東業德勤測試顧問有限公司
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CHINA HARBOUR ENGINEERING CO. LTD.

CONTRACT NO.: HY/2013/02 HONG KONG – ZHUHAI- MACAO BRIDGE HONG KONG BOUNDARY CROSSING FACILITIES – INFRASTRUCTURE WORKS STAGE I (WESTERN PORTION)

MONTHLY EM&A REPORT NO. 12

(01 NOVEMBER – 30 NOVEMBER 2015)

Prepared by: _____
Tsui, Ho Lam
Assistant Environmental Officer

Certified by: _____
LAU, Chi Leung
Environmental Team Leader

Issued Date: 3 December 2015 Report No.:ENA53171

RAMBOLL ENVIRON

Ref.: HYDHZMBEEM00_0_3688L.15

18 December 2015

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. Ringo Tso

Dear Sir,

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

Contract No. HY/2013/02 – HZMB HKBCF – Infrastructure Works Stage I (Western Portion)
Monthly Environmental Monitoring & Audit Report for November 2015

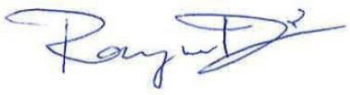
Reference is made to the Environmental Team's submission of Monthly Environmental Monitoring & Audit Report for November 2015 certified by the ET Leader (ET's ref.: "OC/50702/CLL" dated 17 December 2015) and provided to us via e-mail on 17 December 2015.

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

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

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. Matthew Fung	(By Fax: 3188 6614)
	HyD	Mr. Chee-Kuen Yu	(By Fax: 3188 6614)
	ETS	Mr. C. L. Lau	(By Fax: 2695 3944)
	CHEC	Mr. Kenny Yu	(By Fax: 3915 0300)

Internal: DY, YH, LP, CL, ENPO Site

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Ramboll Environ Hong Kong Limited 英環香港有限公司
Rm 2403, 24/F., Jubilee Centre, 18 Fenwick Street, Wanchai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.Ramboll-Environ.com

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APPENDICES

EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2013/02 Hong Kong–Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) – Infrastructure Works Stage I (Western Portion) (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to China Harbour Engineering Co., Ltd. (hereafter referred to as "the Contractor") and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by the Contractor.

The Contract is part of Hong Kong – Zhuhai – Macao Bridge HKBCF 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/I for HKBCF was issued on 17 July 2015. These documents are available through the EIA Ordinance Register. Site preparation works of the Contract was started on 25 July 2014 and the construction works of the Contract commenced on 24 November 2014.

ETS-Testconsult 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 provide environmental team services to the Contract.

This is the Twelfth Monthly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries findings of the EM&A works conducted during the reporting period from 01 November 2015 to 30 November 2015.

Site Activities

As informed by the Contractor, site activities were carried out in this reporting month:

- *Bored piles works in Portion D;*
- Pile Cap, Pier & Abutment in Portion H*;*
- *Construction of temporary marine loading and unloading point for segment delivery in Portion A1 at Land Section. There haven't any marine works during the reporting period.*
- *UU Detection Works in Portion I; and*
- *Pit excavation work and duct laying in Portion I;*

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 the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works 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 AMS7A and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2010/02 and HY/2011/03. However, this is subject to ENPO's final decision on which ET should carry out the monitoring works at these stations. The dates of site inspection during the reporting period are listed below:

Environmental Site Inspection: 04, 11, 19 and 24 November 2015

Breaches of Action and Limit Levels

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

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

Complaint Log

There was no complaint received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

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

Reporting Change

There was no reporting change in the reporting period.

Future Key Issues

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

- *Bored piles works in Portion A1 & D;*
- *Construction of temporary marine loading and unloading point for segment delivery in Portion A1;*
- *Pile Cap in Portion D;*
- *Pier & Abutment in Portion H;*
- *UU Detection Works in Portion I; and*
- *Pit excavation work and duct laying in Portion I;*

1 INTRODUCTION

1.1 Basic Project Information

1.1.1 This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2013/02 Hong Kong–Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) – Infrastructure Works Stage I (Western Portion) (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to China Harbour Engineering Co., Ltd. (hereafter referred to as "the Contractor") and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by the Contractor.

1.1.2 The Contract is part of Hong Kong – Zhuhai – Macao Bridge HKBCF 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/I for HKBCF was issued on 17 July 2015. These documents are available through the EIA Ordinance Register. Site preparation works of the Contract started on 25 July 2014 and the construction works of the Contract commenced on 24 November 2014. The works area of the Contract is shown in **Appendix A.**

1.1.3 The proposed works under this Contract comprise the following:

- Construction of the viaducts and roads at the western portion of Hong Kong Boundary Crossing Facilities (HKBCF) mainly for connection with the Hong Kong **–** Zhuhai **–** Macao Bridge (HZMB), Hong Kong Link Road (HKLR), Hong Kong International Airport (HKIA) and the Tuen Mun-Chek Lap Kok Link (TM-CLKL);
- Construction of the road modification at the SkyCity Interchange at Airport Island;
- Construction of associated street lighting, street furniture, road marking, road signage, drainage, sewerage, fresh water and flushing water supply, irrigation, landscape, electrical and mechanical (E&M), utilities and services works;
- Provisioning of civil engineering works and power supply installation for the Traffic Control and Surveillance System TCSS);
- Other works in accordance with the Contract.

1.1.4 This is the Twelfth Monthly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries the audit findings of the EM&A programme during the reporting period from 01 November 2015 to 30 November 2015.

1.2 Project Organization

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 of Key Staff***	***Tel. No.***	***Fax No.***
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	*Resident Engineer*	*Mr. Fred Yeung*	*63308293*	*31525116*
Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited)	*Environmental Project Office Leader*	*Mr. Y. H. Hui*	*34652888*	*34652899*
	Independent Environmental Checker	*Mr. Raymond Dai*	*34652888*	*34652899*
	Environmental Site Supervisor	*Mr. Ray Yan*	*51818165*	*34652899*
Contractor (China Harbour Engineering Co., Ltd.)	*Environmental Officer*	*Mr. Richard Ng*	*59770593*	*39150300*
	Environmental Supervisor	*Ms. Joy Chan*	*54005086*	*39150300*
	Environmental Supervisor	*Ms. Selena Yang*	*55122662*	*39150300*
Environmental Team (ETS-Testconsult Ltd.)	*Environmental Team Leader*	*Mr C. L. Lau*	*2946 7791*	*2695 3944*

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:

- *Bored piles works in Portion D;*
- *Pile Cap, Pier & Abutment in Portion H;*
- *Construction of temporary marine loading and unloading point for segment delivery in Portion A1 at Land Section. There haven't any marine works during the reporting period.*
- *UU Detection Works in Portion I; and*
- *Pit excavation work and duct laying in Portion I;*

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/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works 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 AMS7A as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract No. HY/2010/02 and HY/2011/03. **Table 2.1** and **Figure 1** shows the locations of air monitoring stations.

Table 2.1 Air Quality Monitoring Locations

Identification No.	Location Description
AMS6(1)	Dragonair / CNAC (Group) Buidling
AMS7A(1)	Chu Kong Air-Sea Union Transportation Co. Ltd.

Remarks:
(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 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/2010/02 and HY/2011/03.

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, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AMS6 – Dragnair / SNAC (Group) Building (HKIA)	360	500
AMS7A –Chu Kong Air-Sea Union Transportation Co. Ltd.	370	500

Table 2.3 Action and Limit Levels for 24-hour TSP

Monitoring Station.	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AMS6 – Dragnair / SNAC (Group) Building (HKIA)	173	260
AMS7A –Chu Kong Air-Sea Union Transportation Co. Ltd.	183	260

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

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

2.3 Monitoring Results

2.3.1 The monitoring results for AMS6 and AMS7A are reported in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2010/02 respectively.

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

2.3.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

3 NOISE MONITORING

3.1 Monitoring Locations

3.1.1 The noise monitoring works for the Contract are covered by Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works. The ET of the Contract or another ET of the HZMB project is required to conduct noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2010/02. **Table 3.1** and **Figure 1** shows the locations of noise monitoring stations.

Table 3.1 Construction Noise Monitoring Locations

Identification No.	Location Description
NMS2(1)	Seaview Crescent
NMS3B(1) (2)	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 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, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared for Contract No. HY/2010/02.

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

Table 3.2 Action and Limit Levels 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.
* Reduce to 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 stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

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/2010/02. There was no exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2010/02 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 mitigation measures for the project. During the reporting period, site inspections were carried out on 04, 11, 19 and 24 November 2015.

4.1.2 Particular observations during the site inspections are described below:

04 November 2015
(a) Oil stain was observed at Portion A1. The oil stain was cleaned. This observation was closed on 11 November 2015.
(b) Oil container without drip tray was observed at Portion A1. The Oil container was removed. This observation was closed on 11 November 2015.

11 November 2015
(a) Chemical oil container without drip tray was observed at Portion D. The chemical oil container was removed. This observation was closed on 19 November 2015.
(b) Haul road was observed dry. The water spaying was enhanced. This observation was closed on 19 November 2015.

19 November 2015
(a) No observation was made during this site inspection.

24 November 2015
(a) Chemical container without drip tray was observed at Portion H. The Contractor was reminded to provide drip tray for the chemical container. Follow-up actions for the outstanding observation will be inspected during the next site inspection.

4.2 Advice on the Solid and Liquid Waste Management Status

4.2.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

4.2.2 Disposal of excavated sediment was generated and stored properly on site during this reporting period. The excavated sediment will be stored properly on site until further instruction by the Engineer. The disposal of excavated sediment as per EP-353/2009/I to be implemented subject to confirmation.

4.2.3 The monthly summary of waste flow table is detailed in **Appendix E**.

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

4.3 Environmental Licenses and Permits

4.3.1 The valid environmental licenses and permits during the reporting period are summarized in **Appendix F**.

4.4 Implementation Status of Environmental Mitigation Measures

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

4.4.2 The Contractor waters 8 times per day on all exposed soil within the project site and associated works areas when construction activities are being undertaken..

4.4.3 The Contractor was reminded to provide well-maintained plant operated on-site and plant served regularly;

4.4.4 The Contractor was reminded to switch off vehicles and equipment while not in use;

4.4.5 The Contractor was reminded to schedule the construction works to minimize noise nuisance etc.

4.4.6 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 no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

4.5.3 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

4.6 Summary of Complaints, Notification of Summons and Successful Prosecution

4.6.1 There was no complaint received in relation to the environmental impact during the reporting period.

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

4.6.3 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 2015 are summarized in **Table 5.1**.

Table 5.1 Construction Activities for December 2015

Site Area	Description of Activities
Portion A1	Bored Piles Works
Portion A1	Construction of temporary marine loading and unloading point for segment delivery
Portion D	Bored Piles Works
Portion D	Pile Cap
Portion I	Pit excavation work and duct laying
Portion I	UU Detection Works
Portion H.	Pile Cap & abutment

5.2 Environmental Site Inspection Schedule for the Coming Month

5.2.1 The tentative schedule for weekly site inspections for December 2015 is provided in **Appendix I**.

6 CONCLUSION.

6.1 The site preparation work of the Contract was started on 25 July 2014 and the construction works of the Contract commenced on 24 November 2014.

6.2 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.

6.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

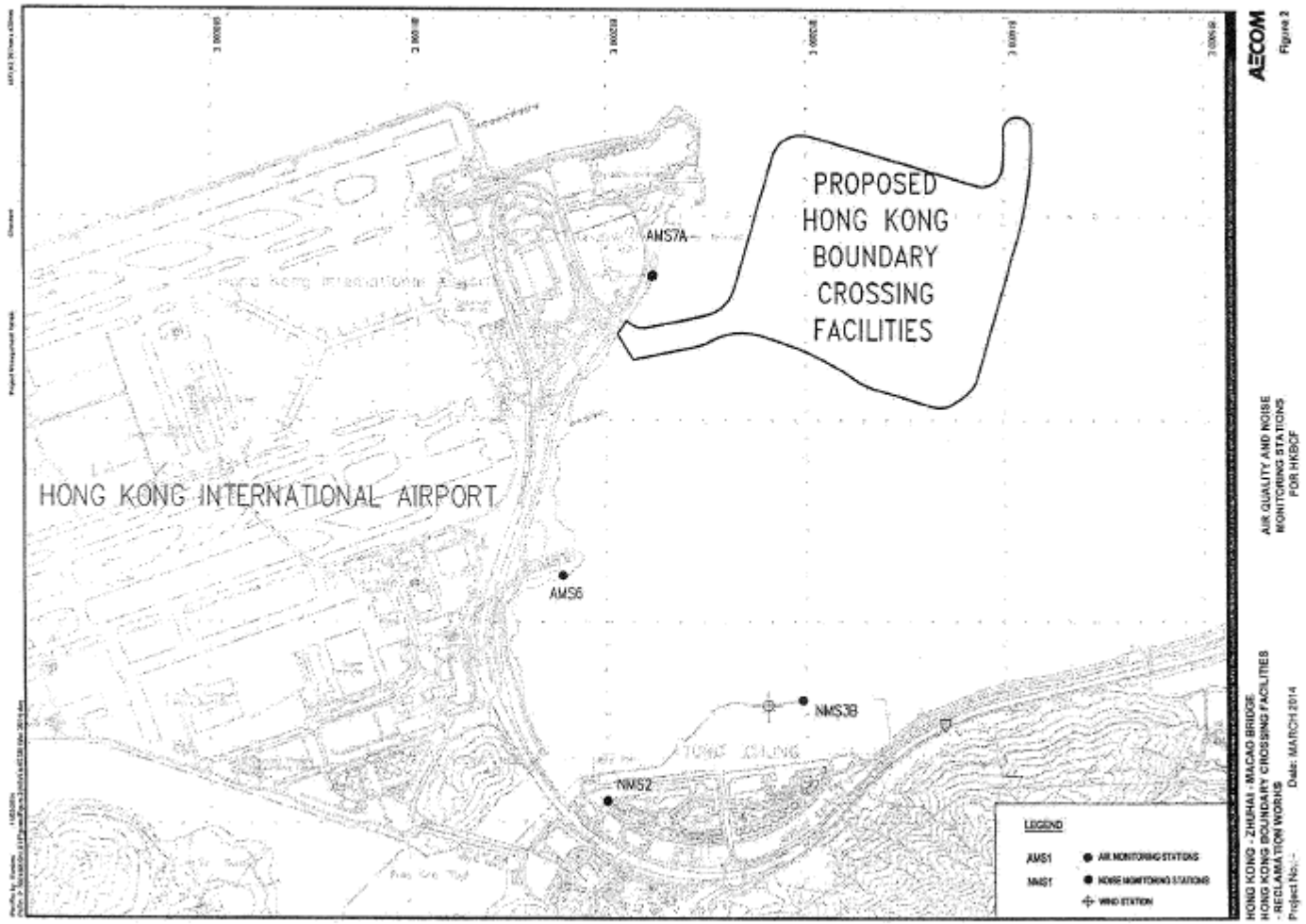
6.4 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

6.5 There was no complaint received during this reporting period.

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

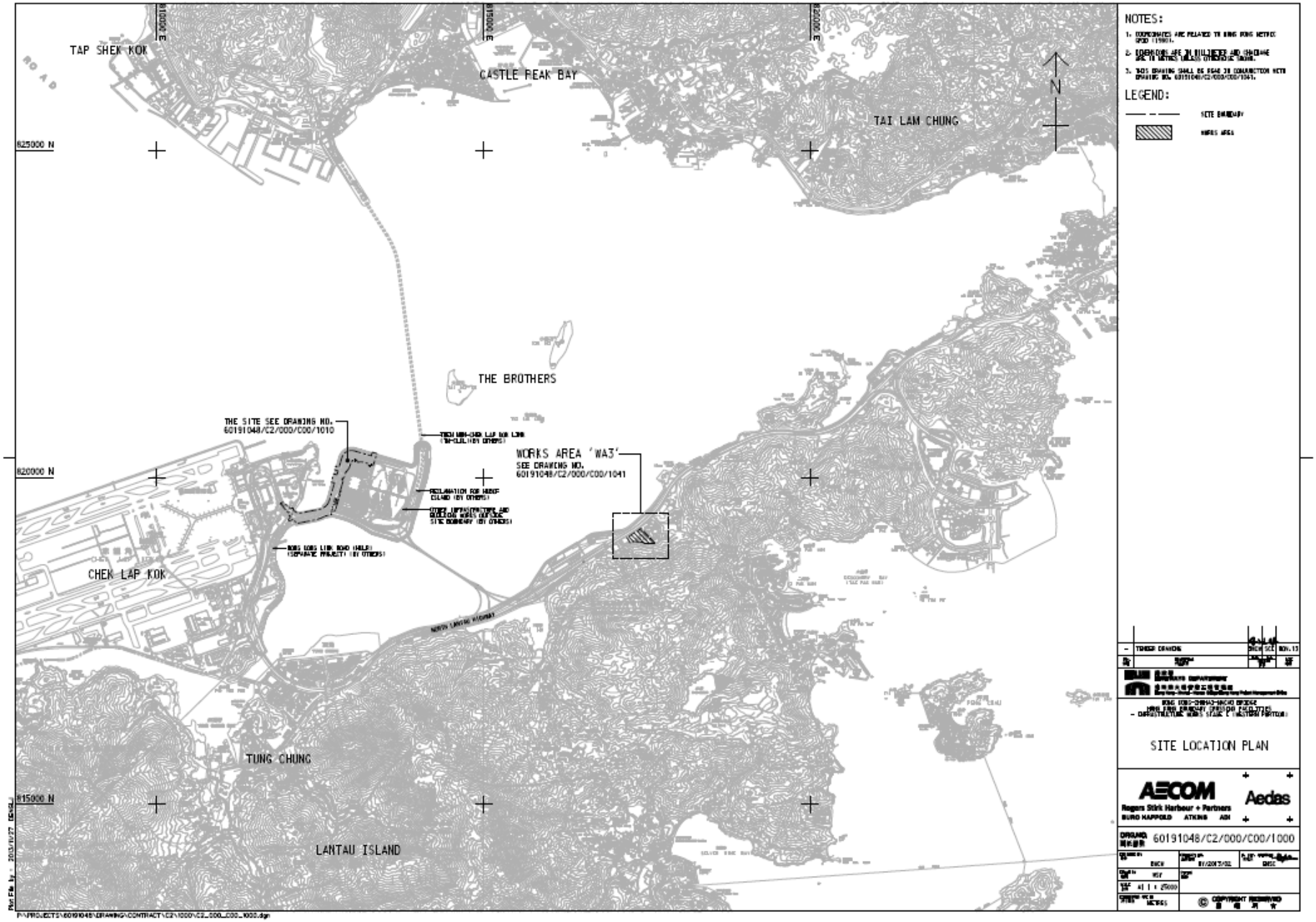
- END OF REPORT -

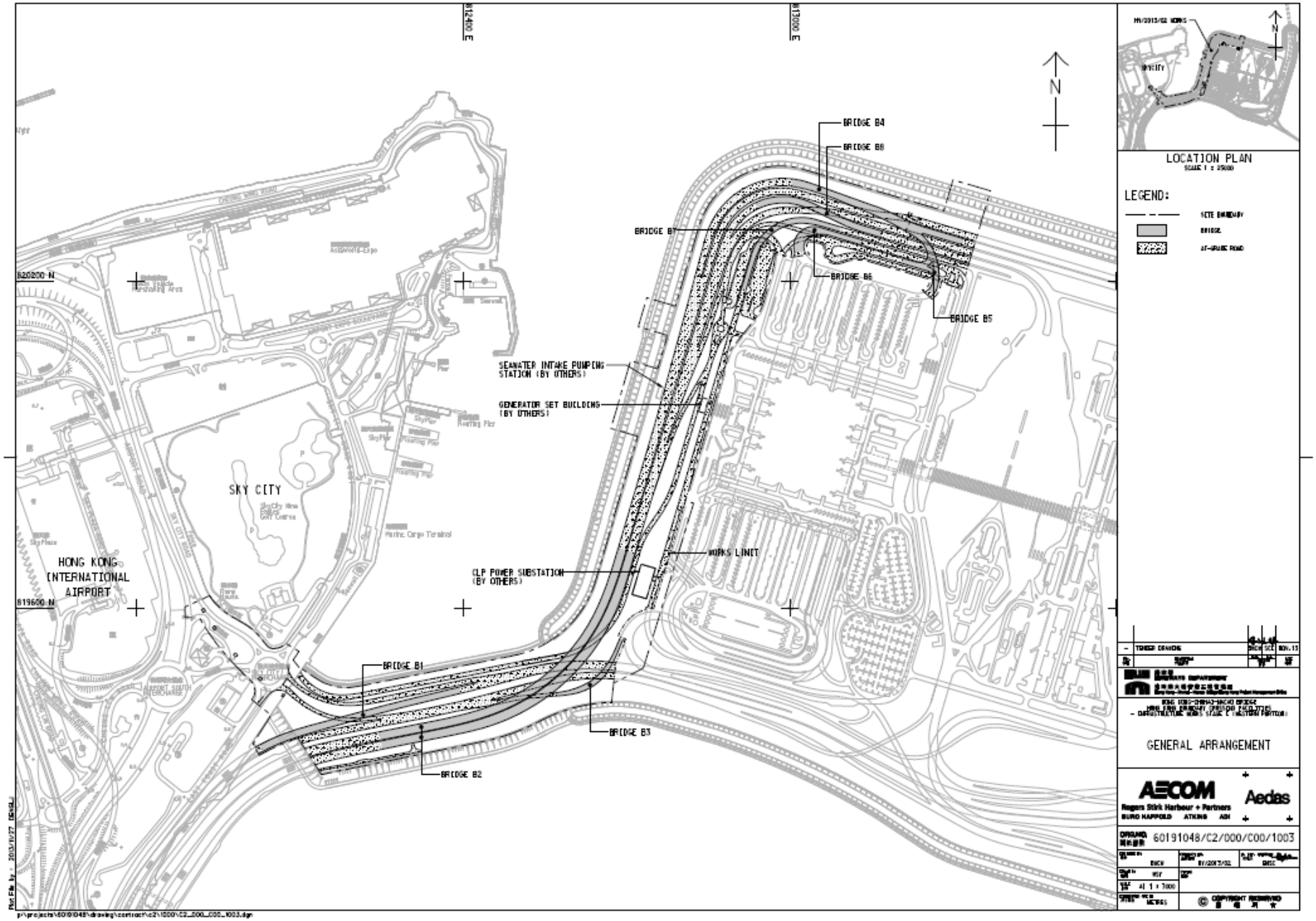
FIGURES



Appendix A

Location of Works Areas





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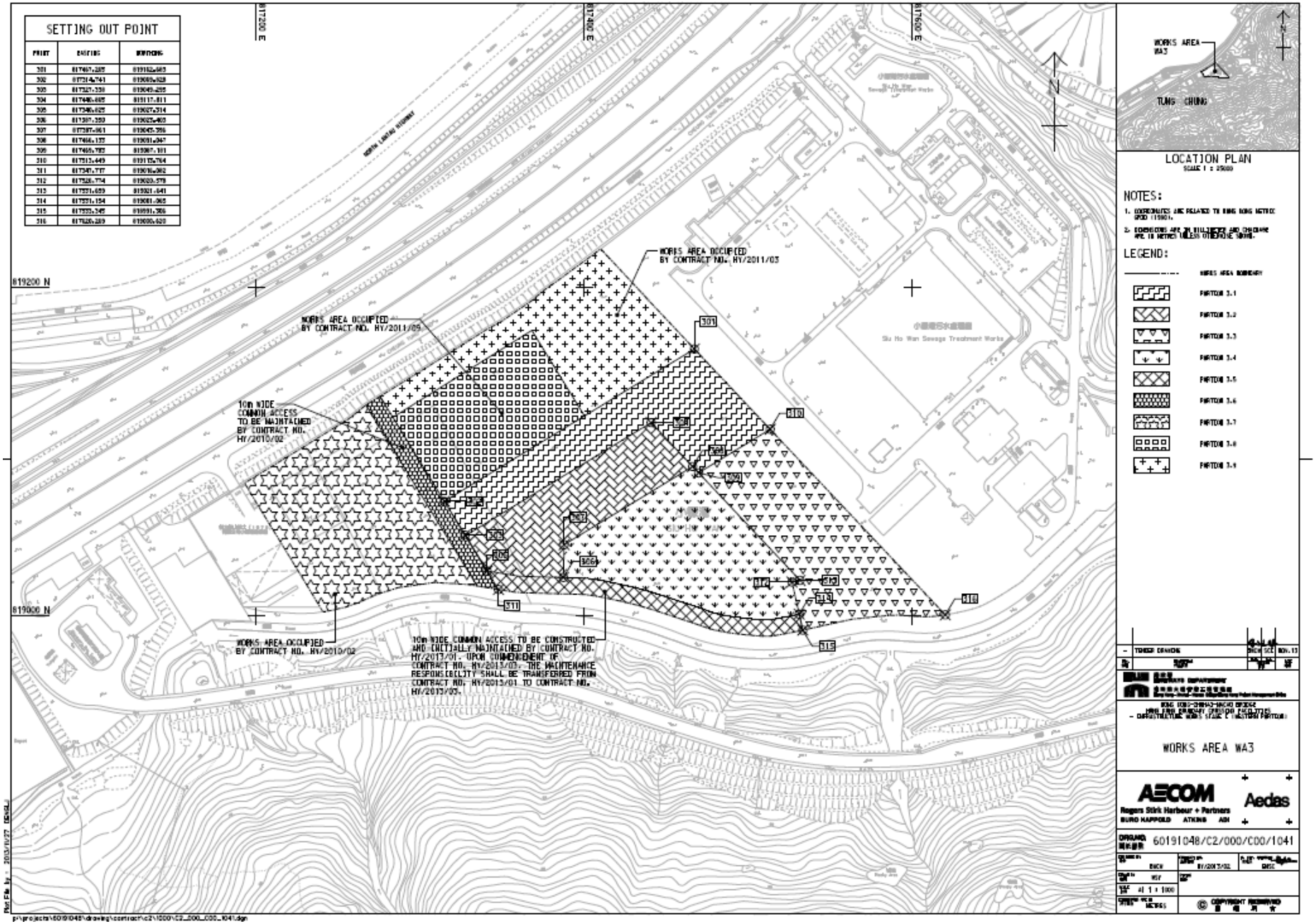
ETS-TESTCONSULT LIMITED



SETTING OUT POINT

POINT	EASTING	NORTHING
301	817467.285	819162.663
302	817314.741	819069.928
303	817327.338	819049.255
304	817466.665	819117.811
305	817345.625	819027.314
306	817307.350	819025.403
307	817287.961	819043.356
308	817466.137	819031.247
309	817465.783	819087.101
310	817513.449	819115.764
311	817347.777	819016.362
312	817526.774	819023.579
313	817221.653	819021.641
314	817221.154	819081.965
315	817225.345	819091.366
316	817526.289	819005.620

LOCATION PLAN
SCALE 1 : 25000

NOTES:

1. COORDINATES ARE RELATIVE TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETRE AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.

LEGEND:

WORKS AREA BOUNDARY
PARTIAL 3.1
PARTIAL 3.2
PARTIAL 3.3
PARTIAL 3.4
PARTIAL 3.5
PARTIAL 3.6
PARTIAL 3.7
PARTIAL 3.8
PARTIAL 3.9

-	TENDER DRAWING		
No.	Revision	Date	By

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES (HKBCF)
- CONSTRUCTION WORKS STAGE 1 (WESTERN PORTION)

WORKS AREA WA3

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS AGH
Aedas

DRAWING No. 60191048/C2/000/C00/1041

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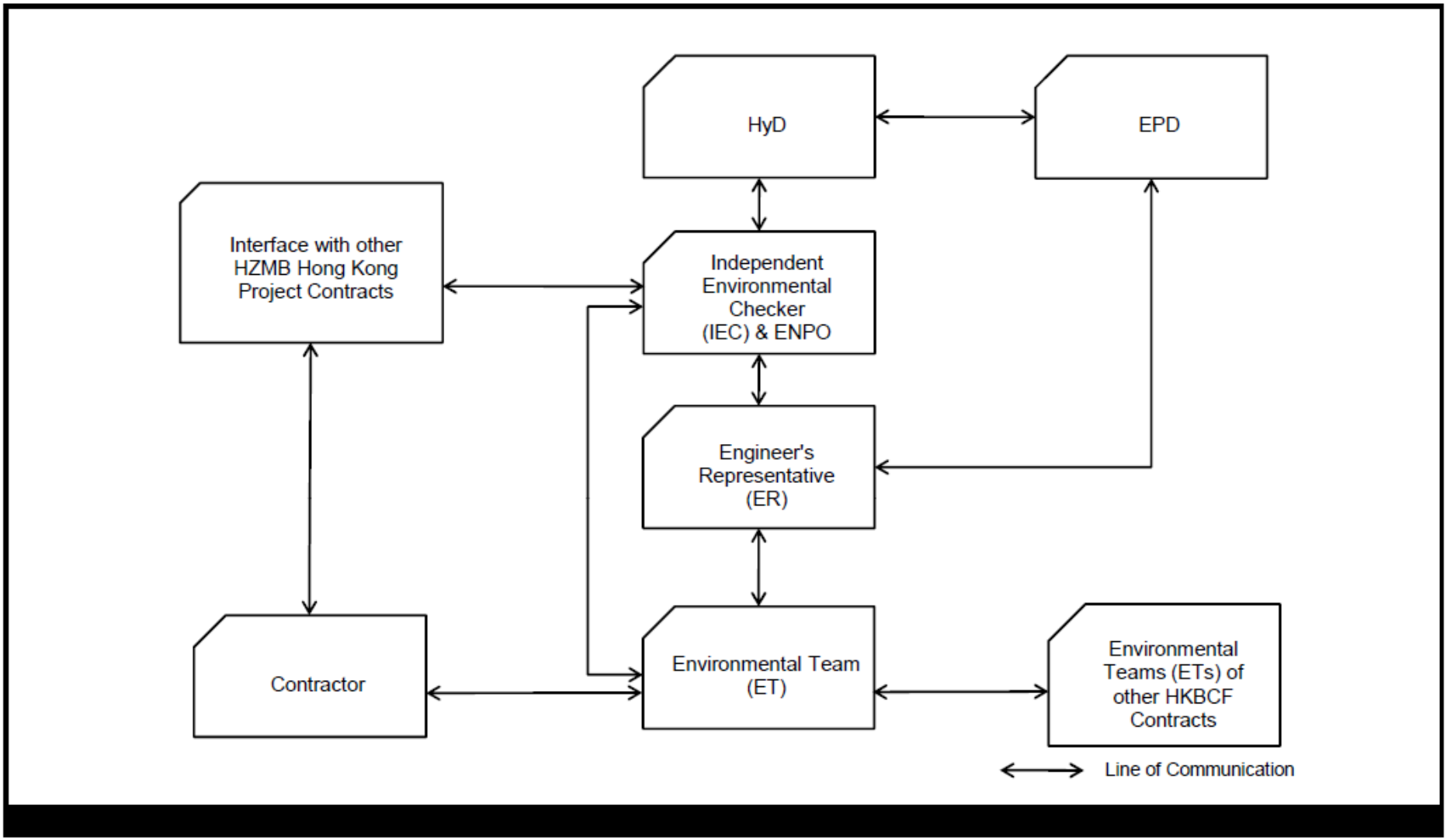
東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Appendix B

Project Organization for Environmental Works

ppendix B Project Organization for Environmental Works



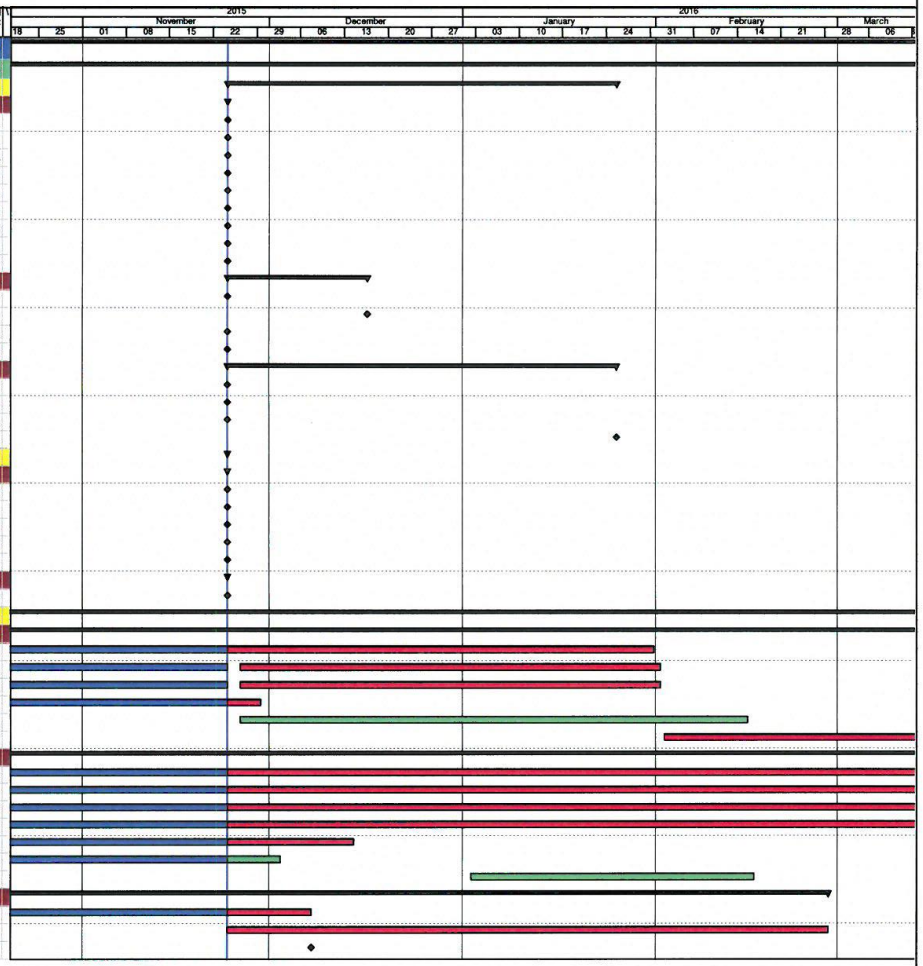
Appendix C

Construction Programme

Western Portion - Integrated Works Prog 3 - Monthly Progress 16 - Three Month Rolling Programme

Int 2(a)-MRP16

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Calendar	Total Float
Western Portion - Integrated Works Prog 3 - Monthly Proj		605	28-12-14	16-01-17			598
Preliminaries		605	28-12-14	16-01-17			598
Contractual Date		63	24-11-15	25-01-16		WP-7d	1073
Possession		0	24-11-15	24-11-15		WP-7d	1112
CA4	Possession of Portion A4 (COW+386d)	0	24-11-15		0%	WP-7d	-101
CA5	Possession of Portion A5 (COW+386d)	0	24-11-15		0%	WP-7d	-101
CB1	Possession of Portion B1 (COW+107d)	0	24-11-15		0%	WP-7d	-376
CB2	Possession of Portion B2 (COW+107d)	0	24-11-15		0%	WP-7d	1112
CB3	Possession of Portion B3 (COW+107d)	0	24-11-15		0%	WP-7d	1112
CB4	Possession of Portion B4 (COW+107d)	0	24-11-15		0%	WP-7d	1112
CE1	Possession of Portion E (COW+387d)	0	24-11-15		0%	WP-7d	-100
CF1	Possession of Portion F (COW+487d)	0	24-11-15		0%	WP-7d	0
CG1	Possession of Portion G (COW+174d)	0	24-11-15		0%	WP-7d	-313
Key Date		23	24-11-15	16-12-15		WP-7d	1113
KD09	KD9-CLP cabling other then portion A4, A5, E & F (COW+290c	0		24-11-15	0%	WP-7d	-197
KD10	KD10-CLP cabling for portion A4, A5, E & F (COW+510d)	0		16-12-15	0%	WP-7d	0
KD15	KD15-handover of Portion B2 to HY/2013/03 (COW+250d)	0		24-11-15	0%	WP-7d	1136
KD16	KD16-handover of Portion A2 & B3 to HY/2013/04 (COW+25	0		24-11-15	0%	WP-7d	1136
Handover		63	24-11-15	25-01-16		WP-7d	1073
HA2	Handover of Portion A2 (KD16)	0		24-11-15	0%	WP-7d	1136
HB2	Handover of Portion B2 (KD15)	0		24-11-15	0%	WP-7d	1136
HB3	Handover of Portion B3 (KD16)	0		24-11-15	0%	WP-7d	1136
HH1	Handover of Portion H (KD11)	0		25-01-16	0%	WP-7d	0
Interfaces with other		0	24-11-15	24-11-15		WP-7d	1136
HY/2013/01 - Passenger Clearance Building		0	24-11-15	24-11-15		WP-7d	1136
A1-0100	Handover of B1 & B3 to PCB for there works	0	24-11-15		0%	WP-7d	1136
A1-0110	Handover of Abutment at Bridge 6	0		24-11-15	0%	WP-7d	24
A1-0120	Handover of Abutment at Bridge 5b	0		24-11-15	0%	WP-7d	213
A1-0130	Handover of Pumping Station, Gen set Building, intake & disc	0		24-11-15	0%	WP-7d	1136
A1-0140	Handover of Gen set Building to PCB	0	24-11-15		0%	WP-7d	1136
HY/2013/03 - Vehical Clearance Plazas		0	24-11-15	24-11-15		WP-7d	1136
A1-0150	Handover of B2 to VCP for there works	0	24-11-15		0%	WP-7d	1136
Area Handover from BCF-Reclamation		747	28-12-14	16-01-17		WP-7d	716
Portion A		747	28-12-14	16-01-17		WP-7d	716
A1-0220	Portion A CH5+110 to CH5+440 50-120m offset - surcharge +	120	28-12-14	31-01-16	42.5%	WP-7d	-446
A1-0230	Portion A CH5+110 to CH5+440 10-50m offset - surcharge + r	274	01-01-15	01-02-16	75.18%	WP-7d	-446
A1-0240	Portion A CH5+440 to CH5+650 10-40m offset - surcharge + r	274	02-01-15	01-02-16	75.18%	WP-7d	-446
A1-0250	Portion A CH5+440 to CH5+650 40-120m offset - surcharge +	224	01-02-15	29-11-15	97.32%	WP-7d	-299
A1-0260	Portion A C118 - C134 - Remove Temp rockfill & install rock Ar	82	26-11-15	15-02-16	0%	WP-7d	1052
A1-0270	Portion A CH5+110 to CH5+440 50-120m offset - C1 work in	350	02-02-16	16-01-17	0%	WP-7d	-420
Portion C2a		466	22-01-15	14-09-16		WP-7d	840
A1-0300	Portion C2a West main - surcharge + removal	382	01-02-15	30-05-16	50.52%	WP-7d	-356
A1-0310	Portion C2a East main - surcharge + removal	368	16-02-15	30-05-16	48.64%	WP-7d	-348
A1-0320	Portion C2a C113 - C117 Edge area - surcharge + removal	332	22-01-15	06-05-16	50.3%	WP-7d	-386
A1-0330	Portion C2a C108 - C112 Edge area - surcharge + removal	444	13-02-15	14-09-16	33.33%	WP-7d	-408
A1-0340	Portion C2a C104 - C107 Edge area - surcharge + removal	438	13-02-15	14-12-15	95.32%	WP-7d	-201
A1-0350	Portion C2a C101 - C103 Edge area - surcharge + removal	283	30-04-15	02-12-15	96.82%	WP-7d	9
A1-0370	Portion C2a C101 - C112 - Remove Temp rockfill & install rock	46	02-01-16	16-02-16	0%	WP-7d	1051
Portion D (Culvert C1)		167	14-09-15	28-02-16		WP-7d	-283
A1-0470	Portion D West 1 (C1) - Vertical Seawall	77	14-09-15	07-12-15	81.82%	WP-7d	-283
A1-0480	Portion D West 1 (C1) - Const C1-1 at sloping seawall	97	24-11-15	28-02-16	0%	WP-7d	-283
A1-0490	Portion D West 1 (C1) - Handover C1 vertical seawall	0		07-12-15	0%	WP-7d	-202



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Date	Revision	Checked	Approved
24-11-15 1...	monthly Report No. 16		

Western Portion - Integrated Works Prog 3 - Monthly Progress 16 - Three Month Rolling Programme

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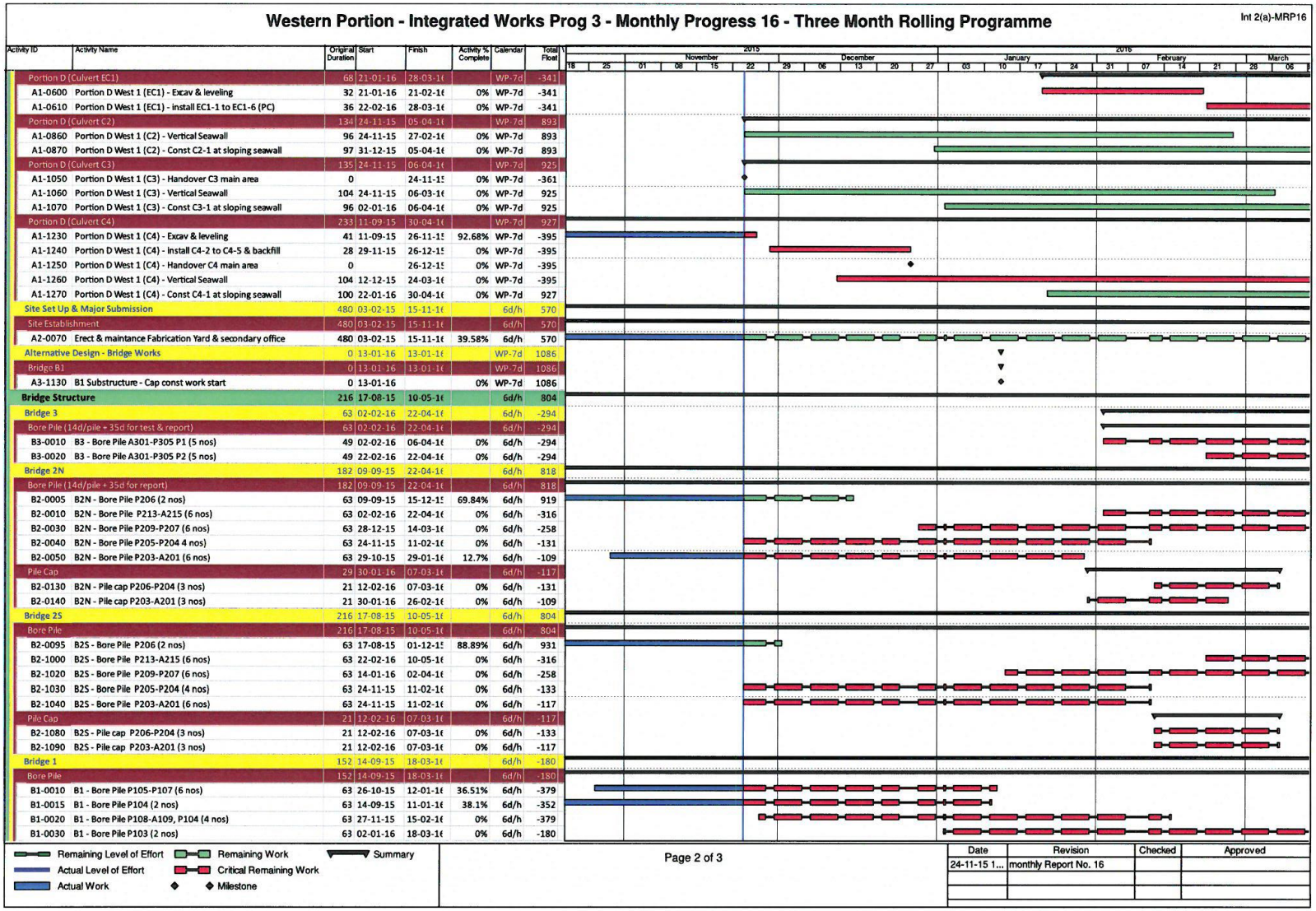

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Calendar	Total Float
Portion D (Culvert EC1)		68	21-01-16	28-03-16		WP-7d	-341
A1-0600	Portion D West 1 (EC1) - Excav & leveling	32	21-01-16	21-02-16	0%	WP-7d	-341
A1-0610	Portion D West 1 (EC1) - install EC1-1 to EC1-6 (PC)	36	22-02-16	28-03-16	0%	WP-7d	-341
Portion D (Culvert C2)		134	24-11-15	05-04-16		WP-7d	893
A1-0860	Portion D West 1 (C2) - Vertical Seawall	96	24-11-15	27-02-16	0%	WP-7d	893
A1-0870	Portion D West 1 (C2) - Const C2-1 at sloping seawall	97	31-12-15	05-04-16	0%	WP-7d	893
Portion D (Culvert C3)		135	24-11-15	06-04-16		WP-7d	925
A1-1050	Portion D West 1 (C3) - Handover C3 main area	0		24-11-15	0%	WP-7d	-361
A1-1060	Portion D West 1 (C3) - Vertical Seawall	104	24-11-15	06-03-16	0%	WP-7d	925
A1-1070	Portion D West 1 (C3) - Const C3-1 at sloping seawall	96	02-01-16	06-04-16	0%	WP-7d	925
Portion D (Culvert C4)		233	11-09-15	30-04-16		WP-7d	927
A1-1230	Portion D West 1 (C4) - Excav & leveling	41	11-09-15	26-11-15	92.68%	WP-7d	-395
A1-1240	Portion D West 1 (C4) - install C4-2 to C4-5 & backfill	28	29-11-15	26-12-15	0%	WP-7d	-395
A1-1250	Portion D West 1 (C4) - Handover C4 main area	0		26-12-15	0%	WP-7d	-395
A1-1260	Portion D West 1 (C4) - Vertical Seawall	104	12-12-15	24-03-16	0%	WP-7d	-395
A1-1270	Portion D West 1 (C4) - Const C4-1 at sloping seawall	100	22-01-16	30-04-16	0%	WP-7d	927
Site Set Up & Major Submission		480	03-02-15	15-11-16		6d/h	570
Site Establishment		480	03-02-15	15-11-16		6d/h	570
A2-0070	Erect & maintance Fabrication Yard & secondary office	480	03-02-15	15-11-16	39.58%	6d/h	570
Alternative Design - Bridge Works		0	13-01-16	13-01-16		WP-7d	1086
Bridge B1		0	13-01-16	13-01-16		WP-7d	1086
A3-1130	B1 Substructure - Cap const work start	0	13-01-16		0%	WP-7d	1086
Bridge Structure		216	17-08-15	10-05-16		6d/h	804
Bridge 3		63	02-02-16	22-04-16		6d/h	-294
Bore Pile (14d/pile + 35d for test & report)		63	02-02-16	22-04-16		6d/h	-294
B3-0010	B3 - Bore Pile A301-P305 P1 (5 nos)	49	02-02-16	06-04-16	0%	6d/h	-294
B3-0020	B3 - Bore Pile A301-P305 P2 (5 nos)	49	22-02-16	22-04-16	0%	6d/h	-294
Bridge 2N		182	09-09-15	22-04-16		6d/h	818
Bore Pile (14d/pile + 35d for report)		182	09-09-15	22-04-16		6d/h	818
B2-0005	B2N - Bore Pile P206 (2 nos)	63	09-09-15	15-12-15	69.84%	6d/h	919
B2-0010	B2N - Bore Pile P213-A215 (6 nos)	63	02-02-16	22-04-16	0%	6d/h	-316
B2-0030	B2N - Bore Pile P209-P207 (6 nos)	63	28-12-15	14-03-16	0%	6d/h	-258
B2-0040	B2N - Bore Pile P205-P204 4 nos)	63	24-11-15	11-02-16	0%	6d/h	-131
B2-0050	B2N - Bore Pile P203-A201 (6 nos)	63	29-10-15	29-01-16	12.7%	6d/h	-109
Pile Cap		29	30-01-16	07-03-16		6d/h	-117
B2-0130	B2N - Pile cap P206-P204 (3 nos)	21	12-02-16	07-03-16	0%	6d/h	-131
B2-0140	B2N - Pile cap P203-A201 (3 nos)	21	30-01-16	26-02-16	0%	6d/h	-109
Bridge 2S		216	17-08-15	10-05-16		6d/h	804
Bore Pile		216	17-08-15	10-05-16		6d/h	804
B2-0095	B2S - Bore Pile P206 (2 nos)	63	17-08-15	01-12-15	88.89%	6d/h	931
B2-1000	B2S - Bore Pile P213-A215 (6 nos)	63	22-02-16	10-05-16	0%	6d/h	-316
B2-1020	B2S - Bore Pile P209-P207 (6 nos)	63	14-01-16	02-04-16	0%	6d/h	-258
B2-1030	B2S - Bore Pile P205-P204 (4 nos)	63	24-11-15	11-02-16	0%	6d/h	-133
B2-1040	B2S - Bore Pile P203-A201 (6 nos)	63	24-11-15	11-02-16	0%	6d/h	-117
Pile Cap		21	12-02-16	07-03-16		6d/h	-117
B2-1080	B2S - Pile cap P206-P204 (3 nos)	21	12-02-16	07-03-16	0%	6d/h	-133
B2-1090	B2S - Pile cap P203-A201 (3 nos)	21	12-02-16	07-03-16	0%	6d/h	-117
Bridge 1		152	14-09-15	18-03-16		6d/h	-180
Bore Pile		152	14-09-15	18-03-16		6d/h	-180
B1-0010	B1 - Bore Pile P105-P107 (6 nos)	63	26-10-15	12-01-16	36.51%	6d/h	-379
B1-0015	B1 - Bore Pile P104 (2 nos)	63	14-09-15	11-01-16	38.1%	6d/h	-352
B1-0020	B1 - Bore Pile P108-A109, P104 (4 nos)	63	27-11-15	15-02-16	0%	6d/h	-379
B1-0030	B1 - Bore Pile P103 (2 nos)	63	02-01-16	18-03-16	0%	6d/h	-180

Remaining Level of Effort | Remaining Work | Summary
Actual Level of Effort | Critical Remaining Work
Actual Work | Milestone

Date	Revision	Checked	Approved
24-11-15 1...	monthly Report No. 16		

Western Portion - Integrated Works Prog 3 - Monthly Progress 16 - Three Month Rolling Programme

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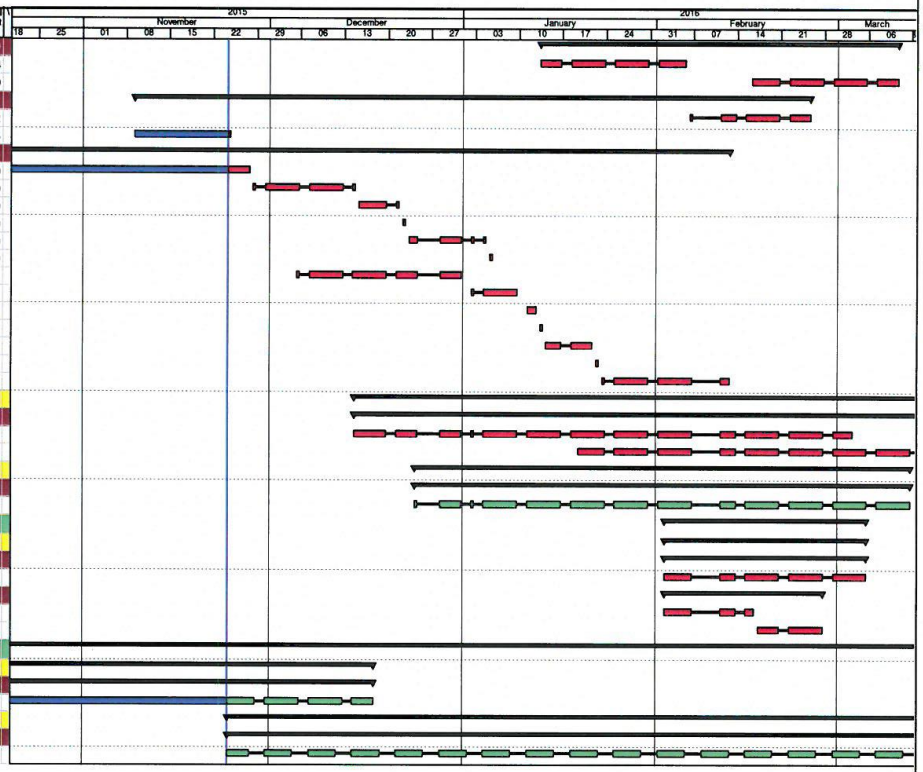
Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Calendar	Total Float
Pile Cap		47	13-01-16	10-03-16		6d/h	-379
B1-0050	B1 - Pile cap P105-P107 (3 nos)	21	13-01-16	05-02-16	0%	6d/h	-374
B1-0060	B1 - Pile cap P108-A109, P104 (3 nos)	21	16-02-16	10-03-16	0%	6d/h	-379
Pier & Abutment		88	09-11-15	25-02-16		6d/h	-182
B1-0090	B1 - Pier & Abutment P105-P107 (3 nos)	14	06-02-16	25-02-16	0%	6d/h	-182
B1-0120	B1 - Pier & Abutment P102 (1 nos)	14	09-11-15	24-11-15	92.86%	6d/h	-275
Deck 5 (P102-A101)		100	10-10-15	12-02-16		6d/h	-275
B1-591	B1 - Falsework & Base F/W (40m from A101)	24	10-10-15	27-11-15	83.33%	6d/h	-260
B1-592	B1 - Rebar & post-tender member (40m from A101)	14	28-11-15	14-12-15	0%	6d/h	-260
B1-593	B1 - Side formworks (40m from A101)	6	15-12-15	21-12-15	0%	6d/h	-260
B1-594	B1 - Concrete base portion (40m from A101)	1	22-12-15	22-12-15	0%	6d/h	-260
B1-595	B1 - Top slab rebar (40m from A101)	8	23-12-15	04-01-16	0%	6d/h	-260
B1-596	B1 - Concrete top slab (40m from A101)	1	05-01-16	05-01-16	0%	6d/h	-260
B1-600	B1 - Falsework & Base F/W (P102 20m both side)	21	05-12-15	31-12-15	0%	6d/h	-275
B1-610	B1 - Rebar & post-tender member (P102 20m both side)	7	02-01-16	09-01-16	0%	6d/h	-275
B1-620	B1 - Side formworks (P102 20m both side)	2	11-01-16	12-01-16	0%	6d/h	-275
B1-630	B1 - Concrete base portion (P102 20m both side)	1	13-01-16	13-01-16	0%	6d/h	-275
B1-640	B1 - Top slab rebar (P102 20m both side)	7	14-01-16	21-01-16	0%	6d/h	-275
B1-650	B1 - Concrete top slab (P102 20m both side)	1	22-01-16	22-01-16	0%	6d/h	-275
B1-660	B1 - Curing & post-tensioning (P102-A101)	15	23-01-16	12-02-16	0%	6d/h	-275
Bridge 4		91	14-12-15	09-04-16		6d/h	-167
Bore Pile		91	14-12-15	09-04-16		6d/h	-167
B4-0010	B4 - Bore Pile P405, P406 (4 nos)	63	14-12-15	03-03-16	0%	6d/h	-167
B4-0020	B4 - Bore Pile P403, P404 (4 nos)	63	19-01-16	09-04-16	0%	6d/h	-167
Bridge 5		63	24-12-15	12-03-16		6d/h	5
Bore Pile		63	24-12-15	12-03-16		6d/h	5
B5-1000	B5 - Bore Pile P502- A503 (4 nos)	63	24-12-15	12-03-16	0%	6d/h	5
Storm & Sewer Drainage Works		26	02-02-16	05-03-16		6d/h	-362
Storm Drain about +1.3m (7m/day)		26	02-02-16	05-03-16		6d/h	-362
A(1) - seawall next to B2		26	02-02-16	05-03-16		6d/h	-362
D2-0010	M4E.8 - M4E.3 (183m) 750mm	26	02-02-16	05-03-16	0%	6d/h	-362
B(1) - CLP to PCB		20	02-02-16	27-02-16		6d/h	-362
D2-0030	M31C.A8 - M31C.7 (66m) 900mm	10	02-02-16	16-02-16	0%	6d/h	-362
D2-0040	M31C.7 - M31C.5 (70m) 750mm	10	17-02-16	27-02-16	0%	6d/h	-362
Road Works		185	21-09-15	09-05-16			805
Road Furniture & Fit out		42	21-09-15	17-12-15		6d/h	917
Road Furniture		42	21-09-15	17-12-15		6d/h	917
RW-2050	Road Signage for Portion I	42	21-09-15	17-12-15	50%	6d/h	917
Landscape		120	24-11-15	09-05-16		tandar	452
Sublet & design of Irrigation system		120	24-11-15	09-05-16		tandar	452
RW-2020	Prepare, submit & approval of Irrigation System sub-contracto	120	24-11-15	09-05-16	0%	tandar	452



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Date	Revision	Checked	Approved
24-11-15 1...	monthly Report No. 16		

Appendix D

Event and Action Plan

Event/Action Plan for Air Quality

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

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

Event / Action Plan for Construction Noise Monitoring

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

Appendix E

Waste Flow Table

China Harbour Engineering Company Limited

Monthly Summary Waste Flow Table for 2015 (year)

Name of Person completing the record: Joy CHAN / ES

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Crossing Boundary Facilities – Infrastructure Works Stage I (Western Portion) Contract No.: HY/2013/02

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan	0	0	0	0	0	0	0	0.048	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	3.206	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0.046	0	0	0.0065
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0.094	3.206	0	0.0065
Jul	0	0	0	0	0	0	0.005	0.0575	0.007	0	0.013
Aug	0	0	0	0	0	0	0	0	1.043	0	0.013
Sep	0.039	0	0	0	0.039	0	0	0.069	0.004	0	0.013
Oct	0	0	0	0	0	0	0	0	0	0	0.0455
Nov	0	0	0	0	0	0.1825	0	0.069	0.854	0	0.0325
Dec											
Total	0.039	0	0	0	0.039	0.1825	0.005	0.2895	5.114	0	0.1235

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

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

(3) Broken concrete for recycling into aggregates.

Appendix F

Environmental Licenses and Permits

Environmental Licenses and Permits

Item No.	Type of Permit / Licence	Reference No.	Application Date	Date of Issue	Date of Expiry	Remark
1	Environmental Permit under EIAO	EP-353/2009/I	30 Jun 2015	17 July 2015	NA	Issued
2	Construction Dust Notification (Western Portion)	Acknowledge Receipt: 377883	05 Aug 2014	11 Aug 2014	NA	Notified
3	Construction Dust Notification (Works Area WA3)	Acknowledge Receipt: 377884	05 Aug 2014	18 Aug 2014	NA	Notified
4	Construction Waste Disposal Account	Billing Account No.: 7020516	05 Aug 2014	15 Aug 2014	NA	Account approved
5	Registration as a Chemical Waste Producer (Works Area WA3)	Waste Producer Number (WPN): 5213-961-C1186-23	01 Sep 2014	17 Oct 2014	NA	Registration completed
6	Registration as a Chemical Waste Producer (Western Portion)	Waste Producer Number (WPN): 5213-961-C1186-27	20 Oct 2014	24 Nov 2014	NA	Registration completed
7	Discharge License under WPCO (Works Area WA3)	License No.: WT00020194-2014	21 Aug 2014	27 Oct 2014	31 Oct 2019	License approved
8	Discharge License under WPCO(Western Portion)	License No.: WT00020597-2014	25 Sep 2014	16 Mar 2015	31 Mar 2020	License approved
9	Construction Noise Permit under NCO for HKBCF(Western Portion)	Application ref. no.: 395812	20 Nov 2015	N/A	N/A	Pending to approve
10	Construction Noise Permit under NCO for HKBCF(Western Portion)	License No.: GW-RS1098-15	23 Sep 2015	7 Oct 2015	12 Feb 2016	Permit approved with effective on 12 Oct 2015
11	Construction Noise Permit under NCO for HKBCF(Western Portion)	License No.: GW-RS0072-15	06 Jan 2015	22 Jan 2015	21 Jul 2015	Permit was surrendered with effective on 12 Feb 2015.
12	Construction Noise Permit under NCO for HKBCF(Western Portion)	License No.: GW-RS0128-15	26 Jan 2015	12 Feb 2015	8 Aug 2015	Cancelled with effective on 14 May 2015
13	Construction Noise Permit under NCO for HKBCF(Western Portion)	License No.: GW-RS0528-15	30 Apr 2015	14 May 2015	13 Nov 2015	Cancelled with effective on 27 Jul 2015
14	Construction Noise Permit under NCO for HKBCF(Western Portion)	License No.: GW-RS0794-15	7 Jul 2015	21 Jul 2015	27 Dec 2015	Cancelled with effective on 12 Oct 2015

Appendix G

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Environmental Mitigation Implementation Schedule – Hong Kong Boundary Crossing Facilities (Superstructures and Infrastructures)

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
Air Quality								
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	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 24 hr TSP levels are 500μgm^{-3} and 260$\mu gm^{-3,}$ respectively)	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. 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; 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;	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 24 hr TSP levels are 500μgm^{-3} and 260$\mu gm^{-3,}$ respectively)	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 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; 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					

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		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.						
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil and associated work areas (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	V
S5.5.6.4	A4	4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to relevant latest Practice notes issued by EPD.	Control construction dust	Engineer	All construction sites	Design Stage	Air pollution Control (Construction Dust) Regulation	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Monitor the 24hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	referred by the other ET under the HZMB project to the Contract	Selected representative dust monitoring station	Construction stage	- Air Pollution Control (Construction Dust) Regulation - To control the dust impact to within the HKAQO and TM-EIA criteria(Ref. 1-hr and 24 hr TSP levels are 500μgm^{-3} and 260$\mu gm^{-3,}$ respectively)	V
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant: Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; Vents for all silos and cement/ pulverised fuel ash (PFA)	Monitor the 24hr 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	Air Pollution Control (Construction Dust) Regulation - To control the dust impact to within the HKAQO and TM-EIA	N/A

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		weighing scale should be fitted with fabric filtering system; The materials which may generate airborne dusty emissions should be wetted by water spray system; All receiving hoppers should be enclosed on three sides up to 3m above unloading point; All conveyor transfer points should be totally enclosed; All access and route roads within the premises should be paved and wetted; and Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body.					criteria(Ref. 1-hr and 24 hr TSP levels are 500μgm^{-3} and 260$\mu gm^{-3,}$ respectively)	
S5.5.2.7	A7	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: All road surface within the barging facilities will be paved; Dust enclosures will be provided for the loading ramp; Vehicles will be required to pass through designated wheels wash facilities; and Continuous water spray at the loading points.	Control construction dust	Contractor	All construction sites	Construction stage	Air Pollution Control (Construction Dust) Regulation	N/A (Construction in process)
Construction Noise (Air borne)								
S6.4.10	N1	1) Use of good site practices to limit noise emissions by considering the following: only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction	Control construction airborne noise by means of good site practices	Contractor	All construction sites	Construction stage	Noise Control Ordinance	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		works; mobile plant should be sited as far away from NSRs as possible and practicable; material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.						
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening	Contractor	All construction sites	Construction stage	- Noise Control Ordinance - Annex 5, TM_EIA	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m^2), 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	- Noise Control Ordinance - Annex 5, TM_EIA - 75dB(A) for residential premises - The movable barrier should achieve at least 5 dB(A) and the full enclosure should be designed to achieve 10dB(A)	N/A

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure 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	- Noise Control Ordinance - Annex 5, TM_EIA	V
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	- Noise Control Ordinance - Annex 5, TM_EIA	V
S5.1	N6	6) Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at selected representative locations	Referred by the other ET under the HZMB project to the Contract.	Selected representative noise monitoring station	Construction stage	- Noise Control Ordinance - Annex 5, TM_EIA - 75dB(A) for residential premises	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
Operation noise								
S6.8.4	N7	1) The maximum allowable Sound Power Level (SWLs) for the following shall be compiled with during the selection of facility equipment. ▪ Sewage Treatment Plant; ▪ Electric Substation ▪ Seawater Intake; and ▪ Ventilation Building for the Scenic Hill Tunnel	Ensure the compliance of operational noise at the sensitive receivers	Engineer	Fixed noise sources	Design stage	- NCO and its TM - TM-EIA	N/A
	N8	2) The Engineer shall incorporate the requirements for nose commissioning of fixed plant noise sources in the Particular Specification.	Ensure compliance with relevant requirements	Engineer	Fixed noise sources	Design stage	- NCO and its TM - TM-EIA	V
Sediment								
S7.3	S1	1) The requirements as recommended un 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 site areas	Design stage	- Waste Disposal Ordinance - ETWB TC 34/2002	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
Waste management (Construction Waste)								
S8.3.8	WM1	*Construction and Demolition Material* The following mitigation measures should be implemented in handling the waste: Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction; In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation;	Good site practice to minimize and recycle the C&D material as far as practicable so as to reduce the amount for final disposal	Contractor	All construction site areas	Construction stage	- Land (Miscellaneous Provisions) Ordinance - Waste Disposal Ordinance - ETWB TC 19/2005	V
S8.3.9-S8.3.11	WM2	*C&D Waste* Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden	Good site practice to minimize and recycle the C&D material as far as practicable so as to reduce the amount for final	Contractor	All construction sites	Construction stage	- Land (Miscellaneous Provisions) Ordinance - Waste Disposal	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		hoardings should not be used, as in other projects. Metal hoarding and falsework should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	disposal				Ordinance - ETWB TC 19/2005	

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
S8.2.12-S8.3.15	WM6	*Chemical Waste* Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly 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. 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.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	- Waste Disposal(Chemical Waste) General Regulation - Code of Practice on the Packaging, Labeling and Storage of Chemical Waste	V
S8.3.16 of	WM7	*Sewage* 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.	Proper handling of sewage from worker to avoid odour, pest and litter impacts.	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
S8.3.17	WM8	*General Refuse* The site and surroundings shall be kept tidy and litter free. General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc., should be provided. Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.	Minimize production of the general refuse and avoid odour, pest and litter impacts.	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	V
Waste management (Operational Waste)								
S8.4.3	WM6	*Chemical Waste* The requirements given in the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste should be followed in handling of these chemical wastes. A trip-ticket system should be operated in accordance with the Waste Disposal (Chemical Waste)(General)Regulation to monitor all movements of chemical wastes which will be collected by a licensed collector to a licensed facility for final treatment and disposal	Minimize production of waste	Operator	All logistic lots	Operational stage	Waste Disposal Ordinance	N/A

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
Water Quality (Construction Phase)								
S9.11.1.7	W2	<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: wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; Sewage effluent and discharges from on –site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided; Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins.Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; temporary access roads should be surfaced with crushed stone or gravel; rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel; wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for offsite disposal; the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and					

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the storm water system.						
Water Quality (Operation Phase)								
S9.8.3.15	W4	Upon completion of the development, stormwater drainage systems would be completed to collect stormwater generated form the whole area including new roads, Sewage generated from the development would be collected by the sewerage systems for delivery to sewage treatment plant at HKBCF. Additional mitigation measures would not be required	Control water quality	Scheme designers	Stormwater infrastructure	Operational Stage	- TM-water - Water Pollution Control Ordinance	N/A
Ecology (construction Phase)								
S10.7	E4	Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater.	Prevent Sedimentation from Land-based works areas	Contractor	Land-based works areas	During construction	TM-Water	V
S10.7	E5	Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time.	Prevent disturbance to terrestrial fauna and habitats	Contractor	Land-based works areas	During construction		V
S10.7	E6	Control vessel speed Skipper training Predefined and regular routes for working vessels; avoid Brothers Islands	Minimise marine traffic disturbance on dolphins	Contractor	Marine traffic	During construction		V
Ecology(Operation Phase)								
S10.7	E13	- Install silt-grease trap in the drainage system collecting surface runoff	Minimise impacts on marine ecology	Designer	Reclamation area	During operation	TM water	N/A
S10.10	E14	-Maritime Oil Spill Response Plan(MOSRP) -Contingency plan.	Minimise impacts on marine ecology	Marine Department	HKBCF	During operation		N/A
Fisheries								
S11.7	F4	-Maritime Oil Spill Response Plan(MOSRP) -Contingency plan.	Minimise impacts on marine water quality impacts	Marine Department	HKBCF	During operation		N/A

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
Landscape & Visual (Detailed Design Phase)								
S14.3.3.1	LV1	General design measures include: Roadside planting and planting along the edge of the HKBCF Island is proposed; Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting Protection measures for the trees to be retained during construction activities; Optimizing the sizes and spacing of the bridge columns ; Fine-tuning the location of the bridge columns to avoid visually-sensitive location; Aesthetic design of the bridge form and its structural elements for HKLR, e.g. parapet, soffit, columns, lightings and so on; Considering the decorative urban design elements for HKLR, e.g. decorative road lightings; Maximizing new tree, shrub and other vegetation planting compensate tree felled and vegetation removed; Providing planting area around peripheral of HKBCF for tree planting screening effect Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline For HKBCF, Providing aesthetic architectural design on the related building (e.g. similar materials for PCB building façade to Airport building, roof planting and subtle materials for other facilities building 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	Minimise visual & landscape impacts	Contractor	HKBCF	Design Stage		V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		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. For HKLR, Providing aesthetic design on the viaduct, tunnel portals, at grade roads and reclamation (e.g. subtle color tone and slim form for viaduct to minimize the bulkiness of the structure and to blend the viaduct better with the background environment features form of tunnel portals, roadside planting along at-grade roads and landscape berm on & planting along edge of reclamation area) to beautify the HKLR alignment.						
Landscape & Visual (Construction Phase)								
S14.3.3.3	LV2	*Mitigate Landscape Impacts* G1. Grass-hydroseed or sheeting bare soil surface and stock pile areas. G2. Add Planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic. G3. For HKLR, Providing aesthetic design on the viaduct, tunnel portals, at grade roads and reclamation (e.g. subtle color tone and slim form for viaduct to minimize the bulkiness of the structure and to blend the viaduct better with the background environment featured form of tunnel portals, roadside planting along at-grade roads and landscape berm on & planting along edge of reclamation area) to beautify the HKLR alignment. G4. For HKBCF, Providing aesthetic architectural design on the related building (e.g. similar materials for PCB building façade to Airport building, roof planting and subtle materials for other facilities building and so on), and the related infrastructure(e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF. G5. Vegetation reinstatement and upgrading to disturbed G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed.	Minimise visual & landscape impacts	Contractor	HKBCF	Construction stage		N/A

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implementation Status
		G7. Providing planting area around peripheral of HKBCF for tree planting screening effect; G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall. G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of new coastline.						
S14.3.3.3	LV3	*Mitigate Visual Impacts* V1 Minimize time for construction activities during construction period. V2 Provide screen hoarding at the portion of the project site/works areas/ storage areas near VSRs who have close low-level views to the Project during HKBCF construction.						V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location	When to implement the measures?	What requirements or standards for the measure to achieve?	Implement ation Status
Landscape & Visual (Operation Phase)								
S14.3.3.3	LV4	*Mitigate both Landscape and Visual Impacts* G10 Provide proper planting maintenance in the new planting areas to enhance the aesthetic degree.	Minimise visual & landscape impacts	Project Proponent	HKBCF	Operation stage		N/A
		Mitigate Visual Impacts V3. Lighting design to minimize glare at night. Decorative road lighting to be consideres during detailed design stage.						N/A
EM&A								
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 site areas	Construction stage	-EIAO Guidance Note No. 4/2002 -TM_EIAO	V
S15.5 - S15.6	EM2	An Environmental Team needs to be employed as per the EM&A Manual. Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	Contractor	All construction site areas	Construction stage	-EIAO Guidance Note No. 4/2002 -TM_EIAO	V

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

Appendix H

Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of summons	Successful prosecutions
This reporting period	0	0	0
From commencement date of construction to end of reporting month	4	0	0

Appendix I

Environmental Site Inspection Schedule

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Contract No.: HY/2013/02
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage I (Western Portion)

Schedule for Weekly Environmental Site Inspection

NOV 2015

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

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Contract No.: HY/2013/02
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage I (Western Portion)

Schedule for Weekly Environmental Site Inspection

Dec 2015

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