, general waste and stagnant water accumulated was removed. The observation was closed on 19 October 2017.

19 October 2017

1. The Contractor was reminded to remove general waste accumulated at Building 027. Subsequently, general waste was removed. The observation was closed on 27 October 2017.

27 October 2017

1. The Contractor was reminded to remove general waste accumulated at Building 049. Follow-up actions for outstanding observation will be checked in the upcoming site inspections and reported in the coming reporting period.

2. The Contractor was reminded to provide NRMN label to the mobile crane at Box Culvert B. Follow-up actions for outstanding observation will be checked in the upcoming site inspections and reported in the coming reporting period.

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

6 October 2017

1. Nil findings.

12 October 2017

1. Nil findings.

19 October 2017

1. Nil findings.

27 October 2017

1. Nil findings.

7.2 Advice on the Solid and Liquid Waste Management Status

7.2.1 The Contractor of Contract No. HY/2013/03 registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

7.2.2 The monthly summary of waste flow table for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) are detailed in **Appendix E**.

7.2.3 Contract No. HY/2013/03 has been assigned to arrange for delivery of surplus filling materials from Contract No. HY/2013/03 to other projects, including Tuen Mun - Chek Lap Kok Link (TM-CLKL) project of HZMB, the Airport Authority Hong Kong's Three Runway (3RS) Project, Wan Chai Development Phase II project, Contract No. HY/2013/02 of HKBCF and Hong Kong Link Road (HKLR) project of HZMB. The estimated quantity of surplus filling materials is confirmed by Resident Site Staff of Contract No. HY/2013/03. The summary of surplus filling materials delivered to other projects up to the end of October 2017 is shown in **Table 7.1**.

Table 7.1 Summary of Surplus Filling Materials Delivered from Contract No. HY/2013/03 to other projects

Month/Year	Density (in tonnes/m^3)	Quantity disposed (in '000m^3)					
		To HY/2013/02	To TM-CLKL Project	To 3RS Project	To WDII Project	To HKLR Project	Total
May 2017	2.3	0	12.637	0	0	0	12.637
June 2017	2.63925	0	14.769	11.238	0	0	26.007
July 2017	1.9	0	4.406	34.875	10.048	0.760	50.089
August 2017	1.9	0.480	0	67.942	2.761	7.455	78.638
September 2017	1.9	5.544	0	62.770	0	4.648	72.962
October 2017	/	3.384	0	40.599	0	0	43.983
Total	/	9.408	31.812	217.424	12.809	12.863	284.316

Remarks:
- The variation in density is due to different compositions of surplus filling materials

- There may be discrepancies in the total quantities with the quantities of inert C&D materials stated in Appendix E and section 7.2.4, due to rounding errors
- No density was given for October 2017 due to the direct volume figures as provided and confirmed by the RSS

7.2.4 0.000 (in'000m^3) of excavated marine sediment (from Contract No. HY/2013/03), 45.010 (in'000m^3) of Inert C & D Wastes and 1.750 (in'000m^3) of Non-inert C & D Wastes were generated (from Contract No. HY/2013/03) in this reporting period. 43.983 (in'000m^3) of Inert C & D Wastes were reused in other projects and 1.027 (in'000m^3) of Inert C & D Wastes was disposed as public fill. Non Inert C & D Wastes and 0.050 (in tonnes) of Non-inert C & D Wastes were generated (from Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) in this reporting period. 0.030 (in tonnes) metals were generated and recycled (from Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) in this reporting period.

7.2.5 The excavated marine mud from the land-based works was disposed of at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee. The Contractor of Contract No. HY/2013/03 shall ensure no spilling and overflowing of materials during loading / unloading / transportation is allowed.

7.2.6 The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

7.2.7 Contractor of Contract No. HY/2013/03's site arrangement for disposal of bentonite slurry to Tseung Kwan O Area 137 Fill Bank was checked by ET and formal consent has been obtained from Tseung Kwan O Area 137 Fill Bank for receiving used bentonite slurry generated from Contract No. HY/2013/03.

7.3 Environmental Licenses and Permits

7.3.1 The valid environmental licenses and permits for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) during the reporting period are summarized in **Appendix F**. The Contractor of Contract No. HY/2013/06 was advised to register as a chemical waste producer when chemical waste is expected to generate for the foreseeable future from the operations (For Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation).

7.4 Implementation Status of Environmental Mitigation Measures

7.4.1 In response to the site audit findings, the Contractor carried out corrective actions.

7.4.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix G**. All necessary mitigation measures at this stage of works were implemented properly.

7.4.3 Implementation status of Regular Marine Travel Route Plan (RMTRP) was checked by ET. Training of marine travel route for marine vessels operator was given to relevant staff and relevant records were kept properly. The marine traffic records and geographical plots of all the vessels tracks to demonstrate the conformance of the vessel to the proposed route in October 2017 would be provided to ER, ETL, IEC/ENPO for checking within the month of November 2017.

7.4.4 With respect to condition 3.26A of EP-353/2009/K approved by EPD on 11 April 2016, the numbers and operating periods of floating grout production facilities and floating concrete batching plants on-site to review on the compliance to this EP condition were checked. Under

Contract No. HY/2013/03, no floating concrete batching plant was operated on-site during the reporting period.

7.4.5 As silt curtain was installed since May 2017, Dolphin Watching Plan (DWP) should be implemented. The status of silt curtain was reviewed by ET and there was no change on the status of silt curtain during the reporting period. Implementation status of DWP was checked by ET. The records of dolphin watching training, regular inspection of the silt curtains and visual inspection of waters surrounded by the silt curtain in October 2017 would be provided to ER, ETL, IEC/ENPO for checking within the month of November 2017.

7.5 Summary of Exceedance of the Environmental Quality Performance Limit

7.5.1 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

7.5.2 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

7.5.3 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

7.5.4 There were Action and Limit Level exceedances of suspended solids, turbidity and dissolved oxygen recorded on seven days by the Environmental Team of Contract No. HY/2013/01 during reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03. There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations shown as shown at Table 4.1 by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

7.5.5 Ecological monitoring results at all transects are reported in the EM&A report prepared by Contract No. HY/2013/01.

7.6 Summary of Complaints, Notification of Summons and Successful Prosecution

7.6.1 There was one complaint received in relation to the environmental impact during the reporting period. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.

7.6.2 There was no notification for summons or prosecutions received in relation to the environmental impact during this reporting period.

7.6.3 Statistics on environmental complaints, notifications of summons and successful prosecutions are provided in **Appendix H**.

8. FUTURE KEY ISSUES

8.1 Construction Programme for the Coming Months

8.1.1 As informed by the Contractor, the following are the major construction activities anticipated in Octoberber 2017:

For Contract No. HY/2013/03

1. Building at Portion A1, B, G, N, J, STP & Pumping Stations;
2. CUE Construction at Portion B, C & J;
3. Drainage & Sewerage Work, Water Main & Cable Duct at Portion B, H1, H2, J, P, G & A1;
4. Radiation Screen Wall at Portion B, E P, N,M,C;
5. Sign Gantry Footing at Portion B;
6. Sewerage Pumping Station, High Mast Lighting Foundation & Box Culvert C at Portion G;
7. Bridge Works at A1 to A9;
8. Site Foundation Works at Portion K;
9. Cover Walkway at Portion H1 & H2;
10. Box Culvert B at Portion N; Shuttle kiosk & Subway at Portion E)

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

1. CUE, Kiosk & Building 037

8.2 Environmental Site Inspection Schedule for the Coming Month

8.2.1 The tentative schedule for weekly site inspections for November 2017 is provided in **Appendix I**.

9. CONCLUSIONS

9.1 Commencement of Contract No. HY/2013/03 took place on 10 April 2015. The commencement date for construction works and the EM&A programme of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015. The commencement date for construction works and the EM&A programme of Contract No. HY/2013/06 commenced on 13 September 2016 within Contract No. HY/2013/03 works area).

9.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

9.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

9.4 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

9.5 There were Action and Limit Level exceedances of suspended solids and dissolved oxygen recorded on seven days by the Environmental Team of Contract No. HY/2013/01 during reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03. There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations shown as shown at **Table 4.1** by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

9.6 Ecological monitoring results at all transects are reported in the EM&A report prepared by Contract No. HY/2013/01.

9.7 Environmental site inspections were carried out on 6, 12, 19 and 27 October 2017. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site inspections.

9.8 There was one complaint received in relation to in relation to water pollution. The complaint was still under investigation. Details will be reported in the coming reporting period.

9.9 There were no notifications of summons or prosecutions received during the reporting period.

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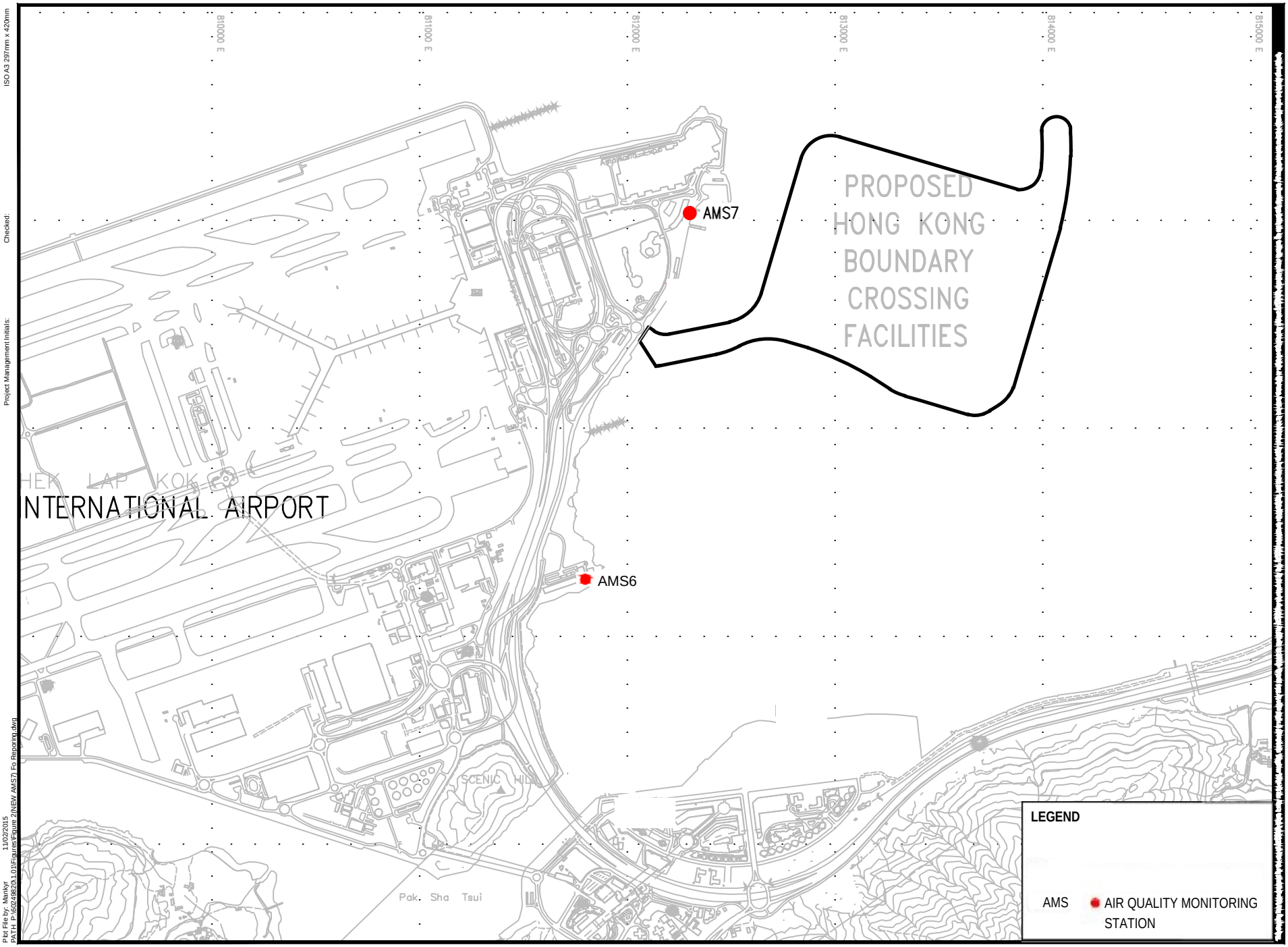
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

Air Quality Monitoring Stations



ISO A3 297mm x 420mm

Checked:

Project Management Initials:

Plot File by: Marklyn
PATH: P:\60249820\1.01\Figures\Figure 2\NEW AMS7) Fo Reporting.dwg
11/02/2015

AECOM

AIR QUALITY AND NOISE MONITORING STATIONS FOR HKBCF

HONG KONG - ZHUHAI - MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- RECLAMATION WORKS

Project No.: -

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Profit Industrial Building,
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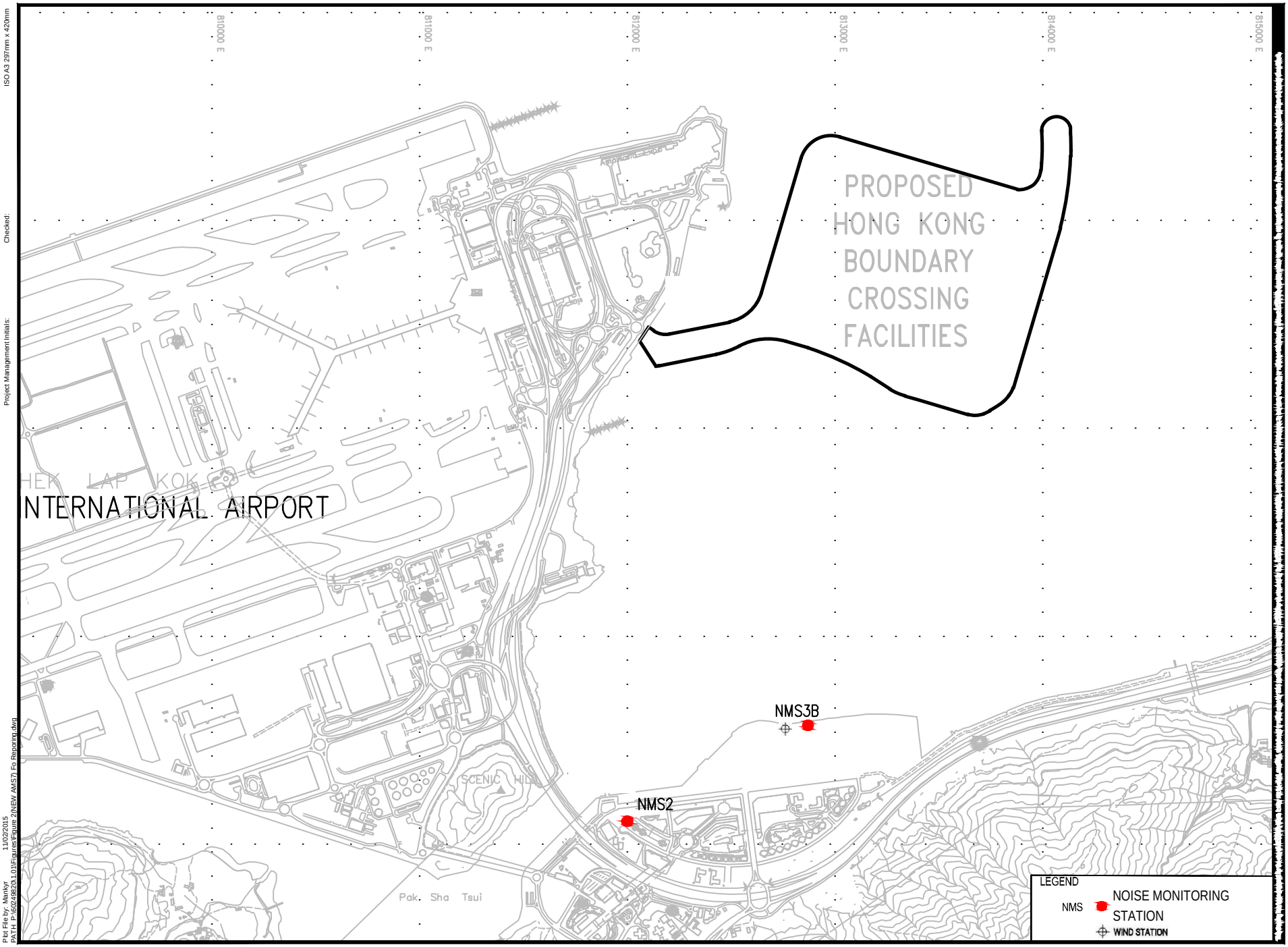
Figure 2

Noise Monitoring Stations



ISO A3 297mm x 420mm

Checked:

Project Management Initials:

Plot File by: Marklyn
PATH: P:\60249820\1.01\Figures\Figure 2\NEW AMS7) Fo Reporting.dwg
11/02/2015

AECOM

AIR QUALITY AND NOISE MONITORING STATIONS FOR HKBCF

HONG KONG - ZHUHAI - MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- RECLAMATION WORKS

Project No.: -

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1-15 Kwai Fung Crescent, Kwai Fong,
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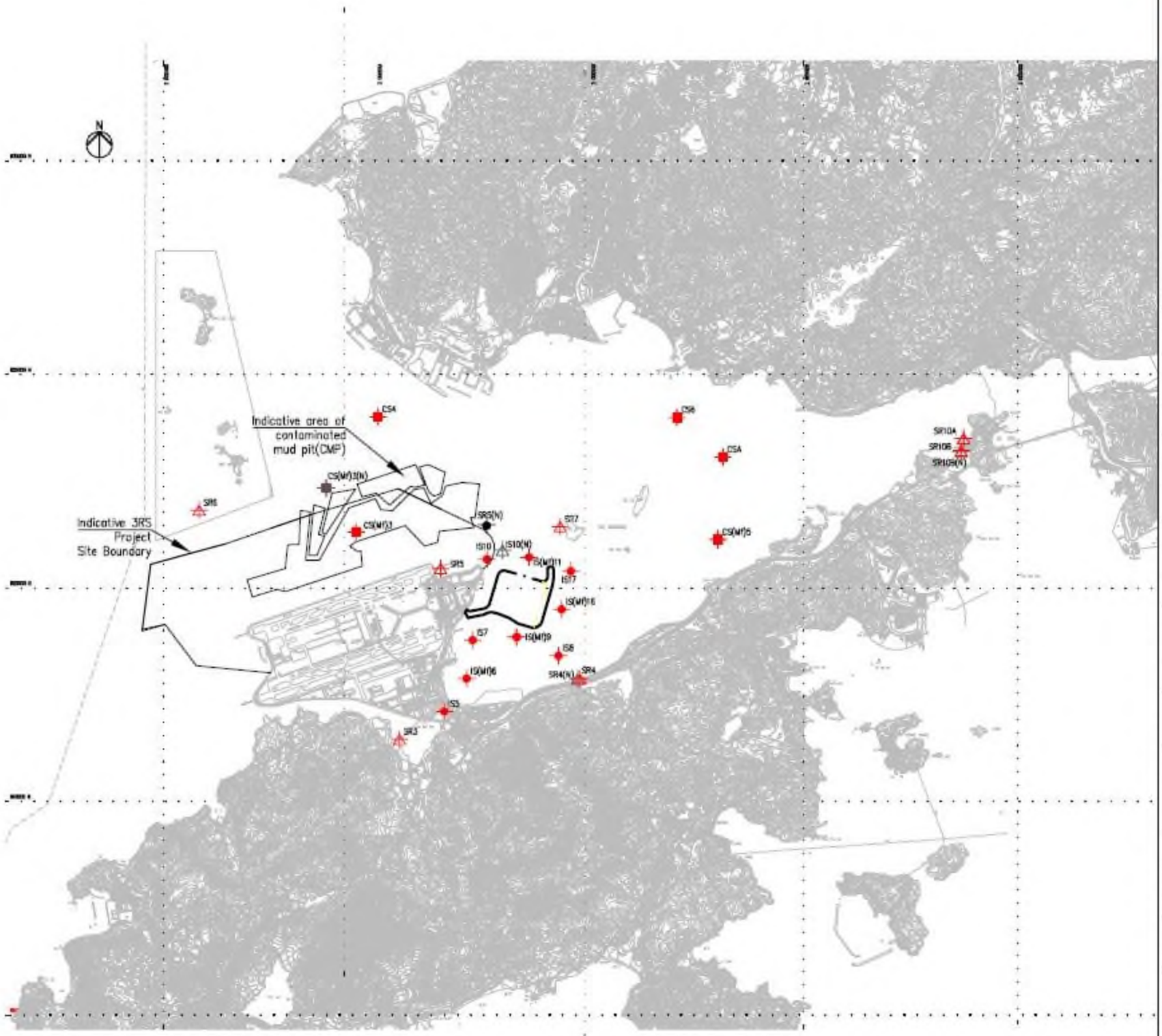
Figure 3

Water Quality Monitoring Stations



LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS
- IS — IMPACT STATIONS (RELOCATED)
- SR — SENSITIVE RECEIVERS STATIONS (RELOCATED)
- CS — CONTROL / FAR FIELD STATIONS (RELOCATED)

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817108
IS(M)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(M)9	813273	818850
SR5(N)	812569	821475
IS(M)11	813562	820716
IS(M)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
IS10(N)	812942	820881
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	823187
CS(M)3(N)	808814	822355
CS(M)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823084
IS10	812577	820870
SR5	811489	820455
CS(M)3	809989	821117

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
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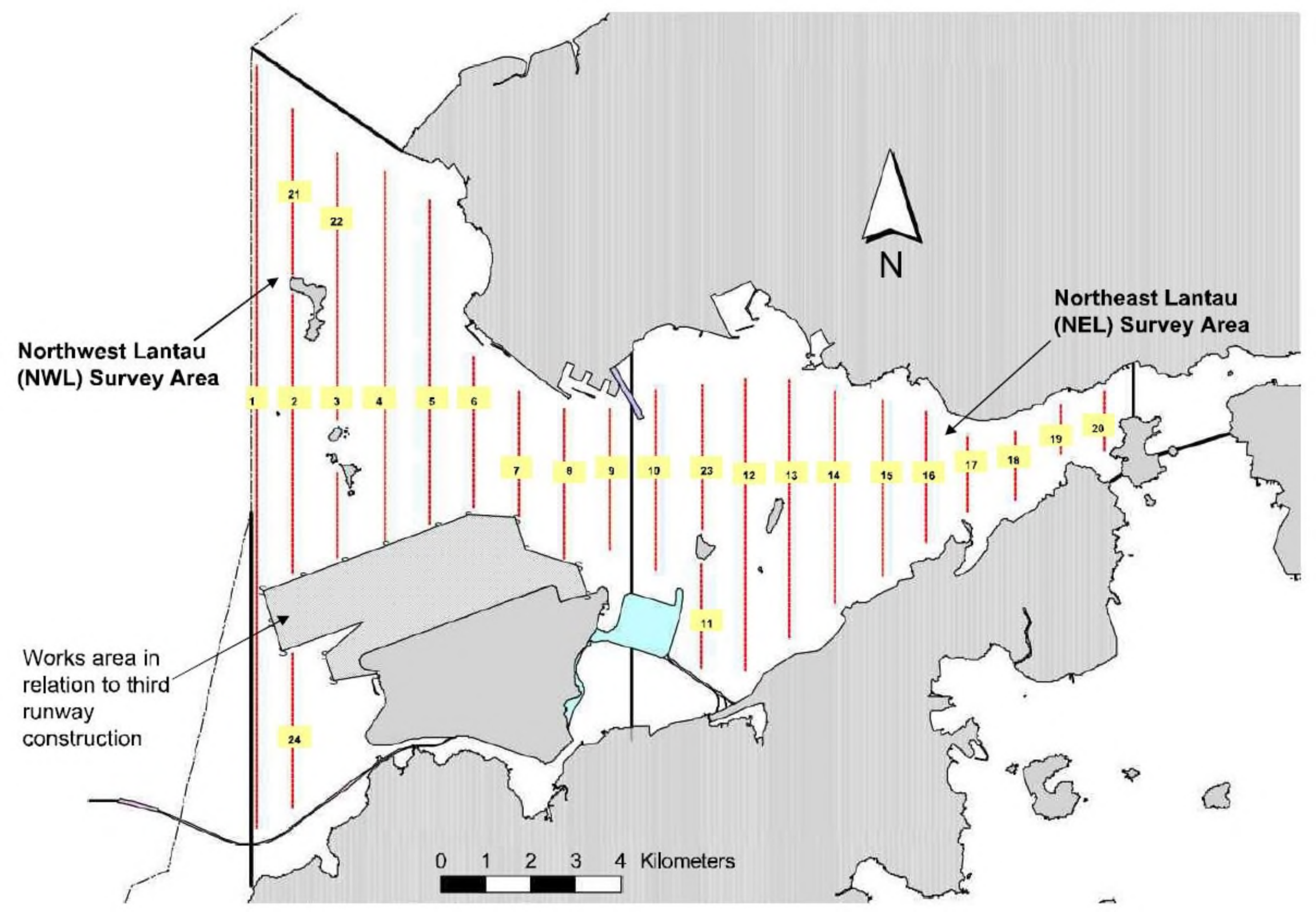
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 4

Ecological Monitoring Transect Line and Layout Map


N
Northwest Lantau
(NWL) Survey Area
Northeast Lantau
(NEL) Survey Area
Works area in
relation to third
runway
construction
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
0 1 2 3 4 Kilometers

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Location of Works Areas

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

SITE BOUNDARY

WORKS AREA

REV. 修訂	DESCRIPTION 內容摘要	D.E.	P.E. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

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HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
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Plot File by : 2014/3/26 WANGSY

p:\projects\60191048\drawing\contract\c3\1000\C3_000_C00_1000.dgn

813000 E

813500 E

814000 E

820500 N

820000 N

819500 N

N

PERIMETER SERVICE ROAD

INTERFACE BETWEEN HKBCF AND TM-CLKL RECLAMATION

PUBLIC TOILETS & PARKING BAYS FOR INBOUND PC

PUBLIC TOILETS & PARKING BAYS FOR INBOUND GV

DOG SWIMMING POOL & OUTDOOR AREA

DDH GV SECONDARY EXAMINATION BAYS OUTBOUND (3 NOS.)

ImmD PC SEARCH BAYS

ImmD GV SECONDARY EXAMINATION BAYS OUTBOUND (8 NOS.)

DDH AMBULANCE PICK-UP & PARKING 2no.

DROP OFF FOR PRIVATE CAR ANNEXURE

ImmD GV SEARCH BAYS

5 NO. PC KIOSKS @ 3.8m CLEAR

8 NO. GV KIOSKS

AT-GRADE LINKAGE

PRIVATE CAR KIOSKS

PICK UP BAYS FOR PRIVATE CAR ANNEXURE

DDH AMBULANCE PICK-UP

AFCD PARKING

AFCD SECONDARY BAY

ImmD GV SEARCH BAYS

HKPF PARKING

PUBLIC TOILETS & PARKING BAYS FOR OUTBOUND GV

PUBLIC TOILETS & PARKING BAYS FOR OUTBOUND PC

ImmD PC SEARCH BAYS

POWER SUBSTATION

ImmD GV SECONDARY EXAMINATION BAYS INBOUND (8 NOS.)

RESTRICTED ACCESS

DDH PARKING

DDH AMBULANCE PICK-UP

INTERFACE BETWEEN HKBCF AND TM-CLKL RECLAMATION

CUT LINE A-A
SEE DRAWING NO. 60191048/C3/000/C00/1002

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60191048/C3/000/C00/1003.

LEGEND:

SITE BOUNDARY

VIADUCT

BUILDING/FACILITIES

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 覆核	DATE 日期
-	TENDER DRAWING	BWCW	SCI	MAR.14

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HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES

Figure 1- 1
Current Layout Plan

SHEET 1 OF 2

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1001

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DRAWN BY 繪圖	WSY	P. Dir. APPROVED 負責人	TKH
SCALE 比例	A1 1 : 2500	STATUS 階段	
DIMENSIONS ARE IN 尺寸單位	METRES		

Plot File by : 2014/3/26 WANGSY

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SETTING OUT POINT

POINT	EASTING	NORTHING
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302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817450.595	819032.307
313	817445.369	819013.157
314	817531.154	819001.065
315	817533.345	818991.306
316	817620.269	819000.620
317	817495.827	819059.596
318	817522.110	819075.388
319	817566.404	819028.472
320	817568.507	819008.526
321	817569.551	818998.621

817200 E

817400 E

817600 E

819200 N

819000 N

NORTH LANTAU HIGHWAY

N

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/03

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/09

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/02

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/01

10m WIDE COMMON ACCESS TO BE MAINTAINED BY CONTRACT NO. HY/2010/02

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/03

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2014/05

301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2010/02

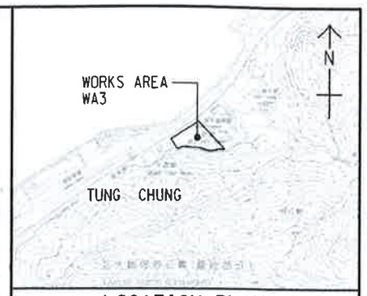
10m WIDE COMMON ACCESS TO BE CONSTRUCTED AND INITIALLY MAINTAINED BY CONTRACT NO. HY/2013/01. UPON COMMENCEMENT OF CONTRACT NO. HY/2013/03. THE MAINTENANCE RESPONSIBILITY SHALL BE TRANSFERRED FROM CONTRACT NO. HY/2013/01 TO CONTRACT NO. HY/2013/03.

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/04

10m WIDE ACCESS TO BE CONSTRUCTED AND INITIALLY MAINTAINED BY CONTRACT No. HY/2013/01. UPON COMMENCEMENT OF CONTRACT No. HY/2013/03, THE MAINTENANCE RESPONSIBILITY SHALL BE TRANSFERRED FROM CONTRACT No. HY/2013/01 TO CONTRACT No. HY/2013/03.

10m WIDE ACCESS TO BE CONSTRUCTED AND MAINTAINED BY CONTRACT No. HY/2013/03.

CONTROLLED DOCUMENT 不受控制文件



LOCATION PLAN
SCALE 1 : 25000

NOTES:

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

LEGEND:

- WORKS AREA BOUNDARY
- PORTION 3.1
- PORTION 3.2
- PORTION 3.3
- PORTION 3.4
- PORTION 3.5
- PORTION 3.6
- PORTION 3.7
- PORTION 3.8
- PORTION 3.9
- PORTION 3.10
- NON-BUILDING AREA 8200m² (WHOLE)

FOR CONSTRUCTION

REV. 版別	DESCRIPTION 內容摘要	DESIGNED 設計	CHECKED 核對	DATE 日期
C	WORKING DRAWING	BWCW	SCI	MAY.15
B	TENDER ADDENDUM NO. 2	BWCW	SCI	MAY.14
A	TENDER ADDENDUM NO. 1	BWCW	SCI	APR.14
-	TENDER DRAWING	BWCW	SCI	MAR.14

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HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
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WORKS AREA WA3

AECOM
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BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1051C

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DRAWN BY 繪圖 WSY	STATUS 狀態 WORKING DRAWING	
SCALE 比例 A1 1 : 1000		
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SETTING OUT POINT

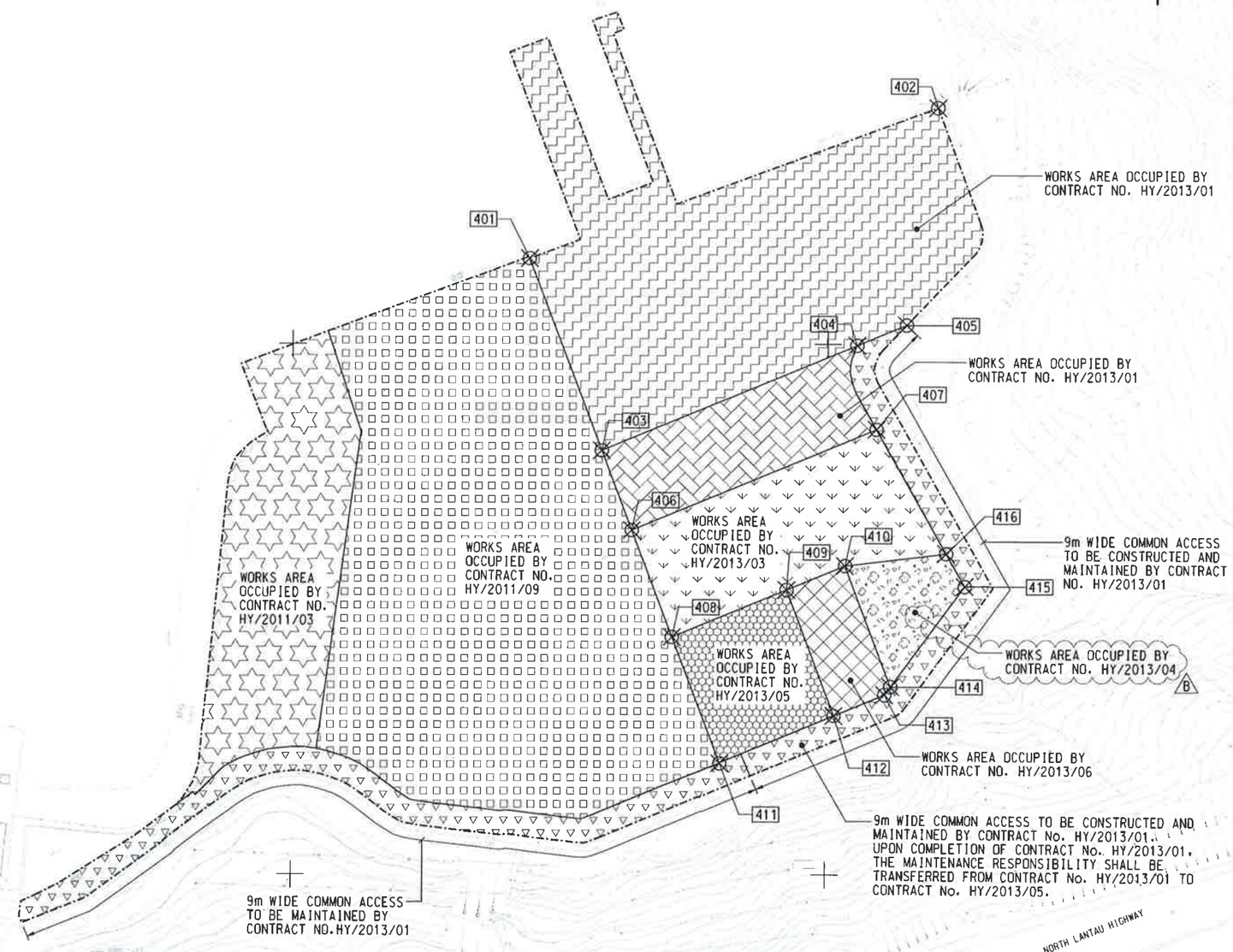
POINT	EASTING	NORTHING
401	822488.151	822632.315
402	822640.593	822689.415
403	822515.608	822559.848
404	822610.940	822599.642
405	822629.428	822607.359
406	822526.988	822529.813
407	822618.348	822567.950
408	822542.232	822489.581
409	822584.983	822507.426
410	822606.866	822516.561
411	822560.278	822441.956
412	822602.949	822460.010
413	822621.914	822467.959
414	822624.130	822470.998
415	822651.725	822508.856
416	822644.758	822521.192

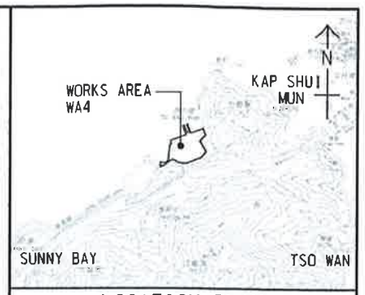
822400 E

822600 E

822600 N

822400 N





LOCATION PLAN
SCALE 1 : 25000

NOTES:

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2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

- WORKS AREA BOUNDARY
- PORTION 4.1
- PORTION 4.2
- PORTION 4.3
- PORTION 4.4
- PORTION 4.5
- PORTION 4.6
- PORTION 4.7
- PORTION 4.8
- PORTION 4.9

CONTROLLED DOCUMENT 不未經准得控本許文走可件

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C	WORKING DRAWING	BWCW	SCI	MAY.15
B	TENDER ADDENDUM NO. 2	BWCW	SCI	MAY.14
A	TENDER ADDENDUM NO. 1	BWCW	SCI	APR.14
-	TENDER DRAWING	BWCW	SCI	MAR.14

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HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
– VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES

WORKS AREA WA4

AECOM
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BWCW	HY/2013/03	TKH
DRAWN BY 繪圖 WSY	STATUS 狀況	WORKING DRAWING
SCALE 比例 A1 1 : 1000		
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有	

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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

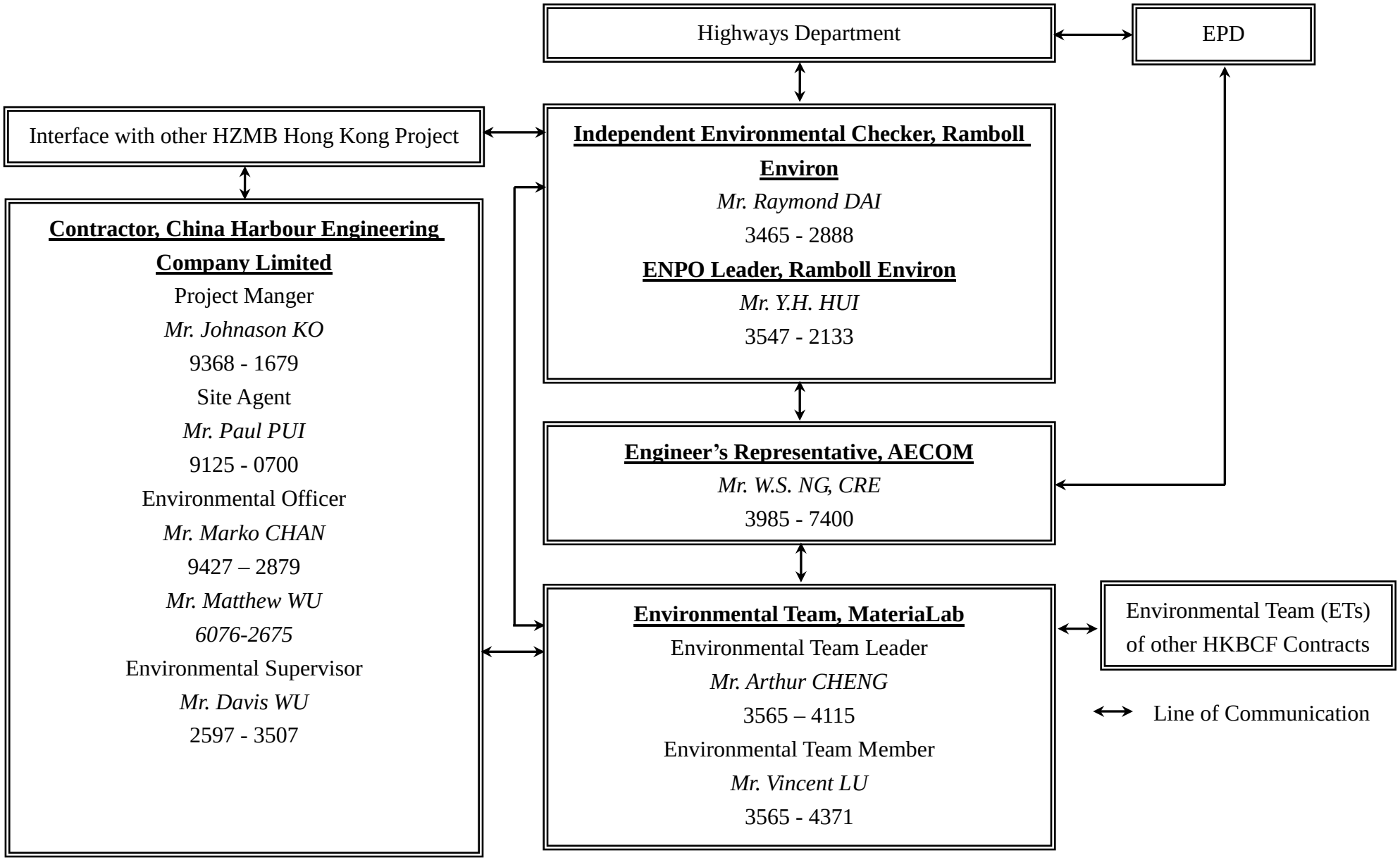
Appendix B

Project Organization for Environmental Works

CHINA HARBOUR ENGINEERING COMPANY LIMITED

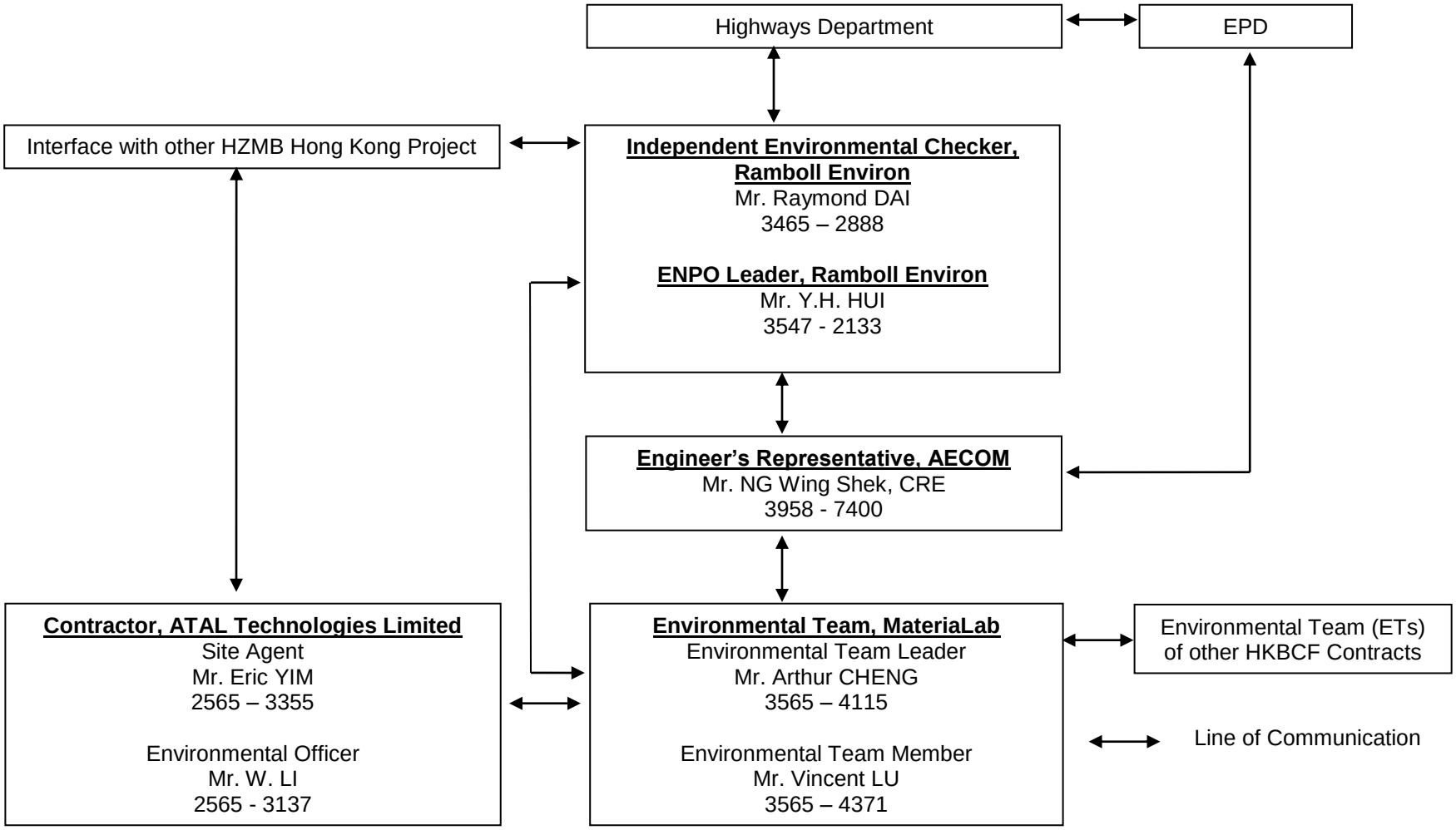
Contract No. HY/2013/03 Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Projects Organization for Environmental Works



Contract No. HY/2013/06 (within Contract No. HY/2013/03 works area)
Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System

Projects Organization for Environmental Works



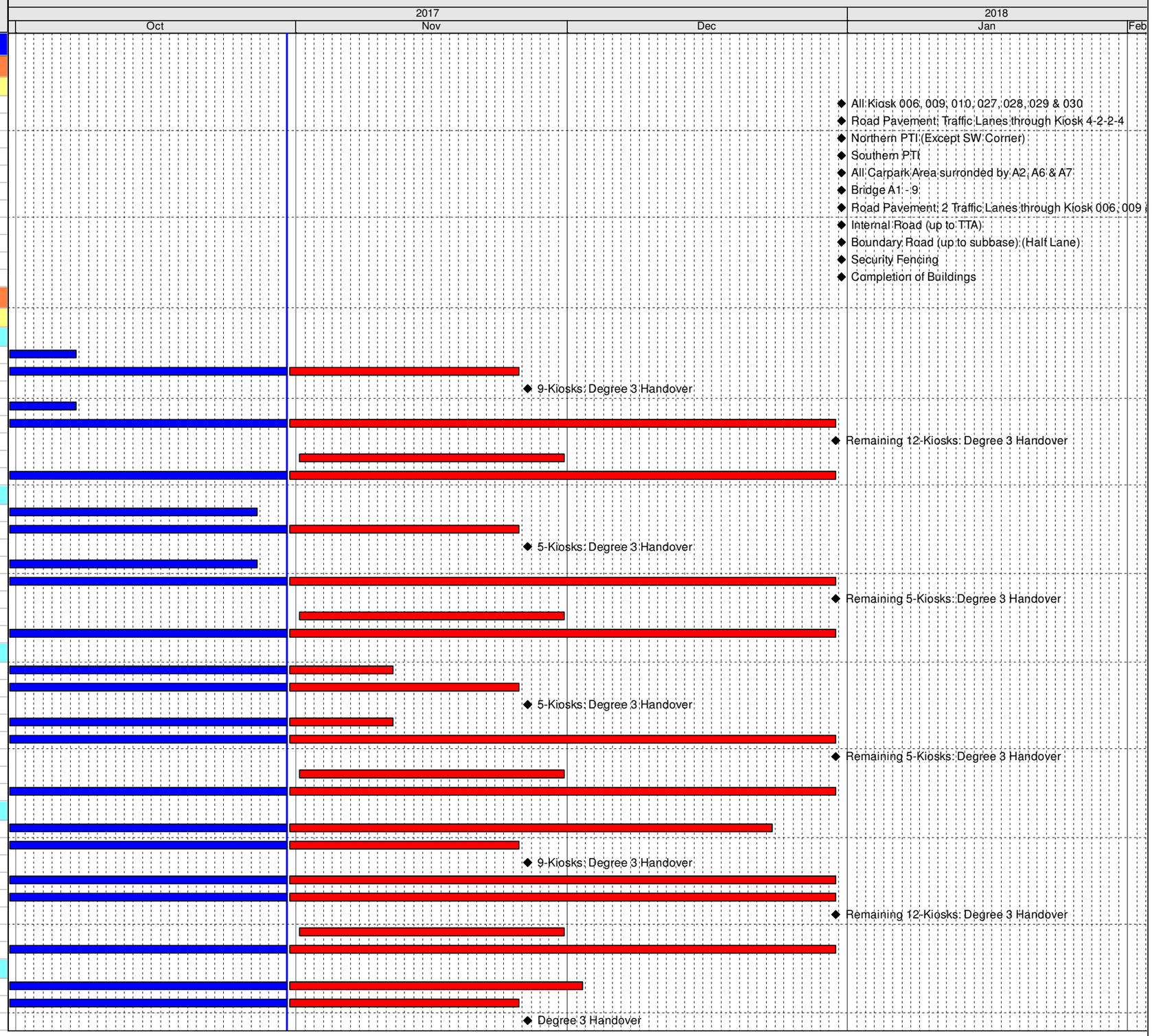
MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix C

Construction Programme

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities | **03-Nov-17**

Activity ID	Activity Name
HKBCF - VCP & Ancillary Buildings and Facilities, DWP5 (+ DRM 2)	
Stages of the Project Completion	
Stage 1: 31st Dec. 2017	
A2010	All Kiosk 006, 009, 010, 027, 028, 029 & 030
A2020	Road Pavement: Traffic Lanes through Kiosk 4-2-2-4
A2030	Northern PTI (Except SW Corner)
A2040	Southern PTI
A2050	All Carpark Area surronded by A2, A6 & A7
A2060	Bridge A1 - 9
A2070	Road Pavement: 2 Traffic Lanes through Kiosk 006, 009 & 010
A2080	Internal Road (up to TTA)
A2090	Boundary Road (up to subbase) (Half Lane)
A2100	Security Fencing
A2200	Completion of Buildings
Completion of Works	
Stage 1: Kiosks of 006, 009, 010, 027, 028, 029 & 030	
Kiosks of 027	
K010	9-Kiosks: RC Wall & Roof
K020	9-Kiosks: Finishing, Glass Window & Door
K030	9-Kiosks: Degree 3 Handover
K032	Remaining 12-Kiosks: RC Wall & Roof
K034	Remaining 12-Kiosks: Finishing, Glass Window & Door
K036	Remaining 12-Kiosks: Degree 3 Handover
K040	Installation of Steel Y-Junction, remaining
K050	Installation of Cladding, remaining
Kiosks of 028	
K150	5-Kiosks: RC Wall & Roof
K160	5-Kiosks: Finishing, Glass Window & Door
K170	5-Kiosks: Degree 3 Handover
K172	Remaining 5-Kiosks: RC Wall & Roof
K174	Remaining 5-Kiosks: Finishing, Glass Window & Door
K176	Remaining 5-Kiosks: Degree 3 Handover
K180	Installation of Steel Y-Junction, remaining
K190	Installation of Cladding, remaining
Kiosks of 029	
K100	5-Kiosks: RC Wall & Roof
K110	5-Kiosks: Finishing, Glass Window & Door
K120	5-Kiosks: Degree 3 Handover
K122	Remaining 5-Kiosks: RC Wall & Roof
K124	Remaining 5-Kiosks: Finishing, Glass Window & Door
K126	Remaining 5-Kiosks: Degree 3 Handover
K130	Installation of Steel Y-Junction, remaining
K140	Installation of Cladding, remaining
Kiosks of 030	
K200	9-Kiosks: RC Wall & Roof
K210	9-Kiosks: Finishing, Glass Window & Door
K220	9-Kiosks: Degree 3 Handover
K222	Remaining 12-Kiosks: RC Wall & Roof
K224	Remaining 12-Kiosks: Finishing, Glass Window & Door
K226	Remaining 12-Kiosks: Degree 3 Handover
K230	Installation of Steel Y-Junction, remaining
K240	Installation of Cladding, remaining
Kiosk 006 (All)	
K250	RC Wall & Roof
K260	Finishing, Glass Window & Door
K270	Degree 3 Handover



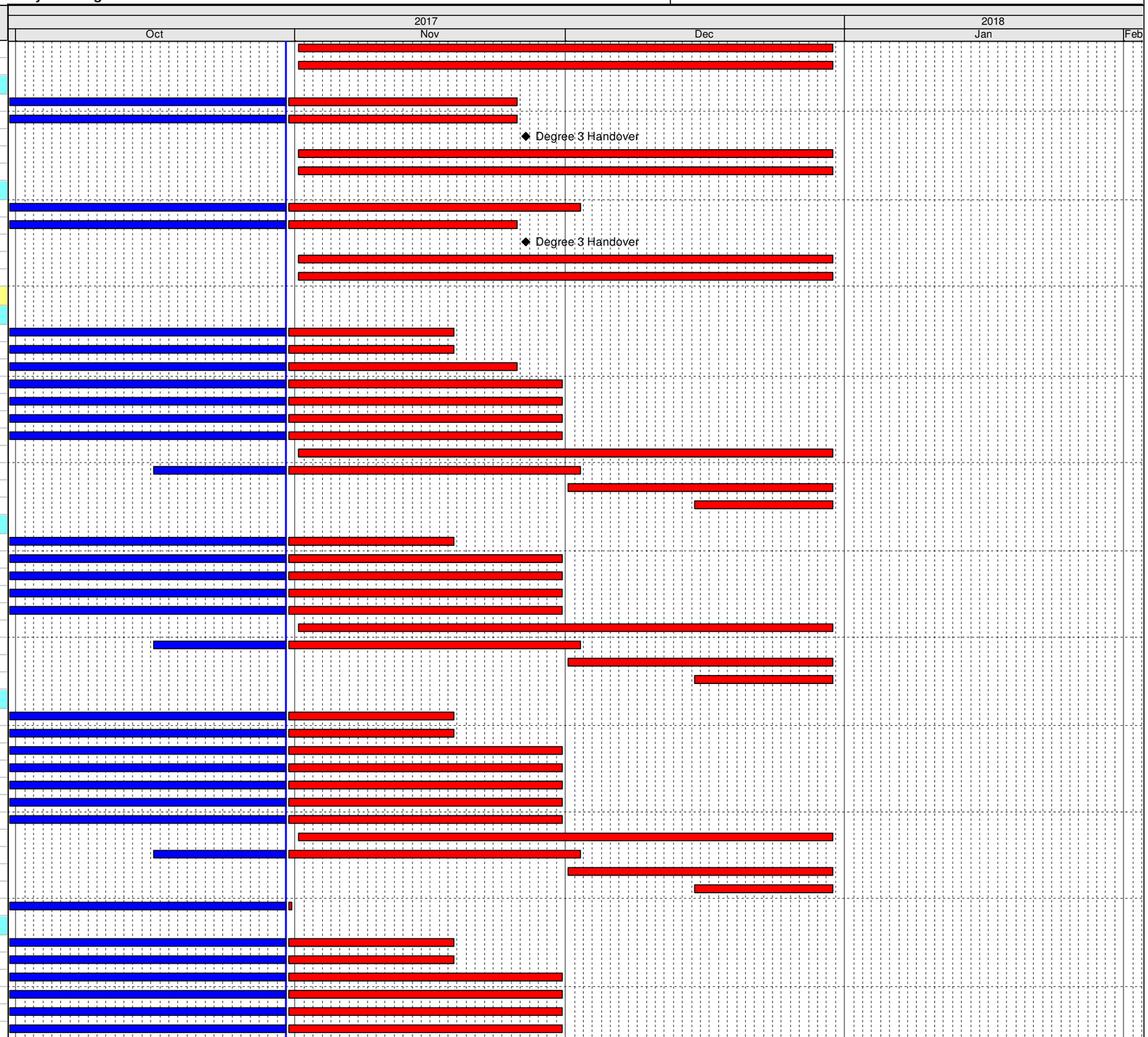
Actual Work ◆ Milestone
Remaining Work
Critical

WORKS PROGRAMME, AS OF 31 OCTOBER 2017
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES

Date	Revision	Checked	Appro...
31-Oct-17	Works Programme (+DRM2), updated as of 31 Oct. 2017	ZJ	

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities | **03-Nov-17**

Activity ID	Activity Name
K280	Installation of Steel Y-Junction
K290	Installation of Cladding
Kiosk 009 (All)	
K300	RC Wall & Roof
K310	Finishing, Glass Window & Door
K320	Degree 3 Handover
K330	Installation of Steel Y-Junction
K340	Installation of Cladding
Kiosk 010 (All)	
K350	RC Wall & Roof
K360	Finishing, Glass Window & Door
K370	Degree 3 Handover
K380	Installation of Steel Y-Junction
K390	Installation of Cladding
Stage 1: Traffic Lanes through Kiosk 4-2-2-4 & 006, 009 & 010	
Inbound West: Through 4 Kiosk of 027	
D010	Drainage
D020	Sewerage
D030	Watermains & Flush Watering
D040	UU Ducts Laying
R010	Subbase & Bitumen Pavement
R020	Kerb/Edges
R025	U-channel
R030	Street lighting
R035	High Mast Lighting
R040	concrete Pavement
R050	Road Marking
Inbound East: Through 2 Kiosk of 028	
D050	Drainage
D060	UU Ducts Laying
R060	Subbase & Bitumen Pavement
R070	Kerb/Edges
R075	U-channel
R080	Street lighting
R090	High Mast Lighting
R100	Concrete Pavement
R110	Road Marking
Outbound West: Through 2 Kiosk of 029	
D110	Drainage
D120	Sewerage
D130	Watermains & Flush Watering
D140	UU Ducts Laying
R210	Subbase & Bitumen Pavement
R220	Kerb/Edges
R225	U-channel
R230	Street lighting
R235	High Mast Lighting
R240	Concrete Pavement
R250	Road Marking
R260	Security Fencing
Outbopund East: Through 4 Kiosk of 030	
D150	Drainage
D160	Sewerage
D170	UU Ducts Laying
R310	Subbase & Bitumen Pavement
R320	Kerb/Edges
R325	U-channel



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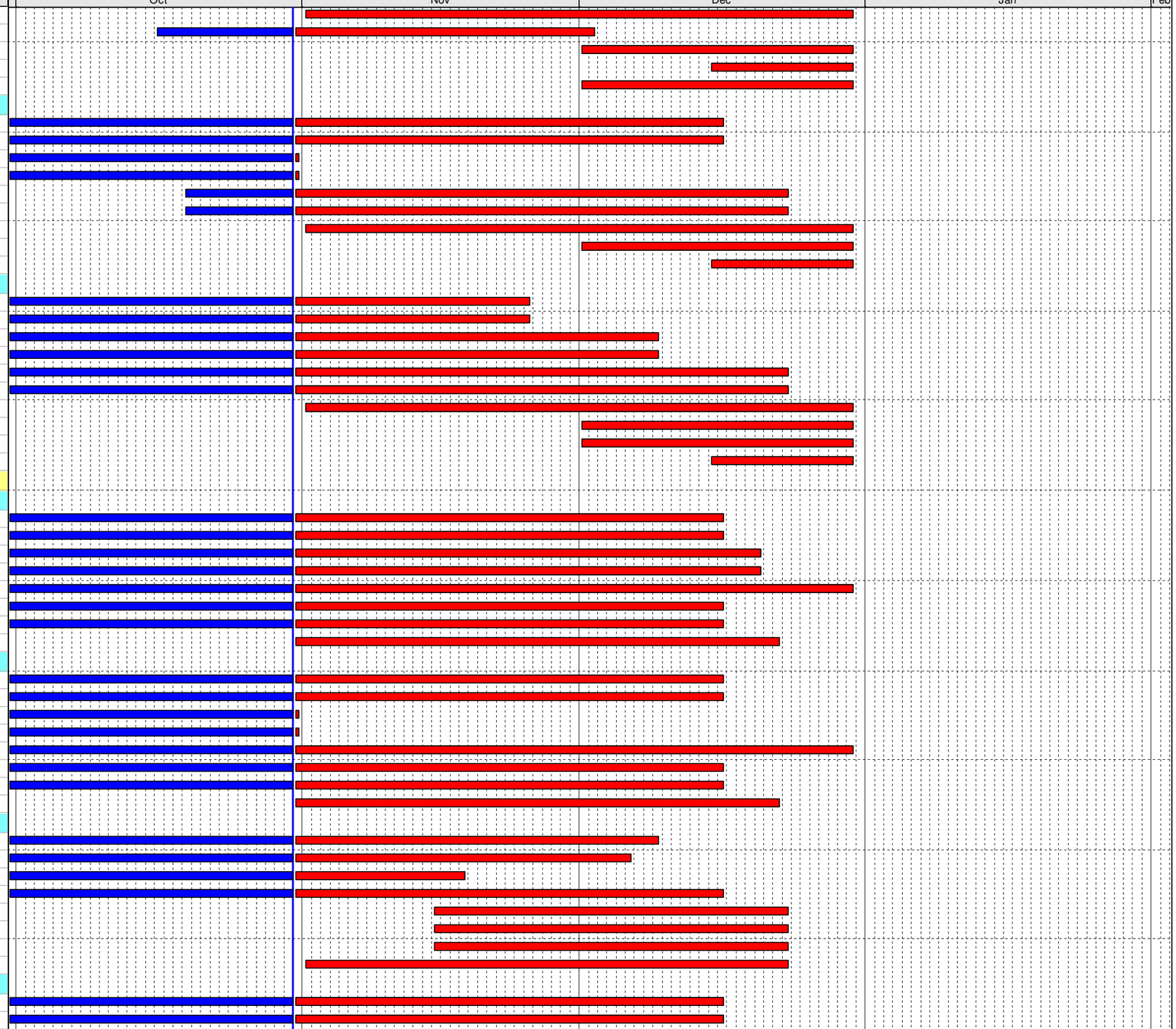
HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities | **03-Nov-17**

Activity ID	Activity Name
R330	Street lighting
R335	High Mast Lighting
R340	Concrete Pavement
R350	Road Marking
R360	Security Fencing
Through 2+2 Kiosks of 006, 009	
D210	Drainage
D220	Sewerage
D230	Watermains & Flush Watering
D240	UU Ducts Laying
R420	Kerb/Edges
R425	U-channel
R430	Street lighting
R445	Concrete Pavement
R450	Road Marking
Through 2 Kiosks of 010, include Portion D	
D250	Drainage
D260	Sewerage
D270	Watermains & Flush Watering
D280	UU Ducts Laying
R1430	Kerb/Edges
R1435	U-channel
R1440	Street lighting
R1450	Bitumen Pavement
R1455	Concrete Pavement
R1460	Road Marking
Stage 1: Internal Road around Buildings and Boundary Road	
Internal Road - South of CUE, West Side (026-033)	
D310	Drainage
D320	Sewerage
D330	Watermains & Flush Watering
D340	UU (LV & ELV etc.) Ducts Laying
R510	Subbase & 1st RB, as TTA for Internal Road
R520	Kerb/Edges
R522	U-channel
R540	Street lighting
Internal Road - South of CUE, East Side (037-054)	
D350	Drainage
D360	Sewerage
D370	Watermains & Flush Watering
D380	UU (LV & ELV etc.) Ducts Laying
R470	Subbase & 1st RB, as TTA for Internal Road
R490	Kerb/Edges
R580	U-channel
R980	Street lighting
Internal Road - South of CUE, S/W Corner (049)	
D450	Drainage
D460	Sewerage
D470	Watermains & Flush Watering
D480	UU (LV & ELV etc.) Ducts Laying
R1990	Subbase & 1st RB, as TTA for Internal Road
R2010	Kerb/Edges
R2020	U-channel
R2990	Street lighting
Internal Road - North of CUE, West Side (023-057)	
D410	Drainage
D420	Sewerage



Actual Work ◆ ◆ Milestone
Remaining Work
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WORKS PROGRAMME, AS OF 31 OCTOBER 2017
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES

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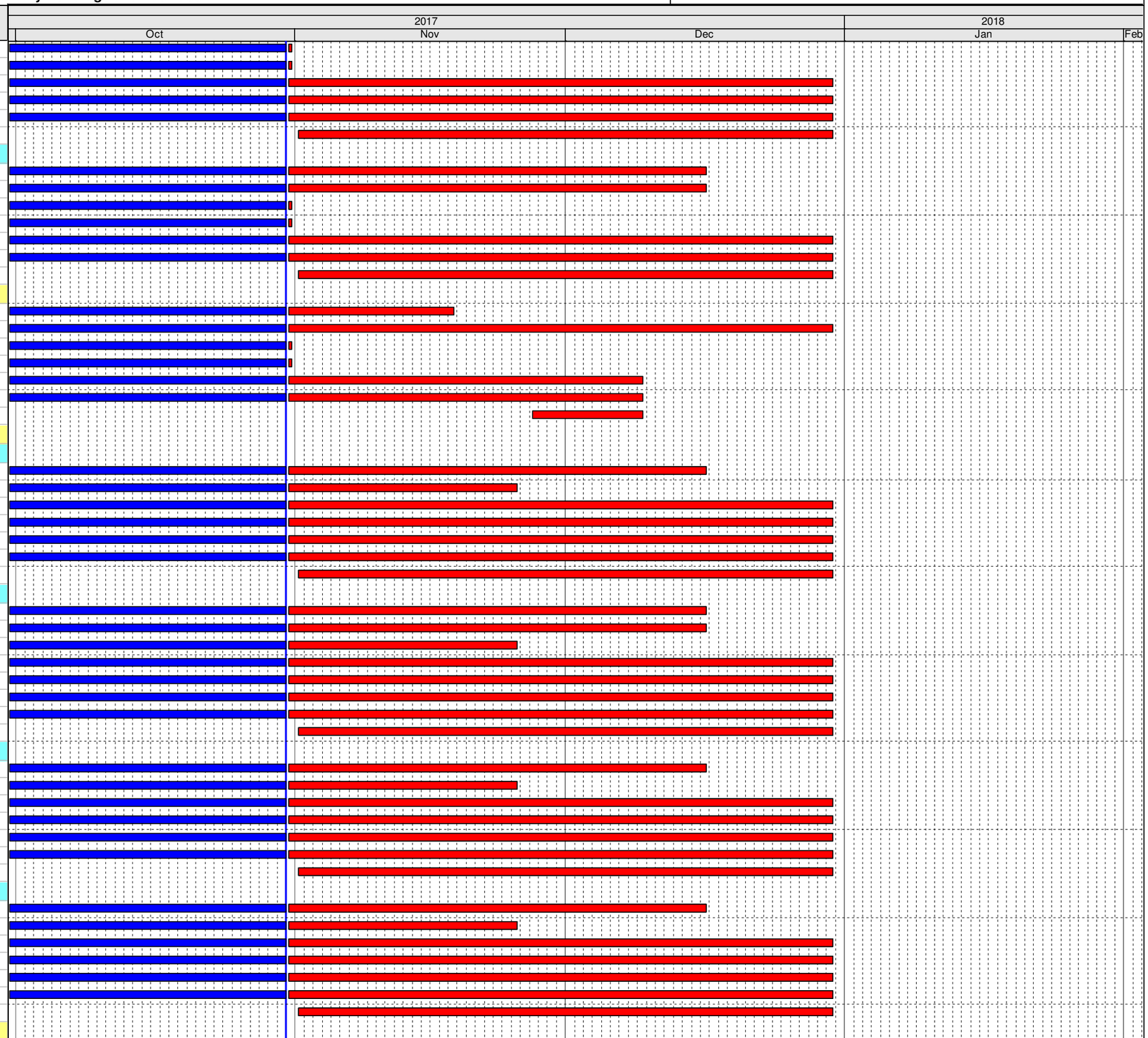
HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities | **03-Nov-17**

Activity ID	Activity Name
D430	Watermains & Flush Watering
D440	UU (LV & ELV etc.) Ducts Laying
R1110	Subbase & 1st RB, as TTA for Internal Road
R1140	Kerb/Edges
R1150	U-channel
R1160	Street lighting
Internal Road - North of CUE, East Side (024-031)	
D500	Drainage
D520	Sewerage
D530	Watermains & Flush Watering
D540	UU (LV & ELV etc.) Ducts Laying
R1500	Subbase & 1st RB, as TTA for Internal Road
R1510	Kerb/Edges & U-channel
R3000	Street lighting
Stage 1: Bridges (All), include W7-W	
R1280	Installation of Movement Joint
R1290	Backfilling to Retaining Walls and Embankment
R1300	Parapet
R1303	Railling
R1330	Remaining Pavement on Bridges & Retaing Walls
R1340	Lighting, Signages & Gantry
R2170	Road Marking
Stage 1: Boundary Road (Half Lane)	
North Boundary Road	
D510	Drainage
D610	UU (LV & ELV etc.) Ducts Laying
R770	Subbase & half lane with 1st RB
R790	Kerb/Edges
R810	U-channel
R910	Security Fence
R920	Street lighting
East Boundary Road	
D620	Drainage
D630	Sewerage
D650	UU (LV & ELV etc.) Ducts Laying
R2090	Subbase & half lane with 1st RB
R2100	Kerb/Edges
R2110	U-channel
R2890	Security Fence
R3010	Street lighting
West Boundary Road	
D710	Drainage
D720	UU (LV & ELV etc.) Ducts Laying
R2120	Subbase & half lane with 1st RB
R2130	Kerb/Edges
R2140	U-channel
R2930	Security Fence
R3020	Street lighting
South Boundary Road, include W7-W	
D660	Drainage
D670	UU (LV & ELV etc.) Ducts Laying
R2900	Subbase & half lane with 1st RB
R2910	Kerb/Edges
R2920	U-channel
R2940	Security Fence
R3030	Street lighting
Stage 1: North of CUE, North Coast Road	



Actual Work ◆ ◆ Milestone
Remaining Work
Critical

WORKS PROGRAMME, AS OF 31 OCTOBER 2017
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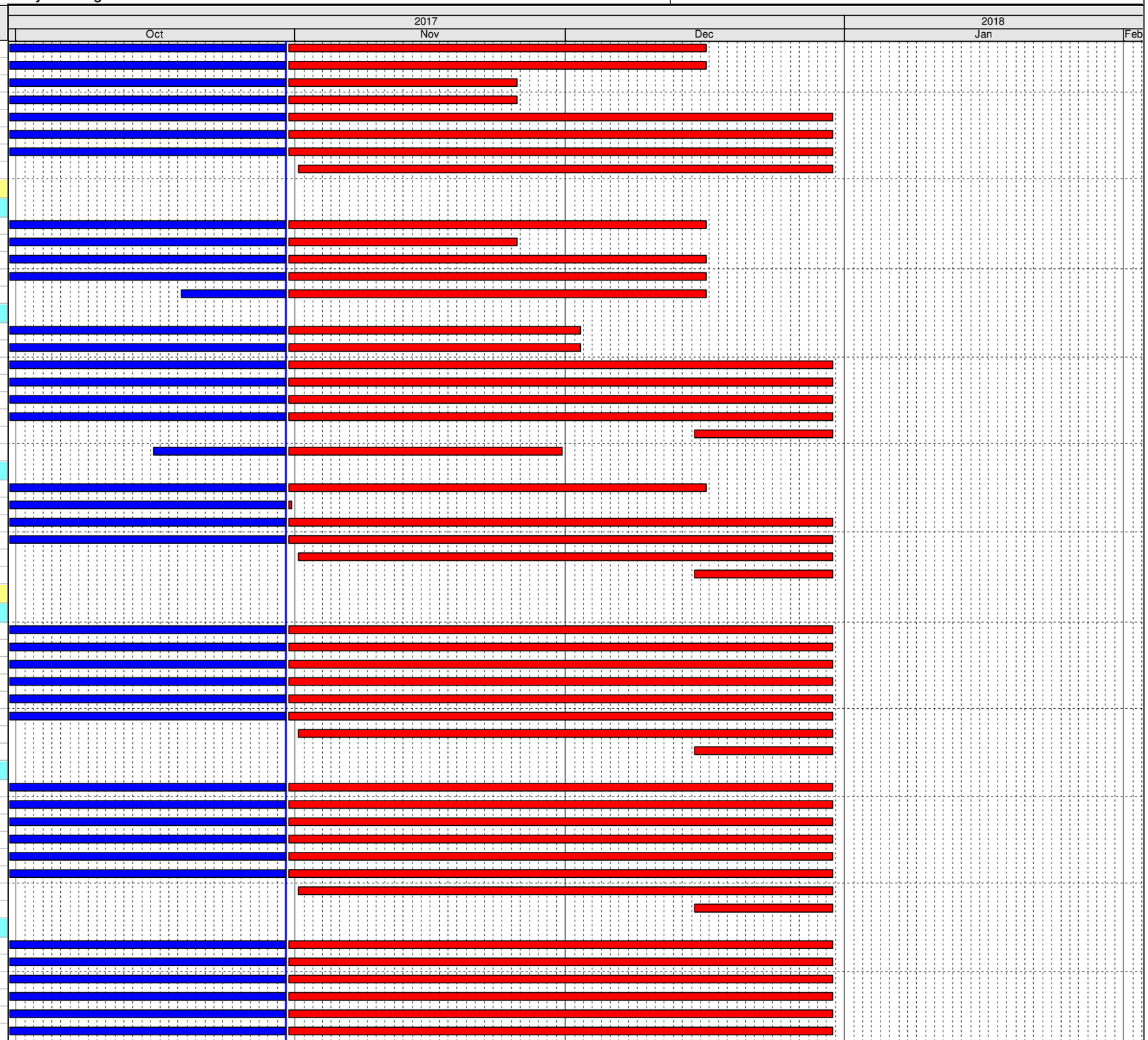
Activity ID	Activity Name
D730	Drainage
D740	Sewerage
D750	Watermains & Flush Watering
D760	UU (LV & ELV etc.) Ducts Laying
R2030	Subbase & 1st RB, as TTA for Internal Road
R2040	Kerb/Edges & U-channel
R2950	Security Fence
R3040	Street lighting
Stage 1: Public Transport Interchange	
South Public Transport Interchange	
D770	Drainage
D780	UU (LV & ELV etc.) Ducts Laying
R1260	Subbase & Pavement
R1350	Canopy for Covered Walkway
R3050	Street lighting
Around Horse Track	
D11560	Drainage
D11570	Sewerage
R1550	Subbase & Pavement
R1570	Kerb/Edges
R1600	U-channel
R2150	Street Lighting
R2160	Road Marking
R3130	Security Fence
North Public Transport Interchange (Except SW Corner)	
D810	Drainage
D820	UU (LV & ELV etc.) Ducts Laying
R1310	Subbase & Pavement
R1360	Canopy for Covered Walkway
R3060	Street lighting
R3090	Road Marking
Stage 1: Carpark & Taxi Queuing	
Carparks	
D830	Drainage
D840	UU (LV & ELV etc.) Ducts Laying
R1520	Subbase & pavement
R1540	Kerb/Edges
R1590	U-channel
R2960	Fencing
R3070	Street lighting
R3100	Road Marking
South Taxi Queuing	
D850	Drainage
D860	UU (LV & ELV etc.) Ducts Laying
R2050	Subbase & Pavement
R2070	Kerb/Edges
R2080	U-channel
R2970	Fencing
R3080	Street lighting
R3110	Road Marking
Link Road West	
D12020	Drainage
D12030	UU (LV & ELV etc.) Ducts Laying
R3370	Subbase & Pavement
R3390	Kerb/Edges
R3400	U-channel
R3410	Fencing



Actual Work ◆ ◆ Milestone
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VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES

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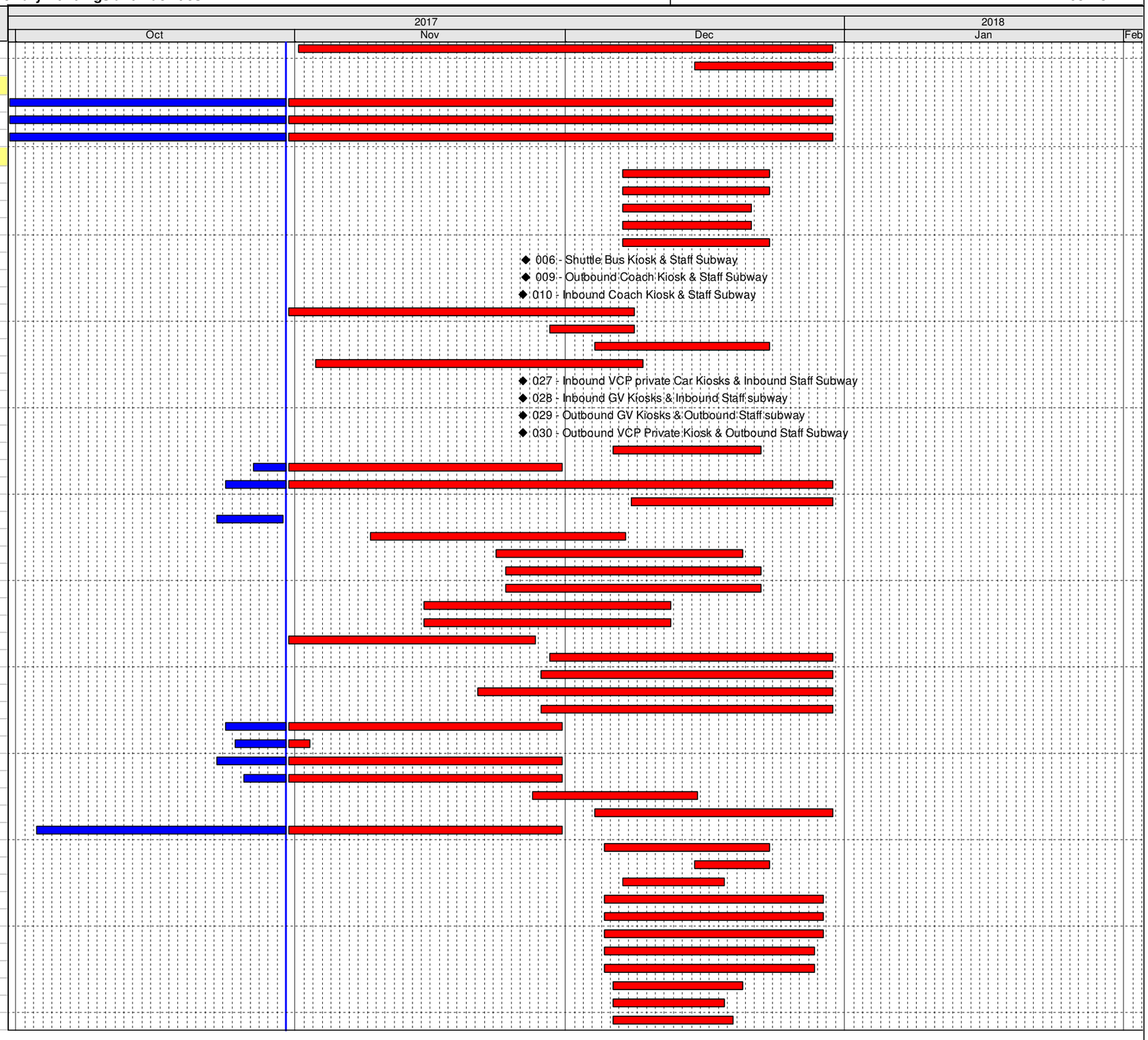
HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities | **03-Nov-17**

Activity ID	Activity Name
R3420	Street lighting
R3430	Road Marking
Stage 1: Security Fenceing outside Boundary Roads (Exclude E&M)	
D11930	Security Fence, within internal road
D11940	Security Fence, adjacent Kiosks
D11950	Security Fence, other place
Stage 1: FSD Inspection of Buildings (Access to Users)	
A00290	002 - C&ED Observation Guard Booth, Portion K No.1
B00290	002 - C&ED Observation Guard Booth, Portion K No. 2
B00294	002 - C&ED Observation Guard Booth, Portion H1 No. 1
B00296	002 - C&ED Observation Guard Booth, Portion H1 No. 2
B00298	002 - C&ED Observation Guard Booth, Portion R
B00610	006 - Shuttle Bus Kiosk & Staff Subway
B00910	009 - Outbound Coach Kiosk & Staff Subway
B01010	010 - Inbound Coach Kiosk & Staff Subway
C01240	012 - DOH Disinsection Area and Store , Portion A1
C01252	012 - DOH Disinsection Area, Portion C, FSD inspection
C02450	024 - Outbound Private Car Exam Building, FSD Inspection
C02670	026 - Inbound IMMD and DOH Secondary Screening Building
C02710	027 - Inbound VCP private Car Kiosks & Inbound Staff Subway
C02810	028 - Inbound GV Kiosks & Inbound Staff subway
C02910	029 - Outbound GV Kiosks & Outbound Staff subway
C03010	030 - Outbound VCP Private Kiosk & Outbound Staff Subway
C03190	031 - Outbound IMMD and DOH Secondary Screen Building
C03380	033 - Inbound Private Car Exam Building, FSD Inspection
C03460	034 - Satellite RCP South, FSD Inspection
C03580	035 - Sewage Pumping Station, FSD Inspection
C03660	036 - Weigh Station, FSD Inspection
C03780	037 C&ED Tower & Inbound Cargo Examination Building
C03850	038 - AFCD Office, FSD Inspection
C03990	039 - Police Main Building, FSD Inspection
D04070	040 - Incident Control Tower, FSD Inspection
D04180	041 Fire Station & Ambulance Depot, FSD Inspection
D04240	042 - Drill Tower, FSD Inspection
D04320	043 - DOH Office + Store Room, FSD Inspection
D04670	046 - Refuse Collection Point, FSD Inspection
D04750	047 - Fresh Water Pumping Station, FSD Inspection
D04850	048 - Reclaimed Water Pumping Station, FSD Inspection
D04972	049 - Sewerage Treatment Plant, FSD Inspection
D05170	051 - Transformers (Zone 5), FSD Inspection
D05240	052 - Tranforms (Zone 4), FSD Inspection
D05470	054 - Inbound Fixed X-ray, FSD Inspection
D05770	057 - Transformers (Zone 2), FSD Inspection
D06070	060 - Single Storey Support Buildingm FSD Inspection
D06160	061 - Telecom Building, FSD Inspection
D10060	100 - Inbound Traffic Control Kiosk, FSD Inspection
D10150	101 - Outbound Traffic Control Kiosk, FSD Inspection
D10250	102 - HKPF UVSS Monior Room, FSD inspection
D10350	103 - Police Inspection Post, Portion B, FSD inspection
D10400	104 - DOH Secondary Screening Station, Portion C
D10425	104 - DOH Screening Station, Portion M, FSD Inspection
D10435	104 - DOH Screening Station, Portion N, FSD Inspection
D10560	105 - IMMD Guard Booth, Portion A1, FS Inspection by FSD
D10565	105 - IMMD Guard Booth, Portion P, FSD Inspection
D10680	106 - C&ED Detention Area Guard Booth, FSD Inspection
D10784	107 - C&ED Mobile Operation Office, Portion B, FSD inspection
D10786	107 - C&ED Mobile X-ray Operation Office, Portion N



Actual Work ◆ Milestone
Remaining Work
Critical

WORKS PROGRAMME, AS OF 31 OCTOBER 2017
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Date	Revision	Checked	Appro...
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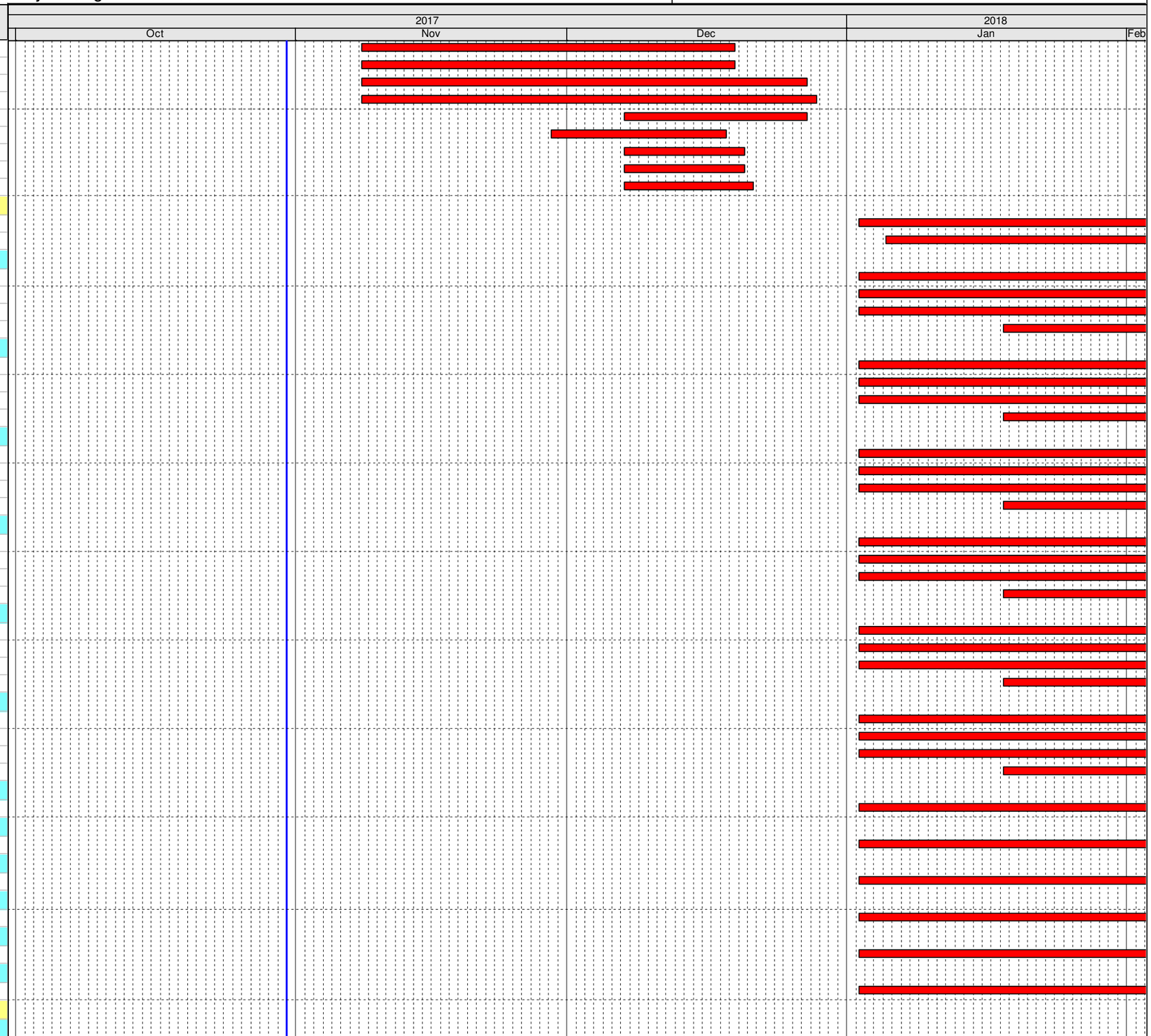
Activity ID	Activity Name
D10840	108 - C&ED Mobile X-ray Machine Operation Office, Portion C
D10890	108 - C&ED Mobile X-Ray Operation Office, portion M
D11040	110 - IMMD Guard Booth, Portion C-East, FS inspection
E11080	110 - IMMD Guard Booth, Portion C-West, FSD inspection
E11170	111 - Field Kiosk for Carpark Operator, FSD inspection
E11270	112 - Field Kiosk for Taxi Queuing Area, FSD Inspection
F11320	113 - Field Kiosk for Access Control, Portion C, FSD inspection
F11324	113 - Field Kiosk for Access Control, Portion B, FSD inspection
F11360	114 - Field Kiosk for Access Control, Portion D, FS inspection
Stage 2: Traffic Lanes through Kiosk 9-5-5-9 & 006, 009 & 010	
D550	Remaining Drainage
R1120	Remaining Subbase
Inbound West: Through 5 Kiosk of 027	
R1620	U-channel
R1630	Kerb/Edges
R1640	Street lighting
R1650	Bitumen Pavement
Inbound East: Through 3 Kiosk of 028	
R2180	U-channel
R2190	Kerb/Edges
R2200	Street lighting
R2210	Bitumen Pavement
Outbound West: Through 3 Kiosk of 029	
R2230	U-channel
R2240	Kerb/Edges
R2250	Street lighting
R2260	Bitumen Pavement
Outbound East: Through 5 Kiosk of 030	
R2280	U-channel
R2290	Kerb/Edges
R2300	Street lighting
R2310	Bitumen Pavement
Through 2+2 Kiosks of 006, 009	
R1820	U-channel
R1830	Kerb/Edges
R1840	Street lighting
R1850	Bitumen Pavement
Through 2 Kiosks of 010	
R1870	U-channel
R1880	Kerb/Edges
R1890	Street lighting
R1900	Bitumen Pavement
Internal Road - South of CUE, West Side (026-033)	
R2330	1st Layer RB
Internal Road - South of CUE, East Side (037-054)	
R2420	1st Layer RB
Internal Road - North of CUE, West Side (023-057)	
R2430	1st Layer RB
Internal Road - North of CUE, East Side (024-031)	
R2440	1st Layer RB
Remaining North PTI (SW Corner)	
R3140	Remaining North PTI (SW Corner)
South Boundary Road	
R3150	South Boundary Road, up to WC
Stage 3	
North Boundary Road	



Actual Work ◆ Milestone
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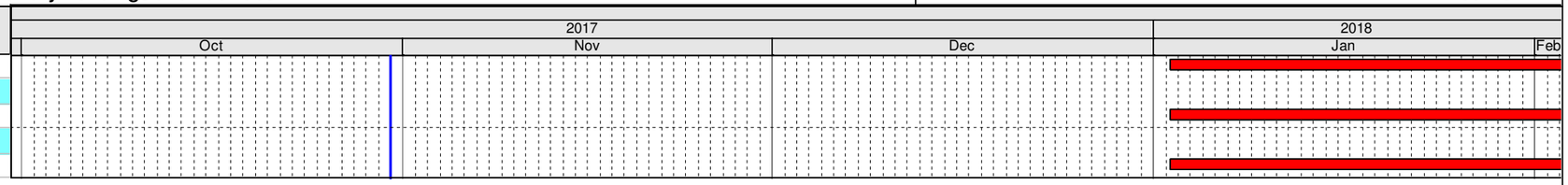
HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities | **03-Nov-17**

Activity ID	Activity Name
R2600	Pavement with street lighting up to 1st Layer RB
East Boundary Road	
R2530	Pavement with street lighting up to 1st Layer RB
West Boundary Road	
R2610	Pavement with street lighting up to 1st Layer RB



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Date	Revision	Checked	Appro...
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Activity ID	Activity Name
	Hong Kong-Zhuhai_Macao Bridge Hong Kong Boundary Crossing F
	Key Dates
	Interface Activities
	Site and Facility Inspection
JS1200	Pre Site and Facility Inspection by Contractor at Location 4 - Deg2
JS1210	Joint Site and Facility Inspection with Interface Contractor at Location 4 - Deg2
JS1620	Pre Site and Facility Inspection by Contractor at Location 14 - Deg2
JS1630	Joint Site and Facility Inspection with Interface Contractor at Location 14 - Deg2
JS1760	Pre Site and Facility Inspection by Contractor at Location 18 - Deg1
JS1770	Joint Site and Facility Inspection with Interface Contractor at Location 18 - Deg1
JS1780	Pre Site and Facility Inspection by Contractor at Location 18 - Deg2
JS1790	Joint Site and Facility Inspection with Interface Contractor at Location 18 - Deg2
	Access Dates
AD1000	Location 1(PCB (001) Basement)-Deg1 (270d)
AD1010	Location 1(PCB (001) Basement)-Deg2 (380d)
AD1020	Location 1(PCB (001) ELV Room (Grid Line E3))-Deg1 (270d)
AD1030	Location 1(PCB (001) ELV Room (Grid Line E3))-Deg2 (380d)
AD1040	Location 2(PCB (001) First Floor Main Server Room)-Deg1 (330d)
AD1050	Location 2(PCB (001) First Floor Main Server Room)-Deg2 (380d)
AD1060	Location 2(PCB (001) First Floor Main Server Room) - For Server Installation - Deg2 (3
AD1070	Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3)) - Deg1 (330d)
AD1080	Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) -
AD1090	Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) -
AD1130	Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)-Deg2 (500d)
AD1150	Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,14
AD1170	Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Room)-Deg2 (480d)
AD1190	Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room)-Deg2 (480d)
AD1200	Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room) - For Server installation -
AD1220	Location 4(Outbd Cargo Exam Bldg (023))-Deg2 (680d)
AD1240	Location 4a(Outbd Cargo Exam Bldg (023))-Deg2 (630d)
AD1270	Location 6(Common Utility Enclosure & Staff Subway)-Deg1 (400d)
AD1290	Location 7(Common Utility Enclosure & Staff Subway)-Deg1 (270d)
AD1300	Location 8(Inbd Private Car Annex (025))-Deg1 (430d)
AD1310	Location 8(Inbd Private Car Annex (025))-Deg2 (580d)
AD1320	Location 8(Inbd Private Car Annex (025) Canopy)-Deg1 (430d)
AD1330	Location 8(Inbd Private Car Annex (025) Canopy)-Deg2 (580d)
AD1340	Location 9(Outbd Private Car Annex (032))-Deg1 (520d)
AD1350	Location 9(Outbd Private Car Annex (032))-Deg2 (660d)
AD1360	Location 9(Outbd Private Car Annex (032) Canopy)-Deg1 (520d)
AD1370	Location 9(Outbd Private Car Annex (032) Canopy)-Deg2 (660d)
AD1501	Location 12(Inbd Private Car Kiosks(027))-Deg1 (400d) Phase 2
AD1510	Location 12(Inbd Private Car Kiosks(027))-Deg2 (480d) Phase 1
AD1511	Location 12(Inbd Private Car Kiosks(027))-Deg2 (480d) Phase 2
AD1521	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg1 (400d) Phase 2

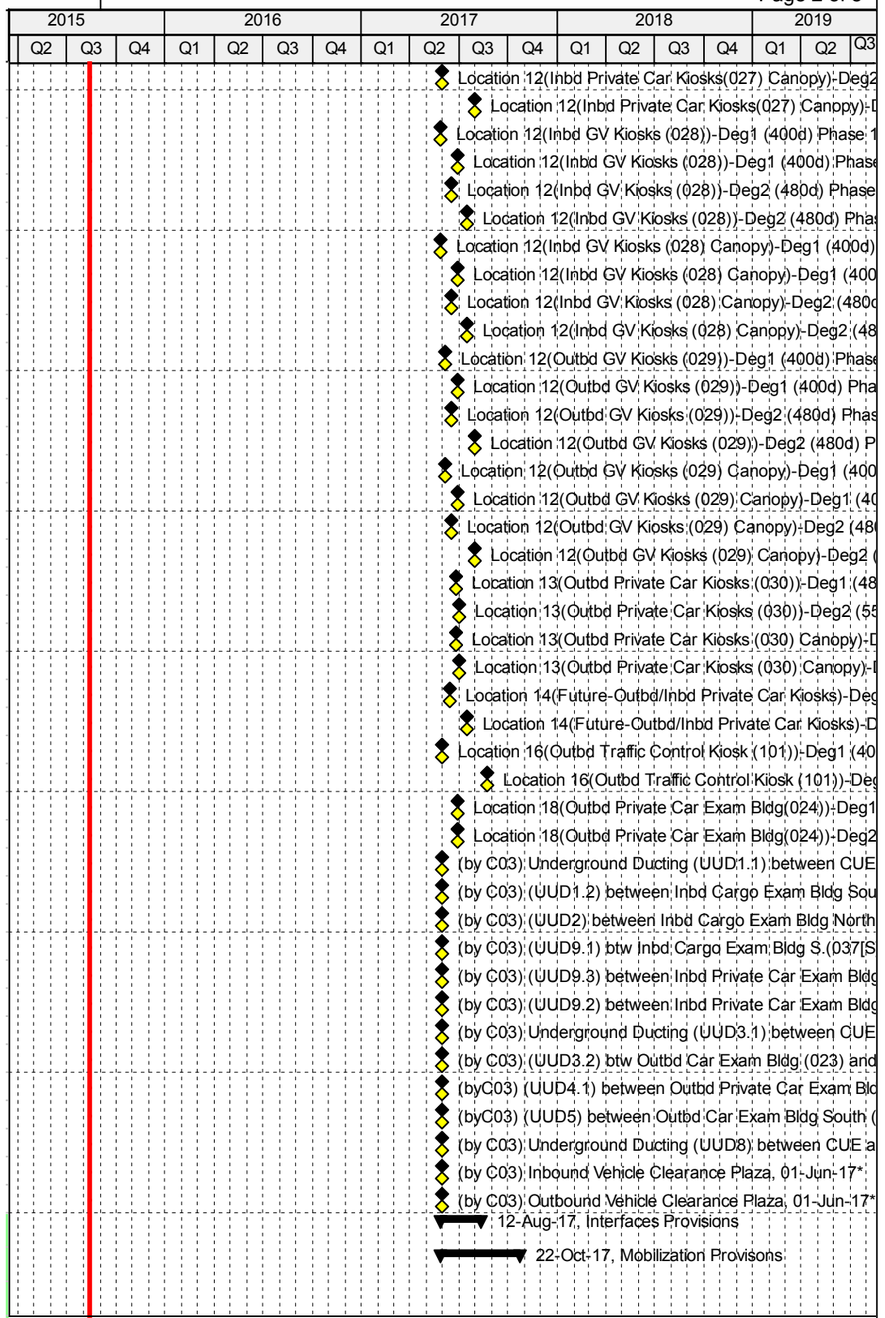
Programme No.: HZMB-DWP
Data Date: 14-Aug-15

Actual Level of Effort
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone
Milestone
summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)

Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC
10-Mar-17	Rev.: 1.0a	WC	LC
5-May-17	Rev.: 1.0b	WC	LC

Activity ID	Activity Name
AD1530	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg2 (480d) Phase 1
AD1531	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg2 (480d) Phase 2
AD1540	Location 12(Inbd GV Kiosks (028))-Deg1 (400d) Phase 1
AD1541	Location 12(Inbd GV Kiosks (028))-Deg1 (400d) Phase 2
AD1550	Location 12(Inbd GV Kiosks (028))-Deg2 (480d) Phase 1
AD1551	Location 12(Inbd GV Kiosks (028))-Deg2 (480d) Phase 2
AD1560	Location 12(Inbd GV Kiosks (028) Canopy)-Deg1 (400d) Phase 1
AD1561	Location 12(Inbd GV Kiosks (028) Canopy)-Deg1 (400d) Phase 2
AD1570	Location 12(Inbd GV Kiosks (028) Canopy)-Deg2 (480d) Phase 1
AD1571	Location 12(Inbd GV Kiosks (028) Canopy)-Deg2 (480d) Phase 2
AD1580	Location 12(Outbd GV Kiosks (029))-Deg1 (400d) Phase 1
AD1581	Location 12(Outbd GV Kiosks (029))-Deg1 (400d) Phase 2
AD1590	Location 12(Outbd GV Kiosks (029))-Deg2 (480d) Phase 1
AD1591	Location 12(Outbd GV Kiosks (029))-Deg2 (480d) Phase 2
AD1600	Location 12(Outbd GV Kiosks (029) Canopy)-Deg1 (400d) Phase 1
AD1601	Location 12(Outbd GV Kiosks (029) Canopy)-Deg1 (400d) Phase 2
AD1610	Location 12(Outbd GV Kiosks (029) Canopy)-Deg2 (480d) Phase 1
AD1611	Location 12(Outbd GV Kiosks (029) Canopy)-Deg2 (480d) Phase 2
AD1620	Location 13(Outbd Private Car Kiosks (030))-Deg1 (480d) Phase 1
AD1630	Location 13(Outbd Private Car Kiosks (030))-Deg2 (550d) Phase 1
AD1640	Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg1 (480d) Phase 1
AD1650	Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg2 (550d) Phase 1
AD1660	Location 14(Future-Outbd/Inbd Private Car Kiosks)-Deg1 (610d)
AD1670	Location 14(Future-Outbd/Inbd Private Car Kiosks)-Deg2 (680d)
AD1700	Location 16(Outbd Traffic Control Kiosk (101))-Deg1 (400d)
AD1710	Location 16(Outbd Traffic Control Kiosk (101))-Deg2 (480d)
AD1740	Location 18(Outbd Private Car Exam Bldg(024))-Deg1 (-)
AD1750	Location 18(Outbd Private Car Exam Bldg(024))-Deg2 (670d)
AD1780	(by C03) Underground Ducting (UUD1.1) between CUE and Inbd Cargo Exam Bldg (0
AD1790	(by C03) (UUD1.2) between Inbd Cargo Exam Bldg South (037[S]) and DOH Cargo C
AD1800	(by C03) (UUD2) between Inbd Cargo Exam Bldg North (037[N]) and Inbd Vehicle Cle
AD1810	(by C03) (UUD9.1) btw Inbd Cargo Exam Bldg S.(037[S]) & Inbd PC Exam Bldg(033) &
AD1820	(by C03) (UUD9.3) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clear
AD1830	(by C03) (UUD9.2) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clear
AD1840	(by C03) Underground Ducting (UUD3.1) between CUE to Outbd Cargo Exam Bldg (0
AD1850	(by C03) (UUD3.2) btw Outbd Car Exam Bldg (023) and Outbd PC Exam Bldg (024) an
AD1860	(byC03) (UUD4.1) between Outbd Private Car Exam Bldg (024) and Outbd Vehicle Cle
AD1870	(byC03) (UUD5) between Outbd Car Exam Bldg South (023[S]) and Outbd Vehicle Cle
AD1880	(by C03) Underground Ducting (UUD8) between CUE and Outbd PCA (032)
AD1910	(by C03) Inbound Vehicle Clearance Plaza
AD1920	(by C03) Outbound Vehicle Clearance Plaza
Interfaces Provisions	
Mobilization Provisons	
WA4 Site Erection & Servicing	



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Hong Kong-Zhuhai-Macao Bridge
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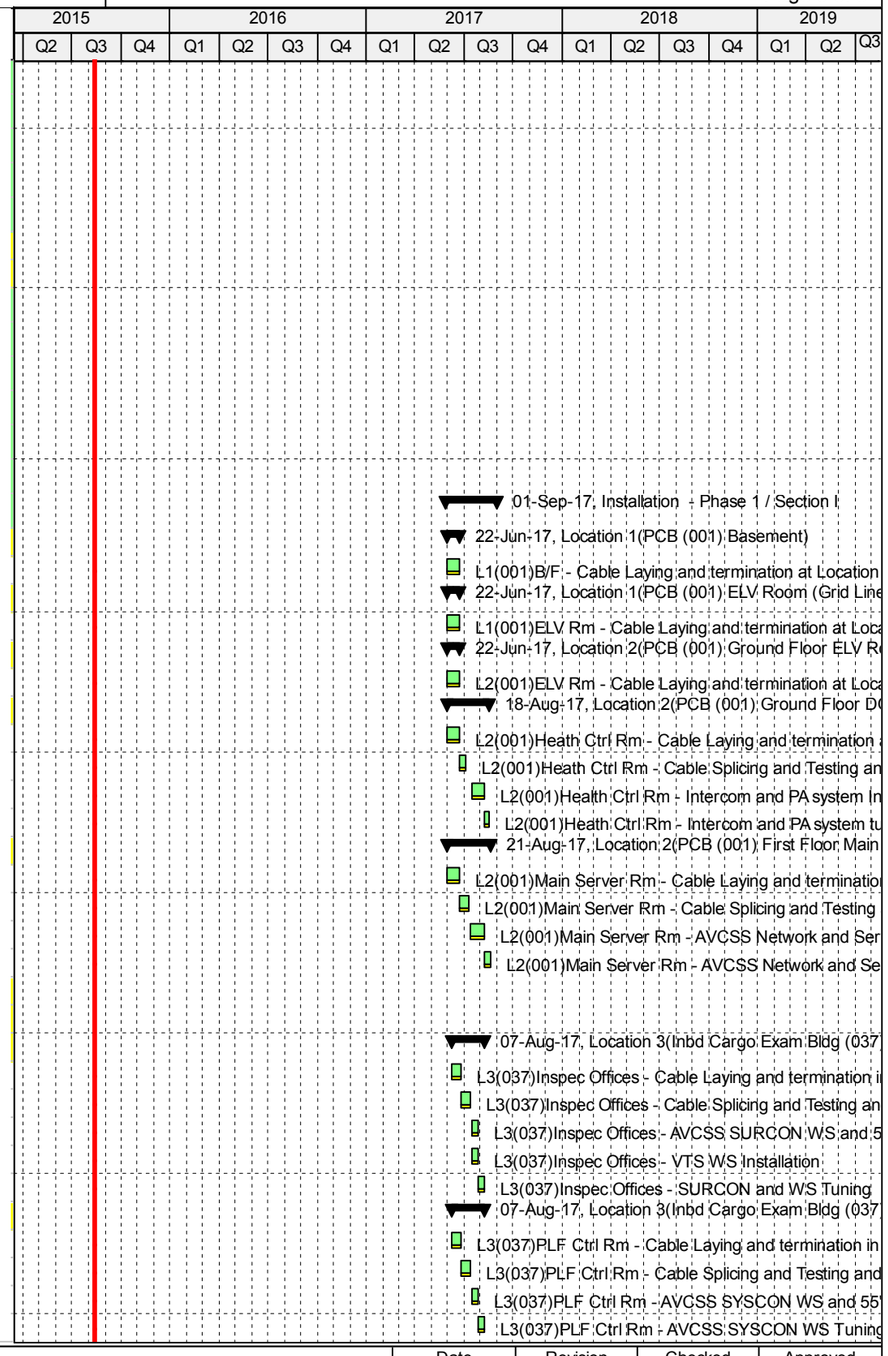
Activity ID	Activity Name
	Detailed Design Specification
	Contruction Design and Management
	Supply/Manufacture Mock-up items
	Supply/Manufacture prototypes
	Software Design, Coding and Testing
	Coding
	Software System Inetgration
	Prototype & Software Simulation Tests
	Procurement - Phase 1 / Section I
	Supply/Manufacture products for FAT
	Factory Acceptance Test (FAT)
	Supply/Manufacture Equipment
	Delivery and Bench Acceptance Test for Phase 1/ Section I
	Installation - Phase 1 / Section I
	Location 1(PCB (001) Basement)
EM1920	L1(001)B/F - Cable Laying and termination at Location 1 and Location 2
	Location 1(PCB (001) ELV Room (Grid Line E3))
EM1940	L1(001)ELV Rm - Cable Laying and termination at Location 1 and Location 2
	Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3))
EM1960	L2(001)ELV Rm - Cable Laying and termination at Location 1 and Location 2
	Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5))
EM1080	L2(001)Heath Ctrl Rm - Cable Laying and termination at Location 1 and Location 2
EM1100	L2(001)Heath Ctrl Rm - Cable Splicing and Testing and Labeling
EM1120	L2(001)Health Ctrl Rm - Intercom and PA system Installation
EM1140	L2(001)Heath Ctrl Rm - Intercom and PA system tuning
	Location 2(PCB (001) First Floor Main Server Room)
EM1000	L2(001)Main Server Rm - Cable Laying and termination at Location 1 and Location 2
EM1020	L2(001)Main Server Rm - Cable Splicing and Testing and Labeling
EM1040	L2(001)Main Server Rm - AVCSS Network and Server Installation
EM1060	L2(001)Main Server Rm - AVCSS Network and Server Tuning
	Location 3(Inbd Cargo Exam Bldg (037) MDF Room)
	Location 3(Inbd Cargo Exam Bldg (037) ELV Room)
	Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,14
EM2020	L3(037)Inspec Offices - Cable Laying and termination in Location 3 and Location 3a
EM2040	L3(037)Inspec Offices - Cable Splicing and Testing and Labeling
EM2060	L3(037)Inspec Offices - AVCSS SURCON WS and 55" LCD Installation
EM2080	L3(037)Inspec Offices - VTS WS Installation
EM2100	L3(037)Inspec Offices - SURCON and WS Tuning
	Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)
EM1160	L3(037)PLF Ctrl Rm - Cable Laying and termination in Location 3 and Location 3a
EM1180	L3(037)PLF Ctrl Rm - Cable Splicing and Testing and Labeling
EM1200	L3(037)PLF Ctrl Rm - AVCSS SYSCON WS and 55" TV Wall Installation
EM1220	L3(037)PLF Ctrl Rm - AVCSS SYSCON WS Tuning



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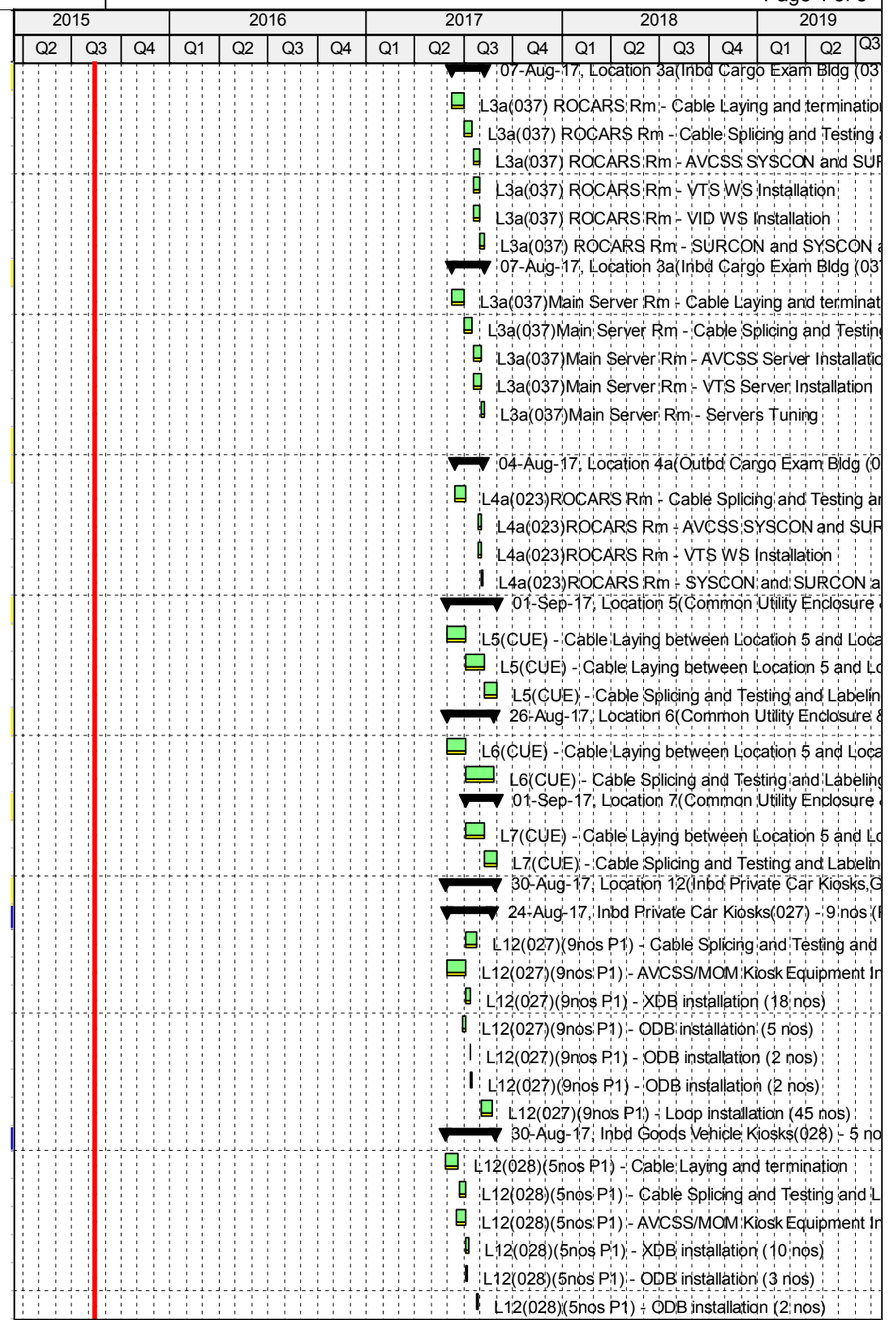
Activity ID	Activity Name
	Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Room)
EM1240	L3a(037) ROCARS Rm - Cable Laying and termination in Location 3 and Location 3a
EM1260	L3a(037) ROCARS Rm - Cable Splicing and Testing and Labeling
EM1280	L3a(037) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation
EM1300	L3a(037) ROCARS Rm - VTS WS Installation
EM1320	L3a(037) ROCARS Rm - VID WS Installation
EM1340	L3a(037) ROCARS Rm - SURCON and SYSCON and WS Tuning
	Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room)
EM2120	L3a(037)Main Server Rm - Cable Laying and termination in Location 3 and Location 3a
EM2140	L3a(037)Main Server Rm - Cable Splicing and Testing and Labeling
EM2160	L3a(037)Main Server Rm - AVCSS Server Installation
EM2180	L3a(037)Main Server Rm - VTS Server Installation
EM2200	L3a(037)Main Server Rm - Servers Tuning
	Location 4(Outbd Cargo Exam Bldg (023) MDF Room)
	Location 4a(Outbd Cargo Exam Bldg (023) ROCARS Room)
EM2240	L4a(023)ROCARS Rm - Cable Splicing and Testing and Labeling
EM2260	L4a(023)ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation
EM2280	L4a(023)ROCARS Rm - VTS WS Installation
EM2300	L4a(023)ROCARS Rm - SYSCON and SURCON and WS Tuning
	Location 5(Common Utility Enclosure & Staff Subway)
EM2341	L5(CUE) - Cable Laying between Location 5 and Location 6
EM2361	L5(CUE) - Cable Laying between Location 5 and Location 7
EM2380	L5(CUE) - Cable Splicing and Testing and Labeling
	Location 6(Common Utility Enclosure & Staff Subway)
EM2400	L6(CUE) - Cable Laying between Location 5 and Location 6
EM2420	L6(CUE) - Cable Splicing and Testing and Labeling
	Location 7(Common Utility Enclosure & Staff Subway)
EM2440	L7(CUE) - Cable Laying between Location 5 and Location 7
EM2460	L7(CUE) - Cable Splicing and Testing and Labeling
	Location 12(Inbd Private Car Kiosks,GV Kiosks (027,028,029))
	Inbd Private Car Kiosks(027) - 9 nos (Phase 1)
EM1500	L12(027)(9nos P1) - Cable Splicing and Testing and Labeling
EM1520	L12(027)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)
EM1541	L12(027)(9nos P1) - XDB installation (18 nos)
EM1542	L12(027)(9nos P1) - ODB installation (5 nos)
EM1543	L12(027)(9nos P1) - ODB installation (2 nos)
EM1544	L12(027)(9nos P1) - ODB installation (2 nos)
EM1560	L12(027)(9nos P1) - Loop installation (45 nos)
	Inbd Goods Vehicle Kiosks(028) - 5 nos (Phase 1)
EM1620	L12(028)(5nos P1) - Cable Laying and termination
EM1640	L12(028)(5nos P1) - Cable Splicing and Testing and Labeling
EM1660	L12(028)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)
EM1681	L12(028)(5nos P1) - XDB installation (10 nos)
EM1682	L12(028)(5nos P1) - ODB installation (3 nos)
EM1683	L12(028)(5nos P1) - ODB installation (2 nos)



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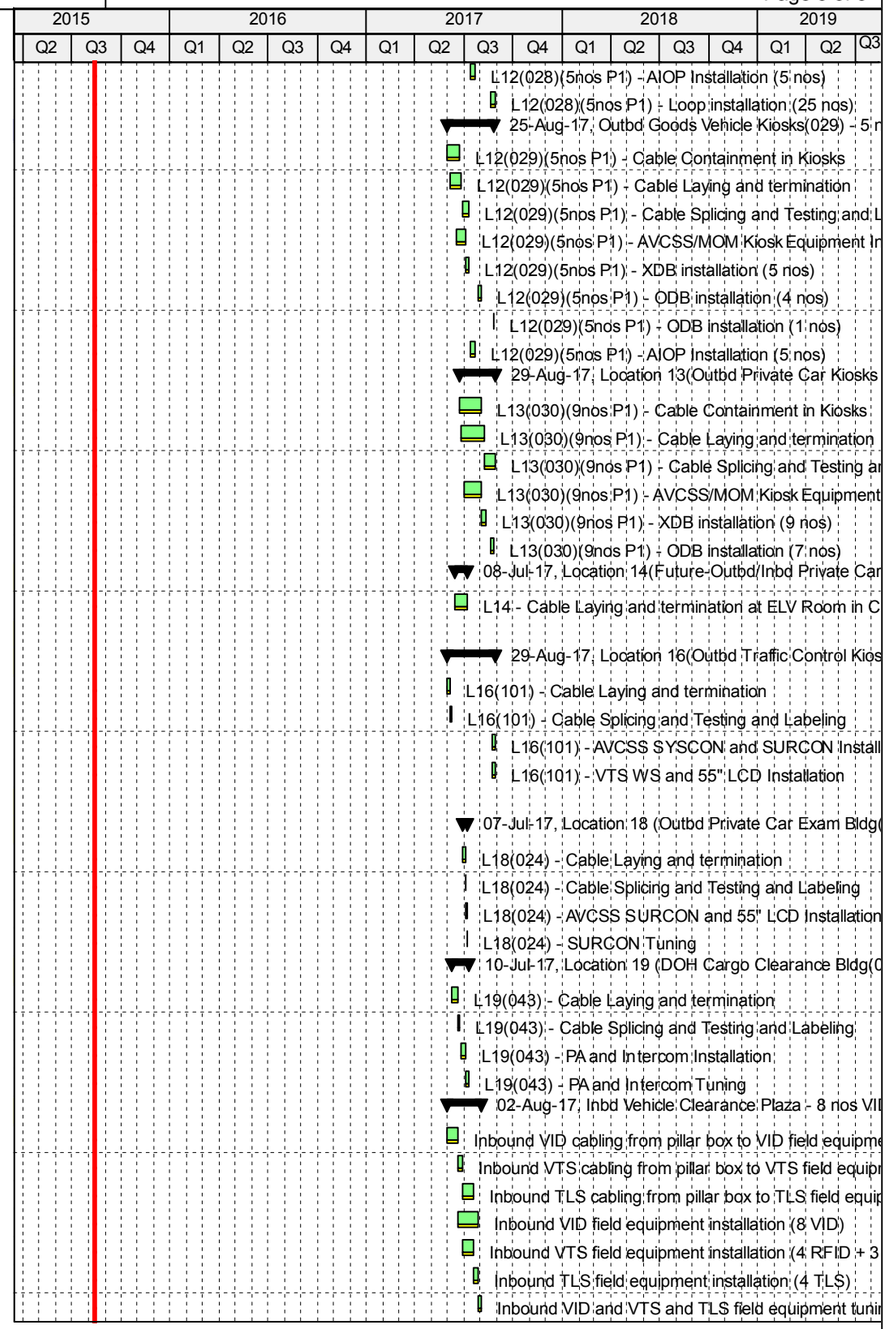
Activity ID	Activity Name
EM1700	L12(028)(5nos P1) - AIOP Installation (5 nos)
EM1720	L12(028)(5nos P1) - Loop installation (25 nos)
Outbd Goods Vehicle Kiosks(029) - 5 nos (Phase 1)	
EM1740	L12(029)(5nos P1) - Cable Containment in Kiosks
EM1760	L12(029)(5nos P1) - Cable Laying and termination
EM1780	L12(029)(5nos P1) - Cable Splicing and Testing and Labeling
EM1800	L12(029)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)
EM1821	L12(029)(5nos P1) - XDB installation (5 nos)
EM1822	L12(029)(5nos P1) - ODB installation (4 nos)
EM1823	L12(029)(5nos P1) - ODB installation (1 nos)
EM1840	L12(029)(5nos P1) - AIOP Installation (5 nos)
Location 13(Outbd Private Car Kiosks (030)) - 9 nos (Phase 1)	
EM2520	L13(030)(9nos P1) - Cable Containment in Kiosks
EM2540	L13(030)(9nos P1) - Cable Laying and termination
EM2560	L13(030)(9nos P1) - Cable Splicing and Testing and Labeling
EM2580	L13(030)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)
EM2601	L13(030)(9nos P1) - XDB installation (9 nos)
EM2602	L13(030)(9nos P1) - ODB installation (7 nos)
Location 14(Future-Outbd/Inbd Private Car Kiosks) - 6+6 nos	
EM1440	L14 - Cable Laying and termination at ELV Room in CUE
Location 15(Inbd Traffic Control Kiosk (100))	
Location 16(Outbd Traffic Control Kiosk (101))	
EM2760	L16(101) - Cable Laying and termination
EM2780	L16(101) - Cable Splicing and Testing and Labeling
EM2800	L16(101) - AVCSS SYSCON and SURCON Installation
EM2820	L16(101) - VTS WS and 55" LCD Installation
Location 17(Inbd Private Car Exam Bldg(033) Operational Office)	
Location 18 (Outbd Private Car Exam Bldg(024) Operational Office)	
EM2940	L18(024) - Cable Laying and termination
EM2960	L18(024) - Cable Splicing and Testing and Labeling
EM2980	L18(024) - AVCSS SURCON and 55" LCD Installation
EM3000	L18(024) - SURCON Tuning
Location 19 (DOH Cargo Clearance Bldg(043))	
EM1360	L19(043) - Cable Laying and termination
EM1380	L19(043) - Cable Splicing and Testing and Labeling
EM1400	L19(043) - PA and Intercom Installation
EM1420	L19(043) - PA and Intercom Tuning
Inbd Vehicle Clearance Plaza - 8 nos VID, 7 nos VTS, 4 nos TLS	
EM3020	Inbound VID cabling from pillar box to VID field equipment
EM3040	Inbound VTS cabling from pillar box to VTS field equipment
EM3060	Inbound TLS cabling from pillar box to TLS field equipment
EM3080	Inbound VID field equipment installation (8 VID)
EM3100	Inbound VTS field equipment installation (4 RFID + 3 Cameras)
EM3120	Inbound TLS field equipment installation (4 TLS)
EM3140	Inbound VID and VTS and TLS field equipment tuning



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Activity ID	Activity Name
	Outbd Vehicle Clearance Plaza - 8 nos VID, 6 nos VTS, 4 nos TLS
EM3160	Outbound VID cabling from pillar box to VID field equipment
EM3180	Outbound VTS cabling from pillar box to VTS field equipment
EM3200	Outbound TLS cabling from pillar box to TLS field equipment
EM3220	Outbound VID field equipment installation (8 VID)
EM3240	Outbound VTS field equipment installation (3 RFID + 3 Cameras)
EM3260	Outbound TLS field equipment installation (4 TLS)
EM3280	Outbound VID and VTS and TLS field equipment tuning
	Underground Ducting (UUD1.1) between CUE and Inbd Cargo Exam Bldg (037)
UD1000	(UUD1.1 [CUE-037]) - Cable laying and termination
	(UUD1.2) between Inbd Cargo Exam Bldg South (037[S]) and DOH Cargo Clearance Bl
UD1060	(UUD1.2 [037[S]-043]) - Cable laying and termination
	Underground Ducting (UUD6) between CUE and Shuttle Bus Kiosk (006) and Inbd Priv
	(UUD9.1) btw IB Cargo Exam Bldg South(037[S]) & IB PC Exam Bldg(033) & IB Traffic
UD1040	(UUD9.1 [037[S]-033-100) - Cable laying and termination
	(UUD2) between Inbd Cargo Exam Bldg North (037[N]) to Inbd VCP
UD1010	(UUD2 [037[N]-IB VCP]) - Cable laying and termination
	(UUD9.3) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clearance Plaza
UD1070	(UUD9.3 [033-IB VCP[W]) - Cable laying and termination
	(UUD9.2) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clearance Plaza
UD1020	(UUD9.2 [033-IB VCP[E]) - Cable laying and termination
	Underground Ducting (UUD7) between PCB(001) and Inbd Coach Kiosks(010)
	Underground Ducting (UUD3.1) between CUE and Outbd Cargo Exam Bldg (023)
UD1030	(UUD3.1 [CUE-023]) - Cable laying and termination
	(UUD3.2) btw OB Car Exam Bldg(023) & OB PC Exam Bldg(024) & OB Traffic Control I
UD1050	(UUD3.2 [023-024-101]) - Cable laying and termination
	Underground Ducting (UUD8) between CUE and Outbd PCA (032)
UD1100	(UUD8 [CUE-032]) - Cable laying and termination
	(UUD4.1) between Outbd PC Exam Bldg (024) and Outbd Vehicle Clearance Plaza
UD1080	(UUD4.1 [024-OB VCP]) - Cable laying and termination
	(UUD5) between Outbd Car Exam Bldg (023[S]) and Outbd Vehicle Clearance Plaza
UD1090	(UUD5 [023[S]-OB VCP]) - Cable laying and termination
	Initial On-Site Test and Commissioning / Pre-SAT (Phase 1 / Section I)
	Site Acceptance Test (Phase 1 / Section I)
	Security Risk Assessment and Audit
	Operability Period Test (Phase 1 / Section I)
	Completion (Phase 1 /Section I)
	Training and Document (Phase 1 /Section I)
	Operation (Phase 1 /Section I)
	Engineering Support for Phase 1 / Section I
	Procurement - Phase 2 / Section II
	Delivery and Bench Acceptance Test for Phase 2/Section II
	Installation - Phase 2 / Section II

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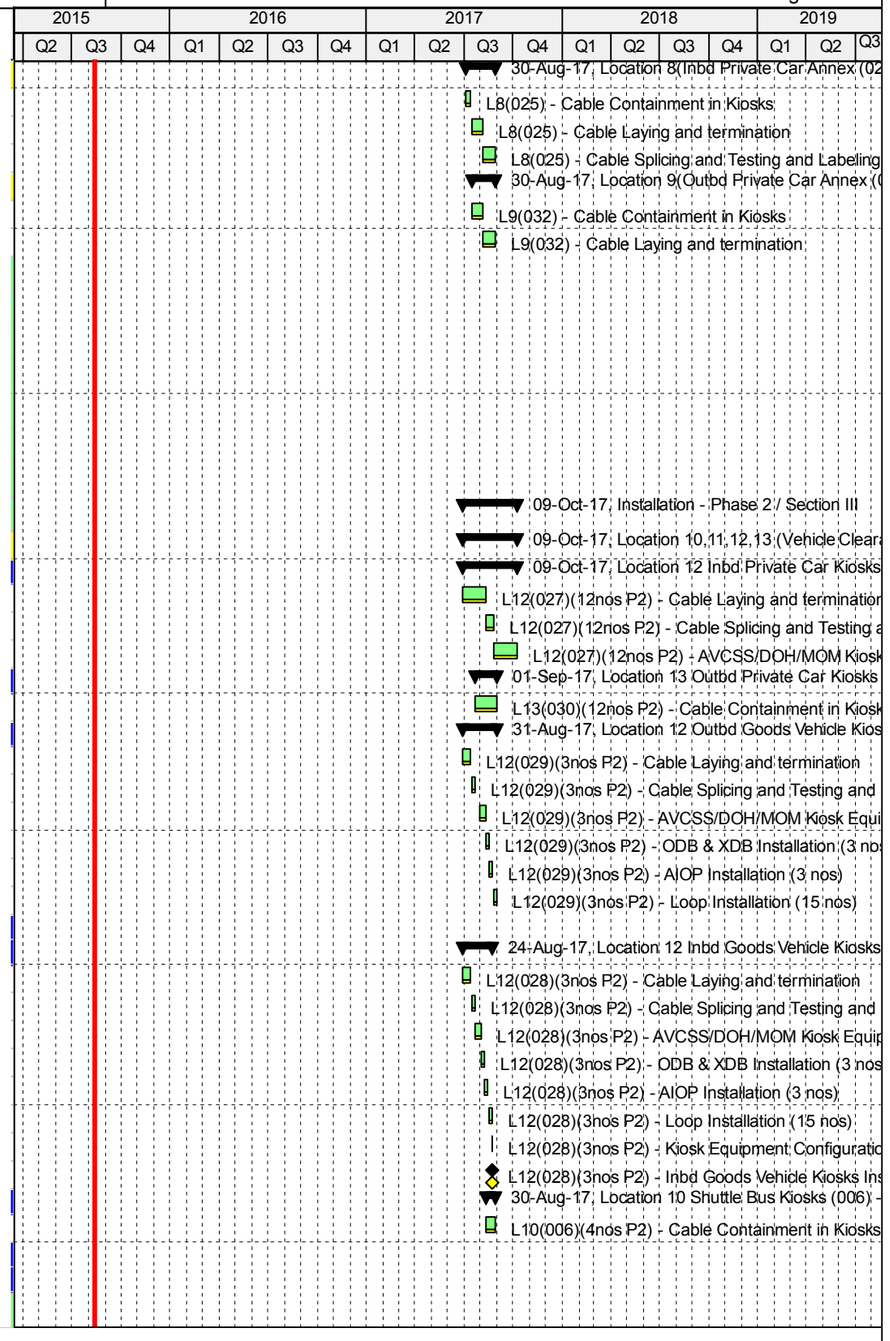
Activity ID	Activity Name
	Location 8(Inbd Private Car Annex (025)) (Phase 2)
EM3370	L8(025) - Cable Containment in Kiosks
EM3380	L8(025) - Cable Laying and termination
EM3400	L8(025) - Cable Splicing and Testing and Labeling
	Location 9(Outbd Private Car Annex (032)) (Phase 2)
EM3500	L9(032) - Cable Containment in Kiosks
EM3520	L9(032) - Cable Laying and termination
	Initial On-Site Test and Commissioning / Pre-SAT (Phase 2 / Section II)
	Site Acceptance Test (Phase 2 / Section II)
	Operability Period Test (Phase 2 / Section II)
	Completion (Phase 2 / Section II)
	Engineering Support for Phase 2 / Section II
	Procurement for Phase2 / Section III
	Delivery and Bench Acceptance Test for Phase2 / Section III
	Installation - Phase 2 / Section III
	Location 10,11,12,13 (Vehicle Clearance Kiosks)
	Location 12 Inbd Private Car Kiosks (027) - 12 nos (Phase 2)
EM4440	L12(027)(12nos P2) - Cable Laying and termination
EM4460	L12(027)(12nos P2) - Cable Splicing and Testing and Labeling
EM4480	L12(027)(12nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (12 nos)
	Location 13 Outbd Private Car Kiosks (030) - 12 nos (Phase 2)
EM4560	L13(030)(12nos P2) - Cable Containment in Kiosks
	Location 12 Outbd Goods Vehicle Kiosks (029) - 3 nos (Phase 2)
EM4880	L12(029)(3nos P2) - Cable Laying and termination
EM4900	L12(029)(3nos P2) - Cable Splicing and Testing and Labeling
EM4920	L12(029)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)
EM4940	L12(029)(3nos P2) - ODB & XDB Installation (3 nos)
EM4960	L12(029)(3nos P2) - AIOP Installation (3 nos)
EM4980	L12(029)(3nos P2) - Loop Installation (15 nos)
	Location 11 Outbd Coach Kiosks (009) - 4 nos (Phase 2)
	Location 12 Inbd Goods Vehicle Kiosks (028) - 3 nos (Phase 2)
EM4720	L12(028)(3nos P2) - Cable Laying and termination
EM4740	L12(028)(3nos P2) - Cable Splicing and Testing and Labeling
EM4760	L12(028)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)
EM4780	L12(028)(3nos P2) - ODB & XDB Installation (3 nos)
EM4800	L12(028)(3nos P2) - AIOP Installation (3 nos)
EM4820	L12(028)(3nos P2) - Loop Installation (15 nos)
EM4840	L12(028)(3nos P2) - Kiosk Equipment Configuration (3 nos)
EM5120	L12(028)(3nos P2) - Inbd Goods Vehicle Kiosks Installation Complete
	Location 10 Shuttle Bus Kiosks (006) - 4 nos (Phase 2)
EM4000	L10(006)(4nos P2) - Cable Containment in Kiosks
	Location 11 Inbd Coach Kiosks (010) - 2 nos (Phase 2)-1
	Location 11 Inbd Coach Kiosks (010) - 2 nos (Phase 2)-2
	Initial On-Site Test and Commissioning / Pre-SAT (Phase 2 / Section III)



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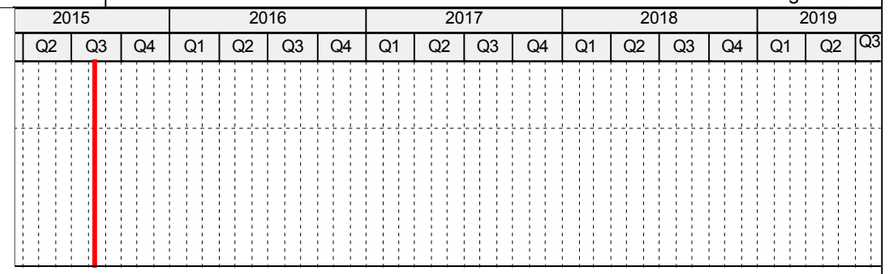
Activity ID	Activity Name
	Site Acceptance Test (Phase 2 / Section III)
	Operability Period Test (Phase 2 / Section III)
	Completion (Phase 2 / Section III)
	Operation (Phase 2 / Section III)
	Defect Liability Period (DLP)
	Document Submission (Phase 2 / Section III)



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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix D

Event / Action Plan

Appendix D –

Event / Action Plan for Air Quality and Noise Monitoring and Water Quality Monitoring and Ecological Monitoring

Event / Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
Limit Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance a nd propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementatio n of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedances abated.

Event / Action Plan for Construction Noise Monitoring

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Action Level	1. Notify IEC and Contractor; 2. Identify source, investigate the causes of exceedance and propose remedial measures; 3. Report the results of investigation to the IEC,ER and Contractor; 4. Discuss with th e Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Limit Level	1. Inform IEC, ER, EPD and Contractor; 2. Identify source; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Water Quality

Event	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	1. Repeat in situ measurement on next day of exceedance to confirm findings 2. Identify source(s) of impact 3. Inform IEC, contractor and ER 4. Check monitoring data, all plant, equipment and Contractor's working methods	1. Confirm receipt of notification of noncompliance in writing 2. Notify Contractor	1. Confirm receipt of notification of noncompliance in writing 2. Notify Contractor	1. Inform the ER and confirm notification of the noncompliance in writing 2. Rectify unacceptable practice 3. Amend working methods if appropriate
Action level being exceeded by two or more consecutive sampling days	1. Repeat in situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor and ER 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures with IEC, ER and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Action level 8. Repeat measurement on next day of exceedance to confirm findings	1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ET and Contractor on possible remedial actions 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly 4. Assess the effectiveness of the implemented mitigation measures	1. Confirm receipt of notification of noncompliance in writing 2. Discuss with IEC on the proposed mitigation measures 3. Make agreement on mitigation measures to be implemented 4. Ensure mitigation measures are properly implemented 5. Assess the effectiveness of the implemented mitigation measures	1. Inform the Engineer and confirm notification of the noncompliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment and consider changes of working methods 4. Discuss with ET and IEC on possible remedial actions and propose mitigation measures to IEC and ER within 3 working days of notification 5. Implement the agreed mitigation measures 6. Amend working methods if appropriate

Event	ET Leader	IEC	ER	Contractor
Limit level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor, ER and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures with IEC, ER and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Limit level	1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ET and Contractor on possible remedial actions 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly 4. Assess the effectiveness of the implemented mitigation measures	1. Confirm receipt of notification of failure in writing 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures 3. Request Contractor to critically review the working methods 4. Ensure mitigation measures are properly implemented 5. Assess the effectiveness of the implemented mitigation measures	1. Inform the ER and confirm notification of the noncompliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment and consider changes of working methods 4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER 5. Implement the agreed mitigation measures 6. Amend working methods if appropriate
Limit level being exceeded by two or more consecutive sampling days	1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, contractor, ER and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures with IEC, ER and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days	1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ET and Contractor on possible remedial actions 3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the ER accordingly	1. Confirm receipt of notification of failure in writing 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures 3. Request Contractor to critically review the working methods 4. Make agreement on the mitigation measures to be implemented 5. Ensure mitigation measures are properly implemented 6. Assess the effectiveness of the implemented mitigation measures 7. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level	1. Inform the ER and confirm notification of the noncompliance in writing 2. Take immediate action to avoid further exceedance 3. Rectify unacceptable practice 4. Check all plant and equipment and consider changes of working methods 5. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER 6. Implement the agreed mitigation measures 7. Resubmit proposals of mitigation measures if problem still not under control 8. As directed by the engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level

Event / Action Plan for Ecological Monitoring

Event	ET Leader	IEC	ER	Contractor
Action Level	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor.	1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented.	1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER/SOR; 3. Implement the agreed measures.

Event	ET Leader	IEC	ER	Contractor
Limit Level	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly.	1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures. 3. Supervise the implementation of additional monitoring and/or any other mitigation measures.	1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures. 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary. 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix E

Waste Flow Table

Monthly Summary of Waste Flow Table for 2017 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete *(see Note 1)*	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics *(see Note 2)*	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m^3)
Jan	0.000	0	0	0	0.000	0	0	0	0	0.580
Feb	0.000	0	0	0	0.000	0	0	0	0	0.585
Mar	0.000	0	0	0	0.000	0	0	0	0	0.999
Apr	0.043	0	0	0	0.043	0	0	0	0	1.073
May	12.682	0	0	12.637	0.045	0	0	0	0	1.321
Jun	27.129	0	0	26.007	1.122	0	0	0	0	2.023
Jul	50.575	0	0	50.089	0.486	0	0	0	0	1.448
Aug	82.234	0	0	78.638	3.596	0	0	0	0	1.656
Sept	76.431	0	0	72.962	3.469	0	0	0	0	1.950
Oct	45.010	0	0	43.983	1.027	0	0	0	0	1.750
Nov										
Dec										
Total	294.104	0.000	0.000	284.316	9.788	0.000	0.000	0.000	0.000	13.385

Notes:

(1) Broken concrete for recycling into aggregates.

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

Monthly Summary of Excavated Marine Sediment for 2017 (year)

Month	Total Quantity of Excavated Marine Sediment Generated in '000m^3	Reused in this contract in '000m^3	Reused in other Projects in '000m^3	Disposed of at CMP in '000m^3
Jan	0.656	0.000	0.000	0.656
Feb	0.264	0.000	0.000	0.264
Mar	0.000	0.000	0.000	0.000
Apr	1.288	0.000	0.000	1.288
May	1.440	0.000	0.000	1.440
Jun	0.000	0.000	0.000	0.000
Jul	0.000	0.000	0.000	0.000
Aug	0.248	0.000	0.000	0.248
Sep	0.000	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000
Nov				
Dec				
Total	3.896	0.000	0.000	3.896

Remark: All marine sediments extracted from HY/2013/02, HY/2013/03 and HY/2013/04 have been completed with the last batch disposal on 30 August 2017

Ver: 1st
Date: Jan 2017

ATAL Technologies Ltd.
Contract: HY/2013/06 HKBCF- Automatic Vehicle Clearance Support System
Location: Artifical Island of HKBCF (C3 Area)

Monthly Summary Waste Flow Table for 2017

Month	Inert C&D Waste disposal / 墮性廢物 (in tonnes) (see Note 1)						Non-inert C&D Waste disposal 非墮性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated 總生產量	
	Reused in the Work Package (e.g. backfilling) 再用於工程 (如回填)		Reused in other Projects 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) 墮性廢物 (如泥, 石矢頭, 石, 填料等)		Others (e.g. general refuse, broken formwork etc) 其他 (如垃圾, 廢板枋等)		Metals 金屬		Plastic 塑膠		Paper/cardboard packaging 廢紙/包裝紙類		Chemical Waste 化學廢物			
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)		(a)= (b+c+d+e)	
	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量
January	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000
February	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000
March	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
April	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005
May	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
June	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
July	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
August	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030
September	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050
October	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.050**	**0.050**	**0.030**	**0.030**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.050**	**0.050**
November																		
December																		
Total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.197**	**0.197**	**0.160**	**0.160**	**0.000**	**0.000**	**0.004**	**0.004**	**0.000**	**0.000**	**0.197**	**0.197**

Notes: (1) The quantitles of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m3, with the density of the soil, which is 1.5 gcm^{-3}.

Ver: 1st
Date: Dec 2016

ATAL Technologies Ltd.
Contract No. HY/2013/06 HKBCF Automatic Vehicle Clearance Support System
Location: Artifical Island of HKIAP

Monthly Summary Waste Flow Table for 2016

Month	Inert C&D Waste disposal / 堕性廢物 (in tonnes) (see Note 1)						Non-inert C&D Waste disposal 非堕性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated 總生產量	
	Reused in the Work Package (e.g. backfilling) 再用於工程 (如回填)		Reused in other Projects 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) 堕性廢物 (如泥, 石矢頭, 石, 填料等)		Others (e.g. general refuse, broken formwork etc) 其他 (如垃圾, 廢板枋等)		Metals 金屬		Plastic 塑膠		Paper/cardboard packaging 廢紙/包裝紙類		Chemical Waste 化學廢物			
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)		(a)= (b+c+d+e)	
	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量
January																		
February																		
March																		
April																		
May																		
June																		
July																		
August																		
September	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
October	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
November	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
December	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
Total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.008**	**0.008**	**0.000**	**0.000**	**0.008**	**0.008**

Notes: (1) The quantitles of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m3, with the density of the soil, which is 1.5 gcm-^{3}.

Appendix F

Environmental Licenses and Permits

Environmental Permit / Licences Summary for Contract No. HY/2013/03

(update: 03/11/2017)

Item	Permit/Licence Registration	Permit No.	Work Area	Application Date	Issue Date	Valid Date		Status	Remark
						From	To		
1	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/H	HKBCF	16-Jan-15	19 Jan 15	19 Jan 15	Nil	Superseded	
2	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387703	Main Site Area	15-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
3	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387735	Works Area WA3	15-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
4	Billing A/C for Construction Waste Disposal Pursuant to Section 6 & 9 of the Waste Disposal (Charges for Disposal of Construction waste) Regulation	A/C No. 7022228	Main Site Area, WA3 & 4	15-Apr-15	06-May-15	06-May-15	Nil	Valid	
5	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0477-15	Works Area WA3	20-Apr-15	04-May-15	18-May-15	17-Nov-15	Expired	
6	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-951-C1186-28	Main Site Area	28-Apr-15	01-Jun-15	01-Jun-15	Nil	Valid	
7	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-974-C3597-03	Works Area WA4	28-Apr-15	01-Jun-15	01-Jun-15	Nil	Valid	
8	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00022180-2015	Works Area WA3	29-Apr-15	04-Aug-15	03-Aug-15	31-Aug-20	Valid	
9	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00022391-2015	Main Site Area	06-May-15	04-Sep-15	04-Sep-15	30-Sep-20	Superseded	
10	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0566-15	Box Culvert D	08-May-15	22-May-15	08-Jun-15	07-Nov-15	Expired	
11	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0674-15	CUE	05-Jun-15	19-Jun-15	19-Jun-15	18-Aug-15	Expired	
12	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/I	HKBCF	30-Jun-15	17-Jul-15	17-Jul-15	Nil	Superseded	
13	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0020-15	Drill Tower	06-Jul-15	20-Jul-15	01-Aug-15	30-Nov-15	Expired	
14	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0999-15	CUE	28-Aug-15	11-Sep-15	14-Sep-15	10-Dec-15	Superseded	
15	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1065-15	Portion A1	15-Sept-15	29-Sep-15	30-Sep-15	31-Dec-15	Superseded	

16	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1203-15	CUE	20-Oct-15	03-Nov-15	02-Nov-15	31-Jan-16	Superseded	
17	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-121	South of Brothers (CMP2)	26-Oct-15	17-Dec-15	18-Dec-15	17-Jan-16	Expired	
18	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1315-15	Portion G	12-Nov-15	26-Nov-15	28-Nov-15	28-Feb-16	Expired	
19	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0029-15	Drill Tower	27-Nov-15	11-Dec-15	14-Dec-15	13-Apr-16	Expired	
20	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1388-15	Main Site Area	27-Nov-15	16-Dec-15	21-Dec-15	18-Mar-16	Superseded	
21	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0035-16	Main Site Area	31-Dec-15	14-Jan-16	18-Jan-16	17-Mar-16	Superseded	
22	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-161	South of Brothers (CMP2)	31-Dec-15	15-Jan-16	20-Jan-16	19-Feb-16	Expired	
23	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-177	South of Brothers (CMP2)	26-Jan-16	11-Feb-16	20-Feb-16	19-Mar-16	Expired	
24	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/J	HKBCF	18-Feb-16	25-Feb-16	25-Feb-16	Nil	Superseded	
25	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0009-16	Portion G	02-Mar-16	16-Mar-16	21-Mar-16	20-Jul-16	Expired	
26	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0244-16	Main Site Area	03-Mar-16	17-Mar-16	18-Mar-16	18-Jun-16	Expired	
27	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0249-16	Main Site Area	03-Mar-16	17-Mar-16	19-Mar-16	18-Jun-16	Superseded	
28	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0269-16	Floating Concrete Batching Plant	03-Mar-16	17-Mar-16	19-Mar-16	18-Jun-16	Superseded	
29	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-202	East of Sha Chau (CMP Vd)	09-Mar-16	18-Mar-16	24-Mar-16	23-Apr-16	Expired	
30	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/K	HKBCF	24-Mar-16	11-Apr-16	11-Apr-16	Nil	Valid	
31	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0348-16	Main Site Area	29-Mar-16	12-Apr-16	15-Apr-16	14-Jul-16	Superseded	
32	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-007	East of Sha Chau (CMP Vd)	08-Apr-16	19-Apr-16	24-Apr-16	23-May-16	Expired	
33	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-029	East of Sha Chau (CMP Vd)	09-May-16	19-May-16	24-May-16	23-Jun-16	Expired	

34	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-040	East of Sha Chau (CMP Vd)	31-May-16	13-Jun-16	14-Jun-16	13-Jul-16	Expired	
35	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0607-16	Main Site Area	02-Jun-16	16-Jun-16	19-Jun-16	18-Sep-16	Superseded	
36	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0629-16	Floating Concrete Batching Plant	02-Jun-16	16-Jun-16	19-Jun-16	18-Dec-16	Superseded	
37	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0639-16	Main Site Area	02-Jun-16	16-Jun-16	15-Jul-16	14-Oct-16	Superseded	
38	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-062	East of Sha Chau (CMP Vd)	30-Jun-16	12-Jul-16	14-Jul-16	13-Aug-16	Expired	
39	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0020-16	Portion A, G & H	13-Jul-16	27-Jul-16	28-Jul-16	24-Jan-17	Superseded	
40	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-075	East of Sha Chau (CMP Vd)	27-Jul-16	05-Aug-16	14-Aug-16	31-Aug-16	Expired	
41	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-088	East of Sha Chau (CMP Vd)	16-Aug-16	26-Aug-16	01-Sep-16	30-Sep-16	Expired	
42	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0933-16	Main Site Area	18-Aug-16	01-Sep-16	05-Sep-16	31-Dec-16	Expired	
43	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0960-16	Main Site Area	06-Sep-16	15-Sep-16	19-Sep-16	18-Dec-16	Expired	
44	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-105	East of Sha Chau (CMP Vd)	15-Sep-16	27-Sep-16	01-Oct-16	31-Oct-16	Expired	
45	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0028-16	Portion A, G, H & N	15-Sep-16	29-Sep-16	03-Oct-16	02-Apr-17	Expired	
46	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00025384-2016	Main Site Area	09-Mar-16	10-Nov-16	10-Nov-16	30-Sep-20	Valid	
47	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-132	East of Sha Chau (CMP Vd)	03-Nov-16	30-Nov-16	05-Dec-16	04-Jan-17	Expired	
48	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-140	East of Sha Chau (CMP Va) or South of Brothers (CMP2)	14-Nov-16	30-Nov-16	30-Nov-16	29-Dec-16	Expired	
49	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-146	East of Sha Chau (CMP Va) or South of Brothers (CMP2	28-Nov-16	16-Dec-16	16-Dec-16	29-Dec-16	Expired	
50	Construction Noise Permit	GW-RS1267-16	Main Site Area	02-Dec-16	16-Dec-16	19-Dec-16	18-Mar-17	Expired	

	Pursuant to Section 8(6) of the Noise Control Ordinance								
51	Specified Process Licence for Tar and Bitumen Works Pursuant to Section 14 of the Air Pollution Control Ordinance	L-15-039(1)	Temporary Asphalt Mixing Facility	05-Dec-16	16-Mar-17	16-Mar-17	15-Mar-19	Valid	
52	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1329-16	Main Site Area	09-Dec-16	23-Dec-16	01-Jan-17	30-Apr-17	Superseded	
53	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-161	East of Sha Chau (CMP Vd)	15-Dec-16	04-Jan-17	05-Jan-17	04-Feb-17	Expired	
54	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-170	East of Sha Chau (CMP Vd)	12-Jan-17	24-Jan-17	05-Feb-17	04-Mar-17	Expired	
55	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0205-17	Main Site Area	01-Mar-17	15-Mar-17	19-Mar-17	18-Jun-17	Expired	
56	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-190	East of Sha Chau (CMP Vd)	01-Mar-17	17-Mar-17	20-Mar-17	19-Apr-17	Expired	
57	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0008-17	Box Culvert B	06-Apr-17	20-Apr-17	21-Apr-17	19-Jul-17	Expired	
58	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-005	East of Sha Chau (CMP Vd)	10-Apr-17	24-Apr-17	25-Apr-17	24-May-17	Expired	
59	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0382-17	Main Site Area	10-Apr-17	25-Apr-17	27-Apr-17	24-Jul-17	Expired	
60	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-018	East of Sha Chau (CMP Vd)	19-May-17	01-Jun-17	02-Jun-17	01-Jul-17	Expired	
61	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0516-17	Main Site Area	31-May-17	14-Jun-17	19-Jun-17	18-Sep-17	Expired	
62	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-037	East of Sha Chau (CMP Vd)	19-Jun-17	06-Jul-17	07-Jul-17	06-Aug-17	Expired	
63	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0632-17	Main Site Area	07-Jul-17	21-Jul-17	25-Jul-17	24-Nov-17	Superseded	
64	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-052	East of Sha Chau (CMP Vd)	25-Jul-17	07-Aug-17	09-Aug-17	31-Aug-17	Expired	
65	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0771-17	Main Site Area	28-Aug-17	11-Sep-17	19-Sep-17	18-Jan-18	Valid	
66	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0778-17	Main Site Area	28-Aug-17	11-Sep-17	14-Sep-17	13-Mar-18	Superseded	
67	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0834-17	Main Site Area	12-Sep-17	26-Sep-17	28-Sep-17	27-Mar-18	Superseded	
68	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0901-17	Main Site Area	25-Sep-17	11-Oct-17	13-Oct-17	12-Apr-18	Valid	

Summary Record of Non-road Moblie Machinery on Site

Date in	Company	Sub-Con Code	Machinery Type	QPME No.	Brand	Model	EPD's Permit No.	CHEC Permit No.	Remarks
24/08/15	CHEC	00	Vehicle	Nil	Mitsubishi	Pajero	EPD-EE-030502-2015	V0001	
24/08/15	CHEC	00	Vehicle	Nil	Mitsubishi	Pajero	EPD-EE-030501-2015	V0002	
24/08/15	CHEC	00	Vehicle	Nil	Mitsubishi	Pajero	EPD-EE-030499-2015	V0003	
09/09/15	Luen Hing	01	Excavator	Nil	Komatsu	PC228US-3NO	EPD-EE-014032-2015	E0101	
10/09/15	Milestone	02	Excavator	Nil	Kato	HD308USV	EPD-A-022844-2015	E0201	
10/09/15	Milestone	02	Roller	Nil	Bomag	BW110AC	EPD-EE-013655-2015	R0201	
22/09/15	Milestone	02	Generator	Nil	Denyo	DCA400SPM	EPD-EE-013452-2015	G0201	
05/10/15	Milestone	02	Excavator	Nil	Komatsu	PC228US-3NO	EPD-EE-020096-2015	E0203	
05/10/15	Milestone	02	Excavator	Nil	Komatsu	PC138US-2E1	EPD-EE-028471-2015	E0204	
05/10/15	Milestone	02	Excavator	Nil	Komatsu	PC30	EPD-EE-002807-2016	E0205	
05/10/15	Milestone	02	Roller	Nil	Ingersoll Rand	SD-100D-TF	EPD-EE-013532-2015	R0202	
07/10/15	CHEC	00	Mobile generator	Nil	Airman	SDG-100S	EPD-EE-013506-2015	G0004	
08/10/15	CHEC	00	Vehicle	Nil	Mitsubishi	Pajero	EPD-EE-032462-2015	V0004	
08/10/15	Hin Sum	05	Excavator	Nil	Doosan	DX340LC	EPD-A-017285-2015	E0501	
08/10/15	Hin Sum	05	Excavator	Nil	Doosan	DX340LC	EPD-A-017282-2015	E0502	
27/10/15	CHEC	00	Vehicle	Nil	Mitsubishi	Pajero	EPD-EE-030985-2015	V0005	
28/10/15	CHEC	00	Mobile generator	Nil	Denyo	DCA-45SPI	EPD-EE-015339-2015	G0005	
30/10/15	Luen Hing	01	Generator	EPD-01276	Airman	SDG150S	EPD-EE-015610-2015	G0101	
02/11/15	Milestone	02	Crawler Crane	Nil	Hitachi	SCX1000A-3	EPD-A-018963-2015	C0203	
02/11/15	Luen Hing	01	Excavator	Nil	Kato	HD1250VII	EPD-EE-016375-2015	E0103	
02/11/15	Luen Hing	01	Roller	Nil	Derrupe	CD400L	EPD-EE-033204-2015	R0101	
02/11/15	Luen Hing	01	Excavator	Nil	Kato	HD1430V	EPD-A-029987-2015	E0104	
03/11/15	Milestone	02	Generator	Nil	Mcwel	MGC310S	EPD-EE-019446-2015	G0202	
09/11/15	Milestone	02	Crawler Crane	Nil	Kobelco	BM700	EPD-EE-022291-2015	C0204	
10/11/15	CHEC	00	Mobile generator	Nil	Denyo	DCA-45SPI	EPD-EE-034887-2015	G0006	
12/11/15	Hin Sum	05	Excavator	Nil	Caterpillar	CAT308B	EPD-EE-031895-2015	E0503	
13/11/15	CHEC	00	Mobile generator	Nil	Nippon	NES220EM	EPD-EE-013415-2015	G0007	
13/11/15	CHEC	00	Mobile generator	Nil	Nippon	NES220SH	EPD-EE-035046-2015	G0008	
18/11/15	Hin Sum	05	Excavator	Nil	Komatsu	PC128US	EPD-EE-034970-2015	E0504	
18/11/15	Hin Sum	05	Roller	Nil	Dynapac	CA402D	EPD-EE-001636-2016	R0501	
18/11/15	Hin Sum	05	Dump Truck	Nil	Mitsubishi	M26B	EPD-EE-000307-2016	V0501	
18/11/15	Hin Sum	05	Dump Truck	Nil	Mitsubishi	M26B	EPD-EE-001482-2016	V0502	
18/11/15	Hin Sum	05	Dump Truck	Nil	Mitsubishi	M26B	EPD-EE-000308-2016	V0503	
18/11/15	Hin Sum	05	Dump Truck	Nil	Mitsubishi	M26B	EPD-EE-002299-2016	V0504	
20/11/15	Luen Hing	01	Crawler Crane	Nil	IHI	CCH500III	EPD-EE-012599-2015	C0101	
23/11/15	Milestone	02	Vehicle	Nil	MAN	15.255 LRC	EE/048316/2015 (Application Ref)	V0201	
25/11/15	Luen Hing	01	Excavator	Nil	Hitachi	ZX330LC-3	EPD-EE-033445-2015	E0106	
25/11/15	Luen Hing	01	Generator	EPD-03248	Nippon	NES125TI	EPD-A-032493-2015	G0102	
30/11/15	Hing Fu	08	Excavator	Nil	Caterpillar	305SR	EPD-EE-028130-2015	E0801	
30/11/15	Hing Fu	08	Excavator	Nil	Komatsu	PC228US-LC3	EPD-EE-028132-2015	E0802	
01/12/15	Hing Fu	08	Mobile Generator	Nil	Airman	SDG100S	EPD-EE-026598-2015	G0801	
04/12/15	Luen Hing	01	Generator	Nil	Nippon Sharyo	EDW300S-2	EPD-EE-016380-2015	G0103	
05/12/15	Luen Hing	01	Excavator	Nil	Sumitomo	SH450LHD	EPD-EE-011610-2015	E0107	
07/12/15	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017065-2015	E0505	

07/12/15	Luen Hing	01	Crawler Crane	Nil	Manitowoc	8500-1	EPD-EE-007945-2015	C0102	
08/12/15	Hin Sum	05	Excavator	Nil	Doosan	DX480LC	EPD-EE-035837-2015	E0506	
08/12/15	Hin Sum	05	Roller	Nil	Dynapac	CA2500D	EPD-EE-000309-2016	R0502	
08/12/15	Hing Fu	08	Roller	Nil	Bomag	BW123AD	EPD-EE-031542-2015	R0801	
12/12/15	Luen Hing	01	Air Compressor	Nil	Komatsu	EC25SSB-6	EPD-EE-015876-2015	A0101	
12/12/15	Luen Hing	01	Air Compressor	Nil	Airman	PDS185S	EPD-EE-015627-2015	A0102	
12/12/15	Luen Hing	01	Air Compressor	Nil	Airman	PDS185S	EPD-EE-015871-2015	A0103	
17/12/15	Milestone	02	Air Compressor	Nil	Airman	PDS175S	EPD-EE-017205-2015	A0201	
21/12/15	Luen Hing	01	Crawler Crane	Nil	Hitachi	EX100T	EPD-EE-015582-2015	C0103	
23/12/15	Luen Hing	01	Crawler Crane	Nil	Kobelco	CKE1100G	EPD-A-029170-2015	C0104	
28/12/15	Milestone	02	Generator	Nil	Mcwel	MGC400S	EPD-EE-019443-2015	G0203	
28/12/15	Luen Hing	01	Generator	EPD-03249	Nippon	NES125TI	EPD-A-032497-2015	G0104	
29/12/15	CHEC	00	Light Tower	Nil	Atlas Copco	QLT M10	Excluded (<19KW)	T0001	
29/12/15	CHEC	00	Light Tower	Nil	Atlas Copco	QLT M10	Excluded (<19KW)	T0002	
29/12/15	CHEC	00	Light Tower	Nil	Atlas Copco	QLT M10	Excluded (<19KW)	T0003	
29/12/15	CHEC	00	Light Tower	Nil	Atlas Copco	QLT M10	Excluded (<19KW)	T0004	
29/12/15	CHEC	00	Light Tower	Nil	Atlas Copco	QLT M10	Excluded (<19KW)	T0005	
30/12/15	Luen Hing	01	Excavator	Nil	Hitachi	ZX225USR3	EPD-EE-001193-2015	E0108	
02/01/16	Luen Hing	01	Crawler Crane	Nil	Manitowoc	11000-1	EPD-A-011824-2015	C0106	
04/01/16	Luen Hing	01	Excavator	Nil	Yanmar	Vi030-5B	Excluded (<19KW)	E0109	
04/01/16	Hing Fu	08	Excavator	Nil	Kobelco	SK310	EPD-EE-022781-2015	E0803	
06/01/16	Luen Hing	01	Generator	EPD-02979	Airman	SDG125S-3B1	EPD-A-004746-2015	G0105	
12/01/16	Milestone	02	Roller	Nil	Bomag	BW212D-3	EPD-EE-008317-2015	R0203	
13/01/16	Luen Hing	01	Excavator	Nil	Komatsu	PC228USLC-3EO	EPD-A-027417-2015	E0110	
13/01/16	Luen Hing	01	Generator	EPD-00875	Airman	SDG100S	EPD-EE-008065-2015	G0106	
14/01/16	Luen Hing	01	Air Compressor	Nil	Airman	PDS390S-5C1	EPD-A-020929-2015	A0104	
18/01/16	CHEC	00	Mobile generator	Nil	Airman	SDG-150SJ	EPD-EE-014252-2015	G0009	
26/01/16	Milestone	02	Tower Crane	Nil	Zoomlion	TCT7527	Excluded (>560kW)	C0205	
01/02/16	Hing Fu	08	Excavator	Nil	Kobelco	SK-300	EPD-EE-027600-2015	E0804	
01/02/16	Hing Fu	08	Excavator	Nil	Kato	HD800NVII	EPD-EE-033850-2015	E0805	
01/02/16	Luen Hing	01	Excavator	Nil	Sumitomo	SH-300	EPD-EE-016377-2015	E0112	
04/02/16	Milestone	02	Generator	Nil	Mcwel	MGC310S	EPD-EE-028924-2015	G0204	
05/02/16	Luen Hing	01	Generator	Nil	Denyo	DCA-45SPI	EPD-EE-015630-2015	G0107	
16/02/16	Luen Hing	01	Mobile Crane	Nil	Kato	KR-25H-V8	EPD-A-006354-2016	C0107	
16/02/16	Luen Hing	01	Excavator	Nil	Kobelco	SK115SR-1E	EPD-EE-015641-2015	E0113	
17/02/16	Hing Fu	08	Excavator	Nil	Kobelco	SK-310	EPD-EE-029070-2015	E0806	
17/02/16	CHEC	00	Mobile generator	Nil	Denyo	DCA-45SPI	EPD-EE-013419-2015	G0010	
19/02/16	CHEC	00	Mobile generator	Nil	Nippon Sharyo	NES220SHE	EPD-EE-036463-2015	G0011	
22/02/16	Luen Hing	01	Crawler Crane	Nil	Manitowoc	11000-1	EPD-A-011805-2015	C0108	
25/02/16	Luen Hing	01	Excavator	Nil	Hitachi	ZX200-3	EPD-A-002204-2016	E0114	
25/02/16	Luen Hing	01	Mobile Crane	Nil	Kato	KR-35H-V2	EPD-EE-015608-2015	C0109	
26/02/16	ATAL	12	Mobile Generator	Nil	Top One Power	TOP110	EPD-EE-012989-2015	G1202	
27/02/16	Hing Fu	08	Mobile Generator	EPD-03072	Denyo	DCA-150ESK	EPD-EE-006793-2015	G0802	
29/02/16	Luen Hing	01	Excavator	Nil	Kobelco	SK350LC	EPD-EE-007211-2015	E0115	
02/03/16	Luen Hing	01	Excavator	Nil	Kobelco	SK60SR	EPD-EE-014034-2015	E0116	
03/03/16	Luen Hing	01	Excavator	Nil	Komatsu	PC228US-3E0	EPD-A-027401-2015	E0117	
04/03/16	Hing Fu	08	Roller	Nil	Sakai	SV90	EPD-EE-012317-2015	R0803	
05/03/16	CHEC	00	Mobile generator	Nil	Nippon Sharyo	NES210SH	EPD-EE-022043-2015	G0012	
05/03/16	CHEC	00	Mobile generator	Nil	Nippon Sharyo	NES220SHE	EPD-EE-015305-2015	G0013	

05/03/16	CHEC	00	Mobile generator	Nil	Nippon Sharyo	NES220SHE	EPD-EE-034366-2015	G0014	
05/03/16	CHEC	00	Mobile generator	Nil	Nippon Sharyo	NES220SHE	EPD-EE-023505-2015	G0015	
08/03/16	Luen Hing	01	Mobile Generator	EPD-00387	Airman	SDG45S-3A6	EPD-EE-004631-2015	G0108	
08/03/16	Luen Hing	01	Mobile Generator	EPD-01063	Airman	SDG150S	EPD-EE-008083-2015	G0109	
11/03/16	Luen Hing	01	Crawler Crane	Nil	Manitowoc	11000-1	EPD-A-008975-2015	C0110	
11/03/16	CHEC	00	Mobile generator	Nil	Saonon	S220JSPS	EPD-A-004256-2016	G0016	
11/03/16	CHEC	00	Mobile generator	Nil	Saonon	S220JSPS	EPD-A-004257-2016	G0017	
11/03/16	Luen Hing	01	Excavator	Nil	SUMITOMO	SH-300	EPD-EE-016377-2015	E0118	
12/03/16	Milestone	02	Vehicle	Nil	Volvo	FM400 84RB	EPD-EE-034591-2015	V0202	
21/03/16	Luen Hing	01	Roller	Nil	Sakai	SW502S-1	EPD-A-014928-2015	R0102	
21/03/16	Luen Hing	01	Roller	Nil	PACLITE	VR6500KE	Exclueded (<19kw)	R0103	
21/03/16	Luen Hing	01	Roller	Nil	HEAVY INDUSTRIE	EY15D	Exclueded (<19kw)	R0104	
23/03/16	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-60SPI	EPD-EE-013497-2015	G0803	
23/03/16	Hing Fu	08	Mobile Generator	Nil	Airman	SDG-100	EPD-EE-036104-2015	G0804	
23/03/16	Luen Hing	01	Excavator	Nil	Komatsu	PC78US-5	EPD-EE-000369-2015	E0119	
31/03/16	Hing Fu	08	Excavator	Nil	Kobelco	SK350D-6E	EPD-EE-011607-2015	E0808	
05/04/16	Luen Hing	01	Excavator	Nil	Komatsu	PC228US-3E0	EPD-A-027401-2015	E0120	
06/04/16	Luen Hing	01	Roller	Nil	struction machinery M	TMR55KD	Exclueded (<19kw)	R0105	
08/04/16	Luen Hing	01	Crawler Crane	Nil	Hitachi	ZX135UST	EPD-EE-020284-2015	C0111	
12/04/16	Luen Hing	01	Mobile Generator	Nil	N.A	N.A	Exclueded (<19kw)	G0110	
12/04/16	Luen Hing	01	Mobile Generator	Nil	N.A	N.A	Exclueded (<19kw)	G0111	
13/04/16	Luen Hing	01	Excavator	EPD-03513	YANMAR	VIO30-6B	EPD-A-005175-2016	E0121	
15/04/16	Hing Fu	08	Excavator	Nil	Kobelco	SK300	EPD-EE-028218-2015	E0809	
18/04/16	CHEC	00	Drilling rig	Nil	核工業部二一0廠	HXY-500	EPD-EE-003277-2016	B0001	
19/04/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017074-2015	E0507	
19/04/16	Hin Sum	05	Roller	Nil	Vibromax	W1103D	EPD-EE-000294-2016	R0503	
19/04/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017073-2015	E0508	
19/04/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017076-2015	E0509	
22/04/16	Luen Hing	01	Mobile Generator	Nil	Denyo	DCA-60SPH	EPD-EE-015611-2015	G0112	
23/04/16	Hing Fu	08	Excavator	Nil	Caterpillar	336D	EPD-EE-003548-2015	E0810	
25/04/16	Luen Hing	01	Mobile generator	EPD-03435	Nippon Sharyo	NES100TI	EPD-A-036973-2015	G0113	
25/04/16	Luen Hing	01	Excavator	Nil	Komatsu	PC78US-6N0	EPD-EE-031118-2015	E0122	
03/05/16	Luen Hing	01	Crawler Crane	Nil	Kobelco	PS90	EPD-EE-009201-2015	C0112	
07/05/16	Hing Fu	08	Excavator	Nil	Kobelco	SK350LC	EPD-EE-008671-2015	E0811	
09/05/16	Hing Fu	08	Mobile Generator	EPD-00577	DENYO	DCA-60ESH	EPD-EE-001329-2015	G0805	
09/05/16	Luen Hing	01	Mobile Generator	EPD-03150	Nippon Sharyo	NES45TY2	EPD-A-023911-2015	G0114	
11/05/16	Hang Tong	15	Excavator	Nil	Hitachi	EX450H-5	EPD-EE-022970-2015	E1501	
11/05/16	Luen Hing	01	Excavator	Nil	YANMAR	Vio30-5B	Excluded (<19KW)	E0124	
11/05/16	Hang Tong	15	Crawler Crane	Nil	Manitowoc	11000-1	EPD-A-027630-2015	C1501	
11/05/16	CHEC	00	Excavator	Nil	Caterpillar	320C	EPD-EE-003051-2015	E0001	
11/05/16	CHEC	00	Loader	Nil	Caterpillar	CAT-966G	EPD-EE-002812-2015	L0001	
16/05/16	Hang Tong	15	Excavator	Nil	Doosan	DX340LV	EPD-EE-031303-2015	E1502	
16/05/16	Yeung Kong	16	Excavator	Nil	Airman	AX40U-S	EPD-EE-002653-2016	E1601	
18/05/16	Hang Tong	15	Mobile Generator	Nil	Huadong Power Mach	HDV125-S	EPD-EE-011647-2015	G1501	
18/05/16	Hang Tong	15	Mobile Generator	Nil	Huadong Power Mach	HDVS1305043	EPD-EE-011671-2015	G1502	
19/05/16	Luen Hing	01	Lifting Platform	Nil	Hitachi	HX120B	EPD-EE-015613-2015	L0101	
20/05/16	Luen Hing	01	Vehicle	Nil	SANY	SY5255THB-37	EPD-EE-006058-2015	V0101	
20/05/16	Luen Hing	01	Vehicle	Nil	SANY	SY5418THB-560C-8	EPD-EE006423-2015	V0102	
23/05/16	Hang Tong	15	Excavator	Nil	Doosan	DX480LC	EPD-A-017622-2015	E1505	

23/05/16	Hang Tong	15	Excavator	Nil	Doosan	DX480LC	EPD-A-024514-2015	E1506	
24/05/16	Luen Hing	01	Crawler Crane	Nil	Kobelco	7065	EPD-EE-009255-2015	C0113	
24/05/16	Luen Hing	01	Excavator	Nil	Kobelco	SK135SR-1E	EPD-EE-015642-2015	E0125	
25/05/16	Luen Hing	01	Mobile Generator	EPD-03452	Nippon Sharyo	NES220TI	EPD-A-002667-2016	G0115	
30/05/16	Luen Hing	01	Excavator	Nil	Kobelco	SK300-1	EPD-EE-011324-2015	E0126	
31/05/16	Luen Hing	01	Mobile Generator	Nil	Nissha	NES125TI	EPD-A-032499-2015	G0116	
31/05/16	Yeung Kong	16	Excavator	Nil	Caterpillar	312B	EPD-EE-034794-2015	E1602	
01/06/16	Hing Fu	08	Excavator	Nil	Kobelco	SK350LC-8	EPD-A-000915-2015	E0812	
02/06/16	Hang Tong	15	Crawler Crane	Nil	SANY	SCC600E	EPD-EE-033342-2015	C1502	
02/06/16	Hang Tong	15	Mobile Generator	Nil	ICE	335E	EPD-EE-024104-2015	G1503	
10/06/16	ATAL	12	Mobile Generator	Nil	Top One Power	TOP110	EPD-EE-012994-2015	G1203	
15/06/16	Hing Fu	08	Roller	Nil	Sakai	HV60ST	Excluded (<19KW)	R0804	
15/06/16	Hing Fu	08	Roller	Nil	Wacker Neuson	N.A	Excluded (<19KW)	R0805	
15/06/16	Hing Fu	08	Vibrator Plate	Nil	N.A	N.A	Excluded (<19KW)	VP0801	
15/06/16	Hing Fu	08	Vibrator Plate	Nil	Wacker Neuson	N.A	Excluded (<19KW)	VP0802	
16/06/16	DSI	18	Mobile Generator	Nil	Nissha	NES150SHE	EPD-EE-009824-2015	G1801	
21/06/16	Hin Sum	05	Excavator	Nil	Doosan	DX340LC	EPD-A-017484-2015	E0510	
21/06/16	Hang Tong	15	Excavator	Nil	Kobelco	SK350LC	EPD-EE-002905-2015	E1507	
21/06/16	Hang Tong	15	Excavator	Nil	Komatsu	PC78US-6NO	EPD-EE-007116-2015	E1508	
22/06/16	Hing Fu	08	Excavator	Nil	Kobelco	SK220LC-3	EPD-EE-029755-2015	E0813	
23/06/16	Hing Fu	08	Excavator	EPD-02827	Kobelco	SK350LC-8	EPD-A-013626-2015	E0814	
24/06/16	Hang Tong	15	Excavator	Nil	Hitachi	ZX520LCH-3	EPD-EE-011649-2015	E1509	
27/06/16	Hang Tong	15	Excavator	Nil	Hitachi	ZX75US-A	EPD-EE-002873-2015	E1510	
27/06/16	Luen Hing	01	Roller	Nil	Bomag	BW121AC	EPD-EE-015552-2015	R0106	
27/06/16	Luen Hing	01	Excavator	Nil	Kobelco	SK235SR	EPD-EE-014036-2015	E0127	
04/07/16	Hang Tong	15	Excavator	Nil	Doosan	DX340LC	EPD-A-017320-2015	E1511	
04/07/16	Hang Tong	15	Excavator	Nil	Sumitomo	SH60	EPD-EE-008311-2015	E1512	
04/07/16	Hin Sum	05	Excavator	Nil	Caterpillar	320D	EPD-EE-035145-2015	E0511	
04/07/16	Hin Sum	05	Loader	Nil	Caterpillar	963	EPD-EE-001836-2016	L0501	
04/07/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017087-2015	E0512	
05/07/16	Hing Fu	08	Lifting Platform	Nil	Tadano	AC-120-1-80104	EPD-EE-029460-2015	L0801	
05/07/16	Hing Fu	08	Excavator	Nil	Doosan	DX300LC	EPD-EE-020560-2015	E0815	
07/07/16	Hang Tong	15	Excavator	Nil	Komatsu	PC78US-6NO	EPD-EE-002824-2015	E1513	
11/07/16	Hang Tong	15	Air Compressor	Nil	Airman	PDS390S	EPD-EE-002736-2015	A1501	
11/07/16	Hang Tong	15	Air Compressor	Nil	Airman	PDS390S	EPD-EE-002737-2015	A1502	
18/07/16	Hing Fu	08	Mobile Generator	Nil	Sharyo	NES-150SH-2	EPD-EE-015382-2015	G0806	
18/07/16	Hing Fu	08	Air Compressor	Nil	Airman	PDS-175S	EPD-EE-015320-2015	A0801	
18/07/16	Hoi Cheung	19	Mobile Generator	Nil	)KUETSU INDUSTR	SDG60G	EPD-EE-000297-2015	G1901	
19/07/16	Milestone	02	Mobile generator	Nil	Nippon Sharyo	NES200EM	EPD-EE-013492-2015	G0205	
19/07/16	Hin Sum	05	Excavator	Nil	Doosan	DX480LC	EPD-A-000593-2016	E0513	
20/07/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017084-2015	E0514	
20/07/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-004452-2015	E0515	
20/07/16	Hin Sum	05	Loader	Nil	Caterpillar	980H	EPD-EE-001638-2016	L0502	
20/07/16	Hin Sum	05	Loader	Nil	Caterpillar	973C	EPD-EE-002295-2016	L0503	
21/07/16	Hang Tong	15	Roller	Nil	Ingersoll Rand	DD24	EPD-EE-002879-2015	R1501	
25/07/16	Luen Hing	01	Mobile Crane	Nil	Kato	KR-25H-V8	EPD-A-006218-2016	C0114	
25/07/16	Milestone	02	Crawler Crane	Nil	Kobelco	7055	EPD-EE-032995-2015	C0206	
25/07/16	Milestone	02	Vehicle	Nil	TCM	FD25T3	EPD-EE-005934-2015	V0203	
25/07/16	Hang Tong	15	Roller	Nil	KASA SANGYO CO.	MVH-150 DA	Exclueded (<19kw)	R1502	

26/07/16	DSI	18	Mobile Generator	EPD-02389	Nippon Sharyo	NES25TI	EPD-A-009417-2015	G1802	
26/07/16	DSI	18	Air Compressor	Nil	Airman	PDS175S	EPD-EE-002538-2015	A1801	
27/07/16	ATAL	12	Mobile Generator	Nil	Top One Power	TOP110	EPD-EE-013029-2015	G1205	
28/07/16	Hang Tong	15	Excavator	Nil	Doosan	DX340LC	EPD-A-017259-2015	E1514	
29/07/16	Hin Sum	05	Roller	Nil	Dynapac	CA511D	EPD-EE-001634-2016	R0504	
06/08/16	Milestone	02	Vehicle	Nil	Sany	JAI Y9FFY4C7009797	EPD-EE-036056-2015	V0204	
09/08/16	Luen Hing	01	Vehicle	Nil	SANY	SY5360THB-45V	EPD-EE-008717-2015	V0103	
10/08/16	Luen Hing	01	Mobile Crane	Nil	Kato	KR-75H	EPD-A-005905-2016	C0115	
11/08/16	Hoi Cheung	19	Vehicle	Nil	Mitsubishi	FD25NT	EPD-A-004526-2016	V1901	
11/08/16	Hang Tong	15	Excavator	Nil	Sumitomo	SH200-3	EPD-EE-011606-2015	E1515	
11/08/16	Luen Hing	01	Excavator	Nil	Kato	HD513MRIII	EPD-EE-006001-2015	E0128	
11/08/16	Milestone	02	Air Compressor	Nil	)KUETSU INDUSTR	PDS175S	EPD-EE-000793-2015	A0202	
12/08/16	Hing Fu	08	Vibro Hammer	Nil	Ice	416L	EPD-EE-023014-2015	VH0801	
15/08/16	Hang Tong	15	Excavator	Nil	Komatsu	PC200-8	EPD-EE-007995-2015	E1516	
17/08/16	Hang Tong	15	Excavator	Nil	Hitachi	ZX225USR-3	EPD-A-002241-2016	E1517	
17/08/16	Hin Sum	05	Dump Truck	Nil	Volvo BM	A20	EPD-EE-030946-2015	V0505	
17/08/16	Hin Sum	05	Mobile Generator	Nil	Nippon Sharyo	NES150SH-3	EPD-EE-002699-2016	G0501	
17/08/16	Hin Sum	05	Mobile Generator	Nil	Denyo	DCA-45SPI	EPD-EE-002729-2016	G0502	
18/08/16	Hin Sum	05	Dump Truck	Nil	Doosan	DA40	EPD-EE-015526-2015	V0506	
18/08/16	CHEC	00	Excavator	Nil	Kobelco	sk200	EPD-EE-002895-2015	E0002	
20/08/16	Hing Fu	08	Mobile Generator	Nil	Ice	400rf	EPD-A-006545-2016	G0808	
20/08/16	Hing Fu	08	Crawler Crane	Nil	Kobelco	7055	EPD-EE-013848-2015	C0801	
22/08/16	Hang Tong	15	Air Compressor	Nil	Airman	PDS175S	EPD-EE-002506-2015	A1503	
25/08/16	Hing Fu	08	Mobile Generator	Nil	Goto	DLW-300SDK	Excluded (<19KW)	G0809	
25/08/16	Hing Fu	08	Mobile Generator	Nil	Goto	DLW-300SDK	Excluded (<19KW)	G0810	
29/08/16	Hing Fu	08	Roller	Nil	DYNAPAC	CA2500D	EPD-A-001622-2016	R0806	
29/08/16	Hang Tong	15	Excavator	EPD-03514	Yanmar	VIO30-6B	EPD-A-001540-2016	E1518	
29/08/16	Hang Tong	15	Mobile Generator	Nil	Denyo	DCA-45ESH	EPD-EE-006776-2015	G1507	
29/08/16	Hang Tong	15	Mobile Generator	EPD-01164	Denyo	DCA-45ESH	EPD-EE-006244-2015	G1508	
29/08/16	Hang Tong	15	Mobile Generator	EPD-02513	Denyo	DCA-100ESI	EPD-EE-006191-2015	G1509	
29/08/16	Hang Tong	15	Excavator	Nil	Kato	HD513MRV	EPD-A-005172-2016	E1519	
29/08/16	Luen Hing	01	Vehicle	Nil	Sany	SY5313THB-46W	EPD-EE-007790-2015	V0104	
30/08/16	Hoi Cheung	19	Excavator	Nil	kato	HD513MR III	EPD-EE-019254-2015	E1901	
31/08/16	Luen Hing	01	Mobile Generator	EPD-03428	Nissha	NES125TI	EPD-A-036978-2015	G0117	
31/08/16	Luen Hing	01	Mobile Generator	EPD-03427	Nissha	NES125TI	EPD-A-036979-2015	G0118	
01/09/16	Hin Sum	05	Dump Truck	Nil	Volvo BM	A20	EPD-EE-030951-2015	V0507	
01/09/16	Hin Sum	05	Dump Truck	Nil	Volvo BM	A20	EPD-EE-030942-2015	V0508	
01/09/16	Luen Hing	01	Mobile Generator	EPD-03261	Nippon Sharyo	NES150TI	EPD-A-031767-2015	G0119	
02/09/16	Hin Sum	05	Excavator	Nil	Doosan	DX225LC	EPD-A-017082-2015	E0516	
03/09/16	Hing Fu	08	Excavator	Nil	IHI	50Z	EPD-EE-032985-2015	E0817	
03/09/16	Hing Fu	08	Loader	Nil	Caterpillar	910H	EPD-A-005207-2016	L0801	
05/09/16	Luen Hing	01	Excavator	Nil	Kobelco	SK350LC	EPD-EE-026297-2015	E0130	
05/09/16	Hang Tong	15	Excavator	Nil	Komatsu	PC78US-5	EPD-EE-001192-2015	E1520	
05/09/16	Hing Fu	08	Mobile Generator	EPD-01784	Denyo	DCA-150ESK	EPD-EE-004388-2015	G0811	
05/09/16	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-150ESK	EPD-EE-006795-2015	G0812	
09/09/16	Milestone	02	Excavator	Nil	Komatsu	PC128US-2E1	EPD-EE-035465-2015	E0206	
09/09/16	Hang Tong	15	Excavator	Nil	Komatsu	PC228US-3	EPD-EE-014031-2015	E1521	
12/09/16	CHEC	00	Mobile generator	Nil	Denyo	DCA 45 SPH	EPD-EE-000454-2015	G0018	
12/09/16	Luen Hing	01	Excavator	Nil	Kubota	U-30-3	EPD-EE-015645-2015	E0131	

12/09/16	Hing Fu	08	Excavator	Nil	Kobelco	SK330	EPD-A-005749-2016	E0818	
13/09/16	Hoi Cheung	19	Mobile Generator	Nil	Denyo	DCA60SPH	EPD-EE-000509-2015	G1902	
13/09/16	Hin Sum	05	Excavator	Nil	Caterpillar	329D	EPD-EE-034975-2015	E0517	
14/09/16	Hing Fu	08	Excavator	Nil	Kobelco	SK350D	EPD-A-006578-2016	E0819	
14/09/16	Luen Hing	01	Mobile Generator	EPD-03151	Nippon Sharyo	NES45TY2	EPD-A-023913-2015	G0120	
19/09/16	CHEC	00	Mobile Generator	EPD-01808	Denyo	DCA-60ESI2	EPD-EE-004268-2015	G0019	
19/09/16	CHEC	00	Mobile Generator	EPD-02207	Denyo	DCA-60ESI2	EPD-EE-006402-2015	G0020	
21/09/16	Hing Fu	08	Crawler Crane	Nil	Manitowoc	8500-1	EPD-A-003361-2015	C0802	
22/09/16	Hin Sum	05	Excavator	Nil	Doosan	DX235LCR	EPD-A-017237-2015	E0518	
22/09/16	Hing Fu	08	Mobile Generator	Nil	Ice	350G	EPD-A-036722-2015	G0813	
23/09/16	CHEC	00	Mobile Generator	Nil	Denyo	DCA-150SPM	EPD-A-015401-2015	G0021	
26/09/16	Hang Tong	15	Crawler Crane	Nil	Manitowoc	11000-1	EPD-A-011738-2015	C1504	
27/09/16	Hing Fu	08	Excavator	Nil	Komatsu	PC228U3LC-3EO	EPD-A-001871-2016	E0820	
27/09/16	Hing Fu	08	Excavator	Nil	Komatsu	PC228USLC-3N0	EPD-EE-001129-2015	E0821	
28/09/16	ATAL	12	Mobile Generator	Nil	Top One Power	TOP200	EPD-EE-013084-2015	G1206	
29/09/16	Kin Kay	23	Excavator	Nil	Kato	HD550SEV	EPD-EE-015602-2015	E2301	
29/09/16	Milestone	02	Mobile Generator	Nil	Denyo	DCA125SPM	EPD-EE-000568-2015	G0206	
30/09/16	Hang Tong	15	Excavator	Nil	Kobelco	SK330	EPD-EE-027424-2015	E1522	
03/10/16	Milestone	02	Mobile Generator	Nil	Denyo	DCA125SPM	EPD-EE-000573-2015	G0207	
04/10/16	Luen Hing	01	Mobile Generator	EPD-00877	Airman	SDG100S	EPD-EE-015609-2015	G0121	
04/10/16	Milestone	02	Mobile Generator	Nil	Denyo	DCA220SPMII	EPD-EE-000752-2015	G0208	
04/10/16	Hing Fu	08	Roller	Nil	Hitachi	RC45-3	EPD-EE-005098-2015	R0807	
06/10/16	Hang Tong	15	Excavator	Nil	Doosan	DX300LC	EPD-A-005985-2016	E1523	
07/10/16	Kin Kay	23	Mobile Generator	Nil	Airman	SDG60S	EPD-EE-015595-2015	G2301	
07/10/16	Hing Fu	08	Excavator	Nil	Kobelco	SK135SR	EPD-EE-007168-2015	E0822	
08/10/16	Kin Kay	23	Welding Machine	Nil	N/A	DLW-300ES	Excluded (<19kw)	G2302	
11/10/16	Kin Kay	23	Excavator	Nil	Kato	HD823MR-6	EPD-A-004447-2016	E2302	
11/10/16	Hing Fu	08	Excavator	Nil	Komatsu	PC07FR-1	EPD-EE-008383-2015	E0823	
11/10/16	Hing Fu	08	Excavator	Nil	Kato	HD900 VII	EPD-EE-024870-2015	E0824	
11/10/16	Luen Hing	01	Excavator	Nil	Komatsu	PC228US-3EO	EPD-EE-015644-2015	E0133	
18/10/16	Hing Fu	08	Excavator	Nil	Kato	HD1250V2	EPD-EE-014786-2015	E0825	
18/10/16	Hing Fu	08	Excavator	Nil	Komatsu	PC228US-3-AC	EPD-A-006323-2016	E0826	
20/10/16	Luen Hing	01	Roller	Nil	BITELLI	DTV325	EPD-EE-015550-2015	R0107	
20/10/16	Luen Hing	01	Roller	Nil	Caterpillar	CS-531	EPD-EE-015558-2015	R0108	
24/10/16	Milestone	02	Mobile Crane	Nil	Kato	KR-25H-V8	EPD-A-004726-2015	C0207	
24/10/16	Luen Hing	01	Excavator	Nil	Kato	HD512-6	EPD-A-006093-2015	E0134	
25/10/16	Hing Fu	08	Excavator	Nil	Kato	HD800VII	EPD-EE-011350-2015	E0827	
26/10/16	Hing Fu	08	Excavator	Nil	Caterpillar	345C	EPD-A-001657-2016	E0828	
26/10/16	Hing Fu	08	Excavator	Nil	Komatsu	PC228USLC-3NO	EPD-EE-013660-2015	E0829	
27/10/16	Hing Fu	08	Mobile Generator	Nil	Ice	570	EPD-EE-033488-2015	G0814	
31/10/16	Hing Fu	08	Excavator	Nil	Hitachi	ZX330LC-5G	EPD-EE-022473-2015	E0830	
04/11/16	Hing Fu	08	Excavator	Nil	Kobelco	SK-350	EPD-EE-018095-2015	E0831	
07/11/16	Luen Hing	01	Air Compressor	EPD-03801	Airman	PDS390S-5C1	EPD-A-035992-2015	A0105	
07/11/16	Luen Hing	01	Mobile Generator	EPD-03429	NISSHA	NES125TI	EPD-A-036982-2015	G0122	
07/11/16	Hing Fu	08	Excavator	Nil	Komatsu	PC78US-6NO	EPD-EE-008622-2015	E0832	
10/11/16	Hing Fu	08	Excavator	Nil	Caterpillar	336D	EPD-EE-027209-2015	E0833	
10/11/16	Hing Fu	08	Excavator	Nil	Caterpillar	336D	EPD-EE-027212-2015	E0834	
10/11/16	CHEC	00	Air Compressor	Nil	)KUETSU INDUSTR	PDS175S	EPD-EE-000775-2015	A0001	
12/11/16	Hing Fu	08	Lifting Platform	Nil	Aichi	SR210	EPD-EE-012002-2015	L0802	

15/11/16	ATAL	12	Mobile Generator	Nil	Top One Power	TOP42	EPD-EE-012712-2015	G1207	
21/11/16	ATAL	12	Mobile Generator	Nil	Top One Power	TOP42	EPD-EE-012717-2015	G1208	
22/11/16	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA90SPH	EPD-EE-000165-2015	G0815	
22/11/16	Hang Tong	15	Excavator	Nil	Doosan	DX60R	EPD-EE-029125-2015	E1525	
22/11/16	Hang Tong	15	Excavator	Nil	Kobelco	SK70SR-1ES	EPD-EE-007956-2015	E1526	
28/11/16	CHEC	00	Mobile Generator	Nil	Denyo	DCA60SPH	EPD-EE-000531-2015	G0022	
28/11/16	CHEC	00	Mobile Generator	Nil	Denyo	DCA60SPH	EPD-EE-000536-2015	G0023	
28/11/16	Hing Fu	08	Mobile Generator	Nil	Ice	1200E	EPD-EE-008777-2015	G0817	
01/12/16	CHEC	00	Mobile generator	Nil	Denyo	DCA-150SPM	EPD-EE-013403-2015	G0024	
01/12/16	Hang Tong	15	Vehicle	Nil	Supergreat	城市石矢泵有限公司	EPD-EE-024904-2015	V1504	
01/12/16	Hang Tong	15	Vehicle	Nil	Hyundai	HP1530 M43	EPD-EE-022841-2015	V1505	
02/12/16	Luen Hing	01	Excavator	Nil	Hitachi	ZX225USRK	EPD-EE-015634-2015	E0135	
03/12/16	Hang Tong	15	Excavator	Nil	Komatsu	PC128US-2	EPD-EE-027442-2015	E1527	
03/12/16	Luen Hing	01	Excavator	Nil	Kato	HD820VK	EPD-A-006809-2016	E0136	
03/12/16	Hang Tong	15	Crawler Crane	Nil	Sany	SCC800C	EPD-EE-013727-2015	C1505	
06/12/16	Hing Fu	08	Excavator	Nil	Hitachi	ZX350H-3	EPD-A-017500-2015	E0835	
07/12/16	Luen Hing	01	Excavator	Nil	Kobelco	SK-320	EPD-EE-016601-2015	E0137	
13/12/16	Hing Fu	08	Excavator	Nil	Hydraulic Soil	HD1250VII	EPD-EE-019535-2015	E0836	
13/12/16	Hing Fu	08	Excavator	Nil	Kobelco	SK200	EPD-EE-015536-2015	E0837	
15/12/16	Luen Hing	01	Mobile Crane	Nil	Kato	NK500E-III	EPD-EE-001661-2015	C0116	
16/12/16	Hing Fu	08	Excavator	Nil	Caterpillar	314C	EPD-EE-012101-2015	E0838	
17/12/16	Excel	25	Mobile Crane	Nil	Kato	NK450B-V	EPD-EE-024106-2015	C2501	
17/12/16	Luen Hing	01	Excavator	Nil	Kobelco	SK135SR	EPD-EE-006000-2015	E0138	
17/12/16	Luen Hing	01	Excavator	Nil	Yanmar	vio30-5	EPD-EE-025840-2015	E0139	
17/12/16	Hing Fu	08	Air Compressor	Nil	Airman	PDS175S	EPD-EE-016240-2015	A0803	
20/12/16	Luen Hing	01	Excavator	Nil	Hitachi	ZX330-3	EPD-A-007378-2016	E0140	
20/12/16	Hing Fu	08	Mobile Generator	Nil	Nippon Sharyo	NES220TI	EPD-A-006998-2016	G0818	
20/12/16	Hing Fu	08	Mobile Generator	Nil	Nippon Sharyo	NES60TK	EPD-A-005370-2016	G0819	
20/12/16	Luen Hing	01	Mobile Generator	EPD-04555	Nippon Sharyo	NES45TY3	EPD-A-007452-2016	G0123	
20/12/16	Luen Hing	01	Mobile Generator	EPD-04556	Nippon Sharyo	NES45TY3	EPD-A-007453-2016	G0124	
29/12/16	Hing Fu	08	Excavator	Nil	Komatsu	PC228	EPD-EE-022085-2015	E0839	
30/12/16	Luen Hing	01	Crawler Crane	Nil	Kobelco	BM900HK-2F	EPD-A-018070-2015	C0117	
30/12/16	Hang Tong	15	Mobile Generator	Nil	Denyo	DCA-150ESM	EPD-EE-005795-2015	G1510	
30/12/16	ATAL	12	Mobile Crane	Nil	Liebherr	LTM1250-6.1	EPD-EE-009226-2015	C1201	
30/12/16	ATAL	12	Mobile Crane	Nil	Liebherr	LTM1090/2	EPD-EE-009539-2015	C1202	
30/12/16	Excel	25	Lifting Platform	Nil	Construction Machine	GTBZ18	EPD-A-016404-2016	L2501	
30/12/16	Excel	25	Mobile Generator	Nil	DENYO	DCA-400ESM	EPD-EE-006138-2015	G2501	
31/12/16	Excel	25	Lifting Platform	Nil	XCMG	GKS22	EPD-A-004057-2015	L2502	
31/12/16	Hing Fu	08	Excavator	Nil	Komatsu	PC138US-2	EPD-EE-007635-2015	E0840	
31/12/16	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-125SPM	EPD-EE-013477-2015	G0820	
31/12/16	Hing Fu	08	Excavator	Nil	Kobelco	SK125SR	EPD-A-004306-2015	E0841	
31/12/16	Hing Fu	08	Mobile Generator	Nil	Nippon Sharyo	NES60TK	EPD-A-005369-2016	G0821	
06/01/17	Luen Hing	01	Excavator	Nil	Hitachi	ZX135US-3	EPD-A-005891-2016	E0141	
06/01/17	Wai Fung Yee	26	Excavator	Nil	Hitachi	ZX330LC-3	EPD-A-000378-2016	E2601	
06/01/17	Wai Fung Yee	26	Excavator	Nil	Kato	HD1250 VII	EPD-EE-001201-2015	E2602	
06/01/17	Wai Fung Yee	26	Excavator	Nil	Kobelco	SK235SR	EPD-EE-012128-2015	E2603	
06/01/17	Wai Fung Yee	26	Excavator	Nil	Sumitomo	SH125X-3	EPD-EE-016015-2015	E2604	
09/01/17	Hing Fu	08	Crawler Crane	Nil	Manitowoc	11000-1U	EPD-A-007051-2016	C0804	
09/01/17	Milestone	02	Crawler Crane	Nil	Kobelco	7055-2	EPD-EE-028184-2015	C0208	

10/01/17	Goldford	27	Mobile Generator	Nil	Denyo	DCA60USH	EPD-EE-000859-2015	G2701	
10/01/17	Hin Sum	05	Roller	Nil	DYNAPAC	CC1300	EPD-EE-001834-2016	R0505	
16/01/17	Hoi Cheung	19	Mobile Generator	Nil	Denyo	DCA60SPH	EPD-EE-000505-2015	G1903	
16/01/17	Milestone	02	Air Compressor	Nil	Airman	PDS185S	EPD-EE-019481-2015	A0203	
16/01/17	Goldford	27	Crawler Crane	EPD-02379	Manitowoc	11000-1	EPD-A-011739-2015	C2701	
16/01/17	Milestone	02	Mobile Generator	Nil	Airman	SDG250S	EPD-EE-002655-2015	G0209	
17/01/17	Excel	25	Mobile Generator	EPD-00835	Denyo	DCA-220SPM II	EPD-EE-005895-2015	G2502	
19/01/17	Luen Hing	01	Excavator	Nil	Kato	HD820-6	EPD-A-000133-2017	E0142	
20/01/17	Milestone	02	Excavator	Nil	Yanmar	B7-3	EPD-EE-017930-2015	E0207	
23/01/17	Milestone	02	Mobile Generator	Nil	Denyo	DCA150SPM	EPD-EE-016589-2015	G0210	
25/01/17	CHEC	00	Mobile Generator	Nil	Airman	SDG-150SJ	EPD-EE-014249-2015	G0025	
25/01/17	CHEC	00	Mobile Generator	Nil	Denyo	DCA-125SPM	EPD-EE-013503-2015	G0026	
04/02/17	Hin Sum	05	Excavator	Nil	Doosan	DX480LC	EPD-A-017609-2015	E0519	
04/02/17	Hin Sum	05	Mobile Generator	Nil	Denyo	DCA-90SPH	EPD-EE-002731-2016	G0503	
06/02/17	Goldford	27	Lifting Platform	Nil	Hitachi	HX120B	EPD-EE-034222-2015	L2701	
09/02/17	Luen Hing	01	Excavator	Nil	Kato	HD820-6	EPD-A-000141-2017	E0143	
10/02/17	Luen Hing	01	Excavator	Nil	Kato	HD820-6	EPD-A-000302-2017	E0144	
10/02/17	Hin Sum	05	Excavator	Nil	Caterpillar	320D	EPD-EE-035146-2015	E0520	
13/02/17	Hing Fu	08	Crawler Crane	Nil	SENNEBOGEN	2200	EPD-EE-003510-2015	C0805	
13/02/17	Hin Sum	05	Excavator	Nil	Doosan	DX480LC	EPD-A-017576-2015	E0521	
13/02/17	Milestone	02	Mobile Crane	Nil	Kato	KR-50 H-V	EPD-EE-003951-2015	C0209	
13/02/17	Toko	28	Excavator	Nil	Kato	HD800NVII	EPD-EE-009024-2015	E2801	
13/02/17	Toko	28	Excavator	Nil	Komatsu	PC138US-2EO	EPD-EE-008944-2015	E2802	
13/02/17	Toko	28	Excavator	Nil	Kobelco	SK350LC-8	EPD-A-012016-2015	E2803	
15/02/17	Hang Tong	15	Mobile Generator	EPD-02128	Denyo	DCA-100ESI	EPD-EE-005385-2015	G1511	
16/02/17	Luen Hing	01	Roller	Nil	DYNAPAC	CA252STD	EPD-EE-015768-2015	R0109	
16/02/17	Hin Sum	05	Excavator	Nil	Hitachi	ZX330LC-5G	EPD-EE-034993-2015	E0522	
16/02/17	Hin Sum	05	Mobile Generator	EPD-00687	NISSHA	NES150EH	EPD-EE-000113-2015	G0504	
16/02/17	Hin Sum	05	Mobile Generator	EPD-01103	Denyo	DCA150ESH	EPD-EE-009856-2015	G0505	
18/02/17	Hing Fu	08	Excavator	Nil	Komatsu	PC228US-3E0	EPD-A-000541-2017	E0842	
22/02/17	Hing Fu	08	Excavator	Nil	Kato	HD820v	EPD-A-022984-2015	E0843	
24/02/17	Toko	28	Excavator	Nil	Kato	HD550VII	EPD-EE-009021-2015	E2804	
24/02/17	Toko	28	Excavator	Nil	Kobelco	SK350LC-8	EPD-A-000906-2015	E2805	
24/02/17	Kin Kay	23	Excavator	Nil	Hitachi	EX120-1	EPD-EE-019774-2015	E2303	
27/02/17	Hin Sum	05	Mobile Generator	Nil	Miller	Big Blue 600X	EPD-EE-002092-2016	G0506	
27/02/17	Hoi Cheung	19	Mobile Generator	Nil	Nippon Sharyo	68	EPD-EE-003033-2016	G1904	
28/02/17	Hing Fu	08	Crawler Crane	Nil	Manitowoc	8500	EPD-A-014949-2015	C0806	
28/02/17	Toko	28	Excavator	Nil	Kato	HD900VII	EPD-EE-009043-2015	E2806	
01/03/17	Luen Hing	01	Excavator	Nil	Hitachi	ZX225USR-3	EPD-A-007070-2016	E0145	
04/03/17	Hing Fu	08	Excavator	Nil	Komatsu	PC228US-3NO	EPD-EE-003995-2015	E0844	
04/03/17	Hing Fu	08	Excavator	Nil	Airman	AX22-2	Excluded (<19kw)	E0845	
07/03/17	CHEC	00	Mobile Generator	Nil	Denyo	DCA150	EPD-EE-021936-2015	G0027	
07/03/17	CHEC	00	Mobile Generator	Nil	Denyo	DCA-150SPK	EPD-EE-013490-2015	G0028	
07/03/17	CHEC	00	Excavator	Nil	Komatsu	PC228US-3E0	EPD-A-027414-2015	E0003	
08/03/17	Excel	25	Loader	Nil	Xiagong	XG953H	EPD-EE-000665-2015	L2503	
09/03/17	Hin Sum	05	Excavator	Nil	Doosan	DX340LC	EPD-A-017293-2015	E0523	
10/03/17	Goldford	27	Air Compressor	Nil	Airman	PDS-175S	EPD-EE-015319-2015	A2701	
13/03/17	Wai Fung Yee	26	Excavator	Nil	Kobelco	SK200	EPD-EE-028191-2015	E2605	
13/03/17	Wai Fung Yee	26	Excavator	Nil	Kobelco	SK350	EPD-EE-030580-2015	E2606	

17/03/17	Hang Tong	15	Excavator	Nil	Komatsu	PC480-7	EPD-EE-008028-2015	E1528	
17/03/17	Hang Tong	15	Excavator	Nil	Komatsu	PC480-6B	EPD-EE-013508-2015	E1529	
17/03/17	Wai Fung Yee	26	Excavator	Nil	Yanmar	VIO3O-1	Excluded (<19kw)	E2607	
20/03/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-002232-2015	G0822	
20/03/17	Luen Hing	01	Excavator	Nil	Hitachi	EX100T	EPD-EE-015582-2015	E0146	
20/03/17	Hang Tong	15	Air Compressor	Nil	Airman	PDS175SC	EPD-EE-006822-2015	A1504	
27/03/17	Luen Hing	01	Excavator	Nil	Hitachi	ZX330-3	EPD-A-005485-2016	E0147	
27/03/17	Luen Hing	01	Mobile Generator	Nil	Denyo	DCA-25ESI	EPD-EE-015629-2015	G0125	
27/03/17	Hang Tong	15	Excavator	Nil	Kobelco	SK330	EPD-A-003642-2016	E1530	
27/03/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-150LSKE	EPD-A-000681-2017	G0823	
27/03/17	Hin Sum	05	Excavator	Nil	Hitachi	ZX850LC-3-DH	EPD-A-000207-2017	E0524	
27/03/17	Excel	25	Loader	Nil	Caterpiller (Qing Aho	SEM630B	EPD-EE-000662-2015	L2504	
27/03/17	Kin Kay	23	Excavator	Nil	Kato	HD820R	EPD-EE-001178-2015	E2304	
27/03/17	Excel	25	Roller	Nil	Dynapac	CC222HF	EPD-EE-019891-2015	R2503	
27/03/17	Excel	25	Roller	Nil	DYNAPAC	CC222HF	EPD-EE-019845-2015	R2504	
27/03/17	Excel	25	Roller	Nil	DYNAPAC	CC222HF	EPD-EE-019895-2015	R2505	
27/03/17	Excel	25	Roller	EPD-00072	DYNAPAC	CP201W	EPD-EE-019896-2015	R2506	
27/03/17	Excel	25	Asphalt Paver	Nil	DYNAPAC	F121 W/D	EPD-EE-019898-2015	P2502	
27/03/17	Excel	25	Milling machine	Nil	Bitelli	SF200R	EPD-EE-019892-2015	M2501	
27/03/17	Excel	25	Milling machine	Nil	WIRTGEN	W350	EPD-EE-019893-2015	M2502	
27/03/17	Excel	25	Asphalt Paver	Nil	Bitelli	255	EPD-EE-019894-2015	P2503	
27/03/17	Toko	28	Excavator	Nil	Kobelco	SK200	EPD-EE-009213-2015	E2807	
29/03/17	Hang Tong	15	Mobile Generator	Nil	Denyo	DCA-150ESK	EPD-EE-002300-2015	G1512	
29/03/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA90SPH	EPD-EE-000128-2015	G0824	
31/03/17	Hang Tong	15	Excavator	Nil	Caterpillar	330C	EPD-EE-026284-2015	E1531	
31/03/17	Hang Tong	15	Crawler Crane	Nil	Kobelco	7055	EPD-EE-032995-2015	C1506	
31/03/17	Luen Hing	01	Excavator	Nil	Kato	HD513MRIII	EPD-EE-015638-2015	E0148	
31/03/17	Luen Hing	01	Mobile Generator	Nil	Nippon Sharyo	NES125TI	EPD-A-006990-2016	G0126	
10/04/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 110	EPD-EE--012967-2015	G1209	
10/04/17	Hing Fu	08	Excavator	Nil	Caterpillar	308BSR	EPD-EE-029093-2015	E0846	
10/04/17	Milestone	02	Excavator	Nil	Komatsu	PC78US-8	EPD-EE-017927-2015	E0208	
11/04/17	Hin Sum	05	Air Compressor	Nil	Atlas Copco	XAS97DD	EPD-EE-001025-2016	A0501	
11/04/17	Hin Sum	05	Roller	Nil	Dynapac	CA602D	EPD-EE-001635-2016	R0506	
11/04/17	Excel	25	Roller	Nil	XCMG	LW400FV	EPD-A-001118-2017	R2501	
11/04/17	Excel	25	Lifting Platform	Nil	XCMG	GKS22	EPD-A-004069-2015	L2505	
11/04/17	Excel	25	Lifting Platform	Nil	Construction Machine	GTBZ18	EPD-A-016407-2015	L2506	
25/04/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 110	EPD-EE-013037-2015	G1210	
25/04/17	Excel	25	Generator	Nil	Yasada	YAS-LDG6500S-GR	Excluded (<19kw)	G2503	
27/04/17	CHEC	00	Mobile Generator	Nil	Denyo	DCA-100	EPD-EE-015304-2015	G0029	
28/04/17	Hin Sum	05	Mobile Generator	Nil	Nippon Sharyo	NES150SH-3	EPD-EE-002701-2016	G0507	
02/05/17	Hoi Cheung	19	Mobile Generator	Nil	Denyo	DCA-60ESH	EPD-EE-015063-2015	G1905	
04/05/17	Hing Fu	08	Excavator	Nil	Komatsu	PC138US-8	EPD-A-030282-2015	E0847	
04/05/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-005450-2015	G0825	
08/05/17	Milestone	02	Loader	Nil	Bobcat	753	EPD-EE-017745-2015	L0201	
08/05/17	Milestone	02	Lifting Platform	Nil	Genie	TH842C	EPD-EE-009701-2015	LP0201	
08/05/17	Milestone	02	Lifting Platform	Nil	JLG	660SJC	EPD-A-005654-2016	LP0202	
11/05/17	Hin Sum	05	Excavator	Nil	Doosan	DX60R	EPD-EE-000031-2016	E0525	
11/05/17	Hin Sum	05	Excavator	Nil	Hitachi	ZX670LCH-3	EPD-A-000888-2017	E0526	
12/05/17	Yee Sun	29	Excavator	Nil	Komatsu	PC210-7	EPD-EE-005003-2016	E2901	

17/05/17	Hing Fu	08	Crawler Crane	Nil	Manitowoc	11000-1	EPD-A-034817-2015	C0807	
24/05/17	Toko	28	Excavator	Nil	Komatsu	PC40MR-3	EPD-EE-034466-2015	E2808	
29/05/17	CHEC	00	Loader	Nil	Komatsu	WA470-6	EPD-EE-011654-2015	L0002	
02/06/17	Hang Tong	15	Excavator	Nil	Hitachi	ZX450LC-3	EPD-EE-031419-2015	E1532	
02/06/17	Hang Tong	15	Excavator	Nil	Hitachi	ZX-450LCH	EPD-EE-031428-2015	E1533	
05/06/17	Hin Sum	05	Dump Truck	Nil	Volvo BM	A20	EPD-EE-030944-2015	V0509	
05/06/17	Hin Sum	05	Dump Truck	Nil	Caterpillar	725	EPD-EE-006426-2015	V0510	
06/06/17	Milestone	02	Excavator	Nil	Yanmar	B7	EPD-EE-002497-2016	E0209	
06/06/17	Luen Hing	01	Excavator	Nil	Kobelco	SK350LC	EPD-EE-002905-2015	E0149	
06/06/17	Luen Hing	01	Excavator	Nil	Sumitomo	SH200-3	EPD-EE-012354-2015	E0150	
07/06/17	Hin Sum	05	Mobile Generator	Nil	Denyo	DCA-45SPI	EPD-EE-002730-2016	G0508	
10/06/17	CHEC	00	Mobile Generator	Nil	Nissha	NES-220SH	EPD-EE-015301-2015	G0030	
12/06/17	Hin Sum	05	Loader	Nil	Caterpillar	953D	EPD-EE-001637-2016	L0504	
12/06/17	Talford	30	Lifting Platform	Nil	Aichi	SR12B	EPD-A-000739-2017	LP3001	
16/06/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 110	EPD-EE-013025-2015	G1211	
16/06/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 110	EPD-EE-012722-2015	G1212	
16/06/17	Hang Tong	15	Roller	Nil	Ingersoll Rand	DD24	EPD-A-033189-2015	R1503	
21/06/17	Toko	28	Excavator	Nil	Doosan	DX225LC	EPD-A-017086-2015	E2809	
26/06/17	Milestone	02	Mobile Generator	Nil	Nippon Sharyo	NES100SM	EPD-EE-033671-2015	G0211	
26/06/17	Milestone	02	Mobile Generator	Nil	Nippon Sharyo	NES200SH	EPD-EE-013401-2015	G0212	
26/06/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 110	EPD-EE-013033-2015	G1213	
27/06/17	Toko	28	Excavator	Nil	Kato	HD1430V	EPD-EE-002858-2015	E2810	
28/06/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-000987-2015	G0826	
28/06/17	Hing Fu	08	Excavator	Nil	Komatsu	PC138US-8	EPD-A-006658-2016	E0848	
28/06/17	Hing Fu	08	Excavator	Nil	Yanmar	VIO70-3A	EPD-A-001414-2017	E0849	
28/06/17	Hing Fu	08	Excavator	Nil	Komatsu	PC138US-8	EPD-A-001171-2017	E0850	
30/06/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-002230-2015	G0827	
30/06/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-002231-2015	G0828	
06/07/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-005455-2015	G0829	
06/07/17	Kin Kay	23	Excavator	Nil	Kato	HD820-6	EPD-A-001523-2017	E2305	
06/07/17	ATAL	12	Mobile Generator	Nil	Top One Power	TOP200	EPD-EE-013061-2015	G1214	
06/07/17	Hin Sum	05	Excavator	Nil	Doosan	DX235LCR	EPD-A-017190-2015	E0527	
13/07/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-006331-2015	G0830	
13/07/17	Hing Fu	08	Roller	Nil	Kanto Tekko	KV40D	EPD-A-001028-2017	R0808	
17/07/17	Ken Shing	31	Roller	Nil	Dynapac	CA402D	EPD-A-007842-2015	R3101	
17/07/17	Toko	28	Excavator	Nil	Komatsu	PC350LC-7EO	EPD-EE-008276-2015	E2811	
19/07/17	Toko	28	Excavator	Nil	Kato	HD550VII	EPD-EE-009021-2015	E2812	
21/07/17	Toko	28	Excavator	Nil	Komatsu	PC228US-3N0	EPD-EE-034709-2015	E2813	
22/07/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top110	EPD-EE-013225-2015	G1216	
22/07/17	Hoi Cheung	19	Mobile Generator	Nil	Denyo	DCA-45LSK	EPD-A-000216-2015	G1906	
24/07/17	Hing Fu	08	Excavator	Nil	Kobelco	SK200-8	EPD-A-001813-2017	E0851	
26/07/17	Toko	28	Mobile Generator	EPD-05213	Airman	SDG100S-3B1	EPD-A-00126-2017	G2801	
26/07/17	Toko	28	Welding Machine	Nil	Denyo	TLW-300SSK	Excluded (<19kw)	W2801	
26/07/17	Toko	28	Welding Machine	Nil	Denyo	TLW-300SSK	Excluded (<19kw)	W2802	
26/07/17	Toko	28	Welding Machine	Nil	Denyo	TLW-300SSK	Excluded (<19kw)	W2803	
26/07/17	Hing Fu	08	Excavator	Nil	Kobelco	SK07	EPD-EE-017430-2015	E0852	
26/07/17	Hing Fu	08	Excavator	Nil	Sumitomo	SH135	EPD-EE-013963-2015	E0853	
26/07/17	Hing Fu	08	Mobile Generator	Nil	Nissha	NES25TK	EPD-A-009297-2015	G0831	
26/07/17	Excel	25	Roller	Nil	XCMG	XMR40S	EPD-EE-006205-2015	R2502	

26/07/17	Excel	25	Asphalt Paver	Nil	Atlas Copco	SD2500CS	EPD-A-001916-2017	P2501	
31/07/17	Toko	28	Excavator	Nil	Hitachi	EX55UR-3	EPD-EE-008984-2015	E2814	
31/07/17	Toko	28	Roller	Nil	Dynapac	CA2500D	EPD-A-007828-2015	R2801	
01/08/17	Toko	28	Mobile Generator	Nil	Nippon Sharyo	NES100SM	EPD-EE-036538-2015	G2802	
01/08/17	Toko	28	Excavator	Nil	Kobelco	SK210LC-6ES	EPD-EE-002900-2015	E2815	
01/08/17	Toko	28	Excavator	Nil	Doosan	DX340LC	EPD-A-017332-2015	E2816	
03/08/17	Hin Sum	05	Excavator	Nil	Caterpillar	330BL	EPD-EE-031903-2015	E0528	
04/08/17	Hin Sum	05	Lifting Platform	Nil	Doosan	HX99B	Excluded (<19kw)	LP0501	
04/08/17	Ken Shing	31	Excavator	Nil	Komatsu	PC228US-3EO	EPD-A-006078-2016	E3101	
10/08/17	Toko	28	Excavator	Nil	Kato	HD800NVII	EPD-EE-009024-2015	E2817	
10/08/17	CHEC	00	Mobile Generator	Nil	Denyo	DCA60SPM	EPD-EE-000504-2015	G0031	
11/08/17	Hin Sum	05	Excavator	Nil	Caterpillar	329D	EPD-EE-034975-2015	E0529	
11/08/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 200	EPD-EE-013042-2015	G1217	
16/08/17	Milestone	02	Excavator	Nil	Komatsu	PC128US-2E1	EPD-EE-004351-2015	E0210	
16/08/17	Toko	28	Mobile Generator	Nil	Denyo	DCA-25SPI II	Excluded (<19kw)	G2803	
16/08/17	Toko	28	Excavator	Nil	Kobelco	SK330	A/002586/2017	E2818	
16/08/17	Hing Fu	08	Excavator	Nil	Kobelco	SK350D-8	EPD-A-006488-2016	E0854	
16/08/17	Hing Fu	08	Excavator	Nil	Kato	HD823MR	EPD-EE-013254-2015	E0855	
16/08/17	Hing Fu	08	Excavator	Nil	Komatsu	PC138US-8	EPD-A-000750-2017	E0856	
16/08/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100LSIE	EPD-A-006330-2016	G0832	
18/08/17	Toko	28	Private Car	Nil	Mitsubishi	Y-V46WG	EPD-EE-001649-2015	V2801	
18/08/17	Hing Fu	08	Excavator	Nil	Komatsu	PC128US-2E1	EPD-EE-019677-2015	E0857	
18/08/17	Hing Fu	08	Excavator	Nil	Sumitomo	SH215U	EPD-EE-014913-2015	E0858	
18/08/17	Hing Fu	08	Excavator	Nil	Kobelco	SK60	EPD-EE-008518-2015	E0859	
25/08/17	Toko	28	Excavator	Nil	Kobelco	SK330	A/002608/2017	E2819	
25/08/17	Toko	28	Excavator	Nil	Komatsu	PC138US-2	EPD-EE-008950-2015	E2820	
25/08/17	Talford	30	Mobile Generator	EPD-04513	Nippon Sharyo	NES25TK	EPD-A-007322-2016	G3001	
25/08/17	Kin Kay	23	Welding Machine	Nil	AMECO	6.5GFD-4	Excluded (<19kw)	G2303	
25/08/17	Kin Kay	23	Welding Machine	Nil	WACMER NEUSON	MG5	Excluded (<19kw)	G2304	
25/08/17	Kin Kay	23	Welding Machine	Nil	N/A	DLW-300-ES	Excluded (<19kw)	G2305	
25/08/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 400	EPD-EE-015429-2015	G1218	
25/08/17	ATAL	12	Mobile Generator	Nil	Top One Power	Top 200	EPD-EE-013271-2015	G1219	
08/09/17	Excel	25	Asphalt Paver	Nil	XCMG	RP603	EPD-A-002271-2017	P2504	
08/09/17	Excel	25	Roller	Nil	XCMG	XD102	EPD-A-002272-2017	R2507	
08/09/17	Excel	25	Roller	Nil	Dynapac	CC4200VI	EPD-A-002421-2017	R2508	
09/09/17	Luen Hing	01	Roller	Nil	Bomag	BW100ADM-2	EPD-EE-015646-2015	R0110	
11/09/17	Hoi Cheung	19	Excavator	EPD-03694	Yanmar	ViO80-1	EPD-A-005420-2016	E1902	
11/09/17	Hoi Cheung	19	Excavator	EPD-03794	Doosan	DX225LC	EPD-A-017628-2015	E1903	
11/09/17	Milestone	02	Excavator	Nil	Kobelco	SK100	EPD-EE-027592-2015	E0211	
11/09/17	Toko	28	Excavator	Nil	Komatsu	PC228US-8	EPD-A-000624-2017	E2821	
14/09/17	Talford	30	Lifting Platform	Nil	Aichi	SR182	EPD-EE-011998-2015	LP3002	
19/09/17	Hing Fu	08	Mobile Generator	EPD-02072	Denyo	DCA-100ESI	EPD-EE-001312-2015	G0833	
20/09/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-60ESI2	EPD-EE-004275-2015	G0834	
21/09/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100LSIE	EPD-A-006459-2016	G0835	
21/09/17	Kin Kay	23	Excavator	Nil	Caterpillar	E120B	EPD-EE-015771-2015	E2306	
22/09/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100LSIE	EPD-A-006243-2016	G0836	
25/09/17	Luen Hing	01	Excavator	Nil	Kobelco	SK310LC-3	EPD-EE-012931-2015	E0151	
25/09/17	Luen Hing	01	Mobile Generator	EPD-01304	Aiman	SDG100S	EPD-EE-008068-2015	G0127	
25/09/17	Hing Fu	08	Excavator	Nil	Kato	HD820-6	EPD-A-000390-2017	E0860	

25/09/17	Hing Fu	08	Excavator	Nil	Kobelco	SK200-8	EPD-A-001213-2017	E0861	
25/09/17	Hing Fu	08	Excavator	Nil	Kobelco	SK135SR-2	EPD-A-002099-2017	E0862	
25/09/17	Hing Fu	08	Roller	Nil	Dynapac	CA252D	EPD-A-005179-2016	R0809	
26/09/17	Ken Shing	31	Excavator	Nil	Hitachi	Ex35U	EPD-EE-035437-2015	E3102	
26/09/17	Ken Shing	31	Excavator	Nil	Kobelco	SK210LC-8	EPD-A-001425-2015	E3103	
26/09/17	Ken Shing	31	Excavator	Nil	Kobelco	SK235SR-2	EPD-A-002019-2017	E3104	
03/10/17	Hing Fu	08	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-001338-2015	G0837	
03/10/17	Goldford	27	Mobile Generator	EPD-01281	Denyo	DCA-220ESM	EPD-EE-005890-2015	G2702	
03/10/17	Goldford	27	Mobile Generator	Nil	Denyo	DCA-100ESI	EPD-EE-005442-2015	G2703	
09/10/17	Hang Tong	15	Roller	Nil	Bomag	BW211D-5	EPD-A-007366-2016	R1504	
06/10/17	Ming Suen	32	Excavator	Nil	Kobelco	SK100	EPD-EE-016791-2015	E3201	
06/10/17	Ming Suen	32	Excavator	Nil	Kobelco	SK235SR	EPD-EE-016784-2015	E3202	
09/10/17	Kin Kay	23	Welding Machine	Nil	HARD GEAR	SGB7001Ha	Excluded (<19kw)	G2306	
11/10/17	China Profit	20	Excavator	Nil	Sumitomo	SH225X-3	EPD-EE-008510-2015	E2001	
11/10/17	Luen Hing	01	Roller	Nil	Ammann	ASC110	EPD-A-001942-2017	R0111	
17/10/17	Talford	30	Mobile Generator	EPD-03197	Nippon Sharyo	NES25TK	EPD-A-031427-2015	G3002	
24/10/17	Goldford	27	Mobile Generator	Nil	Nissha	NES25TK	EPD-A-009297-2015	G2704	
30/10/17	Milestone	02	Mobile Generator	EPD-01392	Airman	SDG60S-3A6	EPD-EE-004632-2015	G0213	

ATAL Technologies Limited

Environmental License/ Permits /Notification Register

LCAL H2642

Contract: HY/2013/06 – Hong Kong Zhuhai and Macao Bridge - HKBCF – Automatic Vehicle Clearance Support System

								Date: 29 September 2017	
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark
	Work Area	Date	Reference						
1	HZMB-HK Boundary Crossing Facilities	31 July 2015	WFG14980	Disposal of Construction Waste Billing Account	7023015	20 August 2015	– –	EPD	
2	HZMB-HK Boundary Crossing Facilities	4 May 2017	– –	Construction Noise Permit	GW-RS0452-17	1 June 2017	30 Nov 2017	EPD	

HY/2013/06 HKBCF- Automatic Vechicle Clearance Support System
Non-Road Mobile Machineries Summary (October 2017)

	Ref No.	Plant	Model	Serial	NRMM	Status
1		Mobile Generator	Top One Power & TOP42	1103	EPD-EE-012714-2015	N/A
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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix G

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Appendix G – Implementation Schedule of Environmental Mitigation Measures (EMIS)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Air Quality				
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;	All construction sites	V
S5.5.6.2	A2	• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials, • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top	All construction sites	V
S5.5.6.2	A2	• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high	All construction sites	N/A

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site r part of the construction site where the exposed earth lies		
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4	A4	4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected Representative dust monitoring station	V (Conducted by Contract No. HY/2013/01 and HY/2011/03)
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant; • Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; • All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; • Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; • The materials which may generate airborne dusty emissions should be wetted by water spray system; • All receiving hoppers should be enclosed on three sides up to 3m above unloading point; • All conveyor transfer points should be totally enclosed; • All access and route roads within the premises should be paved and wetted; and • Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body	Selected Representative dust monitoring station	N/A
S5.5.2.7	A7	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points	All construction sites	V
Construction Nose (Air borne)				
S6.4.10	N1	1) Use of good site practices to limit noise emissions by considering the following: • only well-maintained plant should be operated on-site and plant should be serviced regularly during	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.		
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	V
S6.4.12	N3	3) Install movable noise barriers (typically density@14kg/m acoustic mat or full enclosure close to noisy plants including compressor, generators, saw.	For plant items listed in Appendix 6D of the EIA report at all construction sites	N/A
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	For plant items listed in Appendix 6D of the EIA report at all construction site	V
S6.4.14	N5	5) Sequencing operation of construction plants where practicable	All construction sites where practicable	V
S5.1	N6	6) Implement a noise monitoring under EM&A programme.	Selected representative noise monitoring station	V (Conducted by Contract No. HY/2013/01)
Sediment				
S7.3	S1	1) The requirements as recommended in ETWB TC 34/2002 Management of Dredged/Excavated Sediment shall be included in the Particular Specification as appropriate.	All construction sites	V
Waste Management (Construction Waste)				
S8.3.8	WM1	<u>Construction and Demolition Material</u> The following mitigation measures should be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to E7WBTC (Works) No. 19/2005 - "Environmental Management on Construction Sites" to encourage on-site sorting of C&D	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation		
S8.3.9-S8.3.11	WM2	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	All construction sites	V
S8.2.12-S8.3.15	WM3	<u>Chemical Waste</u> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.	All construction sites	V
S8.3.16	WM4	<u>Sewage</u> • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state which will not deter the workers from utilizing these portable	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		toilets. Night soil should be collected by licensed collectors regularly.		
S8.3.17	WM5	General Refuse • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.	All construction sites	V
Water Quality (Construction Phase)				
S9.11.1.1-S9.11.1.2	W1	• Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below and summarised in the Environmental Mitigation Implementation Schedule in EM&A Manual • Construction of seawalls to be advanced by at least 100-200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 9.2 and detailed in Appendix 9D6 of the EIA Report. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: - TMCLKL northern reclamation; - TMCLKL southern reclamation (after formation of the nips); - Reclamation dredging and filling for Portion B of HKBCF; - Reclamation filling for Portion C of HKBCF;- Reclamation filling for Portion D of HKBCF; Reclamation filling for FSD berth of HKBCF; and - Reclamation dredging and filling for Portion 1 of HKLR; • Export for dredged spoils from NWWCZ avoiding exerting high demand on the disposal facilities in the NWWCZ and, hence, minimise potential cumulative impacts; • For the marine viaducts of HKLR, the bored piling will be undertaken within a metal casing; • A maximum of 30% public fill shall be used for all backfilling below -2.5mPD for the southern reclamation of TMCLKL, HKBCF and HKLR projects; • where public fill is proposed for filling below -2.5mPD, the fine content in the public fill will be	Marine-based works area	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		controlled to 25%; • silt curtains (cage type) will be applied round all grab dredgers during the HKBCF, HKLR and TMCLKL southern reclamation works; • single layer silt curtains will be applied around all works; • when constructing Portion D of the HKBCF, one side of the seawall crossing the channel should be constructed first and prior to the other works. This would reduce the maximum flow speed across the channel and enhance the effectiveness of other mitigation measures such as silt curtain system; • during the first two months of dredging work for HKBCF and HKLR, the silt-removal efficiency of the silt-curtains shall be verified by examining the results of water quality monitoring points. The water quality monitoring points to be selected for the above shall be those close to the locations of the initial period of dredging work. Details in this regard shall be determined by the ENPO to be established, taking account of the Contractor's proposed actual locations of his initial period of dredging work. • a sheet piled wall shall be constructed north of the HKBCF island ,in order to allow the use of silt curtains during Phase 2 works; and • silt curtain shall be fully maintained throughout the works. In addition, dredging operations should be undertaken in such a manner as to minimise resuspension of sediments. Standard good dredging practice measures should, therefore, be implemented including the following requirements which should be written into the dredging contract. • trailer suction hopper dredgers shall not allow mud to overflow; • use of Lean Material Overboard (LMOB) systems shall be prohibited; • mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted; • barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material; • any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; • loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; • excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; • adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; • all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and • the works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.		
S9.11.1.3	W2	<u>Land Works</u> General construction activities on land should also be governed by standard good working practice.	Land-based works area	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		Specific measures to be written into the works contracts should include: • wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; • 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; • 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; • 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; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • 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; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;		
S9.11.1.7	W2	• all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; • wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; • the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel; • wastewater generated from concreting, plastering, Internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; • vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal; • the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up	Land-based works area	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.		
S9.14	W3	Implement a water quality monitoring programme	Selected representative WQM stations	V (Conducted by Contract No. HY/2013/01)
Ecology (Construction Phase)				
S10.7	E4	• Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Land-based works areas	V
S10.7	E5	• Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time	Land-based works areas	V
S10.7	E6	• Dolphin Exclusion Zone • Dolphin watching plan	Marine works	V
S10.7	E7	• Decouple compressors and other equipment on working vessels • Proposal on design and implementation of acoustic decoupling measures applied during dredging and reclamation works • Avoidance of percussive piling	Marine works	V
S10.7	E8	• Control vessel speed • Skipper training • Predefined and regular routes for working vessels; avoid Brother Islands.	Marine Traffic	V
S10.10	E9	Vessel based dolphin monitoring	Northeast and Northwest Lantau	V (Conducted by Contract No. HY/2013/01)
Fisheries				
S11.7	F4	• Maritime Oil Spill Response Plan (MOSRP); • Contingency plan.	HKBCF	V
Landscape & Visual (Detailed Design Phase)				
S14.3.3.1	LV1	General design measures include: • Roadside planting and planting along the edge of the HKBCF Island is proposed; • Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting; • Protection measures for the trees to be retained during construction activities; • Optimizing the sizes and spacing of the bridge columns; • Fine-tuning the location of the bridge columns to avoid visually-sensitive locations; • Providing planting area around peripheral of HKBCF for tree planting screening effect; • Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline; • For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport	HKBCF	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF; and ・Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF.		
Landscape & Visual (Construction Phase)				
S14.3.3.3	LV2	Mitigate both Landscape and Visual Impacts G1. Grass-hydroseed bare soil surface and stock pile areas. G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic. G3. Not applicable as this is for HKLR. G4. For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF G5. Vegetation reinstatement and upgrading to disturbed areas G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed G7. Providing planting area around peripheral of HKBCF for tree planting screening effect; G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall. G9. Reserve of loose natural granite rocks for re-use, Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline.	HKBCF	N/A
S14.3.3.3	LV3	<u>Mitigate Visual Impacts</u> V1. Minimize time for construction activities during construction period. V2. Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKBCF construction.	HKBCF	N/A
EM&A				
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual	All construction sites	V
S15.5 – S15.6	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	All construction sites	V

Legend: V = implemented; x = not implemented; N/A = not applicable

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix H

Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix H –

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

For Contract No. HY/2013/03

	Cumulative Statistics		
Reporting Period	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	1	0	0
From commencement date of construction to end of reporting month	13	0	0

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

	Cumulative Statistics		
Reporting Period	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of construction to end of reporting month	0	0	0

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix I

Environmental Site Inspection Schedule

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Report No.: 0165/15/ED/00944

Contract No. HY/2013/03
HZMB HKBCF – Vehicle Clearance Plazas and Ancillary Buildings and Facilities
Weekly Environmental Site Inspection Schedule

Tentative Environmental Site Inspection Schedule for October 2017

October-2017						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
1	2	3	4	5	6 Environmental Site Inspection	7
8	9	10	11	12 Environmental Site Inspection	13	14
15	16	17	18	19	20 Environmental Site Inspection	21
22	23	24	25	26 Environmental Site Inspection	27	28
29	30	31				

Tentative Environmental Site Inspection Schedule for November 2017

October-2017						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
			1	2 Environmental Site Inspection	3	4
5	6	7	8	9 Environmental Site Inspection	10	11
12	13	14	15	16 Environmental Site Inspection	17	18
19	20	21	22	23	24 Environmental Site Inspection	25
26	27	28	29	30 Environmental Site Inspection		

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Report No.: 0165/15/ED/00944

Contract No. HY/2013/06 (within Contract No. HY/2013/03 works area)
HZMB HKBCF – Automatic Vehicle Clearance Support System
Weekly Environmental Site Inspection Schedule

Tentative Environmental Site Inspection Schedule for October 2017

October-2017						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
1	2	3	4	5	6 Environmental Site Inspection	7
8	9	10	11	12 Environmental Site Inspection	13	14
15	16	17	18	19	20 Environmental Site Inspection	21
22	23	24	25	26 Environmental Site Inspection	27	28
29	30	31				

Tentative Environmental Site Inspection Schedule for November 2017

October-2017						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
			1	2 Environmental Site Inspection	3	4
5	6	7	8	9 Environmental Site Inspection	10	11
12	13	14	15	16 Environmental Site Inspection	17	18
19	20	21	22	23	24 Environmental Site Inspection	25
26	27	28	29	30 Environmental Site Inspection		

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix J

Investigation Reports on Action Level or Limit Level Non-compliance

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0016

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 14/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0016

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171002DO) was forwarded by the ET of Contract No. HY/2013/01 on 10 October 2017:

Monitoring Date: 2 October 2017

The Action and Limit Levels of dissolved oxygen (DO) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
Surface and Middle	5.0	4.2 (except 5 mg/L for FCZ)
Bottom	4.7	3.6

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
DO	SR10A	Bottom	**4.6**	**4.5**
DO	SR10B(N)	Surface and Middle	5.4	**4.7**
DO	SR10B(N)	Bottom	5.1	**4.6**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171002DO) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood and mid-ebb tide on 2 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
  4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
  5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
  6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

  W2-
  1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;

2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
8. surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12, 19 and 27 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled

to a level which will cause overflow of materials or pollution of water during loading or transportation;

- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- 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;
- 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;
- rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(Mf)3	809989	821117
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
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Fax : (852)-24508032
Email : mcl@fugro.com

Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

Plot File by : 2014/3/26 WANGSY

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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171002DO)

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171002_DO_NOE**
Date of Notification: 10 October 2017

Works Inspected: Data collected from water sampling works on 2 October 2017 and the results were issued on 10 October 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ ~~Suspended Solid (SS)/ Turbidity (TURB)~~

Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
DO	SR10A	Bottom	Surface and Middle 5.0 Bottom 4.7	Surface and Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6	**4.6**	**4.5**
DO	SR10B(N)	Surface and Middle			5.4	**4.7**
DO	SR10B(N)	Bottom			5.1	**4.6**

Sampling Time

IS5	11:44:00	16:12:00
IS(Mf)6	11:34:00	16:19:00
IS7	11:25:00	16:29:00
IS8	11:02:00	16:52:00
IS(Mf)9	11:13:00	16:40:00
IS10(N)	10:19:00	17:10:00
IS(Mf)11	10:10:00	17:19:00
IS(Mf)16	10:30:00	17:22:00
IS17	10:21:00	17:32:00
SR3	11:54:00	15:59:00
SR4(N)	10:55:00	17:02:00
SR5(N)	10:27:00	17:02:00
SR6	11:25:00	15:59:00
SR7	10:01:00	17:29:00
SR10A	09:06:00	18:37:00
SR10B(N)	09:14:00	18:31:00

Remarks:
Bold means AL exceedances.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Reviewed by : Keith Chau Title : ET Leader

Date : 10-Oct-17

Copied to : Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

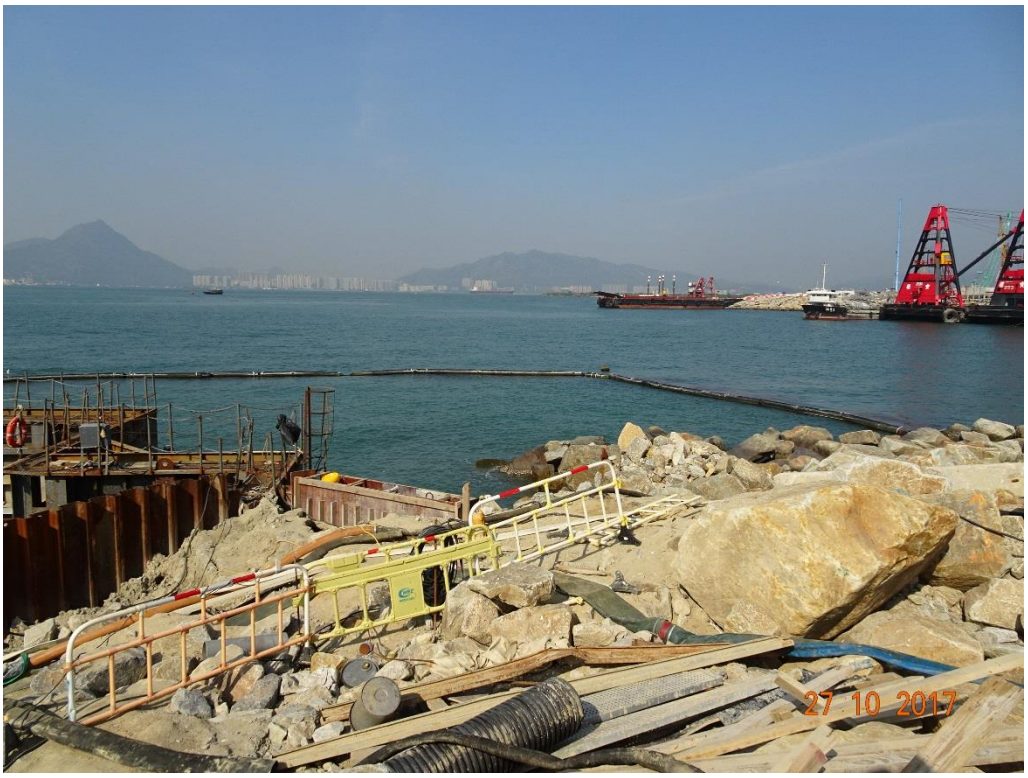
Appendix B

Photo showing the site situation of marine works in Box Culvert B

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



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Fax : (852)-24508032
Email : mcl@fugro.com

INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0017

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 14/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0017

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171004NOEv1) was forwarded by the ET of Contract No. HY/2013/01 on 12 October 2017:

Monitoring Date: 4 October 2017

The Action and Limit Levels of dissolved oxygen (DO) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
Surface and Middle	5.0	4.2 (except 5 mg/L for FCZ)
Bottom	4.7	3.6

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
DO	SR10A*	Surface and Middle	**4.7**	**4.5**
DO	SR10A*	Bottom	**4.6**	**4.3**
DO	SR10B(N)	Surface and Middle	**4.8**	**4.5**
DO	SR10B(N)	Bottom	4.9	**4.5**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA
* Location was changed due to fishing net installed in the vicinity (22^{0}21.1165'N; 114^{0}03.1185'E)

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171004DONOEv1) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood and mid-ebb tide on 4 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
  4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
  5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
  6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

  W2-
  1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;

2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
8. surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12, 19 and 27 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;

- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- 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;
- 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;
- rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(Mf)3	809989	821117
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

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Room 723 & 725, 7/F, Block B,
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Email : mcl@fugro.com

Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

Plot File by : 2014/3/26 WANGSY

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171004DONOEv1)

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171004_NOE_v1**

Date of Notification: 12 Oct 2017

Works Inspected: Data collected from water sampling works on 4 October 2017 and the results were issued on 9 October 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ ~~Suspended Solid (SS)/ Turbidity (TURB)~~

Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
DO	SR10A*	Surface and Middle	Surface and Middle 5.0 Bottom 4.7	Surface and Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6	**4.7**	**4.5**
DO	SR10A*	Bottom			**4.6**	**4.3**
DO	SR10B(N)	Surface and Middle			**4.8**	**4.5**
DO	SR10B(N)	Bottom			4.9	**4.5**

Sampling Time

IS5	13:04:00	16:53:00
IS(Mf)6	12:57:00	17:00:00
IS7	12:48:00	17:09:00
IS8	12:28:00	17:26:00
IS(Mf)9	12:38:00	17:17:00
IS10(N)	12:15:00	17:51:00
IS(Mf)11	12:09:00	17:56:00
IS(Mf)16	12:02:00	17:51:00
IS17	11:57:00	17:59:00
SR3	13:10:00	16:46:00
SR4(N)	12:23:00	17:33:00
SR5(N)	12:22:00	17:44:00
SR6	13:17:00	16:46:00
SR7	12:00:00	18:04:00
SR10A	10:38:00	19:06:00
SR10B(N)	10:47:00	18:58:00

Photo 1:

Remarks:

Bold means AL exceedances.

Bold with underline means LL exceedances.

Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4

Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

* Location was changed due to fishing net installed in the vicinity (22°21.1165'N; 114°03.1185'E) (See Photo 1)

Reviewed by : Keith Chau Title : ET Leader

Date : 12-Oct-17

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix B

Photo showing the site situation of marine works in Box Culvert B

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
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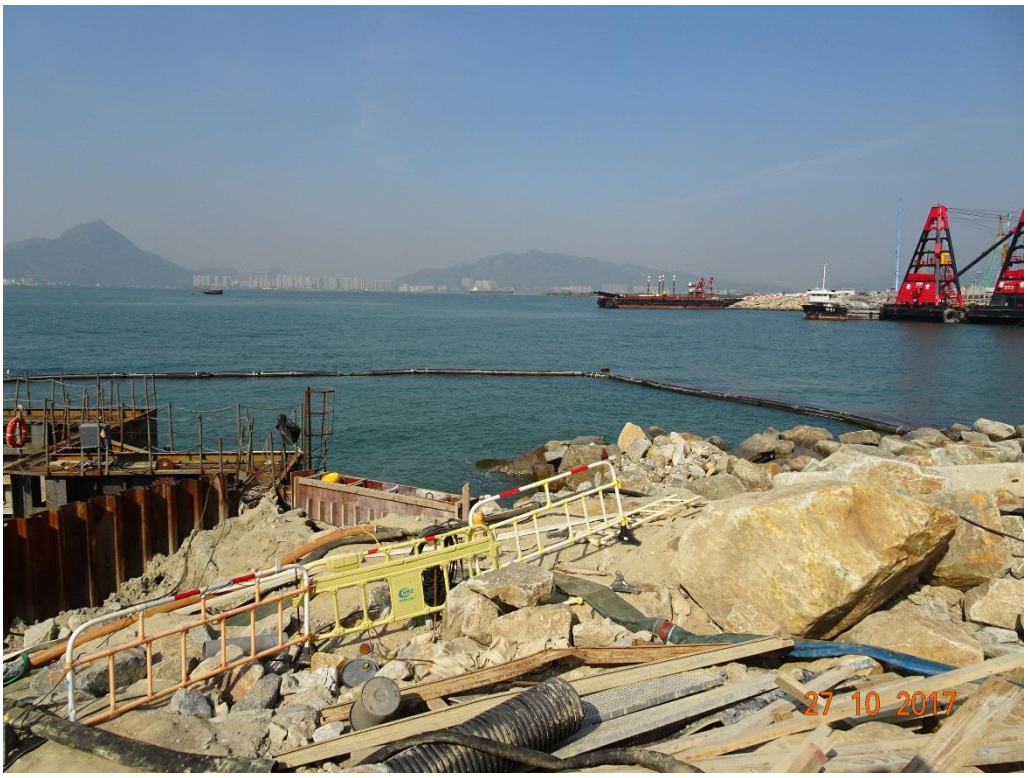

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
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INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0018

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 14/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0018

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171006DO) was forwarded by the ET of Contract No. HY/2013/01 on 11 October 2017:

Monitoring Date: 6 October 2017

The Action and Limit Levels of dissolved oxygen (DO) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
Surface and Middle	5.0	4.2 (except 5 mg/L for FCZ)
Bottom	4.7	3.6

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
DO	SR10B(N)	Surface and Middle	**4.9**	**4.5**
DO	SR10B(N)	Bottom	5.0	**4.6**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171006DO) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood and mid-ebb tide on 6 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
  4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
  5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
  6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

  W2-
  1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;

2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
   surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12, 19 and 27 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;

- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
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- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(Mf)3	809989	821117
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171006DO)

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171006_NOE**
Date of Notification: 11 October 2017

Works Inspected: Data collected from water sampling works on 6 October 2017 and the results were issued on 11 October 2017

Monitoring Location: Water Quality Monitoring Station
Parameter: Dissolved Oxygen (DO)/ ~~Suspended Solid (SS)/ Turbidity (TURB)~~
Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
DO	SR10B(N)	Surface and Middle	Surface and Middle 5.0 Bottom 4.7	Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6	**4.9**	**4.5**
DO	SR10B(N)	Bottom			5.0	**4.6**

Sampling Time

IS5	11:33:00	07:50:00
IS(Mf)6	11:40:00	07:43:00
IS7	11:47:00	07:36:00
IS8	12:03:00	07:18:00
IS(Mf)9	11:54:00	07:25:00
IS10(N)	12:24:00	06:50:00
IS(Mf)11	12:30:00	06:45:00
IS(Mf)16	12:24:00	06:51:00
IS17	12:34:00	06:44:00
SR3	11:27:00	07:58:00
SR4(N)	12:10:00	07:13:00
SR5(N)	12:17:00	06:57:00
SR6	11:27:00	08:04:00
SR7	12:38:00	06:36:00
SR10A	13:27:00	05:48:00
SR10B(N)	13:20:00	05:56:00

Remarks:
Bold means AL exceedances.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Reviewed by : Keith Chau
Title : ET Leader
Date : 11-Oct-17

Copied to : Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

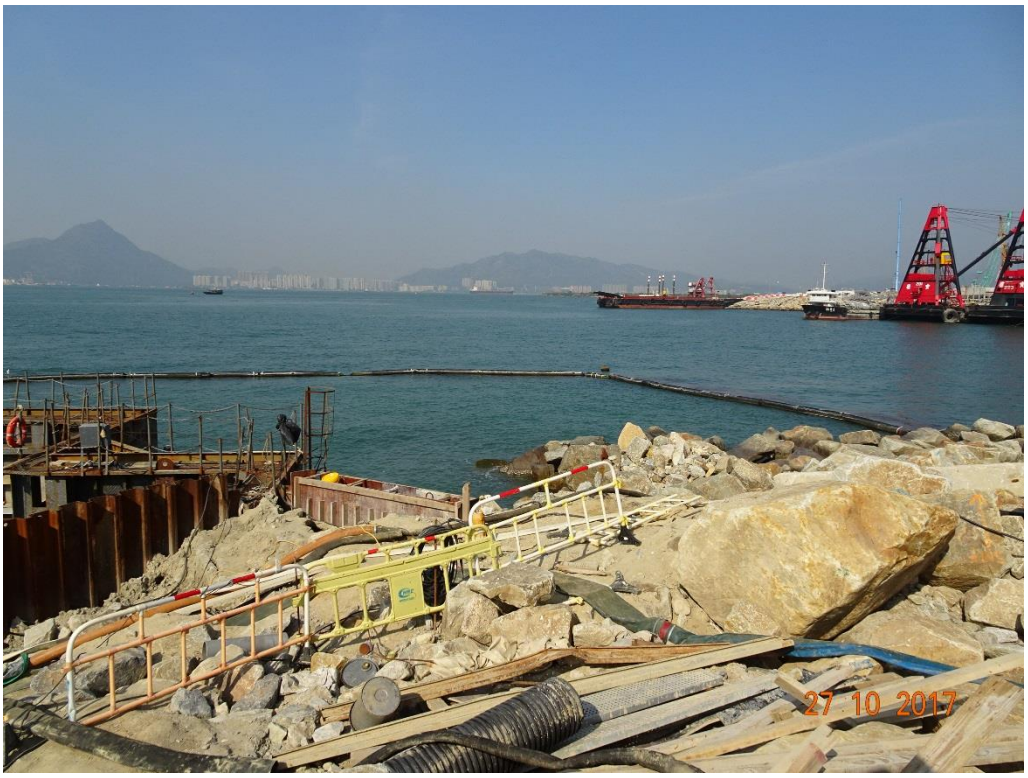
Appendix B

Photo showing the site situation of marine works in Box Culvert B

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0019

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 14/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0019

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171009DO) was forwarded by the ET of Contract No. HY/2013/01 on 12 October 2017:

Monitoring Date: 9 October 2017

The Action and Limit Levels of dissolved oxygen (DO) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
Surface and Middle	5.0	4.2 (except 5 mg/L for FCZ)
Bottom	4.7	3.6

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
DO	SR10B(N)	Surface and Middle	5.2	**4.8**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171009DO) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely to consume any dissolved oxygen to cause the DO exceedances recorded at the concerned WQM stations during mid-flood on 9 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
  4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
  5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
  6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

  W2-
  1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;

2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
   surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12 and 19 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;

- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- 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;
- 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;
- rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
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CS4	810025	824004
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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
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Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171009DO)

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171009_NOE**

Date of Notification: 12 Oct 2017

Works Inspected: Data collected from water sampling works on 9 October 2017 and the results were issued on 12 October 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ ~~Suspended Solid (SS)/ Turbidity (TURB)~~

Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
DO	SR10B(N)	Surface and Middle	Surface and Middle 5.0 Bottom 4.7	Surface and Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6	5.2	**4.8**

Sampling Time

IS(Mf)6	13:48:00	09:59:00
IS7	13:56:00	09:51:00
IS8	14:13:00	09:35:00
IS(Mf)9	14:04:00	09:43:00
IS10(N)	14:47:00	09:06:00
IS(Mf)11	15:11:00	08:58:00
IS(Mf)16	14:39:00	09:09:00
IS17	14:51:00	09:01:00
SR3	13:33:00	10:13:00
SR4(N)	14:21:00	09:29:00
SR5(N)	14:40:00	09:22:00
SR6	13:33:00	10:20:00
SR7	15:04:00	08:47:00
SR10A	15:48:00	08:01:00
SR10B(N)	15:42:00	08:11:00

Remarks:

Bold means AL exceedances.

Bold with underline means LL exceedances.

Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4

Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Reviewed by : Keith Chau Title : ET Leader

Date : 12-Oct-17

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

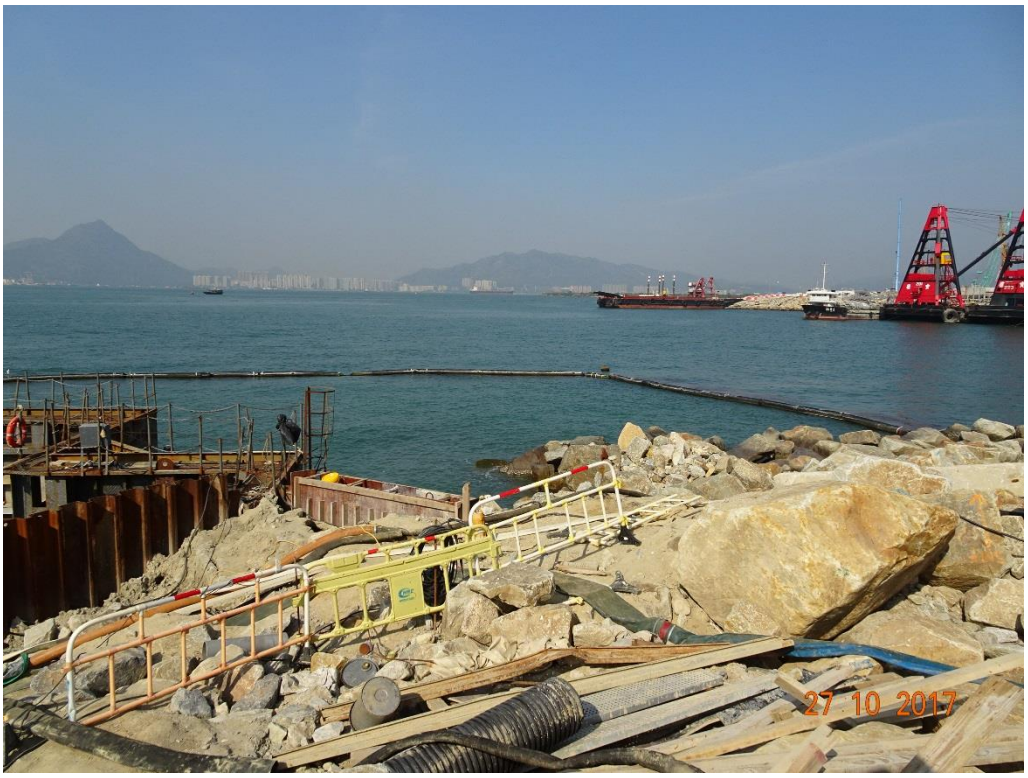
Appendix B

Photo showing the site situation of marine works in Box Culvert B

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0020

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 14/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0020

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171018 SS NOE v1) was forwarded by the ET of Contract No. HY/2013/01 on 30 October 2017:

Monitoring Date: 18 October 2017

The Action and Limit Levels of Suspended Solid (SS) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
SS	23.5 and 120% (i.e. 10.6 for mid-ebb /23.9 for mid-flood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 11.5 for mid-ebb/25.9 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
SS	SR5(N)	Depth Average	9.5	**30.1**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171018 SS NOE v1) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused SS exceedance recorded at the concerned WQM station during mid-flood tide on 18 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
  4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
  5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
  6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

  W2-
  1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;

2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
   surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12, 19 and 27 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;

- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- 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;
- 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;
- rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(Mf)3	809989	821117
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

Plot File by : 2014/3/26 WANGSY

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171018 SS NOE v1)

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171018_SS_NOE_v1**
Date of Notification: 30 October 2017

Works Inspected: Data collected from water sampling works on 18 October 2017 and the results were issued on 26 October 2017

Monitoring Location: Water Quality Monitoring Station
Parameter: ~~Dissolved Oxygen (DO)/~~ Suspended Solid (SS)~~/ Turbidity (TURB)~~
Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
SS	SR5(N)	Depth Average	23.5 and 120% (i.e. 10.6 for mid-ebb/23.9 for mid-flood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 11.5 for mid-ebb/25.9 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	9.5	**30.1**

Remarks:
Bold means AL exceedances.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Prepared by : Evan Wong Title : ET Representative
Date : 30-Oct-17
Reviewed by : Keith Chau Title : ET Leader
Date : 30-Oct-17
Copied to : Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

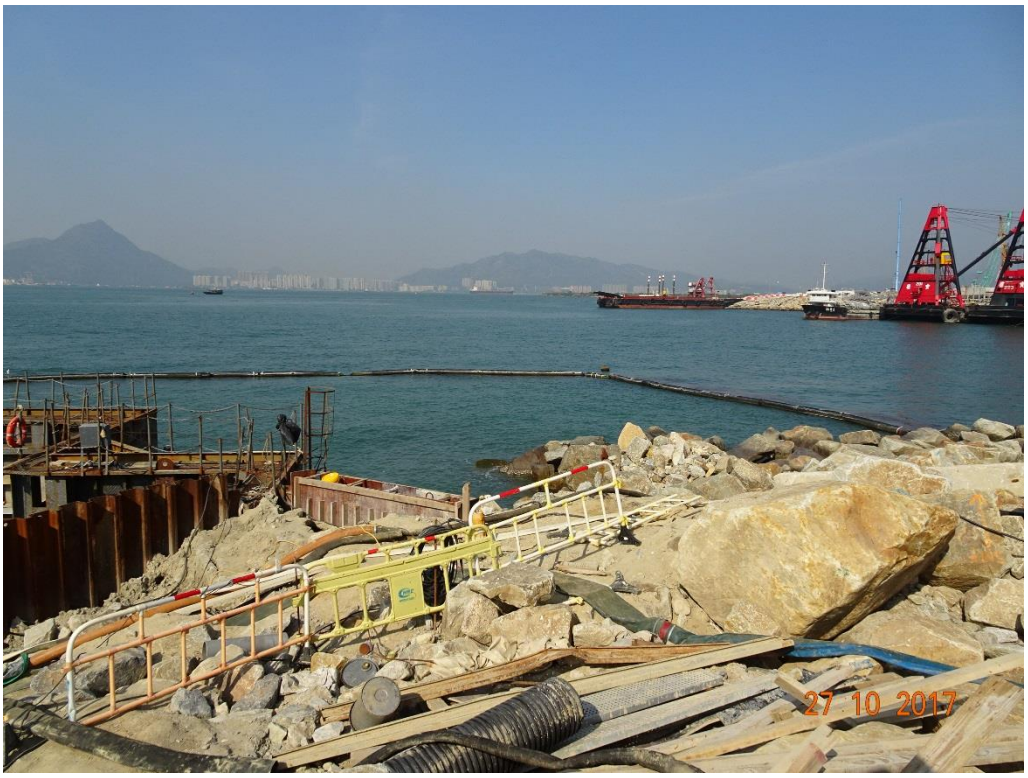
Appendix B

Photo showing the site situation of marine works in Box Culvert B

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0021

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 14/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0021

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171020 SS NOE) was forwarded by the ET of Contract No. HY/2013/01 on 31 October 2017:

Monitoring Date: 20 October 2017

The Action and Limit Levels of Suspended Solid (SS) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
SS	23.5 and 120% (i.e. 20.8 for mid-ebb /20.1 for mid-flood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 22.6 for mid-ebb/21.8 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
SS	IS(Mf)11	Depth Average	11.9	**26.1**
	SR5(N)		8.0	**24.4**
	SR7		14.9	**28.3**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171020 SS NOE) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. For SS exceedance recorded at the WQM station SR7, there was no SS exceedance recorded at the same WQM station under similar work environment on 18 October 2017 and 23 October 2017. For SS exceedance recorded at the WQM station SR5(N), the concerned WQM stations where the exceedances were recorded were not close to the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS10(N). For SS exceedance recorded at the WQM station IS(Mf)11 closer to the works area Box Culvert B, there was no SS exceedance recorded at the same WQM station under similar work environment on 18 October 2017 and 23 October 2017. There was a complaint received by EPD with discharge concern around the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no discharge activities during the complained period.

It was unlikely that the works undertaken by Contract No. HY/2013/03 caused SS exceedance recorded at the concerned WQM station during mid-flood tide on 20 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;

4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

W2-

1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
   surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12, 19 and 27 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- 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;
- 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;
- rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
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Tel : (852)-24508238
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Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(Mf)3	809989	821117
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
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Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- VEHICLE CLEARANCE PLAZAS AND
ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C3/000/C00/1000

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/03	P. Dir. APPROVED 批准人 TKH	
DRAWN BY 繪圖 WSY	STATUS 階段		
SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

Plot File by : 2014/3/26 WANGSY

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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171020 SS NOE)

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171020_SS_NOE**
Date of Notification: 31 October 2017

Works Inspected: Data collected from water sampling works on 20 October 2017 and the results were issued on 30 October 2017

Monitoring Location: Water Quality Monitoring Station
Parameter: ~~Dissolved Oxygen (DO)/~~ Suspended Solid (SS)~~/ Turbidity (TURB)~~
Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
SS	IS(Mf)11	Depth Average	23.5 and 120% (i.e. 20.8 for mid-ebb/20.1 for mid-flood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 22.6 for mid-ebb/21.8 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	11.9	**26.1**
SS	SR5(N)	Depth Average			8.0	**24.4**
SS	SR7	Depth Average			14.9	**28.3**

Remarks:
Bold means AL exceedances.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Prepared by : Evan Wong Title : ET Representative
Date : 31-Oct-17
Reviewed by : Keith Chau Title : ET Leader
Date : 31-Oct-17
Copied to : Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

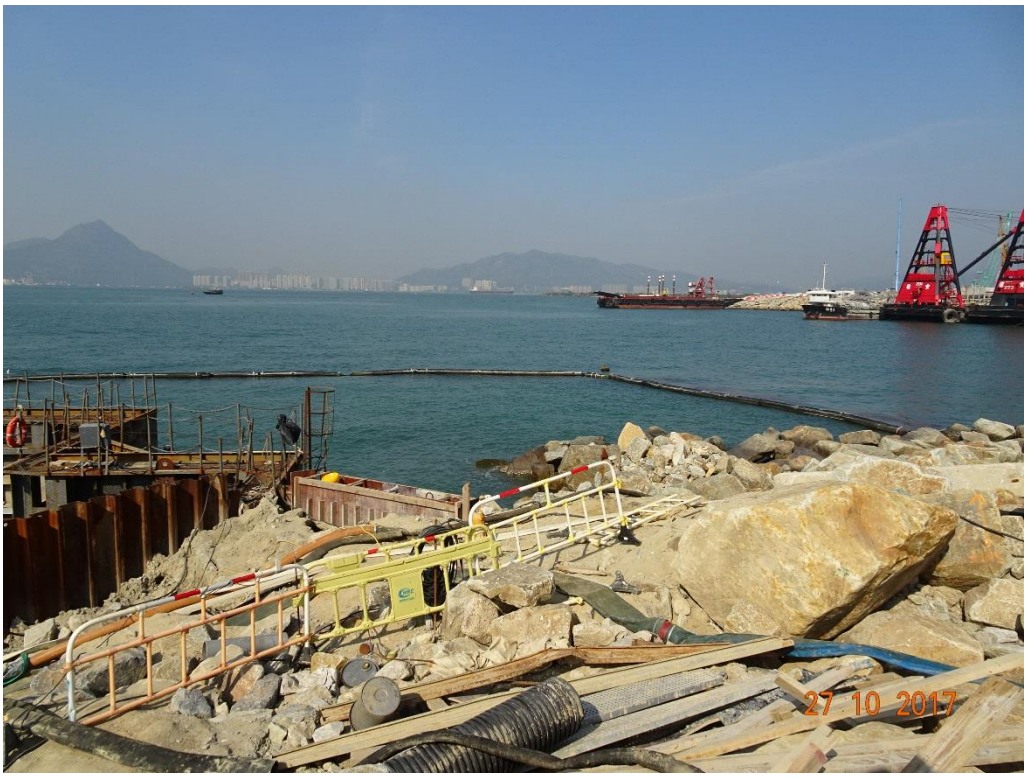
Appendix B

Photo showing the site situation of marine works in Box Culvert B

MATERIALAB CONSULTANTS LIMITED

Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.

Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
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Kwai Fong, Hong Kong.
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Fax : (852)-24508032
Email : mcl@fugro.com

INVESTIGATION REPORT ON

ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No. Ref.: 0165-15-IR0022

Prepared by: Mr. Vincent Lu

Reviewed by: Mr. Bong Yu

Certified by: _____ Date: 15/11/2017

Mr. Arthur Cheng
Environmental Team Leader

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR0022

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance (20171023 SS NOE v1) was forwarded by the ET of Contract No. HY/2013/01 on 6 November 2017:

Monitoring Date: 23 October 2017

The Action and Limit Levels of Suspended Solid (SS) at determined from baseline monitoring data are listed below:

Monitoring Parameter	Action Level (mg/L)	Limit Level (mg/L)
SS	23.5 and 120% (i.e. 14.8 for mid-ebb /16.9 for mid-flood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 16.0 for mid-ebb/18.3 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes

Measured Level: Mid-flood tide

Parameter	Station	Depth	Measured at mid-ebb tide (mg/L)	Measured at mid-flood tide (mg/L)
SS	SR5(N)	Depth Average	10.4	**26.3**

Bold means AL exceedance.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Monitoring was undertaken by the ET of Contract No. HY/2013/01 of HKBCF. The Notification of Action/Limit Level Exceedance (20171023 SS NOE v1) provided by the ET of Contract No. HY/2013/01 of HKBCF is shown in **Appendix A**.

3. Investigation of Non-compliance

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. Regarding marine-based works in Box Culvert B, the work undertaken at the date of exceedance was preparation work of precast installation which had a cofferdam to separate seawater and works area. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. All sea water flows into the work area of box culvert B will be treated by desilting facilities before discharge in accordance with the discharge license approved by EPD for Contract No. HY/2013/03. In addition, the concerned WQM stations where the exceedances were recorded were far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused SS exceedance recorded at the concerned WQM station during mid-flood tide on 23 October 2017.

The location of the WQM station where exceedances were recorded and all relevant WQM stations are shown in **Figure 1** and the location of marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
  W1-
  1. Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
  2. Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
  3. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
  4. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
  5. Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
  6. All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

  W2-
  1. wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;

2. 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;
3. 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;
4. rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
5. measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
6. open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
7. discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
   surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

4. Follow up Status (Exceedance)

During weekly site audit on 6, 12, 19 and 27 October 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures. ET will take relevant photo records of the marine-based works for Contract No. HY/2013/03 via the on-going site inspections to support the necessary review of the effectiveness of site mitigation measures specific to the exceedance investigation.

Photos showing the site situation of marine works in Box Culvert B which was taken during the site audit at 27 October are shown in **Appendix B**.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;

- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- 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;
- 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;
- rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.

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Kwai Fong, Hong Kong.
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Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

The Location of WQM Stations

LEGEND

- IS — IMPACT STATIONS
- CS — CONTROL / FAR FIELD STATIONS
- SR — SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(Mf)3	809989	821117
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

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Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C3/000/C00/1003

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

Sand Blanket Filling Area
of Three Runway Project

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

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

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

WORKS AREA 'WA4'
SEE DRAWING NO.
60191048/C3/000/C00/1052

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C3/000/C00/1051

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

N

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

LEGEND:

- SITE BOUNDARY
- WORKS AREA
- Location of Box Culvert B
- Silt Curtain

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 復核	DATE 日期
-	TENDER DRAWING	BWCW	SCT	MAR.14

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SCALE 比例 A1 1 : 25000			
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有		

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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Notification of Limit Level Exceedance (20171018 SS NOE v1)

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent,
Kwai Fong, Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Contract No. HY/2013/01 -
Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Notifications of Environmental Quality Limits Exceedances **Notification No.: 20171023_SS_NOE**
Date of Notification: 06 Nov 2017

Works Inspected: Data collected from water sampling works on 23 October 2017 and the results were issued on 1 November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: ~~Dissolved Oxygen (DO)~~/ Suspended Solid (SS)/ ~~Turbidity (TURB)~~

Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID-EBB TIDE (mg/L)	MEASURED AT MID-FLOOD TIDE (mg/L)
SS	SR5(N)	Depth Average	23.5 and 120% (i.e. 14.8 for mid-ebb/16.9 for mid-flood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 16.0 for mid-ebb/18.3 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	10.4	**26.3**

Remarks:
Bold means AL exceedances.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Sampling Time

	Mid-Ebb	Mid-Flood
IS5	13:26:00	09:55:00
IS(Mf)6	13:36:00	09:50:00
IS7	13:45:00	09:42:00
IS8	14:05:00	09:24:00
IS(Mf)9	13:52:00	09:32:00
IS10(N)	14:18:00	08:45:00
IS(Mf)11	14:24:00	08:39:00
IS(Mf)16	14:36:00	08:59:00
IS17	14:48:00	08:51:00
SR3	13:19:00	10:03:00
SR4(N)	14:15:00	09:18:00
SR5(N)	14:13:00	08:51:00
SR6	13:18:00	09:44:00
SR7	14:31:00	08:32:00
SR10A	15:47:00	07:52:00
SR10B(N)	15:41:00	08:04:00

Prepared by : Ruby Law Title : ET Representative
Date : 06-Nov-17

Reviewed by : Keith Chau Title : ET Leader
Date : 06-Nov-17

Copied to : Contractor, Engineer Representative and IEC/ENPO

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
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Kwai Fong, Hong Kong.
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Appendix B

Photo showing the site situation of marine works in Box Culvert B

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Room 723 & 725, 7/F, Block B,
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