

Ref.: HYDHZMBEEM00\_0\_6093L.17

14 December 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. Malcolm Sage

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/2014/05 – HZMB HKBCF – Remaining Ancillary Buildings and  
Facilities  
Monthly Environmental Monitoring & Audit Report for November 2017**

Reference is made to the Environmental Team's submission of Monthly Environmental Monitoring & Audit Report for November 2017 (Rev. 1) certified by the ET Leader (ET's ref.: "5140819/18.30/OC044/KC/RL" dated 14 December 2017) and provided to us via e-mail on 14 December 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.

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)
	Atkins	Mr. Keith Chau	(By Fax: 2890 6343)
	LCWJV	Mr. Iain Hubert	(By Fax: 3621 0180)

Internal: DY, YH, PSC, ENPO Site

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Your ref.

Our ref. 5140819/18.30/OC044/KC/RL

Date: 14 December 2017

**By Post and e-mail (yk.wu@lcwjv.com)**

Leighton – Chun Wo Joint Venture  
39/F Sun Hung Kai Centre  
30 Harbour Road  
Hong Kong

**Attn: Mr. Wu Yun Kau**

Dear Mr. Wu,

**Contract No. HY/2014/05  
Hong Kong – Zhuhai – Macao Bridge  
Hong Kong Boundary Crossing Facilities –  
Remaining Ancillary Buildings and Facilities  
Certification of Monthly EM&A Report No. 21**

Atkins China Limited certifies, in the capacity of Environmental Team Leader, that the Monthly EM&A Report No. 21 for November 2017 (Revision 1) conforms the requirements provided in Condition 5.4 of the Environmental Permit No. EP-353/2009/K.

**Yours faithfully,  
for and on behalf of  
Atkins China Limited**



**Keith Chau  
Environmental Team Leader**

**cc.**

1. AECOM – Mr. Malcolm Sage (By Fax.: 3468 2076)
2. IEC/ENPO – Mr. Raymond Dai & Mr. Y.H. Hui (By Fax.: 3465 2899)

**Contract No. HY/2014/05**

**Hong Kong-Zhuhai-Macao Bridge  
Hong Kong Boundary Crossing Facilities – Remaining Ancillary  
Buildings and Facilities**

**Monthly EM&A Report No. 21  
(Covering the Period from 1 November 2017 to 30 November 2017)**

12 December 2017

Revision 1

**Main Contractor**



**Leighton - Chun Wo  
Joint Venture**

**Environmental Team**

**ATKINS**

Member of the SNC-Lavalin Group

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## Executive Summary

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB HKBCF) – Remaining 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 and Contract No. HY/2014/04 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Gantry Type X-ray Vehicle Inspection System within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2014/05 was awarded to Leighton – Chun Wo Joint Venture (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited and Contract No. HY/2014/04 was awarded to Rapiscan Systems Pte Ltd within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area) is part of HZMB HKBCF Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499) and Environmental Impact Assessment (EIA) Report (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) No. EP-353/2009/K for HKBCF was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. The construction works of the Contract No. HY/2014/05 commenced on 29 February 2016 while the construction works of the Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area commenced on 3 January 2017 and 13 February 2017 respectively.

Atkins China Limited 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 to the Contract.

This is the twenty-first monthly EM&A Report for the Contract No. HY/2014/05 which summarizes findings of the EM&A works during the reporting period from 1 to 30 November 2017 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area).

## Environmental Monitoring and Audit Progress

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 air quality and noise monitoring works for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB 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 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. 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 the Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area) during the reporting period are listed below:

Environmental Site Inspection: 6, 15, 20 and 27 November 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 one AL exceedance of 24-hour TSP at ASM3B was recorded on 28 November 2017 by the Environmental Team of Contract No. HY/2013/01 during the reporting period, after investigation, the exceedance was not related to the Contract. Details of the exceedance shall be referred to the monthly EM&A report prepared by Contract No. HY/2013/01. No Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period. The IR was provided in **Appendix J**.

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

### **Complaint Log**

There was a complaint received by EPD on 23 November 2017 and sent to the ET on 23 November 2017 which regarding to dust emission during the reporting period.

The complaint was found that dust emission from construction site of HKBCF on 23 November 2017. After investigation, it was not related to Contract No. HY/2014/05 (including Contract No. HY/2013/06 HZMB HKBCF - Automatic Vehicle Clearance Support System and Contract No. HY/2014/04 HZMB HKBCF – Gantry Type X-ray Vehicle Inspection System within Contract No. HY/2014/05 works area). No follow up action by Contract No. HY/2014/05 was required.

### **Notifications of Summons and Successful Prosecutions**

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

### **Reporting Change**

There was no reporting change during the reporting period.

## Future Key Issues

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

### For Contract No. HY/2014/05

- Architectural Builder's Work and Finishes (ABWF) & Mechanical, Electrical and Plumbing works (MEP) - Internal work of Buildings 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053 and 058
- Architectural Builder's Work and Finishes (ABWF) - External work of Buildings 021, 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053 and 058
- ABWF works (roof) of Buildings 021, 022, 023, 032, 044, 050H1, 050H2, 050A1, 050A2 and 053
- Utilities and Drainage installation of Buildings 023, 025, 032, 045, 050H1, 050H2 and 050A1
- Construction of Planter Box and Ramp of Building 023

### For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

- Conceal Conduit Installation at Buildings 025 and 032

### For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area

- Building 053 - Installation of software
- Building 054 - Installation of software
- Building 058 – Radiation Testing
- Building 059 – Radiation Testing



## 1 Introduction

### 1.1 Basic Project Information

1.1.1 This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB HKBCF) – Remaining 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 and Contract No. HY/2014/04 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Gantry Type X-ray Vehicle Inspection System within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2014/05 was awarded to Leighton – Chun Wo Joint Venture (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited and Contract No. HY/2014/04 was awarded to Rapiscan Systems Pte Ltd within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.

1.1.2 Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area) is part of HZMB HKBCF which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499). An Environmental Impact Assessment (EIA) Report (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) No. EP-353/2009/K for HKBCF was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. The construction works of the Contract No. HY/2014/05 commenced on 29 February 2016 while the construction works of the Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area commenced on 3 January 2017 and 13 February 2017 respectively. The works areas of the Contract are shown in **Appendix A**.

1.1.3 The proposed works under this Contract comprise the following:

#### For Contract No. HY/2014/05

(i) Construction of the following ancillary buildings and facilities including architectural and builder works, structural steel canopy, reinforced concrete frames, foundations, curtain wall facade, building services and electrical and mechanical works:

- Public Toilets at Vehicle Clearance Plaza (VCP);
- Customs and Excise Department (C&ED) Dangerous Good Store (Building 021);
- Customs Detective Dog Base Building (Building 022);
- C&ED Outbound Cargo Examination Building and Examination Platform (Building 023);
- Inbound Private Car Annexure (Building 025);
- Outbound Private Car Annexure (Building 032);
- E&M maintenance Building (Building 044);
- Highways Depot & Administration Building (Building 045);
- Outbound X-ray Building (Building 053);
- Outbound X-ray Scan Tunnel (Building 058); and
- Inbound X-ray Scan Tunnel (Building 059).

(ii) Construction of civil provisions, cable containment and power supply for the following systems:

- Automatic Vehicle Clearance Support System (AVCSS) installed by Contract No. HY/2013/06; and

- Gantry Type X-ray Vehicle Inspection System installed by Contract No. HY/2014/04.
- (iii) Supply and installation of Mobile X-ray Vehicle Inspection System and other standalone equipment;
- (iv) Construction of minor civil engineering works at the periphery of buildings;
- (v) Construction of minor Landscape hardworks and softworks; and
- (vi) Other works which are shown on Drawings or specified in the Specification or which may be ordered in accordance with the Contract.

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

- (i) The Automatic Vehicle Clearance Support System amid to increasing traffic flow for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities;
- (ii) Responsible for designs and develops a set of tailor-made computer monitoring and control systems to for daily security operation; and
- (iii) 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.

For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area

- (i) The Gantry Type X-ray Vehicle Inspection System (GXRVIS) aims to provide an integrated, innovative, efficient and effective vehicle inspection system at the inbound and outbound boundary control points of Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) for supporting the operations of Customs & Excise Department (C&ED);
- (ii) Design, supply, deliver to HKBCF, installation, test and commissioning and maintenance of two sets of Gantry Type X-ray Vehicle Inspection System and all related components necessary for the complete operation of the system; and
- (iii) Design, supply, install, test, commission and maintain of the Radioactive Threat Detection Systems integrated into the Gantry Type X-ray Vehicle Inspection Systems.

1.1.4 This is the twenty-first Monthly EM&A Report for the Contract No. HY/2014/05 which summarizes the findings of the EM&A programme during the reporting period from 1 to 30 November 2017. (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area).

## 1.2 Project Organisation

1.2.1 The project organization structure and lines of communication with respect to the on-site environmental management structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1-1**.

**Table 1-1 Contact Information of Key Personnel**

Party	Position	Name	Telephone	Fax
<u>For Contract No. HY/2014/05</u>				
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Registered Architect	Malcolm Sage	3958 7330	3468 2076
Environmental Project Office / Independent Environmental Checker	Environmental Project Office Leader	Y. H. Hui	3465 2888	3465 2899

Party	Position	Name	Telephone	Fax
(Ramboll Environ Hong Kong Limited)	Independent Environmental Checker	Raymond Dai	3465 2888	3465 2899
Contractor (Leighton – Chun Wo Joint Venture)	Site Agent	Albert Chan	3973 0514	3621 0180
	Environmental Officer	Wu Yun Kau	9260 8341	3621 0180
Environmental Team (Atkins China Limited)	Environmental Team Leader	Keith Chau	2972 1721	2890 6343
24 hours complaint hotline	---	---	3958 7300	---
<u>For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area</u>				
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Registered Architect	Malcolm Sage	3958 7330	3468 2076
Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited)	Environmental Project Office Leader	Y. H. Hui	3465 2888	3465 2899
	Independent Environmental Checker	Raymond Dai	3465 2888	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 (Atkins China Limited)	Environmental Team Leader	Keith Chau	2972 1721	2890 6343
24 hours complaint hotline	---	---	6509 0375	---
<u>For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area</u>				
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Registered Architect	Malcolm Sage	3958 7330	3468 2076
Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited)	Environmental Project Office Leader	Y. H. Hui	3465 2888	3465 2899
	Independent Environmental Checker	Raymond Dai	3465 2888	3465 2899
Contractor (Rapiscan Systems Pte Ltd)	Site Agent	Ringo Yau	9833 1402	2707 0816
	Environmental Officer	Clarie Tsang	6371 1362	---
Environmental Team (Atkins China Limited)	Environmental Team Leader	Keith Chau	2972 1721	2890 6343

Party	Position	Name	Telephone	Fax
24 hours complaint hotline	---	---	9833 1420	---

### 1.3 Construction Programme

1.3.1 A copy of the Contractor's construction programme is provided in **Appendix C**.

### 1.4 Construction Works Undertaken During the Reporting Period

1.4.1 A summary of the construction activities undertaken during this reporting period is shown below:

For Contract No. HY/2014/05

- ABWF & MEP works (Internal) of Buildings 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053, 058 & 059
- Utilities and Drainage installation of Buildings 021, 022, 023, 025, 032, 044, 045, 053, 058, and 059
- PV Installation and curtain wall of Building 023
- Curtain wall of Building 044 and 045
- Canopy of Buildings 025, 053 and 059
- Construction of Planter Box and Ramp of Building 023

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

- No works were undertaken at Buildings 023, 025 and 032

For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area

- Installation of software at Buildings 053 and 054
- Radiation Testing at Buildings 058 and 059

## 2 Air Quality Monitoring

### 2.1 Monitoring Locations

- 2.1.1 The air quality monitoring works for the Contract are covered by Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF and Contract No. HY/2013/01 HZMB HKBCF – Passenger Clearance Building.
- 2.1.2 The ET of the Contract or another ET of the HZMB project is required to conduct 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 Nos. HY/2011/03 and HY/2013/01. **Figure 2.1** shows the locations of the air monitoring stations.

**Table 2-1 Construction Dust Monitoring Locations**

ID	Location Description
AMS 6 <sup>(1)</sup>	Dragonair/CNAC (Group) Building
AMS 7 <sup>(1)</sup>	Hong Kong SkyCity Marriott Hotel

Remark:

- (1) The ET of this Contract should conduct impact air quality monitoring at the AMS listed in the table as part of EM&A programme according to the latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.

### 2.2 Monitoring Requirements

- 2.2.1 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 for Contract Nos. HY/2011/03 and HY/2013/01.
- 2.2.2 The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2-2** and **Table 2-3**, respectively.

**Table 2-2 Action and Limit Levels for 1-hour TSP**

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS 6 – Dragonair / CNAC (Group) Building (HKIA)	360	500
AMS 7 - Hong Kong SkyCity Marriott Hotel	370	

**Table 2-3 Action and Limit Levels for 24-hour TSP**

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS 6 – Dragonair / CNAC (Group) Building (HKIA)	173	260
AMS 7 - Hong Kong SkyCity Marriott Hotel	183	

- 2.2.3 The event and action plan is provided in **Appendix D**.
- 2.2.4 If exceedance(s) at these station(s) 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 Nos. 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 one AL exceedance of 24-hour TSP at ASM3B was recorded on 28 November 2017 by the Environmental Team of Contract No. HY/2013/01 during the reporting period, after investigation, the exceedance was not related to the Contract. Details of the exceedance shall be referred to the monthly EM&A report prepared by Contract No. HY/2013/01. No Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period. The IR was provided in **Appendix J**.

### 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 HZMB HKBCF – Passenger Clearance Building. The ET of the Contract or another ET of the HZMB project is required to conduct impact noise monitoring at NMS2 and NMS3B as part of EM&A programme if these noise monitoring stations are no longer covered under Contract No. HY/2013/01. **Figure 3.1** shows the locations of noise monitoring stations.

**Table 3-1 Construction Noise Monitoring Locations**

ID	Location Description
NMS2 <sup>(1)</sup>	Seaview Crescent
NMS3B <sup>(1)(2)</sup>	Site Boundary of Site Office Area at Works Area WA2

Remarks:

- (1) The ET of this Contract should conduct impact noise monitoring at the NMS listed in the table as part of EM&A programme according to the latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.
- (2) The Action and Limit Levels for schools will be applied for this alternative monitoring location.

#### 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**

Parameter	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received	75 dB(A)*

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.

\* Limit level is 70 dB(A) for schools and 65 dB(A) during school examination period.

- 3.2.3 The event and action plan is provided in **Appendix D**.
- 3.2.4 If exceedance(s) at these station(s) 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.

#### 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 exceedances were recorded at stations NMS2 and NMS3B by the ET of Contract No. HY/2013/01 during the reporting period.

## 4 Environmental Site Inspection and Audit

### 4.1 Site Inspection

- 4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area). During the reporting period, site inspections were carried out on 6, 15, 20 and 27 November 2017.
- 4.1.2 Particular observations for Contract No. HY/2014/05 and Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area during the site inspections and corrective actions undertaken by the Contractor are described in **Tables 4-1, 4-2 and 4-3**.

**Table 4-1 Summary of Environmental Site Inspections for Contract No. HY/2014/05**

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
30 October 2017	<ol style="list-style-type: none"> <li>1. A stock of more than 20 bags of cement was not covered properly at Building 045.</li> <li>2. No drip tray was provided for chemical containers outside Building 045.</li> </ol>	<ol style="list-style-type: none"> <li>1. The stock of more than 20 bags of cement outside Building 045 was removed.</li> <li>2. The chemical containers outside Building 045 were removed.</li> </ol>	6 November 2017
6 November 2017	<ol style="list-style-type: none"> <li>1. A stock of more than 20 bags of cement were not covered properly outside Building 023 and Building 025.</li> </ol>	<ol style="list-style-type: none"> <li>1. The cement bags were removed at Building 023. The cement bags were covered entirely at Building 025.</li> </ol>	15 November 2017
15 November 2017	<ol style="list-style-type: none"> <li>1. Oil stained soil was observed near Building 023.</li> <li>2. NRMM label for the excavator is missing (Buildibg 023).</li> </ol>	<ol style="list-style-type: none"> <li>1. The oil stained soil near Building 023 was cleared.</li> <li>2. The NRMM label was provided for the excavator at Building 023.</li> </ol>	20 November 2017
20 November 2017	<ol style="list-style-type: none"> <li>1. Refuses were observed outside Building 044.</li> </ol>	<ol style="list-style-type: none"> <li>1. General refuses outside Building 044 were cleared.</li> </ol>	27 November 2017
27 November 2017	<ol style="list-style-type: none"> <li>1. A stock of more than 20 bags of dusty materials was not covered at Building 045.</li> <li>2. No drip tray was provided for chemical containers at Building 023.</li> </ol>	<ol style="list-style-type: none"> <li>1. The Contractor was reminded to cover the cement bags properly.</li> <li>2. The Contractor was reminded to provide drip tray for the chemical containers.</li> </ol>	Follow-up action undertaken by the Contractor will be inspected during the site inspection to be undertaken in December 2017.



**Table 4-2 Summary of Environmental Site Inspections for Contract No. HY/2013/06 within Contract No. HY/2014/05 works area**

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
6 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
15 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
20 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
27 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.

**Table 4-3 Summary of Environmental Site Inspections for Contract No. HY/2014/04 within Contract No. HY/2014/05 works area**

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
6 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
15 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
20 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
27 November 2017	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.

4.1.1 The Contractor has rectified most of the observations as identified during environmental site inspections during this reporting month. Follow-up actions for outstanding observations will be inspected in December 2017.

#### 4.2 Advice on the Solid and Liquid Waste Management Status

- 4.2.1 The Contractor of Contract No. HY/2014/05 registered as a chemical waste producer. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 4.2.2 The Contractor of Contract No. HY/2014/05 was reminded that chemical waste should be properly treated and stored temporarily in designated chemical waste storage areas on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

- 4.2.3 The monthly summary of waste flow table for Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area) are detailed in **Appendix E**.

#### 4.3 Environmental Licenses and Permits

- 4.3.1 The valid environmental licenses and permits for Contract No. HY/2014/05 during the reporting period (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area) are summarized in **Appendix F**.
- 4.3.2 The Contractors of Contract No. HY/2013/06 and Contract No. HY/2014/04 were advised to register as a chemical waste producer when chemical waste will be expected to generate for the foreseeable future from the operations (For Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation).

#### 4.4 Implementation Status of Environmental Mitigation Measures

- 4.4.1 In response to the site audit findings, the Contractors carried out corrective actions.
- 4.4.2 The Contractor conducts watering on all exposed soil within the Contract site and associated works areas 8 times per day when construction activities are being undertaken.
- 4.4.3 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix G**. Most of the necessary mitigation measures were implemented properly.

#### 4.5 Summary of Exceedance of the Environmental Quality Performance Limit

- 4.5.1 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.
- 4.5.2 There was one AL exceedance of 24-hour TSP at ASM3B was recorded on 28 November 2017 by the Environmental Team of Contract No. HY/2013/01 during the reporting period, after investigation, the exceedance was not related to the Contract. Details of the exceedance shall be referred to the monthly EM&A report prepared by Contract No. HY/2013/01. No Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period. The IR was provided in **Appendix J**.
- 4.5.3 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

#### 4.6 Summary of Complaints, Notification of Summons and Successful Prosecution

- 4.6.1 There was a complaint received by EPD on 23 November 2017 and sent to the ET on 23 November 2017 which regarding to dust emission the reporting period.
- The complaint was found that dust emission from construction site of HKBCF on 23 November 2017. After investigation, it was not related to Contract No. HY/2014/05 (including Contract No. HY/2013/06 HZMB HKBCF - Automatic Vehicle Clearance Support System and Contract No. HY/2014/04 HZMB HKBCF – Gantry Type X-ray Vehicle Inspection System within Contract No. HY/2014/05 works area). No follow up action by Contract No. HY/2014/05 was required. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.
- 4.6.2 Statistics on environmental complaints, notifications of summons and successful prosecutions are summarized in **Appendix H**.

## 5 Future Key Issues

### 5.1 Construction Programme for the Coming Months

5.1.1 As informed by the Contractor, the major construction activities for December 2017 are summarized in **Table 5-1**.

**Table 5-1 Construction Activities for December 2017**

Site Area	Description of Activities
<u>For Contract No. HY/2014/05</u>	
Buildings 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053 and 058	ABWF & MEP works (Internal)
Buildings 021, 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053 and 058	ABWF works (External)
Buildings 021, 022, 023, 025, 032, 044, 050H1, 050H2, 050A1, 050A2 and 053	ABWF works (roof)
Buildings 023, 025, 032, 045, 050H1, 050H2 and 050A1	Utilities and Drainage Installation
Building 023	Construction of Planter Box and Ramp
<u>For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area</u>	
Buildings 025 and 032	Conceal Conduit Installation
<u>For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area</u>	
Buildings 053 and 054	Installation of software
Buildings 058 and 059	Radiation testing

### 5.2 Environmental Site Inspection Schedule for the Coming Month

5.2.1 The tentative schedule for weekly site inspections for December 2017 is provided in **Appendix I**.

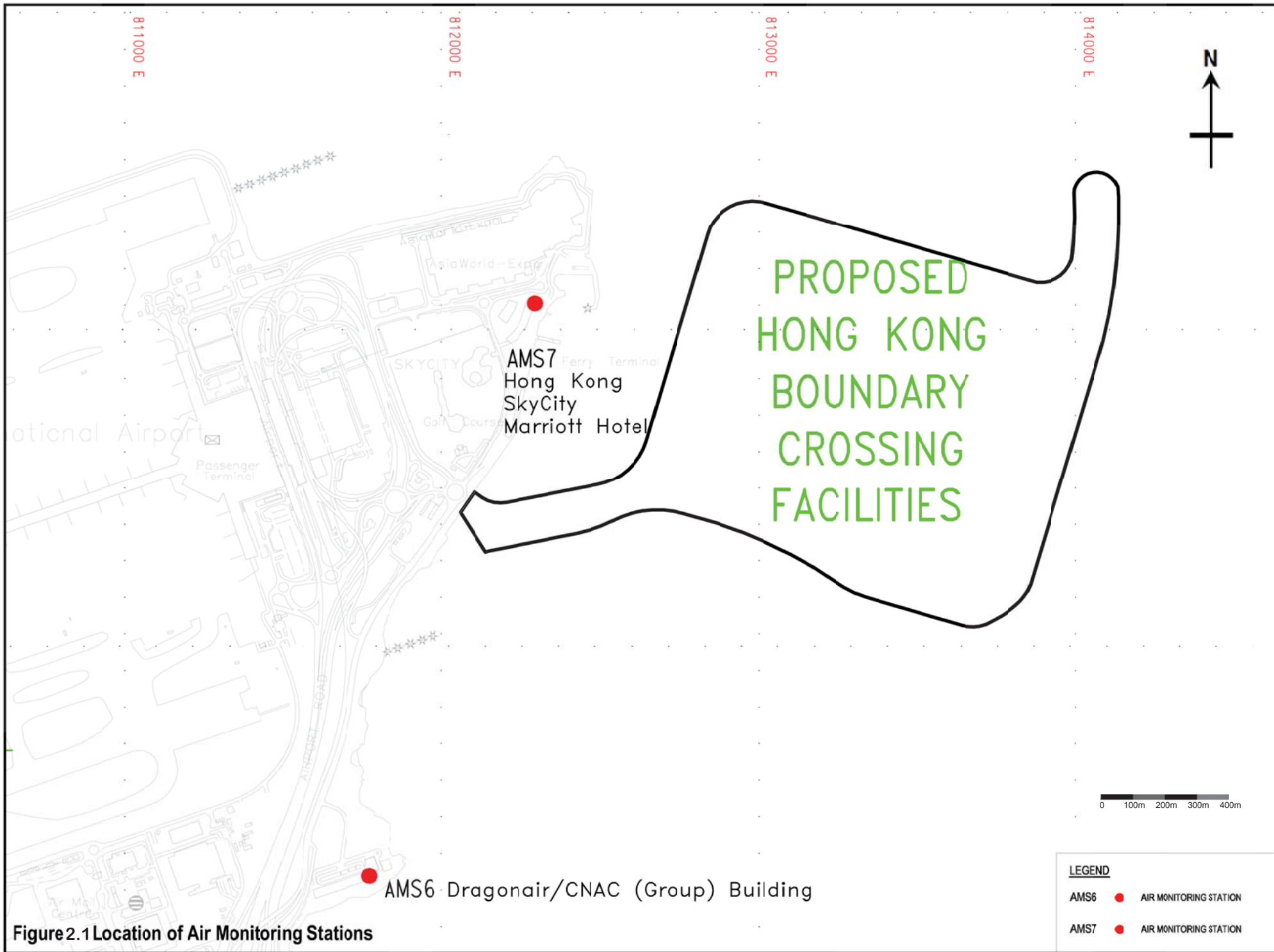
## 6 Conclusions

### 6.1 Conclusions

- 6.1.1 The construction works of the Contract No. HY/2014/05 commenced on 29 February 2016, while the construction works of the Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area commenced on 3 January 2017 and 13 February 2017 respectively. The twenty-first Monthly EM&A Report for Contract No. HY/2014/05 summarizes findings of the EM&A works during the reporting period from 1 to 30 November 2017 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area).
- 6.1.2 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.
- 6.1.3 There was one AL exceedance of 24-hour TSP at ASM3B was recorded on 28 November 2017 by the Environmental Team of Contract No. HY/2013/01 during the reporting period, after investigation, the exceedance was not related to the Contract. Details of the exceedance shall be referred to the monthly EM&A report prepared by Contract No. HY/2013/01. No Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2013/01 during the reporting period. The IR was provided in **Appendix J**.
- 6.1.4 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.
- 6.1.5 Environmental site inspections were carried out on 6, 15, 20 and 27 November 2017 for the Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area). Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspection.
- 6.1.6 There was a complaint received by EPD on 23 November 2017 and sent to the ET on 23 November 2017 which regarding to dust emission during the reporting period.
- The complaint was found that dust emission from construction site of HKBCF on 23 November 2017. After investigation, it was not related to Contract No. HY/2014/05 (including Contract No. HY/2013/06 HZMB HKBCF - Automatic Vehicle Clearance Support System and Contract No. HY/2014/04 HZMB HKBCF – Gantry Type X-ray Vehicle Inspection System within Contract No. HY/2014/05 works area). No follow up action by Contract No. HY/2014/05 was required.
- 6.1.7 No notification of summons and successful prosecution was received during the reporting period.

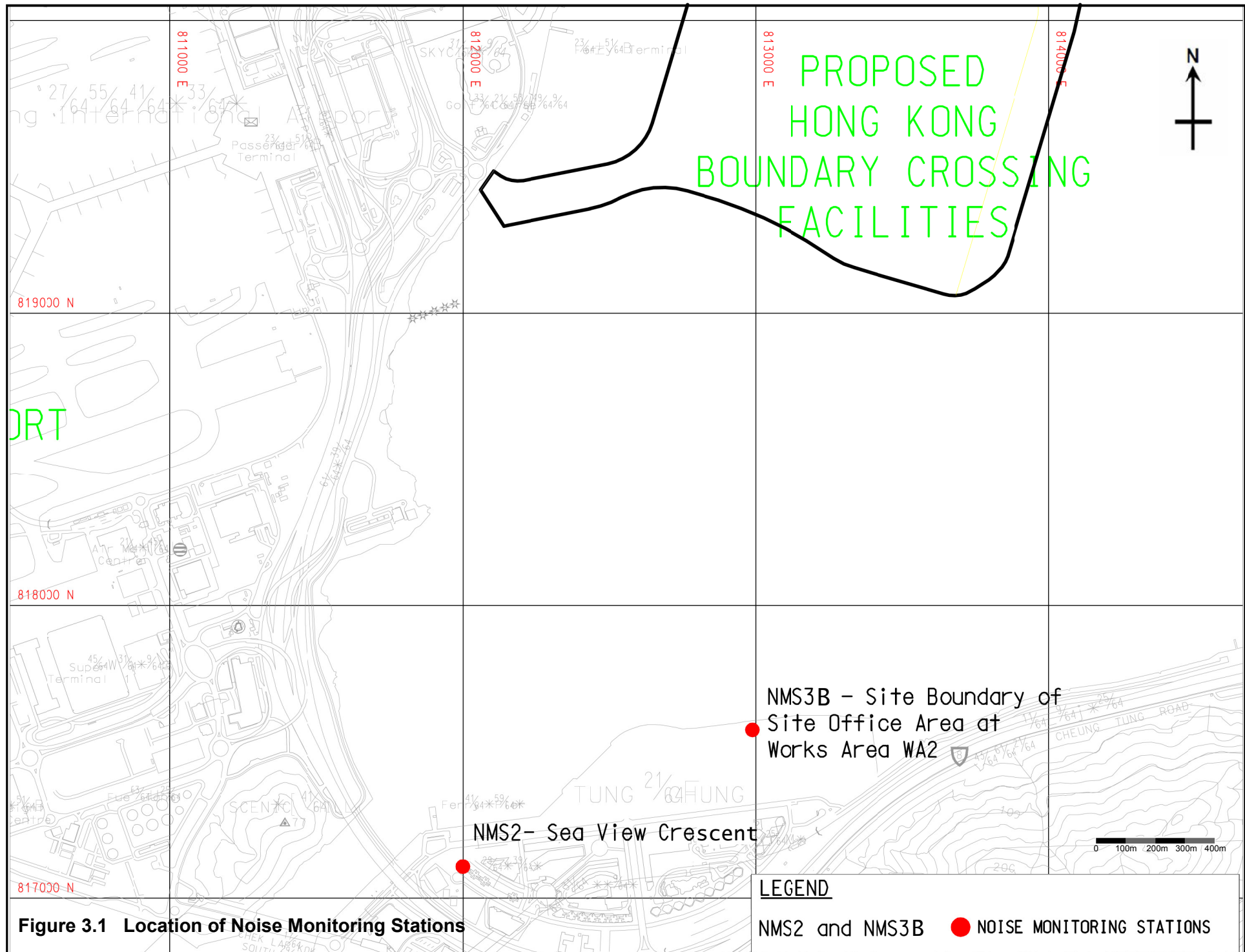
# FIGURES

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**Figure 2.1 Location of Air Monitoring Stations**

LEGEND	
AMS6	● AIR MONITORING STATION
AMS7	● AIR MONITORING STATION



**Figure 3.1 Location of Noise Monitoring Stations**

**LEGEND**

NMS2 and NMS3B ● NOISE MONITORING STATIONS

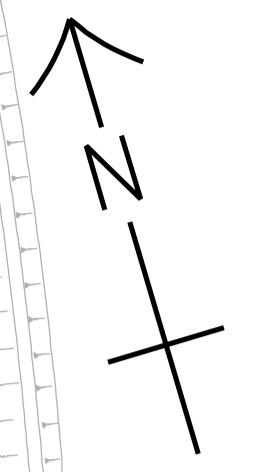
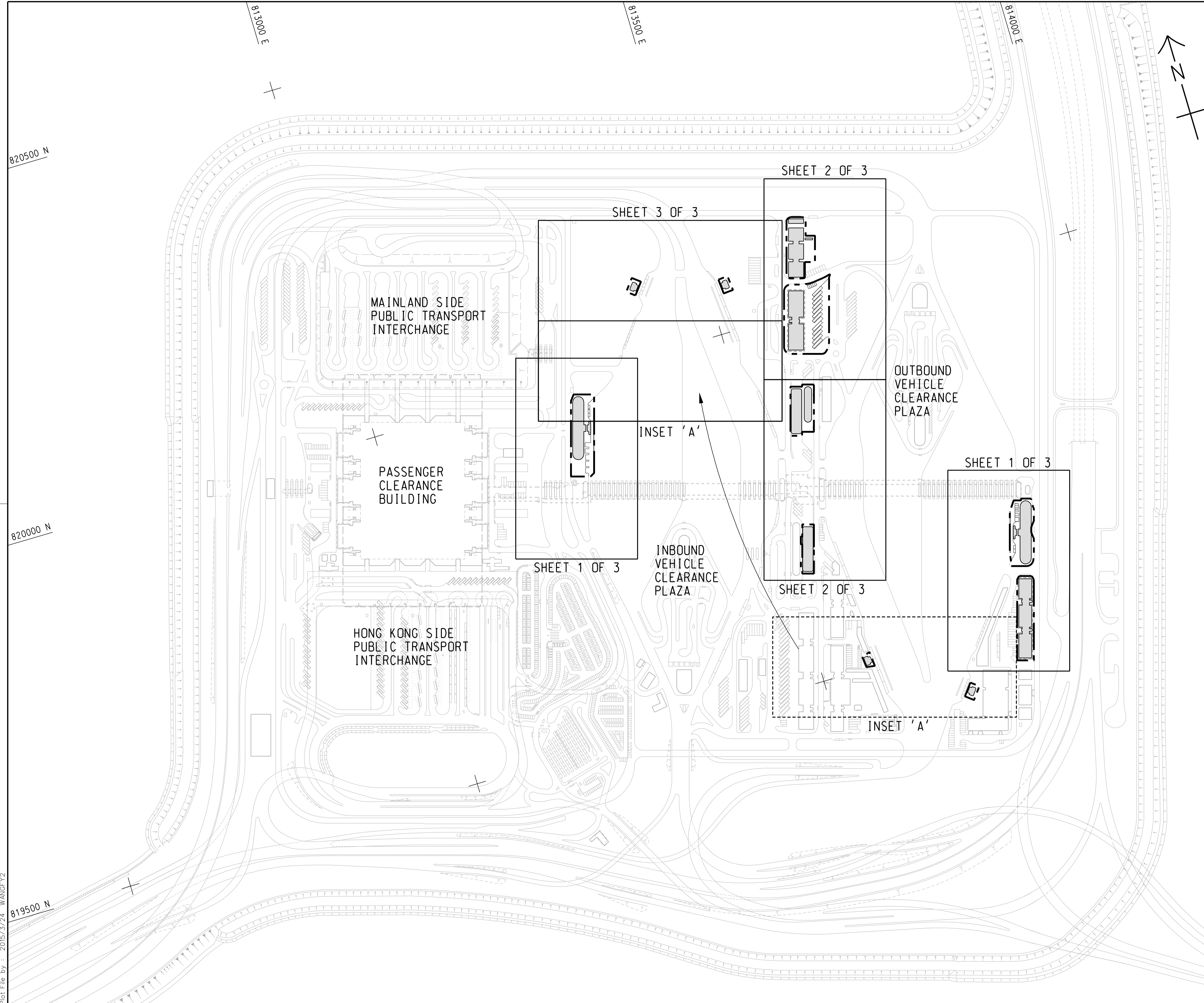


# APPENDIX A

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## Location of Works Areas





820500 N

820000 N

819500 N

813000 E

813500 E

814000 E

Plot File by : 2015/3/24 WANGFY2

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- TENDER DRAWING		BWCW SCI	MAR.15
REV. 修改	DESCRIPTION 內容摘要	D.C. 繪圖員	DATE 日期

**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  
 - REMAINING ANCILLARY BUILDINGS AND FACILITIES

KEY PLAN

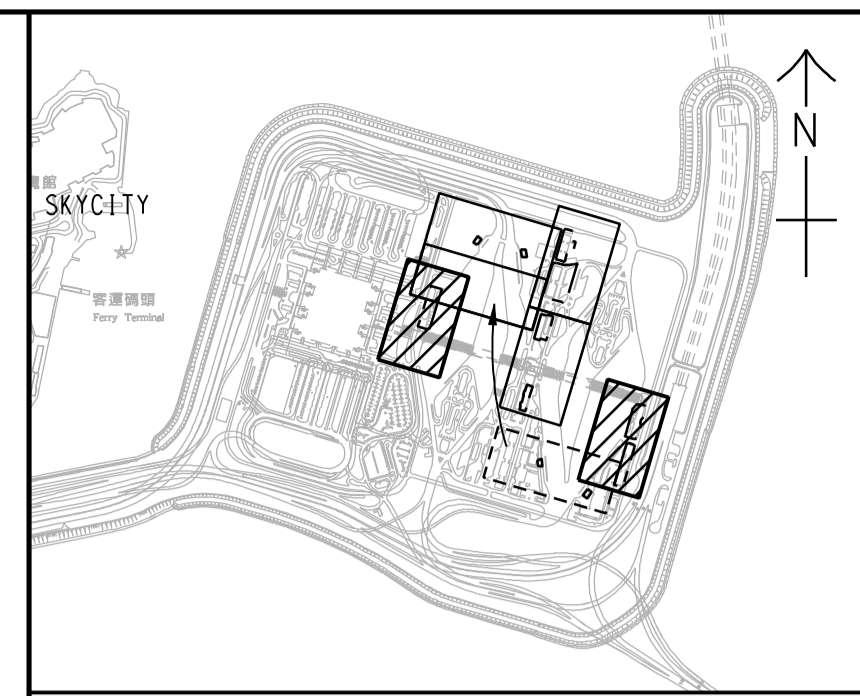
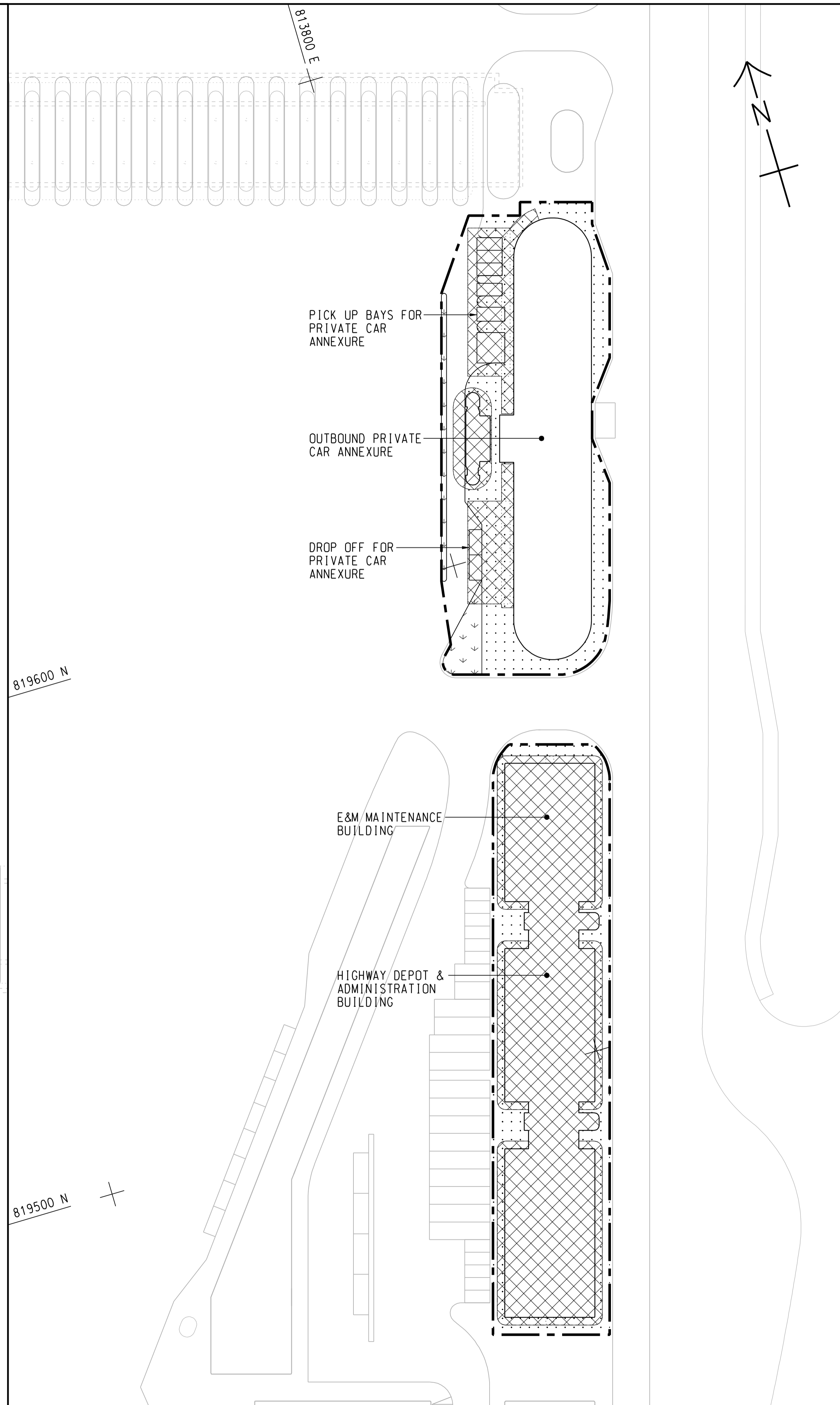
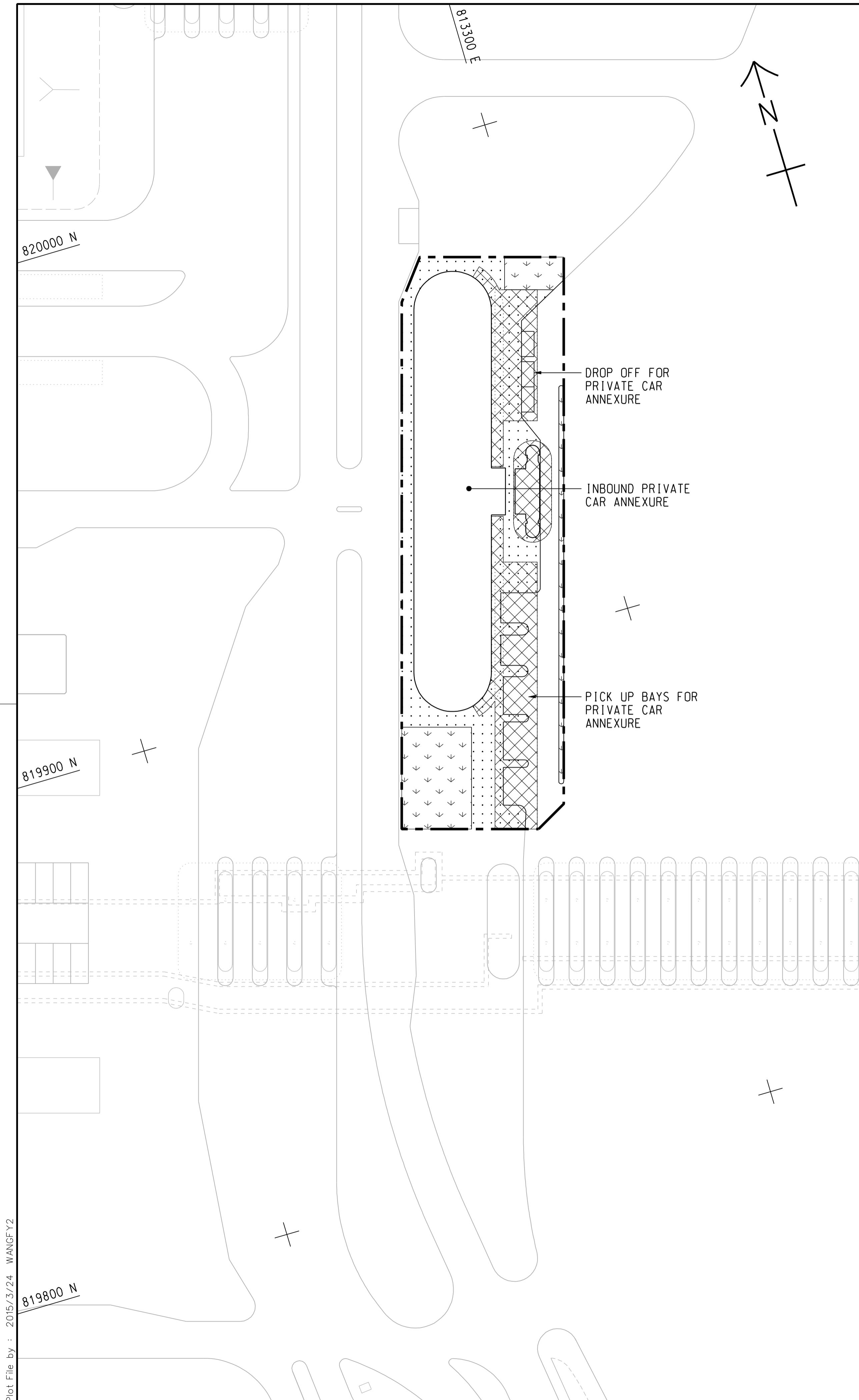
**Rogers Stirk Harbour + Partners**  
 BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C8/000/C00/1010  
 圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2014/05	P. Dir. APPROVED 批准人	TKH
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SCALE 比例 A1 1 : 2500

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NOTE:  
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C8/000/C00/1012 AND 1013.

LEGEND:

	SITE BOUNDARY
	FOOTPATH (DETAILS REFER TO LANDSCAPE DETAIL DRAWINGS)
	CANOPY
	PLANTING AREA

REV. 修改	DESCRIPTION 內容摘要	DATE 日期
-	TENDER DRAWING	MAR. 15



HONG KONG-ZHUHAI-MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- REMAINING ANCILLARY BUILDINGS AND FACILITIES

GENERAL LAYOUT PLAN

SHEET 1 OF 3

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Rogers Stirk Harbour + Partners

**Aedas** +  
BURO HAPPOLD ATKINS ADI +

DRG.NO. 圖紙編號 60191048/C8/000/C00/1011

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BWCW	HY/2014/05	TKH

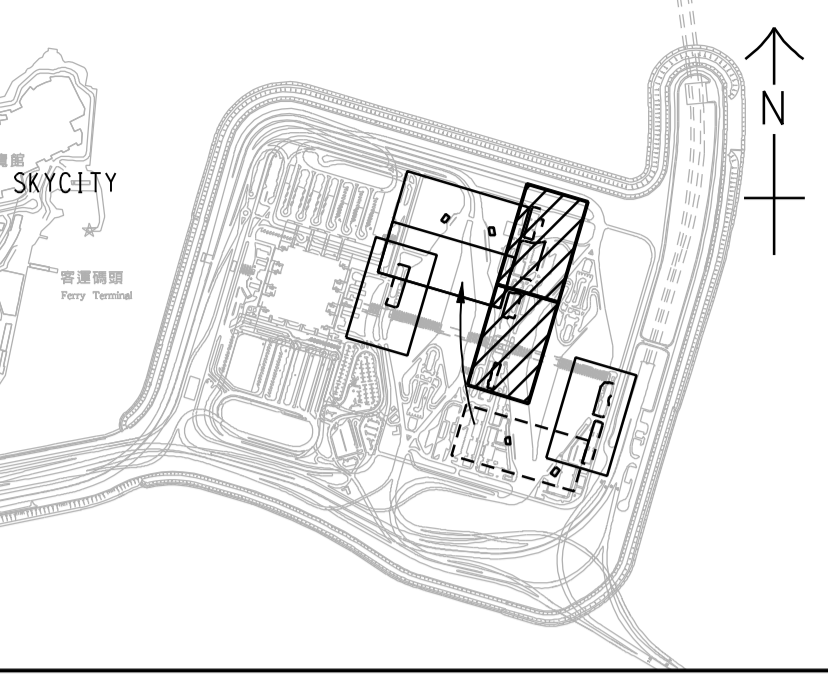
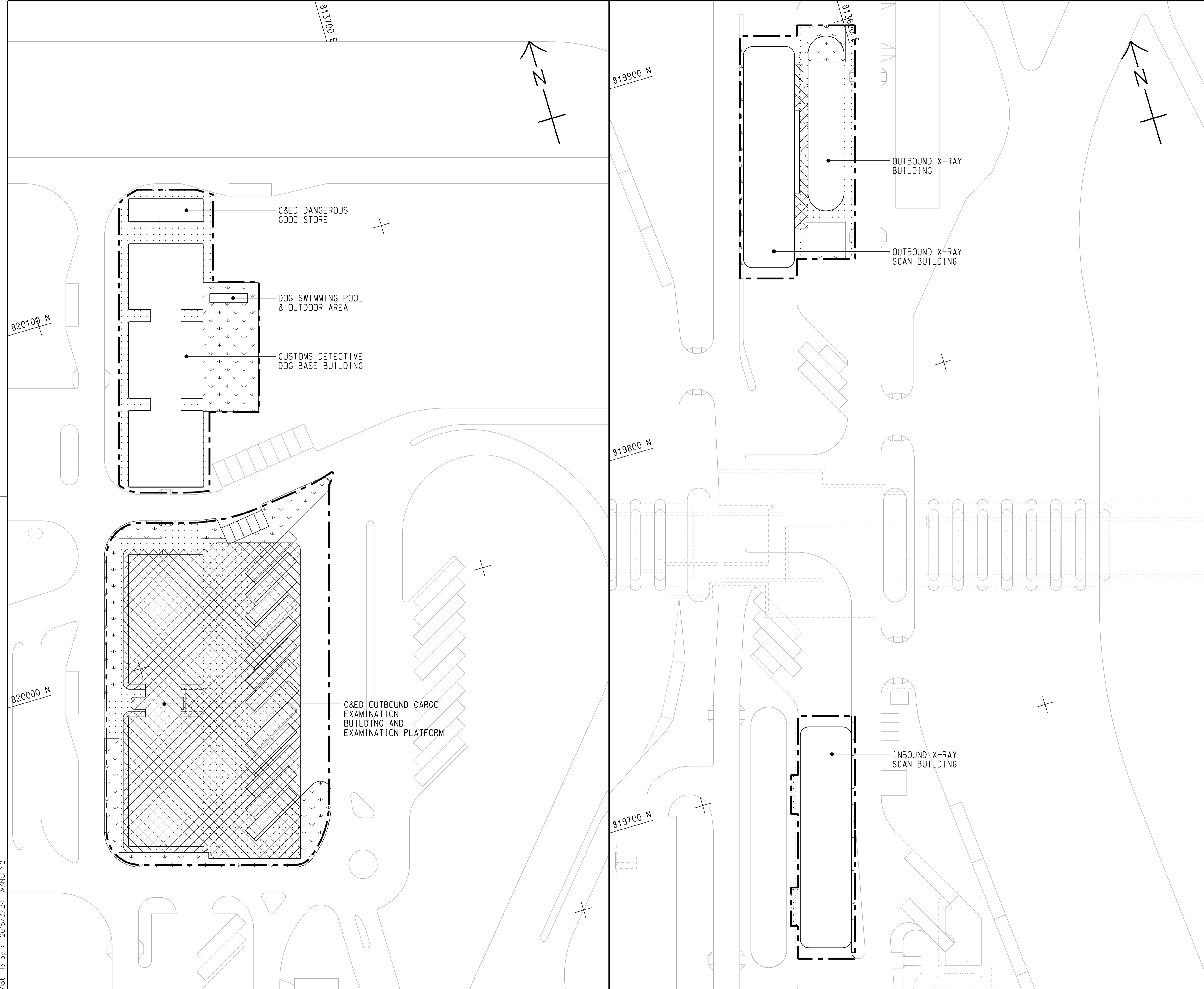
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 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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GENERAL LAYOUT PLAN

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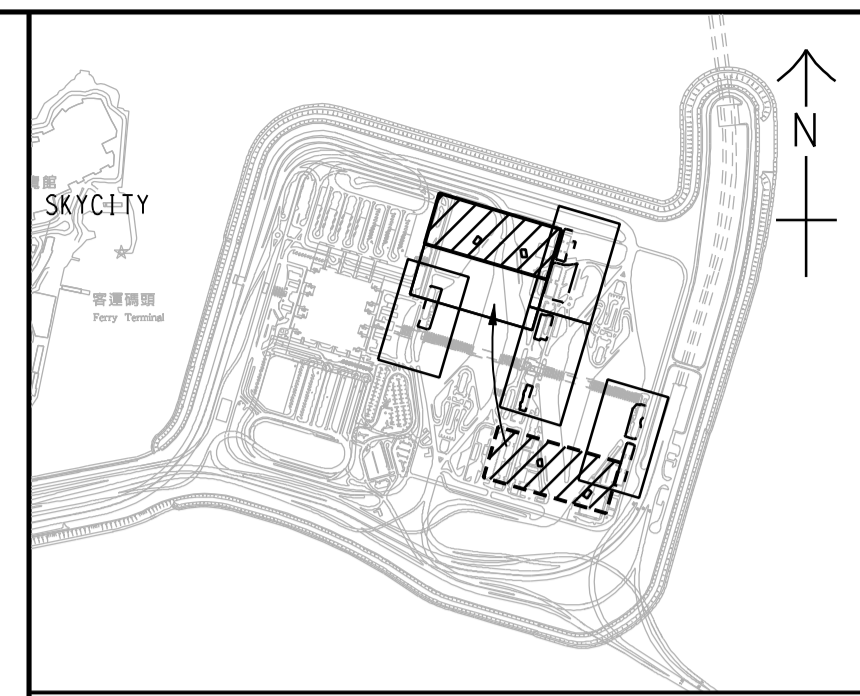
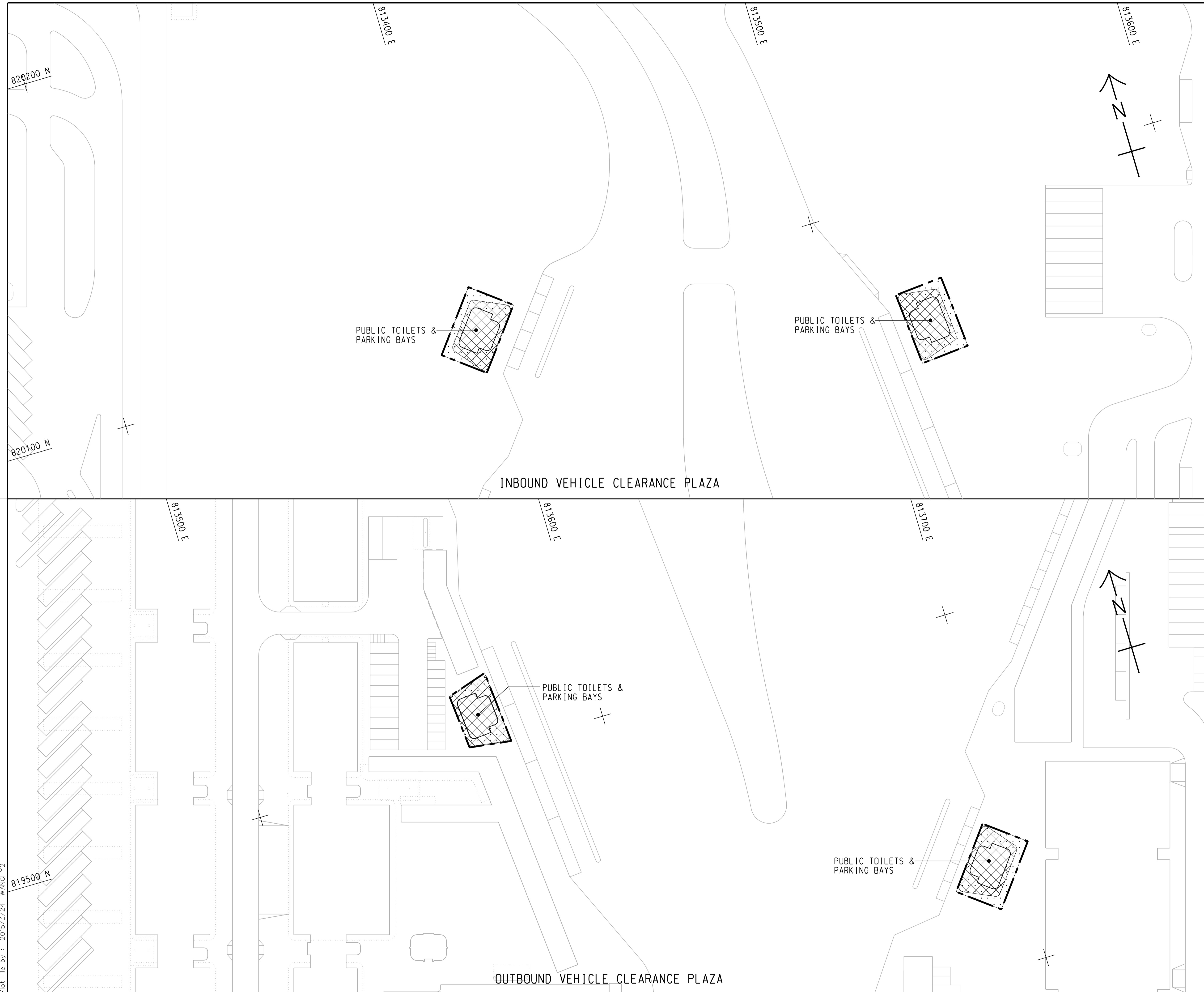
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BWCW	HY/2014/05	TKH

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WSY	初步

SCALE 比例 A1 1 : 500

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 - REMAINING ANCILLARY BUILDINGS AND FACILITIES

GENERAL LAYOUT PLAN

SHEET 3 OF 3

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WSY	

SCALE 1 : 500  
比例

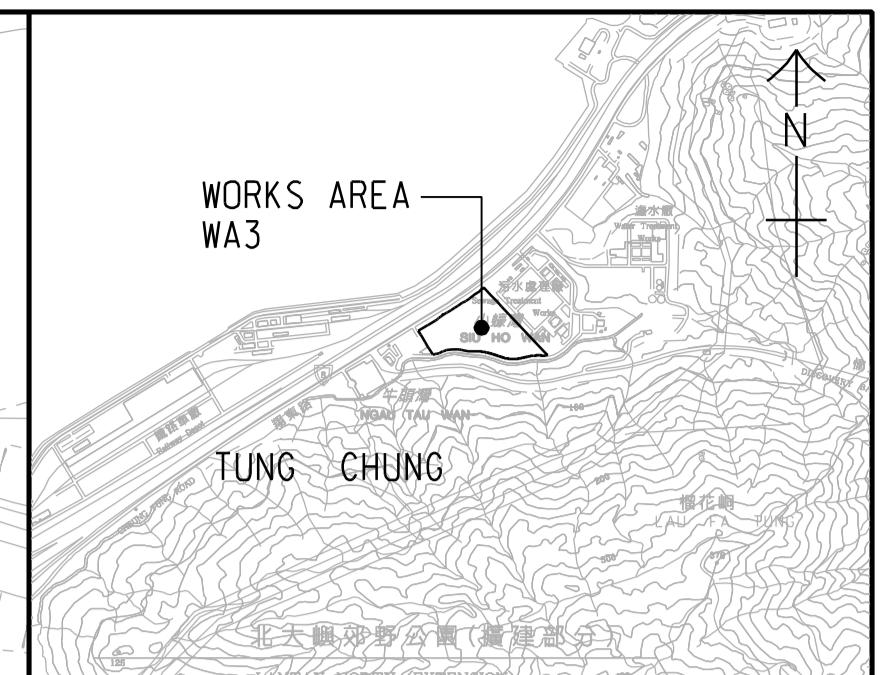
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SETTING OUT POINT

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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



LOCATION PLAN  
SCALE 1 : 25000

NOTES:

- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
- 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 8200m <sup>2</sup> (WHOLE)

REV.	DESCRIPTION	DATE
-	TENDER DRAWING	MAR. 15

HONG KONG-ZHUHAI-MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- REMAINING ANCILLARY BUILDINGS AND FACILITIES

WORKS AREA WA3

**AECOM** **Aedas**  
Rogers Stirk Harbour + Partners  
BURO HAPPOLD ATKINS ADI

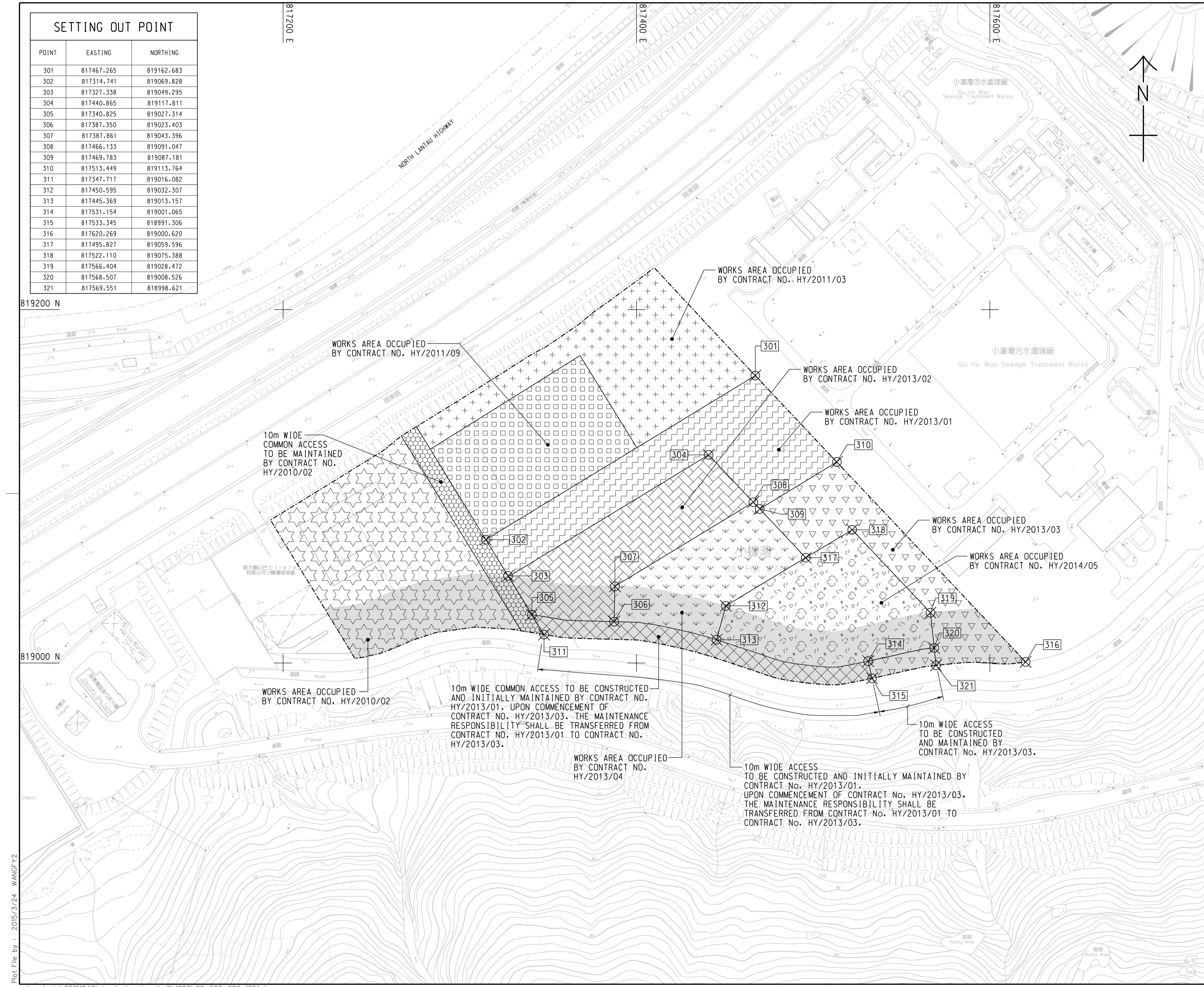
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DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人
BWCW	HY/2014/05	TKH

DRAWN BY 繪圖	STATUS 階段
WSY	初步

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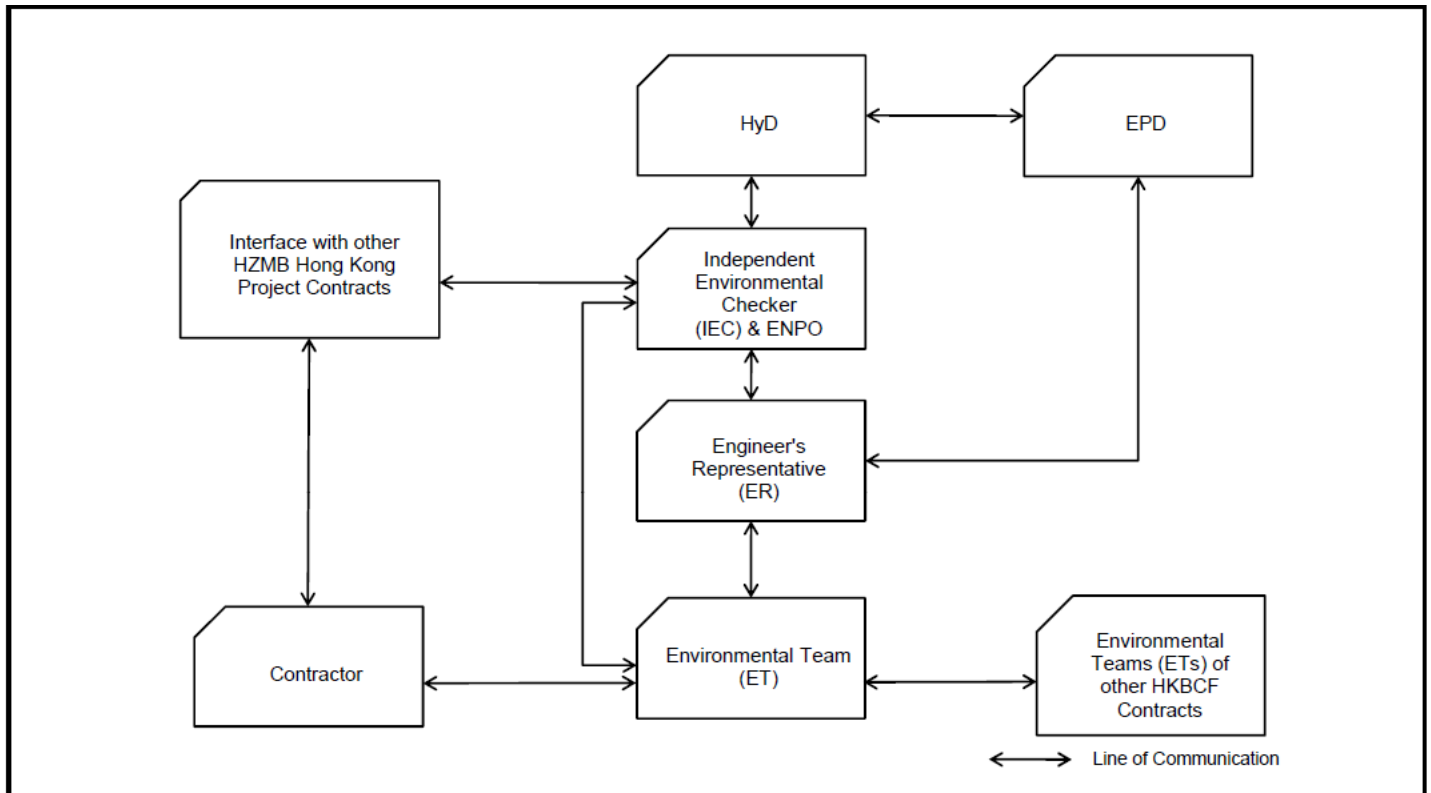


# APPENDIX B

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## Project Organization for Environmental Works

## Project Organisation for Environmental Works





# APPENDIX C

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## Construction Programme





Activity ID	Activity Name	October 2017			November 2017				December 2017				January 2018				February 2018	
		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
<b>C8 - 3 Month Rolling Programme, 01 Dec-17 Stated</b>																		
<b>PROGRAMME SUMMARY</b>																		
<b>Fire Service Inspection Schedule Summary</b>																		
<b>GENERAL/PRELIMINARIES</b>																		
<b>DESIGN AND ENGINEERING</b>																		
<b>PROCUREMENT, MANUFACTURING &amp; DELIVERIES</b>																		
<b>CONSTRUCTION</b>																		
<b>Building 021 - C&amp;ED Dangerous Goods Store</b>																		
Raft																		
Structure																		
ABWF/E&M																		
<b>Internal Finishes</b>																		
<b>Degree 1</b>																		
<b>Degree 2</b>																		
RAB-21-0450	021 - Louver & Door Frame																	
RAB-21-0410	021 - Power On																	
<b>Degree 3</b>																		
RAB-21-0330	021 - MEP Final Fix																	
RAB-21-0430	021 - Door Panel & Ironmongery																	
RAB-21-0460	021 - Floor Painting																	
RAB-21-0340	021 - Snagging and Remedials ( Bldg. Internal)																	
RAB-21-0520	021 - MEP Balance of Works																	
RAB-21-0345	KD4C - Projected achievement of Stage 4C of the Works																	
RAB-KD4C10	021 - End Users and MoM handover inspection																	
<b>Roof Finishes</b>																		
RAB-21-0270	021 - Install Railing 50m																	
<b>External Finishes</b>																		
<b>Facade</b>																		
RAB-21-0190	021 - Install External Louvers /Windows/Doors																	
<b>At Grade</b>																		
RAB-21-380	021 - Prepare Sub Grade																	
RAB-21-390	021 - Lay Granular Sub-Base																	
RAB-21-360	021 - Concrete Block Paving																	
<b>Utilities and Drainage</b>																		
<b>Testing &amp; Commissioning</b>																		
RAB-TC21-1000	021 - T&C (HVAC, FS, P&D, OTHERS)																	
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																		
<b>Dangerous Goods Licence</b>																		
RAB-21-0350	021 - DG Licence Iprocessing & Inspection																	
RAB-21-0360	021 - Issue DG Licence																	
<b>Fire Services Department (VAC)</b>																		
RAB-FSD-810	021 - Submit Form 314 to FSD																	
RAB-FSD-820	021 - Submit Form 501 to FSD																	
RAB-FSD-300	021 - FSD Inspection Period																	
RAB-FSD-310	021 - Fire Certificate Obtained (Form 172) Handover																	
<b>Engineer (AECOM)</b>																		
RAB-21-2190	021 - Submit As-Built Drawings to the Engineer																	
<b>Building 022 - Customs Detective Dog Base Building</b>																		
Excavation																		
Raft Foundations																		

█ Remaining Level of Effort   
 █ Actual Work   
 █ Critical Re...  
█ Actual Level of Effort   
 █ Remaining Work   
 ◁ Finish Con...

Date	Revision	Checked	Approved
01-Dec-17	3-Month Rolling Programme Stated 01 D...	SGJ	

Activity ID	Activity Name	October 2017			November 2017				December 2017				January 2018				February 2018	
		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
<b>Structure</b>																		
<b>Walls &amp; Columns</b>																		
<b>Roof Slab</b>																		
<b>North Structure</b>																		
Cure and Strip																		
<b>Middle Structure</b>																		
Cure and Strip																		
<b>South Structure</b>																		
Cure and Strip																		
<b>ABWF/E&amp;M</b>																		
<b>Internal Finishes</b>																		
<b>North</b>																		
<b>Degree 1</b>																		
RAB-22-8665	022 - Screeding																	
<b>Degree 2</b>																		
RAB-22-0885	022 - Door/Window Frame & Louvers																	
RAB-22-0910	022 - Power On																	
<b>Degree 3</b>																		
RAB-22-0865	022 - Ceiling Frame & Board Panel																	
RAB-22-8395	022 - Wall Tiling & Painting																	
RAB-22-8275	022 - MEP Final Fix																	
RAB-22-8365	022 - Floor Finish Other Than Early Handovr Rooms																	
RAB-22-8245	022 - Glazing																	
RAB-22-8265	022 - Door Panel & Ironmongery																	
RAB-22-0870	022 - MEP Balance of Works																	
RAB-22-8295	022 - Snagging and Remedials (Bldg. Internal)																	
RAB-22-0980	022 - End Users and MOM Handover Inspection																	
RAB-22-0950	022 - ABWF and MEP works to Degree 3 (KD5C)																	
<b>External Finishes</b>																		
<b>Facade</b>																		
RAB-22-0470	022 - External Painting, Tiling & Cladding																	
RAB-22-0710	Snag Listing - Bldg. External & External Works																	
<b>At Grade</b>																		
RAB-22-2120	022 - Lay Granular Sub-Base																	
RAB-22-2100	022 - Prepare Sub Grade																	
RAB-22-2140	022 - Concrete Block Paving																	
<b>Roof Finishes - North</b>																		
RAB-22-0540	022 - Install Cat Ladder and Roof Hatch																	
RAB-22-0530	022 - Install Railing																	
RAB-22-0720	022 - Make good external surfaces																	
<b>Specialist Installations</b>																		
RAB-22-0990	022 - Kennels Installation (42No)																	
<b>Window Wall</b>																		
RAB-22-7030	022 - Install Primary Steelwork for Window Wall																	
RAB-22-7040	022 - Install Secondary Steelwork for Window Wall																	
RAB-22-7050	022 - Glazing to Window Wall																	
<b>Dog Swimming Pool</b>																		
RAB-22-0480	022 - Waterproofing																	
RAB-22-0600	022 - Tiling to Dog Swimming Pool																	
RAB-22-0490	022 - Backfill to ground level at Dog Swimming Pool																	
RAB-22-0640	022 - Plumbing and filtration systems																	
<b>Utilities and Drainage</b>																		
RAB-22-8095	022 - Construct Permanent Drainage and Manholes																	
RAB-22-8125	022 - Utilites and Common Telecom Ducting																	

█ Remaining Level of Effort   
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Activity ID	Activity Name	October 2017			November 2017				December 2017				January 2018				February 2018	
		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
RAB-22-8115	022 - Install Flushing Water Mains	[Gantt bar: Oct 15 - Oct 22]																
RAB-22-8105	022 - Install Fresh Water Mains	[Gantt bar: Oct 15 - Oct 22]																
RAB-22-8135	022 - Install FS Water main	[Gantt bar: Oct 15 - Oct 22]																
<b>Testing &amp; Commissioning</b>																		
RAB-TC22-1000	022 - T&C (HVAC, FS, P&D, OTHERS)	[Gantt bar: Nov 19 - Nov 26]																
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																		
<b>BBEO</b>																		
RAB-BEE-120	022 - Registered Energy Assessor Inspection & Certification	[Gantt bar: Dec 03 - Dec 10]																
RAB-BEE-130	022 - Submit REA Certification to EDMS	[Milestone: Dec 10]																
RAB-BEE-140	022 - EDMS Issue of Cert of Compliance Registration (COCR)	[Gantt bar: Dec 10 - Dec 24]																
<b>Water Supplies Department (WSD)</b>																		
<b>Commencement</b>																		
<b>Completion</b>																		
RAB-WSD-804	022 - Submit WWO 46 Pt. IV	[Milestone: Dec 26]																
RAB-WSD-254	022 - WSD's Processing/Inspection/Meter Connection	[Gantt bar: Dec 26 - Dec 31]																
RAB-WSD-264	022 - Permanent Water ON/WSD Issue WWO 46 Part V Cert & Wa	[Milestone: Jan 07]																
<b>Fire Services Department (VAC)</b>																		
RAB-FSD-860	022 - Submit Form 501	[Milestone: Nov 12]																
<b>Fire Services Water (FS)</b>																		
RAB-FSD-320	022 - Submit Form 501, FS	[Gantt bar: Dec 10 - Dec 17]																
RAB-FSD-330	022 - FSD Inspection Period, FS	[Milestone: Dec 17]																
RAB-FSD-590	022 - Issuance of FS 172, FS Certificate of Compliance, FS	[Milestone: Dec 24]																
<b>Engineer (AECOM)</b>																		
RAB-22-2220	022 - Submit Building 022 As Built Drawings to Engineer	[Milestone: Dec 26]																
<b>Building 023 - C&amp;ED Outbound Cargo Examination Building and Examination Pla</b>																		
<b>Excavation</b>																		
<b>Raft Foundations - Inspection Platform</b>																		
<b>Raft Foundations - Main Building</b>																		
<b>Structure</b>																		
<b>Ground Floor</b>																		
<b>Planters</b>																		
RAB-23-6140	023 - Construct North Planter Box and Ramp	[Gantt bar: Dec 26 - Dec 31]																
RAB-23-6230	023 - Construct South Planter Box and Ramp	[Gantt bar: Dec 26 - Dec 31]																
<b>Supporting Walls and Columns to +12.85mPD</b>																		
<b>First Floor</b>																		
<b>Cure and Strip</b>																		
<b>Supporting Walls and Columns to +17.1mPD</b>																		
<b>Roof</b>																		
<b>Cure and Strip</b>																		
<b>Supporting Walls and Columns to +19.1mPD</b>																		
<b>Lift Doghouse</b>																		
<b>Cure and Strip</b>																		
<b>ABWF/E&amp;M</b>																		
<b>Internal Finishes</b>																		
<b>Ground Floor</b>																		
<b>Degree 1</b>																		
<b>Degree 2</b>																		
RAB-23-5860	023 - MEP 2nd Fix, G/F	[Gantt bar: Dec 26 - Dec 31]																
RAB-23-5610	023 - Frame for Wall Panel & Cladding + Louver, G/F	[Gantt bar: Dec 26 - Dec 31]																
RAB-23-5670	023 - Access to C3, C6 & C7 For Equip. Installation***, G/F	[Milestone: Dec 26]																
RAB-23-5790	023 - ABWF and MEP works to Degree 2 for others (KD3B) G/F	[Milestone: Dec 26]																
<b>Degree 3</b>																		
RAB-23-5930	023 - Wall Finish - Paint & Tile, G/F	[Gantt bar: Dec 26 - Dec 31]																
RAB-23-6220	023 - Floor Finish Other Than Carpet, G/F	[Gantt bar: Dec 26 - Dec 31]																
RAB-23-5760	023 - Ceiling Frame, G/F	[Gantt bar: Dec 26 - Dec 31]																

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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11
RAB-23-6380	023 - MEP Final Fix, G/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-5660	023 - Door Frame/Panel & Ironmongery, G/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6080	023 - Glazing, G/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6410	023 - Ceiling Plaster Board, G/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6180	023 - Floor Carpet Finish, G/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6190	023 - Access to End Users, KD3C' - C3, C6 & C7	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>First Floor</b>																			
<b>Degree 1</b>																			
RAB-23-8065	023 - Plastering & Undercoat, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>Degree 2</b>																			
RAB-23-8125	023 - MEP 2nd Fix, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8085	023 - Frame for Wall Panel & Cladding + Louver, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8235	023 - Power On	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8115	023 - Access for C3 for Equip. Instln***, 1/F, KD3D Target to Achieve	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>Degree 3</b>																			
RAB-23-8175	023 - Wall Finish - Paint & Tile, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8105	023 - Ceiling Frame, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8165	023 - MEP Final Fix, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8205	023 - Floor Finish Other Than Carpet, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8145	023 - Glazing, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8155	023 - Door Panel/Ironmongery & Glass Baluster, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8185	023 - Ceiling Plaster Board, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8195	023 - Floor Carpet Finish, 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8265	023 - MEP Balance of Works	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-2290	023 - Snag Listing & Remedial Works - Building Internal	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8225	023 - Handover Rooms Ready to End Users***, KD3C Target to Ach	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-8255	023 - ABWF and MEP works to Degree 3 - Remaining Area- 1/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6040	023 - End Users and MOM Handover Inspection	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-5970	023 - ABWF and MEP works to Degree 3 (KD3E)	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>Roof Level Dog House</b>																			
RAB-23-6280	023 - ABWF and MEP works to Degree 2 R/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6340	023 - ABWF and MEP works to Degree 3 R/F	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>External Finishes</b>																			
<b>Facade</b>																			
RAB-23-5650	023 - External Painting	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-5990	023 - Dismantle Scaffolding	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>At Grade</b>																			
RAB-23-5740	023 - Prepare Sub Grade	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-5820	023 - Laying Geo Textile	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-5910	023 - Lay Granular Sub-Base	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-5940	023 - Laying Course	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6050	023 - Concrete Block Paving	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>Curtain Wall</b>																			
<b>East</b>																			
RAB-23-6810	023 - Install Primary Steelwork for Curtain Wall (Bracket Support) - E	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6820	023 - Install Secondary Steelwork for Curtain Wall (Mullion, etc) - E	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6830	023 - Glazing to Window Wall - E	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>West</b>																			
RAB-23-6840	023 - Install Primary Steelwork for Window Wall (Bracket Support) - W	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6850	023 - Install Secondary Steelwork for Window Wall (Mullion, etc) - W	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
RAB-23-6860	023 - Glazing to Window Wall - W	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			
<b>Roof Finishes</b>																			
RAB-23-5620	023 - Top Screed	[Actual Work]		[Actual Work]				[Actual Work]				[Actual Work]				[Actual Work]			

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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11
RAB-23-5640	023 - Roof Tiling	[Gantt bar: Oct 15 - Dec 3]																	
RAB-23-5920	023 - Install Railing	[Gantt bar: Oct 15 - Dec 3]																	
<b>Green Roof</b>																			
RAB-23-5720	023 - Install green Roof Irrigation Systems	[Gantt bar: Oct 15 - Nov 12]																	
RAB-23-5900	023 - Complete Green Roofing Works	[Gantt bar: Nov 12 - Dec 3]																	
<b>Specialist Installations</b>																			
RAB-23-6270	023 - Install Lift (1 nos)																		
RAB-23-7310	023 - Install Glazed Entrance Canopy (Sky Light)																		
RAB-23-6010	023 - Installation of Roller Shutter Header Boxes (x 3)	[Gantt bar: Oct 15 - Nov 12]																	
RAB-23-6250	023 - Installation of Roller Shutter Curtain (x3)	[Gantt bar: Nov 12 - Dec 3]																	
<b>PV Installation</b>																			
RAB-23-6350	023 - Install Supporting Frame and PV panel	[Gantt bar: Oct 22 - Nov 12]																	
RAB-23-6360	023 - Cable containment and grid cable wiring	[Gantt bar: Nov 12 - Dec 3]																	
RAB-23-6390	023 - Sub-array junction box installation & Connection	[Gantt bar: Dec 3 - Dec 10]																	
RAB-23-6400	023 - DC cable wiring from PV panel to EL room	[Gantt bar: Dec 10 - Dec 17]																	
<b>Steel Canopy</b>																			
RAB-23-6240	023 - Install Secondary Steelwork																		
RAB-23-6290	023 - Install Metal Cladding Panels																		
RAB-23-6310	023 - Install Misc Metalworks	[Gantt bar: Dec 3 - Dec 24]																	
<b>Utilities and Drainage</b>																			
RAB-23-7975	023 - Construct Permanent Drainage, Manholes & Draw Pits	[Gantt bar: Oct 15 - Dec 3]																	
RAB-23-7985	023 - Utilities and Common Telecom Ducting	[Gantt bar: Oct 15 - Dec 3]																	
RAB-23-7995	023 - Install Flushing Water Mains	[Gantt bar: Oct 15 - Nov 12]																	
RAB-23-8005	023 - Install Fresh Water Mains	[Gantt bar: Oct 15 - Nov 12]																	
RAB-23-8015	023 - Install FS Water Mains	[Gantt bar: Oct 15 - Nov 12]																	
<b>Testing &amp; Commissioning</b>																			
RAB-TC23-1000	023 - T&C (HVAC, FS, P&D, OTHERS)	[Gantt bar: Nov 12 - Dec 3]																	
RAB-TC23-1010	023 - T&C (Lift)	[Gantt bar: Nov 19 - Nov 26]																	
RAB-TC23-1015	023 - PV Self-test with Engineer	[Gantt bar: Dec 24 - Dec 31]																	
<b>Statutory Submissions &amp; Approvals (Day 610 Completion)</b>																			
<b>BBEO</b>																			
RAB-BEE-150	023 - Registered Energy Assessor Inspection & Certification	[Gantt bar: Dec 3 - Dec 10]																	
RAB-BEE-160	023 - Submit REA Certification to EDMS	[Gantt bar: Dec 10 - Dec 17]																	
RAB-BEE-170	023 - EDMS Issue of Cert of Compliance Registration (COCR)	[Gantt bar: Dec 17 - Dec 24]																	
<b>EMSD - Building 023 Lift Inspection</b>																			
RAB-FSD-180	023 - Submit EMSD Form 5 (Completion of Lift Installation)	[Milestone: Nov 12]																	
RAB-FSD-190	023 - EMSD Lift Inspection	[Gantt bar: Dec 3 - Dec 24]																	
RAB-FSD-106	023 - EMSD Lift Certificate Issued - Building 023	[Milestone: Dec 24]																	
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-774	023 - Submit WWO 46 Pt. IV for Building 023	[Milestone: Dec 3]																	
RAB-WSD-107	023 - WSD Inspection/Meter Connection	[Gantt bar: Dec 3 - Dec 24]																	
RAB-WSD-109	023 - Permanent Water ON/WSD Issue WWO 46 Part V - Water C	[Milestone: Dec 24]																	
<b>Fire Services Department (VAC)</b>																			
RAB-FSD-900	023 - Submit Form 501	[Milestone: Nov 19]																	
RAB-FSD-110	023 - FSD Inspection Period For Building 023	[Gantt bar: Dec 10 - Dec 17]																	
RAB-FSD-290	023 - Issuance of FS 172, FS Certificate of Compliance	[Milestone: Dec 17]																	
<b>Engineer (AECOM)</b>																			
RAB-23-2250	023 - Submit Building 023 As Built Drawings to Engineer	[Milestone: Dec 17]																	
<b>Building 025 - Inbound Private Car Annexure</b>																			
<b>Excavation</b>																			
<b>Raft Foundations</b>																			
<b>Structure</b>																			

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<b>Walls &amp; Columns</b>																		
<b>Roof Slab</b>																		
<b>Cure and Strip</b>																		
<b>ABWF/E&amp;M INTERNAL FINISHES</b>																		
<b>INTERNAL FINISHING WORKS</b>																		
<b>Degree 1</b>																		
<b>Degree 2</b>																		
RAB-25-7430	025 - MEP 2nd Fix																	
RAB-25-7570	025 - Raised Floor Pedestal																	
RAB-25-7450	025 - Frame for Doors/Windows, Wall Panel & Cladding																	
RAB-25-7350	025 - Power On Available																	
RAB-25-7560	025 - Access C3, C6 & C7 Equip. Installation***																	
<b>Degree 3</b>																		
RAB-25-7470	025 - Ceiling Painting & Ceiling Sub-Frame																	
RAB-25-7620	025 - Ceiling Panel																	
RAB-25-7600	025 - Wall Paint Finish Coat																	
RAB-25-7610	025 - Wall Tiling																	
RAB-25-7480	025 - Floor Tiling																	
RAB-25-7460	025 - MEP Final Fix																	
RAB-25-7440	025 - Door Frame/Panel																	
RAB-25-7580	025 - Floor Painting																	
RAB-25-7590	025 - Floor Carpet																	
RAB-25-7510	025 - Plaster Board																	
RAB-25-7520	025 - Glazing																	
RAB-25-7550	025 - MEP Balance of Works																	
RAB-25-7370	025 - Snagging and Remedials																	
RAB-25-7375	KD6C - Projected achievement of Stage 6C of the Works																	
RAB-KD6C10	025 - End Users and MoM handover inspection																	
RAB-25-7630	025 - Early Handover Rooms Ready to End Users***, Target to Achie																	
<b>External Finishes</b>																		
<b>Facade</b>																		
RAB-25-0360	025 - Install External Louvers /Windows/Doors																	
RAB-25-0580	025 - Make good external surfaces																	
<b>At Grade</b>																		
RAB-25-6400	025 - Prepare Sub Grade																	
RAB-25-6390	025 - Laying Geo Textile																	
RAB-25-6410	025 - Lay Granular Sub-Base																	
RAB-25-6420	025 - Laying Course																	
RAB-25-6380	025 - Concrete Block Paving																	
RAB-25-0600	025 - Snagging and Remedials																	
<b>Roof Finishes</b>																		
RAB-25-0540	025 - Install Cat Ladders and Roof Hatch																	
RAB-25-0550	025 - Install Railing (222m)																	
<b>Green Roof</b>																		
RAB-25-0700	025 - Install Green Roof Irrigation Systems																	
RAB-25-0710	025 - Complete Green Roof Works																	
<b>Specialist Installations</b>																		
RAB-25-620	025 - Construct Health Department Screening Station x 1																	
RAB-25-610	025 - Construct Immigration Counters x 3																	
<b>Glazed Canopy</b>																		
RAB-25-0520	025 - Install Glazed Panels																	
<b>IMMD Kiosk</b>																		
RAB-25-0380	025 - Internal ABWF and MEP of IMMD Kiosk																	
RAB-25-0350	025 - External Finishes to IMMD Kiosk																	

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RAB-25-0430	025 - Erect Kiosk Canopy @ +10.17mPD																		
<b>Utilities and Drainage</b>																			
RAB-25-7250	025 - Construct Permanent Drainage, Manholes & Draw Pits																		
RAB-25-7260	025 - Utilites and Common Telecom Ducting																		
RAB-25-7270	025 - Install Flushing Water Mains																		
RAB-25-7280	025 - Install Fresh Water Mains																		
RAB-25-7290	025 - Install FS Water Main																		
<b>Testing &amp; Commissioning</b>																			
RAB-TC25-1000	025 - T&C (HVAC, FS, P&D, OTHERS)																		
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																			
<b>BBEO</b>																			
RAB-BEE-180	025 - Registered Energy Assessor Inspection & Certification																		
RAB-BEE-190	025 - Submit REA Certification to EDMS																		
RAB-BEE-200	025 - EDMS Issue of Cert of Compliance Registration (COCR)																		
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-744	025 - Submit WWO 46 Pt. IV																		
RAB-WSD-374	025 - WSD Inspection/Meter Connection																		
RAB-WSD-384	025 - WSD Issue Water Certificate WWO 46 Part V																		
<b>Fire Servives Department (VAC)</b>																			
RAB-FSD-940	025 - Submit Form 501, VAC																		
<b>Fire Service Water (FS)</b>																			
RAB-FSD-730	025 - Submit Form 501, FS																		
RAB-FSD-790	025 - Submit Form 314, FS																		
RAB-FSD-360	025 - FSD Inspection Period, FS																		
<b>Engineer (AECOM)</b>																			
RAB-25-7220	025 - Submit Building 025 As Built Drawings to Engineer																		
<b>Building 032 - Outbound Private Car Annexure</b>																			
<b>Excavation</b>																			
<b>Raft Foundations</b>																			
<b>Structure</b>																			
<b>Walls &amp; Columns</b>																			
<b>Roof Slab</b>																			
<b>Cure and Strip</b>																			
<b>ABWF/E&amp;M</b>																			
<b>Internal Finishes</b>																			
<b>Degree 1</b>																			
RAB-32-0700	032 - Floor Screed																		
RAB-32-0510	032 - MEP 1st Fix																		
<b>Degree 2</b>																			
RAB-32-0560	032 - MEP 2nd Fix																		
RAB-32-0760	032 - Door & Windor Frame + Louver																		
RAB-32-0660	032 - Power On																		
<b>Degree 3</b>																			
RAB-32-0830	032 - Wall Painting																		
RAB-32-0750	032 - Ceiling Frame & Ceiling Paint																		
RAB-32-0745	032 - Raised Floor																		
RAB-32-0880	032 - Wall Tiling																		
RAB-32-0870	032 - Ceiling Panel																		
RAB-32-0860	032 - Floor Painting & Remaining Floor Tiling																		
RAB-32-0590	032 - MEP Final Fix																		
RAB-32-0800	032 - Door Panel & Ironmongery																		
RAB-32-0790	032 - Glazing																		

█ Remaining Level of Effort   
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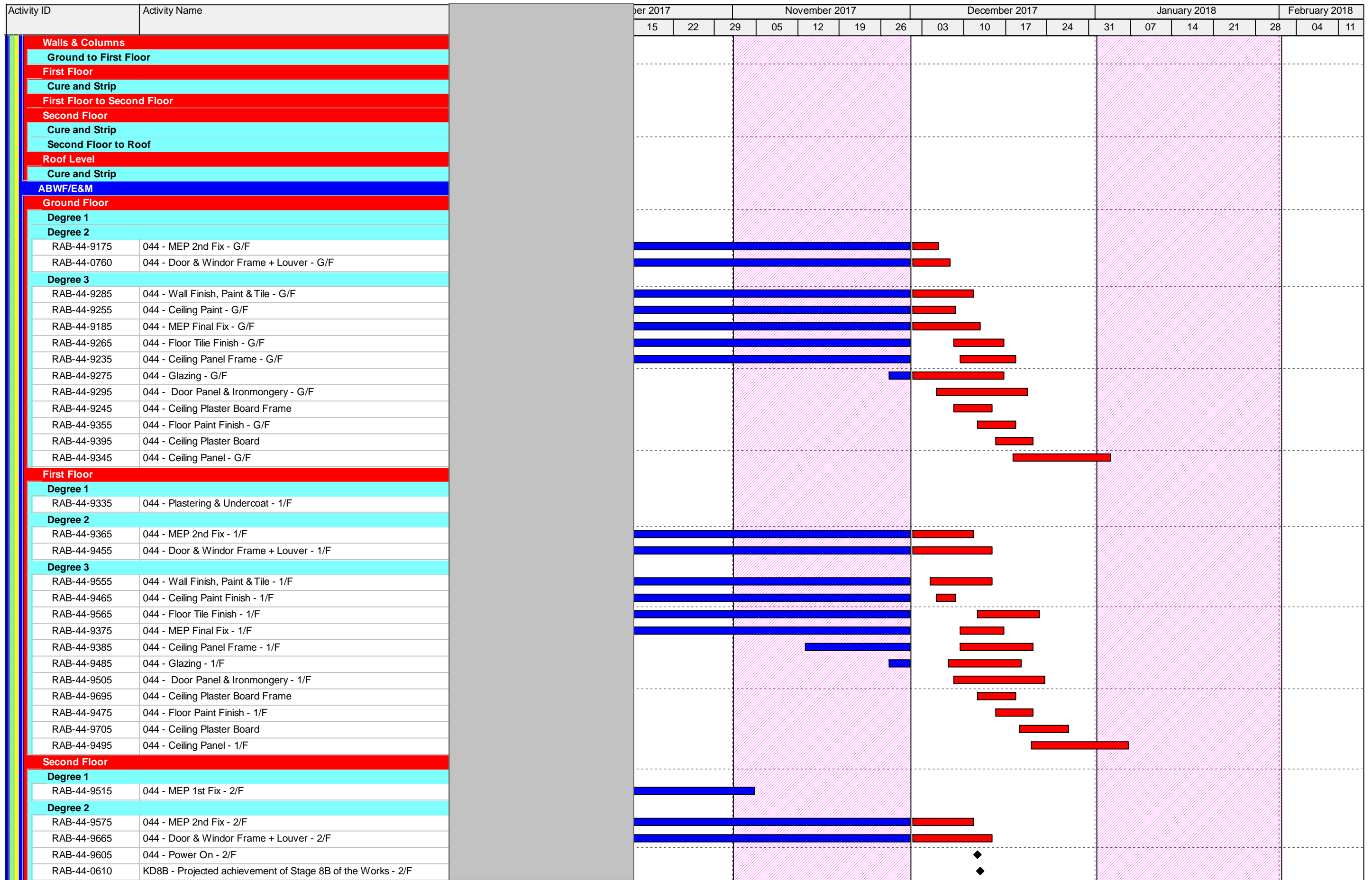
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Activity ID	Activity Name	October 2017			November 2017				December 2017				January 2018				February 2018		
		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11
RAB-32-0850	032 - Early Handover Rooms Ready to End Users***																		
RAB-32-0680	32 - Snagging and Remedials																		
RAB-32-0740	032 - MEP Balance of Work																		
RAB-32-0670	032 - End Users and MoM handover inspection																		
RAB-KD7C10	KD7C - Projected achievement of Stage 7C of the Works																		
<b>Roof Finishes</b>																			
RAB-32-0540	032 - Install Cat Ladders and Roof Hatch																		
RAB-32-0550	032 - Install Railing																		
<b>Green Roof</b>																			
RAB-32-0620	032 - Install Green Roof Irrigation Systems																		
RAB-32-0650	032 - Complete Green Roof Works																		
<b>External Finishes</b>																			
<b>Facade</b>																			
RAB-32-0360	032 - Install External Louvers /Windows/Doors																		
RAB-32-0570	032 - Dismantle Scaffolding																		
RAB-32-0580	032 - Make good external surfaces																		
<b>At Grade</b>																			
RAB-32-6460	032 - Prepare Sub Grade																		
RAB-32-6450	032 - Laying Geo Textile																		
RAB-32-6470	032 - Lay Granular Sub-Base																		
RAB-32-6480	032 - Laying Course																		
RAB-32-6440	032 - Concrete Block Paving																		
<b>Specialist Installations</b>																			
RAB-32-630	032 - Construct Immigration Counters x 3																		
RAB-32-640	032 - Construct Health Department Screening Station X 1																		
<b>IMMD Kiosk</b>																			
RAB-32-0380	032 - Internal ABWF and MEP of IMMD Kiosk																		
RAB-32-0350	032 - External Finishes to IMMD Kiosk																		
RAB-32-0430	032 - Erect Kiosk Canopy @ +10.17mPD																		
<b>Glazed Canopy</b>																			
<b>Utilities and Drainage</b>																			
RAB-32-7290	032 - Construct Permanent Drainage and Manholes (Approx 150m)																		
RAB-32-7300	032 - Utilites and Common Telecom Ducting																		
RAB-32-7310	032 - Install Flushing Water Mains																		
RAB-32-7320	032 - Install Fresh Water Mains																		
RAB-32-7330	032 - Install FS Water Main																		
<b>Testing &amp; Commissioning</b>																			
RAB-TC32-1000	032 - T&C (HVAC, FS, P&D, OTHERS)																		
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																			
<b>BBEO</b>																			
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-714	032 - Submit WWO 46 Pt. IV																		
RAB-WSD-354	032 - WSD Issue WWO 46 Part V - Completion Cert of Plumbing & I																		
RAB-WSD-344	032 - WSD Inspection/Meter Connection																		
<b>Fire Services Department (HVAC)</b>																			
<b>Fire Water Service (FS)</b>																			
<b>Engineer (AECOM)</b>																			
RAB-32-7250	032 - Submit Building 032 As Built Drawings to Engineer																		
<b>Building 044 - E&amp;M Maintenance Building</b>																			
<b>Excavation</b>																			
<b>Raft</b>																			
<b>Structure</b>																			

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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
<b>Degree 3</b>																		
RAB-44-9635	044 - Ceiling Paint Finish - 2/F	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-9595	044 - Wall Finish, Paint & Tile - 2/F	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-9585	044 - MEP Final Fix - 2/F	[Gantt bar: Nov 19-26, Dec 10-17]																
RAB-44-9675	044 - Glazing - 2/F	[Gantt bar: Nov 26-Dec 03]																
RAB-44-9725	044 - Ceiling Plaster Board Frame - 2/F	[Gantt bar: Dec 10-17]																
RAB-44-9715	044 - Door Panel & Ironmongery - 2/F	[Gantt bar: Dec 17-24]																
RAB-44-9735	044 - Ceiling Plaster Board	[Gantt bar: Dec 24-31]																
RAB-44-9795	044 - MEP Balance of Works	[Gantt bar: Dec 24-31, Jan 07-14, Jan 21-28]																
<b>Roof Finishes</b>																		
RAB-44-0520	044 - Install Roof Tiles - (242m²)	[Gantt bar: Dec 03-10]																
RAB-44-0550	044 - Install Cat Ladder and Roof Hatch	[Gantt bar: Dec 03-10]																
RAB-44-0540	044 - Install Railing	[Gantt bar: Dec 24-31]																
<b>Green Roof</b>																		
RAB-44-0350	044 - Leveling screed - (242m²)	[Gantt bar: Nov 19-26]																
RAB-44-0360	044 - Waterproof membrane - (242m²)	[Gantt bar: Nov 19-26]																
RAB-44-0390	044 - Top Screed - (242m²)	[Gantt bar: Nov 19-26]																
RAB-44-0400	044 - Install Green Roof Irrigation Systems	[Gantt bar: Nov 19-26]																
RAB-44-0500	044 - Complete Green Roofing Works	[Gantt bar: Nov 19-26]																
<b>External Finishes</b>																		
<b>Facade</b>																		
RAB-44-0490	044 - External Tiling	[Gantt bar: Oct 15-22]																
RAB-44-0530	044 - External Painting	[Gantt bar: Oct 15-22]																
RAB-44-0430	044 - Install External Louvers /Windows/Doors	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-0570	044 - Dismantle Scaffolding	[Gantt bar: Oct 15-22]																
RAB-44-0590	044 - Make good external surfaces	[Gantt bar: Dec 17-24]																
<b>At Grade</b>																		
RAB-44-6520	044 - Prepare Sub Grade	[Gantt bar: Dec 03-10]																
RAB-44-6510	044 - Laying Geo Textile	[Gantt bar: Dec 10-17]																
RAB-44-6530	044 - Lay Granular Sub-Base	[Gantt bar: Dec 17-24]																
<b>Specialist Installations</b>																		
RAB-44-0600	044 - Install Lift (1 nos)	[Gantt bar: Oct 15-22]																
RAB-44-1100	044 - Installation of Roller Shutter Header Box	[Gantt bar: Oct 15-22]																
RAB-44-1090	044 - Installation of Roller Shutter Steel Curtain	[Gantt bar: Nov 05-12]																
RAB-44-2250	044 - Small Glass Canopy North Elevation	[Gantt bar: Dec 03-10]																
<b>Curtain Wall</b>																		
<b>East</b>																		
RAB-44-6880	044 - Install Primary Steelwork for Window Wall - East	[Gantt bar: Nov 19-26]																
RAB-44-6890	044 - Install Secondary Steelwork for Window Wall - East	[Gantt bar: Dec 10-17]																
RAB-44-6900	044 - Glazing to Window Wall - East	[Gantt bar: Dec 17-24]																
<b>West</b>																		
RAB-44-6920	044 - Install Primary Steelwork for Window Wall - West	[Gantt bar: Nov 19-26]																
RAB-44-6930	044 - Install Secondary Steelwork for Window Wall - West	[Gantt bar: Dec 10-17]																
RAB-44-6940	044 - Glazing to Window Wall - West	[Gantt bar: Dec 17-24]																
<b>Utilities and Drainage</b>																		
RAB-44-7895	044 - Construct Permanent Drainage and Manholes (Approx 100m)	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-7905	044 - Utilites and Common Telecom Ducting	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-7915	044 - Install Flushing Water Mains	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-7925	044 - Install Fresh Water Mains	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
RAB-44-7935	044 - Install FS Water Main	[Gantt bar: Oct 15-22, Nov 05-12, Dec 03-10]																
<b>Testing &amp; Commissioning</b>																		
RAB-TC44-1010	044 - T&C, Lift	[Gantt bar: Nov 19-26]																
RAB-TC44-1000	044 - T&C (HVAC, FS, P&D, OTHERS)	[Gantt bar: Dec 10-17, Dec 24-31, Jan 07-14, Jan 21-28]																

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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
<b>Statutory Submissions &amp; Approvals</b>																		
<b>BEO</b>																		
RAB-BEE-240	044 - Registered Energy Assessor Inspection & Certification																	
RAB-BEE-250	044 - Submit REA Certification to EDMS																	
RAB-BEE-260	044 - EDMS Issue of Cert of Compliance Registration (COCR)																	
<b>EMSD - Building 044 Lift Inspection</b>																		
RAB-FSD-210	044 - Submit EMSD Form 5 (Completion of Lift Installation)																	
RAB-FSD-220	044 - EMSD Lift Inspection																	
<b>Water Supplies Department (WSD)</b>																		
<b>Commencement</b>																		
<b>Completion</b>																		
<b>Fire Services Department (HVAC)</b>																		
RAB-FSD-1020	044 - Submit Form 314 to FSD, HVAC																	
<b>Fire Water Services (FS)</b>																		
<b>Engineer (AECOM)</b>																		
RAB-44-7280	044 - Submit Building 044 As Built Drawings to Engineer																	
<b>Building 045 - Highways Depot &amp; Administration Building</b>																		
<b>Raft Foundation</b>																		
<b>Diesel Fuel Chamber</b>																		
<b>Structure G/F to R/F</b>																		
<b>G/F to 1/F Walls &amp; Columns</b>																		
<b>1/F Slab</b>																		
<b>Cure and Strip</b>																		
<b>1/F to 2/F Walls &amp; Columns</b>																		
<b>2/F Slab</b>																		
<b>Cure and Strip</b>																		
<b>2/f to R/F Walls &amp; Columns</b>																		
<b>Roof Level Slab</b>																		
<b>Cure and Strip</b>																		
<b>ABWF/E&amp;M</b>																		
<b>Ground Floor, South - G/F</b>																		
<b>Degree 1, G/F</b>																		
<b>Degree 2, G/F</b>																		
RAB-45-9805	045 - MEP 2nd Fix - G/F																	
RAB-45-9895	045 - Door & Windor Frame + Louver - G/F																	
RAB-45-9905	045 - Access for C3 to Install Equipment																	
RAB-45-10075	045 - Projeted achievement of Stage 8B of the Works - G/F																	
<b>Degree 3, G/F</b>																		
RAB-45-9935	045 - Wall Finish, Paint & Tile - G/F																	
RAB-45-9915	045 - Floor Finish (Paint & Tile) - G/F																	
RAB-45-10035	045 - Ceiling Plaster Board Frame & Ceiling Panel Frame - G/F																	
RAB-45-9815	045 - MEP Final Fix - G/F																	
RAB-45-9925	045 - Glazing - G/F																	
RAB-45-9945	045 - Door Panel & Ironmongery - G/F																	
RAB-45-10055	045 - Ceiling Plaster Board & Ceiling Panel- G/F																	
<b>First Floor, 1/F</b>																		
<b>Degree 1, 1/F</b>																		
<b>Degree 2, 1/F</b>																		
RAB-45-10015	045 - MEP 2nd Fix - 1/F																	
RAB-45-10105	045 - Door & Windor Frame + Louver - 1/F																	
RAB-45-10065	045 - Access to C3 Equipment Instalaltion***																	
<b>Degree 3, 1/F</b>																		
RAB-45-10145	045 - Wall Finish, Paint & Tile - 1/F																	
RAB-45-10125	045 - Floor Finish (Paint & Tile) - 1/F																	
RAB-45-10205	045 - Ceiling Plaster Board Frame Ceiling Panel Frame- 1/F																	

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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11
RAB-45-10025	045 - MEP Final Fix - 1/F																		
RAB-45-10155	045 - Door Panel & Ironmongery - 1/F																		
RAB-45-10285	045 - Glazing - 1/F																		
RAB-45-10245	045 - Ceiling Plaster Board & Ceiling Panel - 1/F																		
RAB-45-10275	045 - Handover to End users***																		
<b>Second Floor, 2/F</b>																			
<b>Degree 1, 2/F</b>																			
RAB-45-10195	045 - Plastering & Undercoat - 2/F																		
RAB-45-10185	045 - Screed - 2/F																		
RAB-45-10165	045 - MEP 1st Fix - 2/F																		
<b>Degree 2, 2/F</b>																			
RAB-45-10225	045 - MEP 2nd Fix - 2/F																		
RAB-45-10315	045 - Door & Window Frame + Louver - 2/F																		
RAB-45-10295	045 - Access for C3 Equip. Installation, 2/F***																		
RAB-45-0950	KD8B - Projected achievement of Stage 8B of the Works - 2/F, 045																		
RAB-45-10255	045 - Power On - 2/F																		
<b>Degree 3, 2/F</b>																			
RAB-45-10355	045 - Wall Finish, Paint & Tile - 2/F																		
RAB-45-10235	045 - MEP Final Fix - 2/F																		
RAB-45-10345	045 - Glazing - 2/F																		
RAB-45-10375	045 - Ceiling Plaster Board Frame & Ceiling Panel Frame - 2/F																		
RAB-45-10335	045 - Floor Finish (Paint & Tile) - 2/F																		
RAB-45-10365	045 - Door Panel & Ironmongery - 2/F																		
RAB-45-10385	045 - Ceiling Plaster Board & Ceiling Panel - 2/F																		
RAB-45-0980	045 - Snagging and Remedials - 2/F																		
RAB-45-10305	045 - MEP Balance of Works																		
RAB-45-10265	045 - End Users and MoM handover inspection																		
RAB-45-0970	KD8C - Projected achievement of Stage 8C of the Works - 2/F, 045																		
<b>External Finishes</b>																			
<b>Bldg. External Finishes</b>																			
<b>Facade</b>																			
RAB-45-0710	045 - External Tiling																		
RAB-45-0620	045 - Install External Louvers /Windows/Doors																		
RAB-45-0690	045 - External Painting																		
RAB-45-0720	045 - Dismantle Scaffolding																		
RAB-45-0760	045 - Make good external surfaces																		
<b>At Grade</b>																			
RAB-45-6580	045 - Prepare Sub Grade																		
RAB-45-6570	045 - Laying Geo Textile																		
RAB-45-6590	045 - Lay Granular Sub-Base																		
RAB-45-6600	045 - Laying Course																		
<b>Roof Finishes -</b>																			
RAB-45-0910	045 - Install Roof Tiles																		
RAB-45-0930	045 - Install Cat Ladder and Roof Hatch																		
RAB-45-0920	045 - Install Railing																		
<b>Green Roof - Noth Side, 2/F Level</b>																			
RAB-45-0600	045 - Leveling screed																		
RAB-45-0650	045 - Waterproof membrane																		
RAB-45-0670	045 - Top Screed																		
RAB-45-0680	045 - Install green Roof Irrigation Systems																		
RAB-45-0740	045 - Complete Green Roofing Works																		
<b>Specialist Installations</b>																			
RAB-45-0590	045 - Install Lift (1 nos)																		

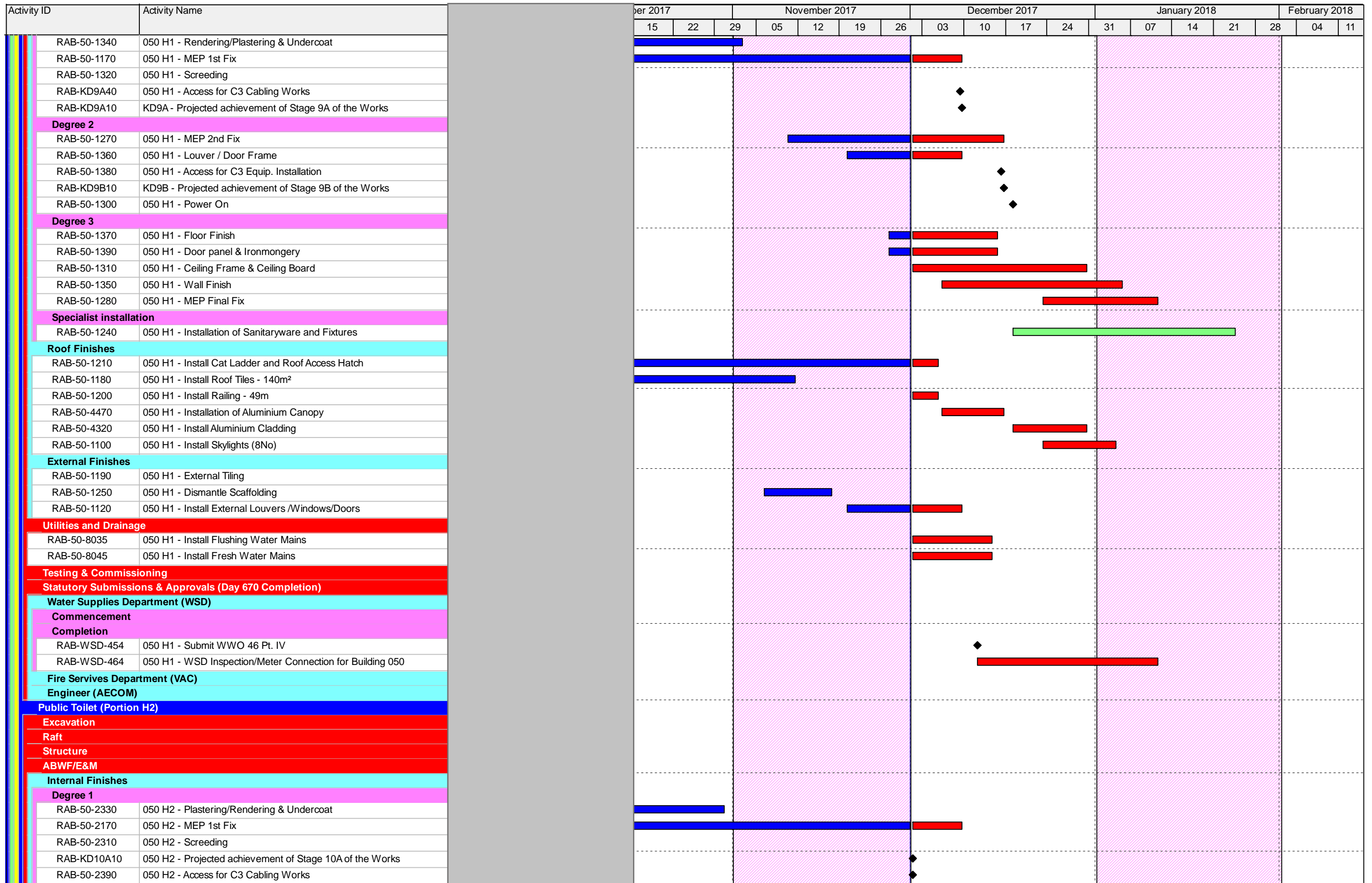
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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11
RAB-45-1125	045 - Install Genset and switch board G/F																		
RAB-45-6000	045 - Small Glass Canopy North Elevation																		
<b>Window Wall</b>																			
<b>East</b>																			
RAB-45-6960	045 - Install Primary Steelwork for Window Wall																		
RAB-45-6970	045 - Install Secondary Steelwork for Window Wall																		
RAB-45-6980	045 - Glazing to Window Wall																		
<b>West</b>																			
RAB-45-6990	045 - Install Primary Steelwork for Window Wall																		
RAB-45-7000	045 - Install Secondary Steelwork for Window Wall																		
RAB-45-7010	045 - Glazing to Window Wall																		
<b>Utilities and Drainage</b>																			
RAB-45-7935	045 - Construct Permanent Drainage and Manholes (Approx 180m)																		
RAB-45-7945	045 - Utilities and Common Telecom Ducting																		
RAB-45-7955	045 - Install Flushing Water Mains																		
RAB-45-7965	045 - Install Fresh Water Mains																		
RAB-45-7975	045 - Install FS Water Main																		
<b>Testing &amp; Commissioning</b>																			
RAB-TC45-1030	045 - T&C, Lift																		
RAB-TC45-1020	045 - T&C (HVAC, FS, P&D, OTHERS)																		
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																			
<b>BBE0</b>																			
RAB-BEE-270	045 - Registered Energy Assessor Inspection & Certification																		
RAB-BEE-280	045 - Submit REA Certification to EDMS																		
RAB-BEE-290	045 - EDMS Issue of Cert of Compliance Registration (COCR)																		
<b>EMSD - Building 045 Lift Inspection</b>																			
RAB-FSD-240	045 - Submit EMSD Form 5 (Completion of Lift Installation)																		
RAB-FSD-250	045 - EMSD Lift Inspection																		
RAB-FSD-130	045 - EMSD Lift Certificate Issued - Building 045																		
<b>Fuel Tank - DG License</b>																			
RAB-FSD-660	045 - FSD Inspection & Approval																		
RAB-FSD-680	045 - FSD Issue License																		
<b>Generator Set - EPD Permit</b>																			
<b>Generator Set - DG Licence</b>																			
RAB-FSD-690	045 - Genset Ready for DG Inspection																		
RAB-FSD-700	045 - Notify FSD for DG Inspection																		
RAB-FSD-710	045 - FSD (Vent) /FS Inspection/Process License																		
RAB-FSD-720	045 - DG Licence Issued																		
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-654	045 - Submit WWO 46 Pt. IV																		
RAB-WSD-284	045 - WSD's Processing/Inspection/Meter Connection																		
<b>HVAC</b>																			
<b>FSD</b>																			
<b>Engineer (AECOM)</b>																			
RAB-45-7310	045 - Submit Building 045 As Built Drawings to Engineer																		
<b>Building 050 - Public Toilets Type 2</b>																			
<b>Public Toilet (Portion H1)</b>																			
<b>Excavation</b>																			
<b>Raft</b>																			
<b>Structure</b>																			
<b>ABWF/E&amp;M</b>																			
<b>Internal Finishes</b>																			
<b>Degree 1</b>																			

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<b>Degree 2</b>																			
RAB-50-2270	050 H2 - MEP 2nd Fix																		
RAB-50-2360	050 H2 - Louver / Door Frame																		
RAB-KD10B40	050 H2 - Access for C3 Equip. Installation																		
RAB-KD10B10	050 H2 - Projected achievement of Stage 10B of the Works																		
RAB-50-2300	050 H2 - Power On																		
<b>Degree 3</b>																			
RAB-50-2370	050 H2 - Floor Finish																		
RAB-50-2380	050 H2 - Door panel & Ironmongery																		
RAB-50-2340	050 H2 - Ceiling Frame & Ceiling Board																		
RAB-50-2350	050 H2 - Wall Finish																		
RAB-50-2280	050 H2 - MEP Final Fix																		
<b>Specialist installation</b>																			
RAB-50-2240	050 H2 - Installation of Sanitaryware and Fixtures																		
<b>Roof Finishes</b>																			
RAB-50-2180	050 H2 - Install Roof Tiles - 140m²																		
RAB-50-2210	050 H2 - Install Cat Ladder and Roof Access Hatch																		
RAB-50-2200	050 H2 - Install Railing - 49m																		
RAB-50-2230	050 H2 - Installation of Aluminium Canopy																		
RAB-50-4360	050 H2 - Install Aluminium Cladding																		
RAB-50-2100	050 H2 - Install Skylights (8No)																		
<b>External Finishes</b>																			
RAB-50-2150	050 H2 - External Render																		
RAB-50-2190	050 H2 - External Tiling																		
RAB-50-2250	050 H2 - Dismantle Scaffolding																		
RAB-50-2120	050 H2 - Install External Louvers /Windows/Doors																		
<b>Utilities and Drainage</b>																			
RAB-50-7915	050 H2 - Install Flushing Water Mains																		
RAB-50-7925	050 H2 - Install Fresh Water Mains																		
<b>Testing &amp; Commissioning</b>																			
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																			
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-594	050 H2 - Submit WWO 46 Pt. IV																		
RAB-WSD-434	050 H2 - WSD Inspection/Meter Connection for Building 050																		
<b>Fire Services Department (VAC)</b>																			
RAB-FSD-1110	050 H2 - Submit Form 314																		
<b>Engineer (AECOM)</b>																			
<b>Public Toilet (Portion A1)</b>																			
<b>Excavation</b>																			
<b>Raft</b>																			
RAB-50-3050	050 A1 - Ground Slab																		
<b>Structure</b>																			
<b>ABWF/E&amp;M</b>																			
<b>Internal Finishes</b>																			
<b>Degree 1</b>																			
RAB-50-3310	050 A1 - Plastering/Rendering & Undercoat																		
RAB-50-3170	050 A1 - MEP 1st Fix																		
RAB-50-3320	050 A1 - Screeding																		
RAB-50-3330	050 A1 - Access for C3 for Cabling Works																		
RAB-KD11A10	KD11A - Projected achievement of Stage 11A of the Works																		
<b>Degree 2</b>																			
RAB-50-3270	050 A1 - MEP 2nd Fix																		

█ Remaining Level of Effort   
█ Actual Work   
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RAB-50-3360	050 A1 - Louver / Door Frame																		
RAB-50-3390	050 A1 - Access for C3 for Equip. Installation																		
RAB-KD11B10	KD11B - Projected achievement of Stage 11B of the Works																		
RAB-50-3300	050 A1 - Power On																		
<b>Degree 3</b>																			
RAB-50-3340	050 A1 - Ceiling Frame																		
RAB-50-3350	050 A1 - Wall Finish																		
RAB-50-3280	050 A1 - MEP Final Fix																		
RAB-50-3370	050 A1 - Ceiling & Floor Finish																		
<b>Specialist installation</b>																			
RAB-50-3240	050 A1 - Installation of Sanitaryware and Fixtures																		
<b>Roof Finishes</b>																			
RAB-50-3180	050 A1 - Install Roof Tiles - 140m²																		
RAB-50-3210	050 A1 - Install Cat Ladder and Roof Access Hatch																		
RAB-50-3200	050 A1 - Install Railing - 49m																		
RAB-50-3230	050 A1 - Installation of Aluminium Canopy																		
RAB-50-4370	050 A1 - Install Aluminium Cladding																		
RAB-50-3100	050 A1 - Install Skylights (8No)																		
<b>External Finishes</b>																			
RAB-50-3150	050 A1 - External Render																		
RAB-50-3250	050 A1 - Dismantle Scaffolding																		
RAB-50-3120	050 A1 - Install External Louvers /Windows/Doors																		
RAB-50-3190	050 A1 - External Tiling																		
<b>Utilities and Drainage</b>																			
RAB-50-7955	050 A1 - Install Flushing Water Mains																		
RAB-50-7965	050 A1 - Install Fresh Water Mains																		
<b>Testing &amp; Commissioning</b>																			
RAB-TC50-1020	050 A1 - T&C (HVAC, FS, P&D, OTHERS)																		
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																			
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-394	050 A1 - Submit WWO 46 Pt. IV																		
RAB-WSD-404	050 A1 - WSD Inspection/Meter Connection																		
<b>Fire Services Department (VAC)</b>																			
<b>Engineer (Aecom)</b>																			
<b>Public Toilet (Portion A2)</b>																			
<b>Excavation</b>																			
<b>Raft</b>																			
<b>Structure</b>																			
<b>ABWF/E&amp;M</b>																			
<b>Internal Finishes</b>																			
<b>Degree 1</b>																			
RAB-50-4170	050 A2 - MEP 1st Fix																		
RAB-50-4420	050 A2 - Plastering/Rendering & Undercoat																		
RAB-50-4400	050 A2 - Screeding																		
RAB-KD12A10	KD12A - Projected achievement of Stage 12A of the Works																		
RAB-50-4410	050 A2 - Access for C3 Cabling Works																		
<b>Degree 2</b>																			
RAB-50-4270	050 A2 - MEP 2nd Fix																		
RAB-50-4440	050 A2 - Louver / Door Frame																		
RAB-50-4480	050 A2 - Access for C3 Equip. Installation																		
RAB-KD12B10	KD12B - Projected achievement of Stage 12B of the Works																		
RAB-50-4300	050 A2 - Power On																		

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<b>Degree 3</b>																		
RAB-50-4390	050 A2 - Ceiling Frame																	
RAB-50-4430	050 A2 - Wall Finish																	
RAB-50-4280	050 A2 - MEP Final Fix																	
RAB-50-4450	050 A2 - Ceiling & Floor Finish																	
RAB-50-4290	050 A2 - Snagging and Remedials																	
<b>Specialist installation</b>																		
RAB-50-4240	050 A2 - Installation of Sanitaryware and Fixtures																	
<b>Roof Finishes</b>																		
RAB-50-4180	050 A2 - Install Roof Tiles - 140m²																	
RAB-50-4210	050 A2 - Install Cat Ladder and Roof Access Hatch																	
RAB-50-4200	050 A2 - Install Railing - 49m																	
RAB-50-4230	050 A2 - Installation of Aluminium Canopy																	
RAB-50-4380	050 A2 - Install Aluminium Cladding																	
RAB-50-4100	050 A2 - Install Skylights (8No)																	
<b>External Finishes</b>																		
RAB-50-4150	050 A2 - External Render																	
RAB-50-4190	050 A2 - External Tiling																	
RAB-50-4250	050 A2 - Dismantle Scaffolding																	
RAB-50-4120	050 A2 - Install External Louvers /Windows/Doors																	
<b>Utilities and Drainage</b>																		
RAB-50-7975	050 A2 - Construct Permanent Drainage and Manholes (Approx 20m																	
RAB-50-7985	050 A2 - Utilites and Common Telecom Ducting																	
RAB-50-7995	050 A2 - Install Flushing Water Mains																	
RAB-50-8005	050 A2 - Install Fresh Water Mains																	
<b>Testing &amp; Commissioning</b>																		
<b>Statutory Submissions &amp; Approvals (Day 670 Completion)</b>																		
<b>Water Supplies Department (WSD)</b>																		
<b>Commencement</b>																		
<b>Completion</b>																		
RAB-WSD-124	050 A2 - Submit WWO 46 Pt. IV																	
RAB-WSD-134	050 A2 - WSD Inspection/Meter Connection for Building 050																	
<b>Fire Services Department (VAC)</b>																		
RAB-FSD-260	050 A2 - Submit Form 314																	
<b>Engineer (AECOM)</b>																		
<b>Building 053 - Outbound X-Ray Building</b>																		
<b>Excavation</b>																		
<b>Raft</b>																		
<b>Structure</b>																		
<b>External Walls</b>																		
<b>To First Floor Level</b>																		
<b>Internal Structures</b>																		
<b>First Floor</b>																		
<b>Slabs</b>																		
<b>Cure and Strip</b>																		
<b>1/F - Roof Level</b>																		
<b>Staircases</b>																		
<b>Roof Floor</b>																		
<b>Slabs</b>																		
<b>Cure and Strip</b>																		
<b>ABWF/E&amp;M</b>																		
<b>Ground Floor</b>																		
<b>Degree 1 - G/F</b>																		
<b>Degree 2 - G/F</b>																		
RAB-53-7895	053 - Door/Window frame, frame for Wall Panel & Cladding, G/F																	

■ Remaining Level of Effort   
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<b>Degree 3 - G/F</b>																			
RAB-53-0660	053 - Wall Tiling & Wall Painting Final Coat (2), G/F																		
RAB-53-0730	053 - MEP Final Fix, G/F																		
RAB-53-8205	053 - Floor Painting & Tiling, G/F																		
RAB-53-7915	053 - Ceiling Plaster Board, G/F																		
RAB-53-0710	053 - Door Panel & Ironmongery, G/F																		
RAB-53-0700	053 - Glazing, G/F																		
<b>First Floor</b>																			
<b>Degree 1 - 1/F</b>																			
<b>Degree 2 - 1/F</b>																			
RAB-53-8015	053 - Door/Window frame and frame, 1/F																		
RAB-53-8065	053 - Power On, 1/F																		
<b>Degree 3 - 1/F</b>																			
RAB-53-8155	053 - Wall Tiling & Wall Painting Final Coat (2), 1/F																		
RAB-53-8105	053 - MEP Final Fix, 1/F																		
RAB-53-8215	053 - Floor Painting & Tiling, 1/F																		
RAB-53-7995	053 - Ceiling Plaster Board, 1/F																		
RAB-53-8085	053 - Door Panel & Ironmongery, 1/F																		
RAB-53-8075	053 - Glazing, 1/F																		
RAB-53-8195	053 - MEP Balance of Works																		
RAB-53-8125	053 - Snagging and Remedials, 1/F																		
RAB-53-8095	053 - Projected Achievement of Stage 1C, 1/F																		
<b>External Finishes</b>																			
<b>External Facade</b>																			
RAB-53-0500	053 - External Painting																		
RAB-53-0570	053 - Dismantle Scaffolding																		
RAB-53-0640	053 - Make good external surfaces																		
<b>At Grade</b>																			
RAB-53-7615	053 - Prepare Sub Grade																		
RAB-53-7885	053 - Laying Geo Textile																		
RAB-53-7625	053 - Lay Granular Sub-Base																		
RAB-53-7635	053 - Laying Course																		
<b>Roof Finishes</b>																			
RAB-53-0530	053 - Install Railing - 105m																		
RAB-53-0520	053 - Install Roof Tiles - (490m²)																		
<b>Spacialist Installations</b>																			
RAB-53-0600	053 - Install Lift (1 nos)																		
<b>Glazed Canopy</b>																			
RAB-53-0620	053 - Construct high level Canopy at +9.95mPD																		
<b>Utilities and Drainage</b>																			
RAB-53-7595	053 - Construct Permanent Drainage and Manholes (Approx 135m)																		
RAB-53-7610	053 - Install Flushing Water Mains																		
RAB-53-7620	053 - Install Fresh Water Mains																		
RAB-53-7655	053 - Install FS Water Main																		
<b>Testing &amp; Commissioning</b>																			
RAB-TC53-1040	053 - T&C (HVAC, FS, P&D, OTHERS)																		
RAB-TC53-1050	053 - T&C, Lift																		
<b>Statutory Submissions &amp; Approvals (Day 470 Completion)</b>																			
<b>BEO</b>																			
RAB-BEE-420	053 - Registered Energy Assessor Inspection & Certification																		
RAB-BEE-430	053 - Submit REA Certification to EDMS																		
RAB-BEE-440	053 - EDMS Issue of Cert of Compliance Registration (COCR)																		
<b>EMSD - Building 053 Lift Inspection</b>																			
RAB-FSD-150	053 - Submit EMSD Form 5 (Completion of Lift Installation)																		

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		15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11
RAB-FSD-160	053 - EMSD Lift Inspection																		
RAB-FSD-090	053 - EMSD Lift Certificate Issued (Fire Lift)																		
<b>Water Supplies Department (WSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
RAB-WSD-100	053 - Submit WWO 46 Pt. IV																		
RAB-WSD-102	053 - WSD's Processing/Inspection/Meter Connection																		
RAB-WSD-104	053 - WSD Issue WWO 046 Part V, Plumbing Compl. Cert & Water																		
<b>VAC</b>																			
RAB-FSD-1140	053 - Submit Form 314																		
RAB-FSD-1150	053 - Submit Form 501																		
<b>FSD</b>																			
RAB-FSD-410	053 - Submit Form 314																		
RAB-FSD-670	053 - Submit Form 501																		
RAB-FSD-420	053 - FSD Inspection Period																		
RAB-FSD-430	053 - Issue Form 172, FS Compliance Cert.																		
<b>Engineer (AECOM)</b>																			
RAB-53-7460	053 - Submit Building 053 As Built Drawings to Engineer																		
RAB-53-7470	053 - Engineer Inspection Period																		
<b>Building 058 - Outbound X-Ray Scan Tunnel</b>																			
<b>Excavation</b>																			
<b>Raft</b>																			
<b>Structure</b>																			
<b>Walls</b>																			
<b>South</b>																			
<b>North</b>																			
<b>Roof Slabs</b>																			
<b>Cure and Strip</b>																			
<b>ABWF/E&amp;M</b>																			
<b>Internal Finishes</b>																			
<b>Degree 1</b>																			
<b>Degree 2</b>																			
RAB-58-0640	058 - Power On																		
<b>Degree 3</b>																			
RAB-58-0700	058 - Floor Finish (Epoxy Paint)																		
RAB-58-0660	058 - Snagging and Remedials, Bldg. Internal																		
RAB-58-7520	058 - End Users and MoM handover inspection																		
<b>Roof Finishes</b>																			
RAB-58-0540	058 - Install Railing - 152m																		
<b>External Finishes</b>																			
<b>Facade</b>																			
RAB-58-0470	058 - External Painting																		
RAB-58-0620	058 - Make good external surfaces																		
<b>At Grade</b>																			
RAB-58-6760	058 - Prepare Sub Grade																		
RAB-58-6750	058 - Laying Geo Textile																		
RAB-58-6770	058 - Lay Granular Sub-Base																		
RAB-58-6780	058 - Laying Course																		
<b>Glazed Canopy</b>																			
RAB-58-0600	058 - Construct high level canopy at +13.231mPD																		
<b>Utilities and Drainage</b>																			
RAB-58-7570	058 - Install Flushing Water Mains																		
RAB-58-7580	058 - Install Fresh Water Mains																		
RAB-58-7590	058 - Install FS Water main																		
<b>Testing &amp; Commissioning</b>																			

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RAB-TC58-1060	058 - T&C (HVAC, FS, P&D, OTHERS)																		
<b>Statutory Submissions &amp; Approvals (Day 470 Completion)</b>																			
<b>VAC (FSD)</b>																			
RAB-FSD-100	058 - Submit Form 501 to FSD																		
RAB-FSD-102	058 - FSD Inspection Period For Building 058																		
RAB-FSD-104	058 - Fire Certificate Obtained (Form 172) Handover For Building 058																		
<b>Engineer (AECOM)</b>																			
RAB-58-7490	058 - Submit Building 058 As Built Drawings to Engineer																		
RAB-58-7500	058 - Engineer Inspection Period																		
<b>Building 059 - Inbound X-Ray Scan Tunnel</b>																			
<b>Excavation</b>																			
<b>Raft Foundations</b>																			
<b>Structure</b>																			
<b>Walls</b>																			
<b>West</b>																			
<b>East</b>																			
<b>Roof Slabs</b>																			
<b>Cure and Strip</b>																			
<b>ABWF/E&amp;M</b>																			
<b>Internal Finishes</b>																			
<b>Degree 1</b>																			
<b>Degree 2</b>																			
<b>Degree 3</b>																			
RAB-59-0700	059 - Floor Finish (Epoxy Paint)																		
RAB-59-7560	059 - Snagging and Remedials																		
RAB-59-7550	059 - End Users and MoM handover inspection																		
<b>Roof Finishes</b>																			
RAB-59-0560	059 - Install Railing - 152m																		
<b>External Finishes</b>																			
<b>Facade</b>																			
RAB-59-0480	059 - External Painting																		
RAB-59-0650	059 - Make good external surfaces																		
<b>At Grade</b>																			
RAB-59-6700	059 - Prepare Sub Grade																		
RAB-59-6690	059 - Laying Geo Textile																		
RAB-59-6710	059 - Lay Granular Sub-Base																		
RAB-59-6720	059 - Laying Course																		
RAB-59-6680	059 - Concrete Block Paving																		
RAB-59-0670	059 - Snagging and Remedials																		
<b>Glazed Canopy</b>																			
RAB-59-0610	059 - Construct high level glazed canopy at +13.406mPD North																		
<b>Utilities and Drainage</b>																			
RAB-59-7350	059 - Install Flushing Water Mains																		
RAB-59-7360	059 - Install Fresh Water Mains																		
RAB-59-7370	059 - Install FS Water Main																		
<b>Testing &amp; Commissioning</b>																			
RAB-TC59-1000	059 - T&C (HVAC, FS, P&D, OTHERS)																		
<b>Statutory Submissions &amp; Approvals (Day 470 Completion)</b>																			
<b>VAC</b>																			
RAB-FSD-560	059 - Submit Form 501																		
<b>Fire Services Department (FSD)</b>																			
<b>Commencement</b>																			
<b>Completion</b>																			
<b>Bldg. 059 Ready for FS Inspection (C8 Requirement)</b>																			
RAB-FSD-760	059 - Submit Form 501 to FSD for FS Inspection For Building 059																		

■ Remaining Level of Effort   
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RAB-FSD-740	059 - FSD Inspection Period For Building 059																		
RAB-FSD-750	059 - Fire Certificate Obtained (Form 172) Handover For Building 059																		
<b>Bldg. 059 for FS Inspection (Due to C3 Work Interface)</b>																			
RAB-FSD-470	059 - Submit Form 501 to FSD for FS Inspection For Building 059																		
RAB-FSD-480	059 - FSD Inspection Period For Building 059																		
RAB-FSD-490	059 - Fire Certificate Obtained (Form 172) Handover For Building 059																		
<b>Engineer (AECOM)</b>																			
RAB-59-7520	059 - Submit Building 059 As Built Drawings to Engineer																		
<b>Bldg. 059 Ready for Engineer Inspection (C8 Requirement)</b>																			
RAB-59-7570	059 - Engineer Inspection Period																		
RAB-59-7580	059 - Engineer Issue Occupation Permit																		
RAB-59-7590	KD2 - Projected Completion of Section II of the Works (470 days) Bu																		
<b>Bldg. 059 Ready for Engineer Inspection (Due to C3 Work Interface)</b>																			
RAB-59-7530	059 - Engineer Inspection Period																		
RAB-59-7540	059 - Engineer Issue Occupation Permit																		
RAB-KD24	KD2 - Projected Completion of Section II of the Works (470 days) Bu																		

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		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>Hong Kong-Zhuhai_Macao Bridge Hong Kong Boundary Crossing F</b>		<p>22-Oct-17, Hong Kong-Zhuhai_Macao Bridge</p> <p>23-Jun-17, Site and Facility Inspection:</p> <p>24-Aug-17, Access Dates</p>																	
<b>Key Dates</b>																			
<b>Interface Activities</b>																			
<b>Site and Facility Inspection</b>																			
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																		
<b>Access Dates</b>																			
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 (330d)																		
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)) - Deg1 (330d)																		
AD1090	Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) - Deg2 (380d)																		
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 - Deg2 (480d)																		
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																		

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

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

Date	Revision	Checked	Approved
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Activity ID	Activity Name	2015												2016				2017				2018				2019		
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q1	Q2	Q3						
	<b>Detailed Design Specification</b>																											
	<b>Construction Design and Management</b>																											
	<b>Supply/Manufacture Mock-up items</b>																											
	<b>Supply/Manufacture prototypes</b>																											
	<b>Software Design, Coding and Testing</b>																											
	<b>Coding</b>																											
	<b>Software System Inetgration</b>																											
	<b>Prototype &amp; Software Simulation Tests</b>																											
	<b>Procurement - Phase 1 / Section I</b>																											
	<b>Supply/Manufacture products for FAT</b>																											
	<b>Factory Acceptance Test (FAT)</b>																											
	<b>Supply/Manufacture Equipment</b>																											
	<b>Delivery and Bench Acceptance Test for Phase 1/ Section I</b>																											
	<b>Installation - Phase 1 / Section I</b>																											
	<b>Location 1(PCB (001) Basement)</b>																											
EM1920	L1(001)B/F - Cable Laying and termination at Location 1 and Location 2																											
	<b>Location 1(PCB (001) ELV Room (Grid Line E3))</b>																											
EM1940	L1(001)ELV Rm - Cable Laying and termination at Location 1 and Location 2																											
	<b>Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3))</b>																											
EM1960	L2(001)ELV Rm - Cable Laying and termination at Location 1 and Location 2																											
	<b>Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5))</b>																											
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																											
	<b>Location 2(PCB (001) First Floor Main Server Room)</b>																											
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																											
	<b>Location 3(Inbd Cargo Exam Bldg (037) MDF Room)</b>																											
	<b>Location 3(Inbd Cargo Exam Bldg (037) ELV Room)</b>																											
	<b>Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,141)</b>																											
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																											
	<b>Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)</b>																											
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																											

01-Sep-17; Installation - Phase 1 / Section I  
 22-Jun-17; Location:1(PCB (001);Basement)  
 L1(001)B/F - Cable Laying and termination at Location  
 22-Jun-17; Location:1(PCB (001);ELV Room (Grid Line  
 L1(001)ELV Rm - Cable Laying and termination at Loca  
 22-Jun-17; Location:2(PCB (001);Ground Floor ELV R  
 L2(001)ELV Rm - Cable Laying and termination at Loca  
 18-Aug-17; Location:2(PCB (001);Ground Floor DO  
 L2(001)Heath Ctrl Rm - Cable Laying and termination  
 L2(001)Heath Ctrl Rm - Cable Splicing and Testing and  
 L2(001)Health Ctrl Rm - Intercom and PA system In  
 L2(001)Health Ctrl Rm - Intercom and PA system tu  
 21-Aug-17; Location:2(PCB (001); First Floor Main  
 L2(001)Main Server Rm - Cable Laying and terminatio  
 L2(001)Main Server Rm - Cable Splicing and Testing  
 L2(001)Main Server Rm - AVCSS Network and Ser  
 L2(001)Main Server Rm - AVCSS Network and Se  
 07-Aug-17; Location:3(Inbd Cargo Exam Bldg (037)  
 L3(037)Inspec Offices - Cable Laying and termination in  
 L3(037)Inspec Offices - Cable Splicing and Testing and  
 L3(037)Inspec Offices - AVCSS SURCON WS and 5  
 L3(037)Inspec Offices - VTS WS Installation  
 L3(037)Inspec Offices - SURCON and WS Tuning  
 07-Aug-17; Location:3(Inbd Cargo Exam Bldg (037)  
 L3(037)PLF Ctrl Rm - Cable Laying and termination in  
 L3(037)PLF Ctrl Rm - Cable Splicing and Testing and  
 L3(037)PLF Ctrl Rm - AVCSS SYSCON WS and 55  
 L3(037)PLF Ctrl Rm - AVCSS SYSCON WS Tuning

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	Primary Baseline			14-Nov-16	Rev.: 0	WC	LC
	Actual Work			10-Mar-17	Rev.: 1.0a	WC	LC
	Remaining Work			5-May-17	Rev.: 1.0b	WC	LC
	Critical Remaining Work						
	Baseline Milestone						
	Milestone						



Activity ID	Activity Name	2015																		2016				2017				2018				2019		
		Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3					
<b>Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Room)</b>		07-Aug-17, Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Rm - Cable Laying and termination in Location 3 and Location 3a																																
EM1240	L3a(037) ROCARS Rm - Cable Laying and termination in Location 3 and Location 3a	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	L3a(037) ROCARS Rm - Cable Splicing and Testing and Labeling																																
EM1280	L3a(037) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation	L3a(037) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation																																
EM1300	L3a(037) ROCARS Rm - VTS WS Installation	L3a(037) ROCARS Rm - VTS WS Installation																																
EM1320	L3a(037) ROCARS Rm - VID WS Installation	L3a(037) ROCARS Rm - VID WS Installation																																
EM1340	L3a(037) ROCARS Rm - SURCON and SYSCON and WS Tuning	L3a(037) ROCARS Rm - SURCON and SYSCON and WS Tuning																																
<b>Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room)</b>		07-Aug-17, Location 3a(Inbd Cargo Exam Bldg (037) Main Server Rm - Cable Laying and termination in Location 3 and Location 3a																																
EM2120	L3a(037)Main Server Rm - Cable Laying and termination in Location 3 and Location 3a	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	L3a(037)Main Server Rm - Cable Splicing and Testing and Labeling																																
EM2160	L3a(037)Main Server Rm - AVCSS Server Installation	L3a(037)Main Server Rm - AVCSS Server Installation																																
EM2180	L3a(037)Main Server Rm - VTS Server Installation	L3a(037)Main Server Rm - VTS Server Installation																																
EM2200	L3a(037)Main Server Rm - Servers Tuning	L3a(037)Main Server Rm - Servers Tuning																																
<b>Location 4(Outbd Cargo Exam Bldg (023) MDF Room)</b>		04-Aug-17, Location 4a(Outbd Cargo Exam Bldg (023) ROCARS Rm - Cable Splicing and Testing and Labeling																																
EM2240	L4a(023)ROCARS Rm - Cable Splicing and Testing and Labeling	L4a(023)ROCARS Rm - Cable Splicing and Testing and Labeling																																
EM2260	L4a(023)ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation	L4a(023)ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation																																
EM2280	L4a(023)ROCARS Rm - VTS WS Installation	L4a(023)ROCARS Rm - VTS WS Installation																																
EM2300	L4a(023)ROCARS Rm - SYSCON and SURCON and WS Tuning	L4a(023)ROCARS Rm - SYSCON and SURCON and WS Tuning																																
<b>Location 5(Common Utility Enclosure &amp; Staff Subway)</b>		01-Sep-17, Location 5(Common Utility Enclosure & Staff Subway) - Cable Laying between Location 5 and Location 6																																
EM2341	L5(CUE) - Cable Laying between Location 5 and Location 6	L5(CUE) - Cable Laying between Location 5 and Location 6																																
EM2361	L5(CUE) - Cable Laying between Location 5 and Location 7	L5(CUE) - Cable Laying between Location 5 and Location 7																																
EM2380	L5(CUE) - Cable Splicing and Testing and Labeling	L5(CUE) - Cable Splicing and Testing and Labeling																																
<b>Location 6(Common Utility Enclosure &amp; Staff Subway)</b>		26-Aug-17, Location 6(Common Utility Enclosure & Staff Subway) - Cable Laying between Location 5 and Location 6																																
EM2400	L6(CUE) - Cable Laying between Location 5 and Location 6	L6(CUE) - Cable Laying between Location 5 and Location 6																																
EM2420	L6(CUE) - Cable Splicing and Testing and Labeling	L6(CUE) - Cable Splicing and Testing and Labeling																																
<b>Location 7(Common Utility Enclosure &amp; Staff Subway)</b>		01-Sep-17, Location 7(Common Utility Enclosure & Staff Subway) - Cable Laying between Location 5 and Location 7																																
EM2440	L7(CUE) - Cable Laying between Location 5 and Location 7	L7(CUE) - Cable Laying between Location 5 and Location 7																																
EM2460	L7(CUE) - Cable Splicing and Testing and Labeling	L7(CUE) - Cable Splicing and Testing and Labeling																																
<b>Location 12(Inbd Private Car Kiosks,GV Kiosks (027,028,029))</b>		30-Aug-17, Location 12(Inbd Private Car Kiosks,GV Kiosks (027,028,029)) - Cable Splicing and Testing and Labeling																																
<b>Inbd Private Car Kiosks(027) - 9 nos (Phase 1)</b>		24-Aug-17, Inbd Private Car Kiosks(027) - 9 nos (Phase 1) - Cable Splicing and Testing and Labeling																																
EM1500	L12(027)(9nos P1) - Cable Splicing and Testing and Labeling	L12(027)(9nos P1) - Cable Splicing and Testing and Labeling																																
EM1520	L12(027)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)	L12(027)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)																																
EM1541	L12(027)(9nos P1) - XDB installation (18 nos)	L12(027)(9nos P1) - XDB installation (18 nos)																																
EM1542	L12(027)(9nos P1) - ODB installation (5 nos)	L12(027)(9nos P1) - ODB installation (5 nos)																																
EM1543	L12(027)(9nos P1) - ODB installation (2 nos)	L12(027)(9nos P1) - ODB installation (2 nos)																																
EM1544	L12(027)(9nos P1) - ODB installation (2 nos)	L12(027)(9nos P1) - ODB installation (2 nos)																																
EM1560	L12(027)(9nos P1) - Loop installation (45 nos)	L12(027)(9nos P1) - Loop installation (45 nos)																																
<b>Inbd Goods Vehicle Kiosks(028) - 5 nos (Phase 1)</b>		30-Aug-17, Inbd Goods Vehicle Kiosks(028) - 5 nos (Phase 1) - Cable Laying and termination																																
EM1620	L12(028)(5nos P1) - Cable Laying and termination	L12(028)(5nos P1) - Cable Laying and termination																																
EM1640	L12(028)(5nos P1) - Cable Splicing and Testing and Labeling	L12(028)(5nos P1) - Cable Splicing and Testing and Labeling																																
EM1660	L12(028)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)	L12(028)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)																																
EM1681	L12(028)(5nos P1) - XDB installation (10 nos)	L12(028)(5nos P1) - XDB installation (10 nos)																																
EM1682	L12(028)(5nos P1) - ODB installation (3 nos)	L12(028)(5nos P1) - ODB installation (3 nos)																																
EM1683	L12(028)(5nos P1) - ODB installation (2 nos)	L12(028)(5nos P1) - ODB installation (2 nos)																																

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- Remaining Work
- Critical Remaining Work
- Baseline Milestone
- Milestone

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

Date	Revision	Checked	Approved
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Activity ID	Activity Name	2015			2016				2017				2018				2019		
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>Outbd Vehicle Clearance Plaza - 8 nos VID, 6 nos VTS, 4 nos TLS</b>		<ul style="list-style-type: none"> <li>EM3160 Outbound VID cabling from pillar box to VID field equipment</li> <li>EM3180 Outbound VTS cabling from pillar box to VTS field equipment</li> <li>EM3200 Outbound TLS cabling from pillar box to TLS field equipment</li> <li>EM3220 Outbound VID field equipment installation (8 VID)</li> <li>EM3240 Outbound VTS field equipment installation (3 RFID + 3 Cameras)</li> <li>EM3260 Outbound TLS field equipment installation (4 TLS)</li> <li>EM3280 Outbound VID and VTS and TLS field equipment tuning</li> </ul>																	
<b>Underground Ducting (UUD1.1) between CUE and Inbd Cargo Exam Bldg (037)</b>		<ul style="list-style-type: none"> <li>UD1000 (UUD1.1 [CUE-037]) - Cable laying and termination</li> </ul>																	
<b>(UUD1.2) between Inbd Cargo Exam Bldg South (037[S]) and DOH Cargo Clearance Bldg (037[S])</b>		<ul style="list-style-type: none"> <li>UD1060 (UUD1.2 [037[S]-043]) - Cable laying and termination</li> </ul>																	
<b>Underground Ducting (UUD6) between CUE and Shuttle Bus Kiosk (006) and Inbd Private Car Exam Bldg (033)</b>		<ul style="list-style-type: none"> <li>UD1040 (UUD9.1 [037[S]-033-100]) - Cable laying and termination</li> </ul>																	
<b>(UUD9.1) btw IB Cargo Exam Bldg South(037[S]) &amp; IB PC Exam Bldg(033) &amp; IB Traffic Control Bldg (033)</b>		<ul style="list-style-type: none"> <li>UD1010 (UUD2 [037[N]-IB VCP]) - Cable laying and termination</li> </ul>																	
<b>(UUD2) between Inbd Cargo Exam Bldg North (037[N]) to Inbd VCP</b>		<ul style="list-style-type: none"> <li>UD1070 (UUD9.3 [033-IB VCP[W]]) - Cable laying and termination</li> </ul>																	
<b>(UUD9.3) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clearance Plaza</b>		<ul style="list-style-type: none"> <li>UD1020 (UUD9.2 [033-IB VCP[E]]) - Cable laying and termination</li> </ul>																	
<b>(UUD9.2) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clearance Plaza</b>		<ul style="list-style-type: none"> <li>UD1030 (UUD3.1 [CUE-023]) - Cable laying and termination</li> </ul>																	
<b>Underground Ducting (UUD7) between PCB(001) and Inbd Coach Kiosks(010)</b>		<ul style="list-style-type: none"> <li>UD1050 (UUD3.2 [023-024-101]) - Cable laying and termination</li> </ul>																	
<b>Underground Ducting (UUD3.1) between CUE and Outbd Cargo Exam Bldg (023)</b>		<ul style="list-style-type: none"> <li>UD1100 (UUD8 [CUE-032]) - Cable laying and termination</li> </ul>																	
<b>(UUD3.2) btw OB Car Exam Bldg(023) &amp; OB PC Exam Bldg(024) &amp; OB Traffic Control Bldg (023)</b>		<ul style="list-style-type: none"> <li>UD1080 (UUD4.1 [024-OB VCP]) - Cable laying and termination</li> </ul>																	
<b>Underground Ducting (UUD8) between CUE and Outbd PCA (032)</b>		<ul style="list-style-type: none"> <li>UD1090 (UUD5 [023[S]-OB VCP]) - Cable laying and termination</li> </ul>																	
<b>(UUD4.1) between Outbd PC Exam Bldg (024) and Outbd Vehicle Clearance Plaza</b>		<ul style="list-style-type: none"> <li>UD1090 (UUD5 [023[S]-OB VCP]) - Cable laying and termination</li> </ul>																	
<b>(UUD5) between Outbd Car Exam Bldg (023[S]) and Outbd Vehicle Clearance Plaza</b>		<ul style="list-style-type: none"> <li>UD1090 (UUD5 [023[S]-OB VCP]) - Cable laying and termination</li> </ul>																	
<b>Initial On-Site Test and Commissioning / Pre-SAT (Phase 1 / Section I)</b>		<ul style="list-style-type: none"> <li>Site Acceptance Test (Phase 1 / Section I)</li> <li>Security Risk Assessment and Audit</li> <li>Operability Period Test (Phase 1 / Section I)</li> <li>Completion (Phase 1 /Section I)</li> <li>Training and Document (Phase 1 /Section I)</li> <li>Operation (Phase 1 /Section I)</li> <li>Engineering Support for Phase 1 / Section I</li> <li>Procurement - Phase 2 / Section II</li> <li>Delivery and Bench Acceptance Test for Phase 2/Section II</li> <li>Installation - Phase 2 / Section II</li> </ul>																	








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			5-May-17	Rev.: 1.0b	WC	LC

Activity ID	Activity Name	2015			2016				2017				2018				2019			
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
<b>Location 8(Inbd Private Car Annex (025)) (Phase 2)</b>		▼ 30-Aug-17; Location 8(Inbd Private Car Annex (025)) (Phase 2)																		
EM3370	L8(025) - Cable Containment in Kiosks																			▼ L8(025) - Cable Containment in Kiosks
EM3380	L8(025) - Cable Laying and termination																			▼ L8(025) - Cable Laying and termination
EM3400	L8(025) - Cable Splicing and Testing and Labeling																			▼ L8(025) - Cable Splicing and Testing and Labeling
<b>Location 9(Outbd Private Car Annex (032)) (Phase 2)</b>		▼ 30-Aug-17; Location 9(Outbd Private Car Annex (032)) (Phase 2)																		
EM3500	L9(032) - Cable Containment in Kiosks																			▼ L9(032) - Cable Containment in Kiosks
EM3520	L9(032) - Cable Laying and termination																			▼ L9(032) - Cable Laying and termination
<b>Initial On-Site Test and Commissioning / Pre-SAT (Phase 2 / Section II)</b>																				
<b>Site Acceptance Test (Phase 2 / Section II)</b>																				
<b>Operability Period Test (Phase 2 / Section II)</b>																				
<b>Completion (Phase 2 / Section II)</b>																				
<b>Engineering Support for Phase 2 / Section II</b>																				
<b>Procurement for Phase2 / Section III</b>																				
<b>Delivery and Bench Acceptance Test for Phase2 / Section III</b>																				
<b>Installation - Phase 2 / Section III</b>																				
<b>Location 10,11,12,13 (Vehicle Clearance Kiosks)</b>		▼ 09-Oct-17; Installation - Phase 2/ Section III																		
<b>Location 12 Inbd Private Car Kiosks (027) - 12 nos (Phase 2)</b>		▼ 09-Oct-17; Location 10,11,12,13 (Vehicle Clearance Kiosks)																		
EM4440	L12(027)(12nos P2) - Cable Laying and termination																			▼ 09-Oct-17; Location 12 Inbd Private Car Kiosks
EM4460	L12(027)(12nos P2) - Cable Splicing and Testing and Labeling																			▼ L12(027)(12nos P2) - Cable Laying and termination
EM4480	L12(027)(12nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (12 nos)																			▼ L12(027)(12nos P2) - Cable Splicing and Testing and Labeling
<b>Location 13 Outbd Private Car Kiosks (030) - 12 nos (Phase 2)</b>		▼ 01-Sep-17; Location 13 Outbd Private Car Kiosks																		
EM4560	L13(030)(12nos P2) - Cable Containment in Kiosks																			▼ L13(030)(12nos P2) - Cable Containment in Kiosks
<b>Location 12 Outbd Goods Vehicle Kiosks (029) - 3 nos (Phase 2)</b>		▼ 31-Aug-17; Location 12 Outbd Goods Vehicle Kiosks																		
EM4880	L12(029)(3nos P2) - Cable Laying and termination																			▼ L12(029)(3nos P2) - Cable Laying and termination
EM4900	L12(029)(3nos P2) - Cable Splicing and Testing and Labeling																			▼ L12(029)(3nos P2) - Cable Splicing and Testing and Labeling
EM4920	L12(029)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)																			▼ L12(029)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)
EM4940	L12(029)(3nos P2) - ODB & XDB Installation (3 nos)																			▼ L12(029)(3nos P2) - ODB & XDB Installation (3 nos)
EM4960	L12(029)(3nos P2) - AIOP Installation (3 nos)																			▼ L12(029)(3nos P2) - AIOP Installation (3 nos)
EM4980	L12(029)(3nos P2) - Loop Installation (15 nos)																			▼ L12(029)(3nos P2) - Loop Installation (15 nos)
<b>Location 11 Outbd Coach Kiosks (009) - 4 nos (Phase 2)</b>																				
<b>Location 12 Inbd Goods Vehicle Kiosks (028) - 3 nos (Phase 2)</b>		▼ 24-Aug-17; Location 12 Inbd Goods Vehicle Kiosks																		
EM4720	L12(028)(3nos P2) - Cable Laying and termination																			▼ L12(028)(3nos P2) - Cable Laying and termination
EM4740	L12(028)(3nos P2) - Cable Splicing and Testing and Labeling																			▼ L12(028)(3nos P2) - Cable Splicing and Testing and Labeling
EM4760	L12(028)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)																			▼ L12(028)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)
EM4780	L12(028)(3nos P2) - ODB & XDB Installation (3 nos)																			▼ L12(028)(3nos P2) - ODB & XDB Installation (3 nos)
EM4800	L12(028)(3nos P2) - AIOP Installation (3 nos)																			▼ L12(028)(3nos P2) - AIOP Installation (3 nos)
EM4820	L12(028)(3nos P2) - Loop Installation (15 nos)																			▼ L12(028)(3nos P2) - Loop Installation (15 nos)
EM4840	L12(028)(3nos P2) - Kiosk Equipment Configuration (3 nos)																			▼ L12(028)(3nos P2) - Kiosk Equipment Configuration (3 nos)
EM5120	L12(028)(3nos P2) - Inbd Goods Vehicle Kiosks Installation Complete																			▼ L12(028)(3nos P2) - Inbd Goods Vehicle Kiosks Installation Complete
<b>Location 10 Shuttle Bus Kiosks (006) - 4 nos (Phase 2)</b>		▼ 30-Aug-17; Location 10 Shuttle Bus Kiosks (006) -																		
EM4000	L10(006)(4nos P2) - Cable Containment in Kiosks																			▼ L10(006)(4nos P2) - Cable Containment in Kiosks
<b>Location 11 Inbd Coach Kiosks (010) - 2 nos (Phase 2)-1</b>																				
<b>Location 11 Inbd Coach Kiosks (010) - 2 nos (Phase 2)-2</b>																				
<b>Initial On-Site Test and Commissioning / Pre-SAT (Phase 2 / Section III)</b>																				

Programme No.: HZMB-DWP Data Date: 14-Aug-15		<b>Hong Kong-Zhuhai-Macao Bridge</b> <b>Hong Kong Boundary Crossing</b> <b>Facilities - Automatic Vehicle</b> <b>Clearance Support System (AVCSS)</b>	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	2015			2016				2017				2018				2019			
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
	<ul style="list-style-type: none"> <li> Site Acceptance Test (Phase 2 / Section III)</li> <li> Operability Period Test (Phase 2 / Section III)</li> <li> Completion (Phase 2 / Section III)</li> <li> Operation (Phase 2 / Section III)</li> <li> Defect Liability Period (DLP)</li> <li> Document Submission (Phase 2 / Section III)</li> </ul>																			

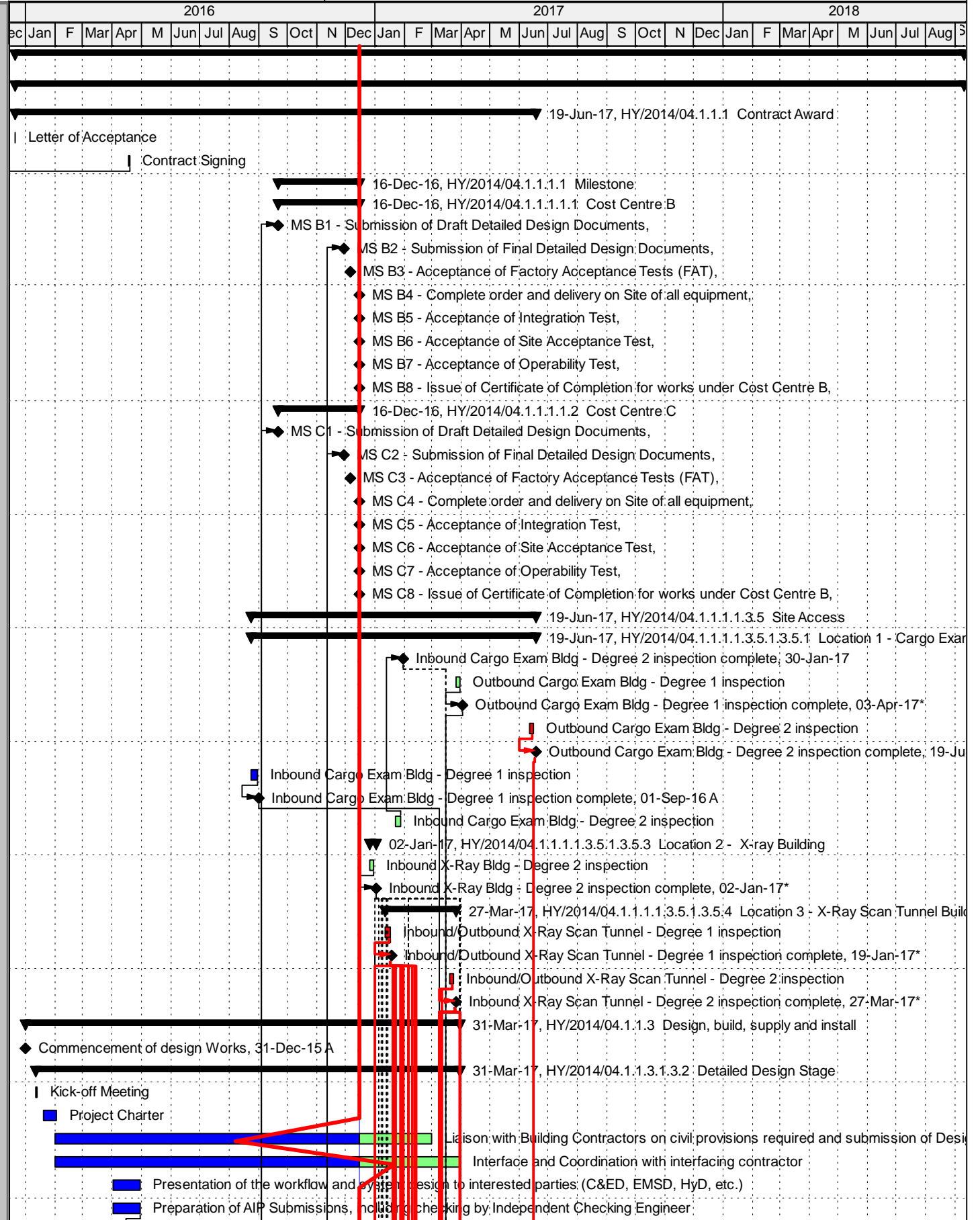
Programme No.: HZMB-DWP  
Data Date: 14-Aug-15

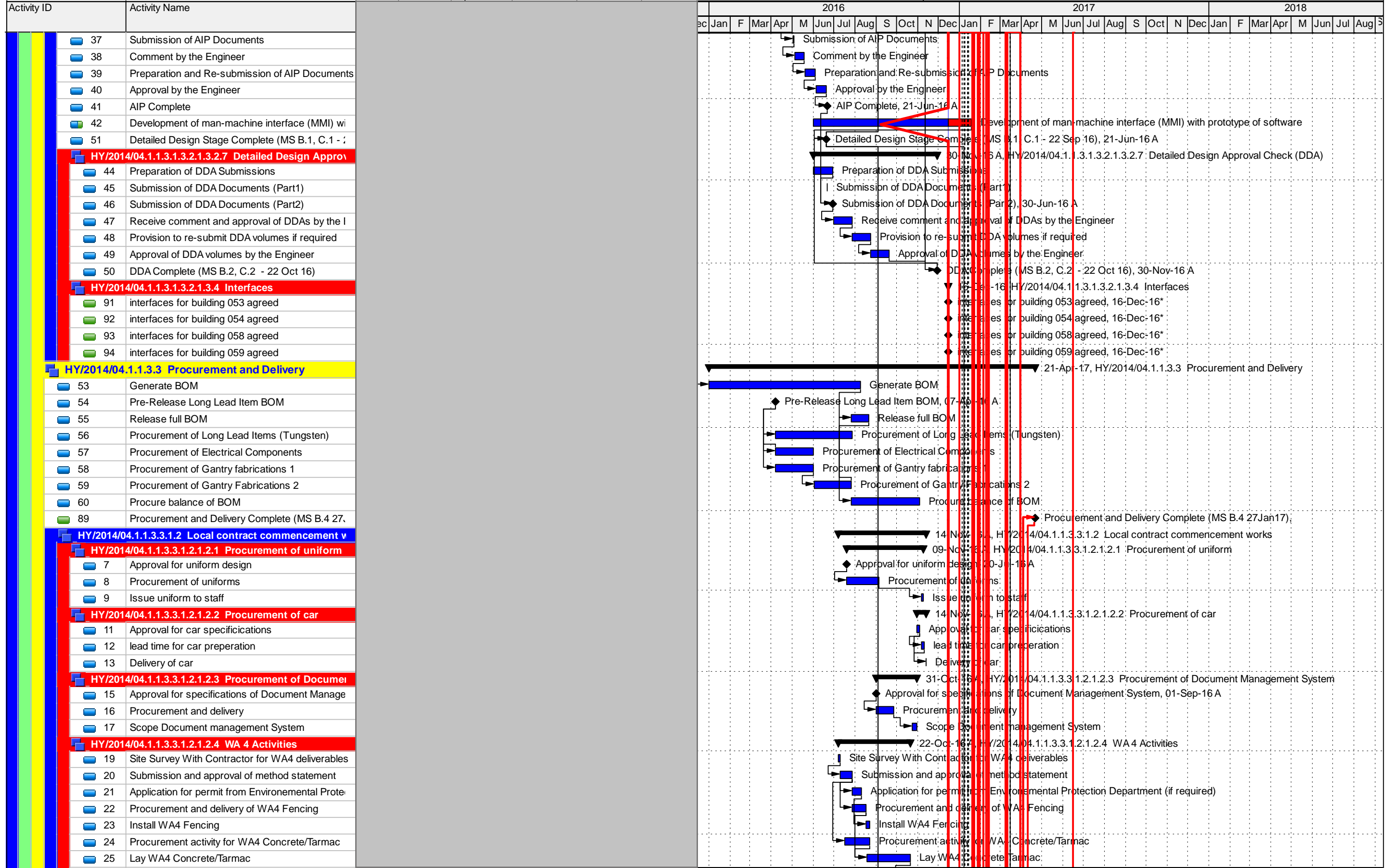
-  Actual Level of Effort
-  Primary Baseline
-  Actual Work
-  Remaining Work
-  Critical Remaining Work
-  Baseline Milestone
-  Milestone

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
<b>HY/2014/04 Hong Kong-Zhuhai-Macao Bridge</b>	
<b>HY/2014/04.1 Contract No. HY/2014/04 Hong Kong-Zhuhai-Macao Bridge</b>	
<b>HY/2014/04.1.1.1 Contract Award</b>	
3	Letter of Acceptance
4	Contract Signing
<b>HY/2014/04.1.1.1.1 Milestone</b>	
<b>HY/2014/04.1.1.1.1.1 Cost Centre B</b>	
A1C	MS B1 - Submission of Draft Detailed Design Documents
A1C	MS B2 - Submission of Final Detailed Design Documents
A1C	MS B3 - Acceptance of Factory Acceptance Tests (FAT)
A1C	MS B4 - Complete order and delivery on Site of all equipment
A1C	MS B5 - Acceptance of Integration Test
A1C	MS B6 - Acceptance of Site Acceptance Test
A1C	MS B7 - Acceptance of Operability Test
A1C	MS B8 - Issue of Certificate of Completion for works under Cost Centre B
<b>HY/2014/04.1.1.1.1.2 Cost Centre C</b>	
A1C	MS C1 - Submission of Draft Detailed Design Documents
A11	MS C2 - Submission of Final Detailed Design Documents
A11	MS C3 - Acceptance of Factory Acceptance Tests (FAT)
A11	MS C4 - Complete order and delivery on Site of all equipment
A11	MS C5 - Acceptance of Integration Test
A11	MS C6 - Acceptance of Site Acceptance Test
A11	MS C7 - Acceptance of Operability Test
A11	MS C8 - Issue of Certificate of Completion for works under Cost Centre C
<b>HY/2014/04.1.1.1.3.5 Site Access</b>	
<b>HY/2014/04.1.1.1.3.5.1.3.5.1 Location 1 - Cargo Exam Bldg</b>	
100	Inbound Cargo Exam Bldg - Degree 2 inspection
102	Outbound Cargo Exam Bldg - Degree 1 inspection
103	Outbound Cargo Exam Bldg - Degree 1 inspection
104	Outbound Cargo Exam Bldg - Degree 2 inspection
105	Outbound Cargo Exam Bldg - Degree 2 inspection
97	Inbound Cargo Exam Bldg - Degree 1 inspection
98	Inbound Cargo Exam Bldg - Degree 1 inspection
99	Inbound Cargo Exam Bldg - Degree 2 inspection
<b>HY/2014/04.1.1.1.3.5.1.3.5.3 Location 2 - X-ray Building</b>	
107	Inbound X-Ray Bldg - Degree 2 inspection
108	Inbound X-Ray Bldg - Degree 2 inspection complete
<b>HY/2014/04.1.1.1.3.5.1.3.5.4 Location 3 - X-Ray Scan Tunnel</b>	
110	Inbound/Outbound X-Ray Scan Tunnel - Degree 1 inspection
111	Inbound/Outbound X-Ray Scan Tunnel - Degree 1 inspection
112	Inbound/Outbound X-Ray Scan Tunnel - Degree 2 inspection
113	Inbound X-Ray Scan Tunnel - Degree 2 inspection
<b>HY/2014/04.1.1.3 Design, build, supply and install</b>	
28	Commencement of design Works
<b>HY/2014/04.1.1.3.1.3.2 Detailed Design Stage</b>	
30	Kick-off Meeting
31	Project Charter
32	Liaison with Building Contractors on civil provisions required and submission of Design
33	Interface and Coordination with interfacing contractor
35	Presentation of the workflow and system design to interested parties (C&ED, EMSD, HyD, etc.)
36	Preparation of AIP Submissions, including checking by Independent Checking Engineer





█ Actual Level of Effort    █ Remaining Work    ◆◆ Milestone  
█ Actual Work    █ Critical Remaining Work    ▼ summary



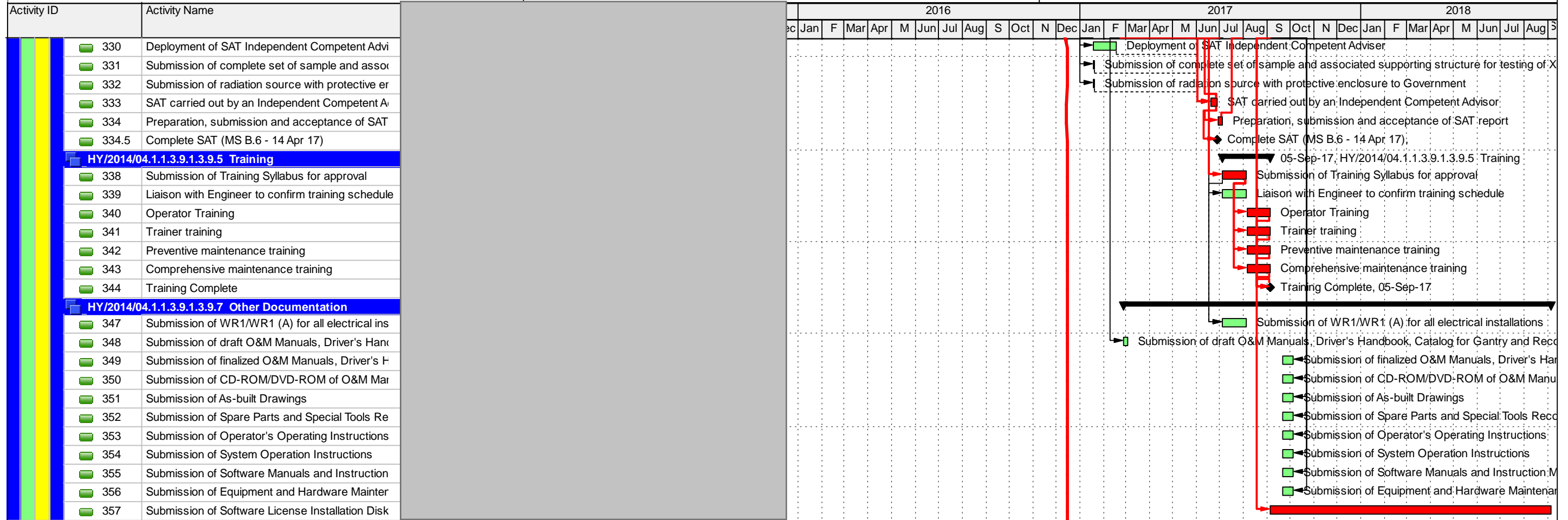














# APPENDIX D

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## Event and Action Plan

## Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IEC and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>LIMIT LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform ER, Contractor and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



## Event / Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor;</li> <li>2. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>3. Report the results of investigation to the IEC, ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5 Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC;</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Inform IEC, ER, EPD and Contractor;</li> <li>2. Identify source;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



# APPENDIX E

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## Waste Flow Table

## Monthly Summary Waste Flow Table for 2017



Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete (see Note 9)	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill (see Note 10)	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
January	1.390	0.010	1.380	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.197
February	1.070	0.003	1.067	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.143
March	0.266	0.202	0.064	0.000	0.202	0.000	5.840	0.000	0.000	0.000	0.269
April	0.249	0.013	0.236	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.220
May	0.132	0.132	0.000	0.000	0.132	0.000	0.000	0.000	0.000	0.000	0.421
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.392
Sub-total	3.107	0.360	2.747	0.000	0.360	0.000	5.840	0.000	0.000	0.000	1.642
July	0.076	0.007	0.069	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.403
August	0.010	0.010	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.405
September	0.071	0.071	0.000	0.000	0.071	0.000	0.000	0.000	0.000	0.000	0.465
October	0.166	0.141	0.025	0.000	0.141	0.416	0.000	0.000	0.000	0.000	0.448
November	0.425	0.165	0.260	0.000	0.165	0.000	0.000	0.000	0.000	0.000	0.427
December											
Total	3.855	0.754	3.101	0.000	0.754	0.416	5.840	0.000	0.000	0.000	3.790

Total C&D waste generated = a+b+f+g+h+i+j+k

Total C&D waste generated (excluded excavated material) = g+h+i+j+k

Total C&D waste recycled = c+d+g+h+i

% of recycled C&D waste = (Total C&D waste generated - Total C&D waste recycled) / Total C&D waste generated

Notes: (1) The performance target are given in PS Clause 6(14)

(2) The waste flow table shall also include C&D materials that are not specified in the Contract to be imported for use at the Site

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

(4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m<sup>3</sup>.

(5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.

(6) Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m<sup>3</sup>; soil = 2.0 tonnes/m<sup>3</sup>

excavated: rock = 2.0 tonnes/m<sup>3</sup>; soil = 1.8 tonnes/m<sup>3</sup>; broken concrete and bitumen = 2.4 tonnes/m<sup>3</sup>

C&D Waste = 0.9 tonnes/m<sup>3</sup>; bentonite slurry = 2.8 tonnes/m<sup>3</sup>

(7) Numbers are rounded off to the nearest three decimal places

(8) The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill"

(9) The "Hard Rock and Large Broken Concrete" were disposed as public fill

(10) The amount in "Disposed as Public Fill" included the "Hard Rock and Large Broken Concrete" disposed as public fill



ATAL Technologies Ltd.

Contract No. **HY/2013/06** HKBCF Automatic Vehicle Clearance Support System

Location: Artificial Island of HKBCF ( C8 Area)

Ver: 1st  
Date: Jan 2017

**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, 磚, 瓦, 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	0.000	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	0.000	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	0.002	0.002	0.000	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	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
May	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	0.000	0.005	0.005
June	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
July	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
August	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
October	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
<b>November</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.020</b>	<b>0.020</b>	<b>0.005</b>	<b>0.005</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.020</b>	<b>0.020</b>
December																			
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.055</b>	<b>0.055</b>	<b>0.025</b>	<b>0.025</b>	<b>0.000</b>	<b>0.000</b>	<b>0.004</b>	<b>0.004</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.055</b>	<b>0.055</b>

Notes: (1) The quantities 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<sup>-3</sup>.





# APPENDIX F

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## Environmental Licenses and Permits

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

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	All Areas	30 Jun 2015	N/A	Environmental Permit to construct the Remaining Ancillary Buildings and Facilities and associated works of the Hong Kong Zhuhai and Macao Bridge Boundary Crossing Facilities	EP-353/2009/I	17 Jul 15	N/A	EPD	Superseded by EP-353/2009/J
2	All Areas	18 Feb 2016	N/A	Environmental Permit to construct the Remaining Ancillary Buildings and Facilities and associated works of the Hong Kong Zhuhai and Macao Bridge Boundary Crossing Facilities	EP-353/2009/J	25 Feb 2016	N/A	EPD	Superseded by EP-353/2009/K
3	All Areas	24 Mar 2016	N/A	Environmental Permit to construct the Remaining Ancillary Buildings and Facilities and associated works of the Hong Kong Zhuhai and Macao Bridge Boundary Crossing Facilities	EP-353/2009/K	11 Apr 2016	N/A	EPD	-
4	All Areas	30 Dec 15	N/A	<b>Billing Account</b> for disposal of construction waste	7024342	16 Feb 16	N/A	EPD	-



Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: November 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							
5	All Areas	30 Dec 15	RABF-LTR- EPD-000001	<b>Notification</b> that notifiable works are anticipated to commence (Form NA).	Acknowledge Receipt Ref. No. 397571	06 Jan 16	N/A	EPD	-	
6	All Areas	04 Jan 16	RABF-LTR- EPD-000002	<b>Registration</b> as Chemical Waste Producer for disposal of spent batteries, used lubrication oil and surplus paint at RABF area	WPN 5213-951-L2846-02	19 Feb 16	N/A	EPD	-	
7	All Areas	25 Jan 16	RABF-LTR- EPD-000003	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0106-16	11 Feb 16	10 Aug 16	EPD	Superseded by GW-RS0476-16	
8	All Areas	08 May 16	RABF-LTR- EPD-000012	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0476-16	19 May 16	18 Nov 16	EPD	Superseded by GW-RS0666-16	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: November 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							
9	All Areas	16 Jun 16	RABF-LTR- EPD-000015	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0666-16	04 Jul 16	03 Jan 17	EPD	Superseded by GW-RS0907-16	
10	All Areas	18 Aug 16	RABF-LTR- EPD-000018	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0907-16	01 Sep 16	28 Feb 17	EPD	Superseded by GW-RS1195-16	
11	All Areas	16 Nov 16	RABF-LTR-EPD-000020	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1195-16	30 Nov 16	29 May 17	EPD	Superseded by GW-RS1315-16	
12	All Areas	08 Dec 16	RABF-LTR-EPD-000023	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1315-16	22 Dec 16	21 Jun 17	EPD	Superseded by GW-RS0131-17	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: November 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							
13	WA3	13 Jan 17	RABF-LTR-EPD-000026	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00. (Non-designated area)	GW-RS0070-17	27 Jan 17	26 Jul 17	EPD	Superseded by GW-RS0626-17	
14	All areas	03 Feb 17	RABF-LTR-EPD-000028	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0131-17	17 Feb 17	16 Aug 17	EPD	Superseded by GW-RS0306-17	
15	All areas	20 Mar 17	RABF-LTR-EPD-000035	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0306-17	05 Apr 17	02 Oct 17	EPD	Superseded by GW-RS0435-17	
16	All areas	05 May 17	RABF-LTR-EPD-000036	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0435-17	20 May 17	16 Nov 17	EPD	Superseded by GW-RS0710-17	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: November 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							
17	WA3	28 Jun 17	RABF-LTR-EPD-000041	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00. (Non-designated area)	GW-RS0626-17	27 Jul 17	26 Jan 18	EPD	-	
18	All areas	03 Aug 17	RABF-LTR-EPD-000042	<b>CNP</b> for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0710-17	21 Aug 17	16 Feb 18	EPD	-	

**Environmental License/ Permits /Notification Register**

LCAL H2642

**Contract No. HY/2013/06 – Hong Kong Zhuhai and Macao Bridge - HKBCF – Automatic Vehicle Clearance Support System**

Date: 30 November 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	CNP-GW416290	Construction Noise Permit	GW-RS0452-17	1 June 2017	30 Nov 2017	EPD	

**Environmental License/ Permits /Notification Register**

**Contract No. HY/2014/04 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Gantry Type X-ray Vehicle Inspection System**

Date: November 2017									Remark
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	
	Work Area	Date	Reference						
1	All Areas	23 Aug 2016	N/A	<u>Billing Account</u> for disposal of construction waste	7025930	20 Sep 2016	N/A	EPD	
2	Building 058,059	27 Jul 2017	N/A	Construction Noise Permit(CNP)	GW-RS0640-17	6 Aug 2017	4 Feb 2018	EPD	

# APPENDIX G

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## Implementation Schedule for Environmental Mitigation Measures (EMIS)

**Contract No. HY/2014/05 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities  
Implementation Schedule for Environmental Mitigation Measures**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Air Quality</b>								
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$ , respectively)	√
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> <li>• 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;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• 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;</li> <li>• 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;</li> </ul>	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$ , respectively)	√



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.6.2	A2	<ul style="list-style-type: none"> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• 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 and the 3 sides;</li> </ul>	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 µgm <sup>-3</sup> and 260 µgm <sup>-3</sup> , respectively)	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.6.2	A2	<ul style="list-style-type: none"> <li>Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>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</li> <li>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 or part of the construction site where the exposed earth lies.</li> </ul>	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$ , respectively)	√
S5.5.6.4	A3	The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	Control construction dust	Contractor	All construction sites	Construction stage	To control the dust impact	√
S5.5.6.5	A4	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.	Control construction dust	Engineer	All construction sites	Design Stage	Air Pollution Control (Construction Dust) Regulation	√
S5.5.6.5	A5	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> <li>Air Pollution Control (Construction Dust) Regulation</li> <li>To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 <math>\mu\text{g}\text{m}^{-3}</math> and 260 <math>\mu\text{g}\text{m}^{-3}</math>, respectively)</li> </ul>	√ (The dust monitoring at AMS6 under EM&A Programme for the Contract is covered by Contract No. HY/2011/03 while the dust monitoring at AMS7 under EM&A Programme for the Contract is covered by Contract No. HY/2013/01.)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.7.1	A6	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant:</p> <ul style="list-style-type: none"> <li>• Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system;</li> <li>• 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;</li> <li>• Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system;</li> <li>• The materials which may generate airborne dusty emissions should be wetted by water spraysystem;</li> <li>• All receiving hoppers should be enclosed on three sides up to 3m above unloading point;</li> <li>• All conveyor transfer points should be totally enclosed;</li> <li>• All access and route roads within the premises should be paved and wetted; and</li> <li>• 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.</li> </ul>	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> <li>• Air Pollution Control (Construction Dust) Regulation</li> <li>• To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 µgm<sup>-3</sup> and 260 µgm<sup>-3</sup>, respectively)</li> </ul>	N/A
S5.5.2.7	A7	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> <li>• All road surface within the barging facilities will be paved;</li> <li>• Dust enclosures will be provided for the loading ramp;</li> <li>• Vehicles will be required to pass through designated wheels wash facilities; and</li> <li>• Continuous water spray at the loading points.</li> </ul>	Control construction dust	Contractor	All construction sites	Construction stage	Air Pollution Control (Construction Dust) Regulation	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Construction Noise (Air borne)</b>								
S6.4.10	N1	<p>1) Use of good site practices to limit noise emissions by considering the following:</p> <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>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;</li> <li>plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise by means of good site practices	Contractor	All construction sites	Construction stage	Noise Control Ordinance	√
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.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Noise Control Ordinance</li> <li>Annex 5, TM-EIA</li> </ul>	N/A
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m <sup>2</sup> ), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	Screen the noisy plant items to be used at all construction sites	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	<ul style="list-style-type: none"> <li>Noise Control Ordinance</li> <li>Annex 5, TM-EIA</li> <li>75dB(A) for residential premises</li> <li>The movable barrier should achieve at least 5dB(A) and the full enclosure should be</li> </ul>	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	Reduce the noise levels of plant items	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	<ul style="list-style-type: none"> <li>Noise Control Ordinance &amp; its TM</li> <li>Annex 5, TM-EIA</li> </ul>	√
S6.4.14	N5	5) Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Noise Control Ordinance</li> <li>Annex 5, TM-EIA</li> </ul>	√
/	N6	6) Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	<ul style="list-style-type: none"> <li>Noise Control Ordinance</li> <li>Annex 5, TM-EIA</li> <li>75dB(A) for residential premises</li> </ul>	√ (The noise monitoring at NMS2 and NMS3B under EM&A programme for the Contract are covered by Contract No. HY/2013/01.)
<b>Sediment</b>								
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.	Develop sediment disposal arrangement	Engineer	All construction sites	Design stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>ETW B TC 34/2002</li> </ul>	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Waste Management (Construction Waste)</b>								
S8.3.8	WM1	<p><u>Construction and Demolition Material</u></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETW BTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• In addition, disposal of the C&amp;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.</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions) Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETW BTC 19/2005</li> </ul>	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S8.3.9-S8.3.11	WM2	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;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.</li> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;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.</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions) Ordinance</li> <li>Waste Disposal Ordinance</li> <li>ETWB TC 19/2005</li> </ul>	√
S8.2.12-S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>The storage area for chemical wastes should be clearly labelled 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.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) General) Regulation</li> <li>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<ul style="list-style-type: none"> <li>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 a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>						√
S8.3.16	WM4	<p><u>Sewage</u></p> <ul style="list-style-type: none"> <li>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 toilets. Night soil should be collected by licensed collectors regularly.</li> </ul>	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> </ul>	√
S8.3.17	WM5	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>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 bylaw.</li> <li>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 iffeasible.</li> <li>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. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc.,should be provided.</li> <li>Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> </ul>	√



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Water Quality (Construction Phase)</b>								
S.9.11.1.7	W2	<p><u>Land Works</u> General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> <li>• wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;</li> <li>• sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the W PCO or collected for disposal offsite. The use of soakaways shall be avoided;</li> <li>• 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;</li> <li>• 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;</li> <li>• temporary access roads should be surfaced with crushed stone or gravel;</li> <li>• rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;</li> <li>• measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;</li> <li>• open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;</li> <li>• 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;</li> <li>• discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;</li> </ul>	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S9.11.1.7	W2	<ul style="list-style-type: none"> <li>• 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;</li> <li>• wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain;</li> <li>• the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;</li> <li>• wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects;</li> <li>• 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;</li> <li>• the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately;</li> <li>• waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance;</li> <li>• 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</li> <li>• surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.</li> </ul>	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Ecology (Construction Phase)</b>								
S10.7	E4	<ul style="list-style-type: none"> <li>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</li> </ul>	Prevent Sedimentation from Land-based works areas	Contractor	Land-based works areas	During construction	TM-Water	√
S10.7	E5	<ul style="list-style-type: none"> <li>Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time</li> </ul>	Prevent disturbance to terrestrial fauna and habitats	Contractor	Land-based works areas	During construction		√
S10.7	E8	<ul style="list-style-type: none"> <li>Control vessel speed</li> <li>Skipper training</li> <li>Predefined and regular routes for working vessels; avoid Brother Islands.</li> </ul>	Minimise marine traffic disturbance on dolphins	Contractor	Marine Traffic	During construction		N/A
<b>Fisheries</b>								
S11.7	F4	<ul style="list-style-type: none"> <li>Maritime Oil Spill Response Plan (MOSRP);</li> <li>Contingency plan.</li> </ul>	Minimise impacts on marine water quality impacts	Marine Department	HKBCF	During operation		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Landscape &amp; Visual (Detailed Design Phase)</b>								
S14.3.3.1	LV1	<p>General design measures include:</p> <ul style="list-style-type: none"> <li>• Roadside planting and planting along the edge of the HKBCF Island is proposed;</li> <li>• 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;</li> <li>• Protection measures for the trees to be retained during construction activities;</li> <li>• Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid visually-sensitive locations;</li> <li>• Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed;</li> <li>• Providing planting area around peripheral of HKBCF for tree planting screening effect;</li> <li>• Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline;</li> <li>• 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; and</li> <li>• Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimize disturbance to surrounding vegetation in the HKBCF.</li> </ul>	Minimise visual & landscape impact	Detailed designer	HKBCF	Design Stage		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<i>Landscape &amp; Visual (Construction Phase)</i>								
S14.3.3.3	LV2	<p>Mitigate both Landscape and Visual Impacts</p> <p>G1. Grass-hydroseed bare soil surface and stock pile areas.</p> <p>G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic.</p> <p>G3. Not applicable as this is for HKLR.</p> <p>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</p> <p>G5. Vegetation reinstatement and upgrading to disturbed areas</p> <p>G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed</p> <p>G7. Providing planting area around peripheral of HKBCF for tree planting screening effect;</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.</p> <p>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.</p>	Minimise visual & landscape impact	Contractor	HKBCF	Construction stage		N/A
S14.3.3.3	LV3	<p><u>Mitigate Visual Impacts</u></p> <p>V1.Minimize time for construction activities during construction period.</p> <p>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.</p>						√ for V1. N/A for V2.

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>EM&amp;A</b>								
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Project Proponent	All construction sites		<ul style="list-style-type: none"> <li>EIAO Guidance Note No.4/2002</li> <li>TM-EIAO</li> </ul>	√
S15.5 - S15.6	EM2	<ol style="list-style-type: none"> <li>1) An Environmental Team needs to be employed as per the EM&amp;A Manual.</li> <li>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</li> <li>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</li> </ol>	Perform environmental monitoring & auditing	Contractor	All construction sites		<ul style="list-style-type: none"> <li>EIAO Guidance Note No.4/2002</li> <li>TM-EIAO</li> </ul>	√

Legends: √ = Implemented; X = Not implemented; N/A = Not applicable



## **APPENDIX H**

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### **Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions**

## Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

For Contract No. HY/2014/05

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	1	0	0
From commencement date of contract to end of reporting month	6	0	0

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

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



For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area

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



# APPENDIX I

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## Environmental Site Inspection Schedule

**Contract No. HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities**

**Environmental Site Inspection Schedule for December 2017**

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Time</b>					1-Dec	2-Dec	3-Dec
<b>Time</b>	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec	10-Dec
	Site Inspection						
<b>Time</b>	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec	17-Dec
			Site Inspection				
<b>Time</b>	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec	24-Dec
	Site Inspection						
<b>Time</b>	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec
			Site Inspection				

**Contract No. HY/2013/06 (within Contract No. HY/2014/05 works area) Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System**

**Environmental Site Inspection Schedule for December 2017**

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Time</b>					1-Dec	2-Dec	3-Dec
<b>Time</b>	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec	10-Dec
	Site Inspection						
<b>Time</b>	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec	17-Dec
			Site Inspection				
<b>Time</b>	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec	24-Dec
	Site Inspection						
<b>Time</b>	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec
			Site Inspection				

**Contract No. HY/2014/04 (within Contract No. HY/2014/05 works area) Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Gantry Type X-ray Vehicle Inspection System**

**Environmental Site Inspection Schedule for December 2017**

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Time</b>					1-Dec	2-Dec	3-Dec
<b>Time</b>	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec	10-Dec
	Site Inspection						
<b>Time</b>	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec	17-Dec
			Site Inspection				
<b>Time</b>	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec	24-Dec
	Site Inspection						
<b>Time</b>	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec
			Site Inspection				



# APPENDIX J

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## Investigation Report

<b>Contract No. HY/2014/05 -  Hong Kong- Zhuhai- Macao Bridge  Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities</b> <b>Notifications of Environmental Quality Limits Exceedances</b> <span style="float: right;">Notification No.: 20171128_Air_24hr_v1</span>				
<b>Date of Investigation Report:</b> 13 December 2017				
<b>Date of Environmental Quality Limit Exceedance:</b> 28 November 2017 and the results were issued on 6 December 2017				
<b>Monitoring Location:</b> AMS3B – Site Boundary of Site Office Area at Work Area WA2 (The air quality monitoring station for the Contract is covered by Contract No. HY/2013/01 HZMB HKBCF – Passenger Clearance Building)				
<b>Monitoring Date:</b> 28 November 2017 <b>Start Time:</b> 08:00				
<b>Action &amp; Limit Level (AL &amp; LL) / Measured Level:</b>				
<u>PARAMETER</u>	<u>STATION</u>	<u>AL (µg/m<sup>3</sup>)</u>	<u>LL (µg/m<sup>3</sup>)</u>	<u>MEASURED LEVEL, µg/m<sup>3</sup></u>
24-hr TSP	AMS3B – Site Boundary of Site Office Area at Works Area WA2	167	260	<b><i>168</i></b>
Notes: <b><i>Bold Italic</i></b> means AL exceedance <b><i><u>Bold Italic with underline</u></i></b> means LL exceedance				

**Possible reason for Action / Limit Level Non-compliance:**

On 28 November 2017, one AL exceedance of 24-hr TSP at AMS3B was recorded.

Based on the information from the Contractor, the construction works undertaken on 28 and 29 November 2017 are shown as below:

- ABWF & MEP works (Internal) of Buildings 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053, 058
- ABWF works (external) of Buildings 021, 022, 023, 025, 032, 044, 045, 050H1, 050H2, 050A1, 050A2, 053, 058
- ABWF works (roof) of Buildings 021, 022, 023, 032, 044, 050H1, 050H2, 050A1, 050A2, 053
- Utilities and Drainage installation of Buildings 023, 025, 032, 045, 050H1, 050H2, 050A1
- Construction of Planter Box and Ramp of Building 023



The Contractor confirmed that the mitigation measures according to Water Spraying Plan in November 2017 (Appendix A) are implemented to avoid dust emission. Photos of haul road condition and dust suppression are included in Appendix A. The Contractor has provided the guideline to remind the site vehicles travel within speed limit of 8km/hr. According to site inspection which conducted on 6, 15, 20 and 27 November 2017, no dusty activities and dry condition in haul road were observed.

The Air Quality Health Index (AQHI) of Tung Chung station with the wind data from the on-site wind station are shown in Appendix B. The hourly AQHI of Tung Chung station ranged 3 to 8 (Low to Very High) on 28 and 29 November 2017 during monitoring period. According to the wind data at on-site wind station, no prevailing wind direction was found in the monitoring period. The RABF site of HKBCF is far away from AMS3B (more than 1km). No potential dust source was observed near the monitoring station at AMS3B during the monitoring period.

Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

The Water Spraying Plan including the information of watering schedule, routing of trucks of for watering and the location of water filling, was prepared and submitted to RE and ENPO. The Contractor was also reminded to implement all necessary mitigation as specified in EIA (Section 5.5.6.3), EM&A Manual (EM&A Log Ref: A3), EMP, Method Statements, General and Particular Specifications of this Project to minimize the potential dust impact during construction activities.

Prepared by:	<u>Ruby Law</u>	Title:	<u>Environmental Team Representative</u>
Signature:		Date:	<u>13 December 2017</u>
Checked by:	<u>Keith Chau</u>	Title:	<u>Environmental Team Leader</u>
Signature:		Date:	<u>13 December 2017</u>
Copied to	: Contractor, Engineer Representative and IEC/ENPO		



**Contract No. HY/2014/05  
Hong Kong – Zhuhai – Macao – Bridge  
Boundary Crossing Facility – Remaining Ancillary Buildings and Facilities**

**Watering Plan for November 2017**

Water Truck License Plate Number: PJ9039, SE4312

Capacity of a Water Truck: 15000L

Volume of water/ distance needed to water spraying: = 7.3 L/m

Water Truck could spray 15000L in one 59 minutes trip.

**Planned Schedule of Watering Spraying by Water Truck**

Cycle	Truck No.	Time of water spraying
1	PJ9039	08:00 – 09:15
2	SE4312	09:15 – 10:30
3	PJ9039	10:30 – 11:45
4	SE4312	13:00 – 14:15
5	PJ9039	14:15 – 15:30
6	SE4312	15:30 – 16:45
7	PJ9039	16:45 – 18:00
8	SE4312	18:00 – 19:00





Water spraying record during TSP 24-hr monitoring on 28 and 29 November 2017

Photo 1



Photo 2



Photo 3



Photo 4



Appendix B

Date	Hour	AQHI at Tung Chung Station	Average Wind Speed (m/s) #	Average Wind Direction #
2017/11/28	8	3	0	---
2017/11/28	9	3	0	---
2017/11/28	10	3	0	---
2017/11/28	11	4	0	---
2017/11/28	12	4	0	E
2017/11/28	13	4	0	---
2017/11/28	14	5	0	---
2017/11/28	15	5	0	---
2017/11/28	16	7	0	WNW
2017/11/28	17	5 <sup>^</sup>	0	---
2017/11/28	18	6 <sup>^</sup>	0	---
2017/11/28	19	8	0	---
2017/11/28	20	7	0	E
2017/11/28	21	6	0	---
2017/11/28	22	6	0	---
2017/11/28	23	6	0	---
2017/11/29	0	5	0	---
2017/11/29	1	5	0	---
2017/11/29	2	4	0	---
2017/11/29	3	4	0	---
2017/11/29	4	4	0	---
2017/11/29	5	3 <sup>^</sup>	0	---
2017/11/29	6	3 <sup>^</sup>	0	SSE
2017/11/29	7	3	0	SSE
2017/11/29	8	3	0.4	ENE

Remark:

<sup>^</sup> The data collection for calculation of AQHI was affected due to station or equipment maintenance, the data of a most similar station was adopted.

#- The related wind data is obtained from the on-site wind station.

N.A. - Not available.