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Wan Chai, Hong Kong

Attn:
Mr. Raymond Dai - Independent Environmental Checker

**Contract No. HY/2013/04 Hong Kong-Zhuhai-Macao Bridge (HZMB)
Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II
(Southern Portion)**

Our Reference
TC/GC/bw/T355861/02/
02/L100

Monthly EM&A Report for July 2018

3/F Mapletree Bay Point
348 Kwun Tong Road
Kowloon
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10 August 2018

By Email

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Dear Sir,

In accordance with Condition 5.4 of the Environmental Permit (EP-353/2009/K) covering the captioned contract, we are pleased to submit the certified Monthly EM&A Report for July 2018 for your verification.

Yours faithfully
For MOTT MACDONALD HONG KONG LIMITED



Gary Chow
Environmental Team Leader

Encl.

cc.
AECOM – Mr. Alfred Cheng (By Email)
China State Construction Engineering (Hong Kong) Ltd. – Mr. Xavier Lam / Mr. Billy Lao (By Email)

13 August 2018

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd.
The PRE's Office
550 Cheung Tung Road
Tung Chung, Lantau
Hong Kong

Attention: Mr. Alfred Cheng

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/2013/04 – HZMB HKBCF – Infrastructure Works Stage II
(Southern Portion)
Monthly Environmental Monitoring & Audit Report for July 2018**

Reference is made to the Environmental Team's submission of the Monthly Environmental Monitoring & Audit Report for July 2018 certified by the ET Leader (ET's ref.: "TC/GC/bw/T355861/02/02/L100" dated 10 August 2018) and provided to us via e-mail on 10 August 2018.

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.

As per Condition 1.7 of EP, ET and Contractor are reminded to keep close surveillance and monitoring of the site condition and mitigation measures for outfalls of box culverts C & D, in particular on the integrity of localized silt curtain and adequate site drainage facilities maintained to prevent discharge of contaminated surface runoff into the marine waters, and to continuously evaluate the effectiveness of all necessary site mitigation measures and take prompt rectification on any observed deficiency.

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 Hong Kong Limited



Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Vico Cheung	(By Fax: 3188 6614)
	HyD	Mr. Horace Hong	(By Fax: 3188 6614)
	MMHK	Mr. Gary Chow	(By Fax: 2827 1823)
	CSCE	Mr. Jason Chung	(By Fax: 2459 4336)

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



Contract No. HY/2013/04 HZMB HKBCF –
Infrastructure Works Stage II (Southern Portion)

Monthly EM&A Report for July 2018

August 2018

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Executive summary

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II (Southern Portion)” (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to China State Construction Engineering (Hong Kong) Limited (hereafter referred to as “the Contractor”) and Mott MacDonald Hong Kong Limited (MMHK) was appointed as the Environmental Team (ET) by the Contractor.

The Contract is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 13 March 2015 and the construction works commenced on 13 July 2015.

Mott MacDonald Hong Kong 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 for the Contract.

This is the 37th Monthly EM&A Report for the Contract which summaries findings of the EM&A works during the reporting period from 1 to 31 July 2018 (the “reporting period”).

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, noise, water quality and dolphin monitoring works for the Contract are covered by Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7B, noise monitoring at NMS2 and NMS3B, water quality monitoring at the twenty-one stations and dolphin monitoring works at the twenty-four transects 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 during the reporting period are listed below:

- Environmental Site Inspection: 4, 11, 18, 23 and 30 July 2018

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 AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

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

Sixty-four exceedances of water quality (consisting of 39 Action Level and 18 Limit Level exceedances of dissolved oxygen, one Action Level exceedance of turbidity and six Action Level exceedances of suspended solids) were recorded by the Environmental Team of Contract No. HY/2013/01 during the reporting period and were referred to this Contract for follow-up. The ET of this Contract conducted investigations and the findings with respect to the Contract can be referred to the corresponding monthly EM&A Report prepared under Contract No. HY/2013/01.

Impact dolphin monitoring results at all transects during the reporting period are reported in the monthly EM&A Report (for the reporting period) prepared for Contract No. HY/2013/01.

Complaint Log

The complaint received in relation to the environmental impact during June 2018 (as described below) was investigated by the ET of the Contract.

Log No.	Environmental Complaint Ref. No.	Date of Complaint Receipt	Description
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009	ENPO-C0135	22 June 2018	Water Quality
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The complaint was about discharge of muddy water from HKBCF. According to site photos provided by HyD, it is noticed that there was muddy water discharged via as-constructed box culverts/outfall structures at various parts of seawall on 13 June 2018.

As informed by the Contractor of HY/2013/04, land-based construction of the main structure of Box Culverts C and D (including the outfalls) were completed by May 2018 and no further works inside the main structures were conducted. Since then, land-based reinstatement of the seawall at ground level were in progress.

ET's regular weekly site inspections on 11, 20 and 27 June 2018 included inspection of the open waters interfacing with the HY/2013/04 site shoreline. During these site inspections, there was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline, including at Box Culverts C and D; silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters; and no HY/2013/04 site works were observed which may be a potential cause of muddy water discharge.

It is noted that amber rainstorm warning signal was issued during the daytime on 13 June 2018 from 15:00 to 18:15. The Contractor confirmed that prior to the heavy rain on 13 June 2018 it had inspected the silt curtains which were functioning properly with no leakage of muddy water into the open waters. After the heavy rain, the silt curtains were inspected and readjusted to ensure no leakage of site runoff into the open waters.

As part of the regular weekly site inspection process, mitigation measures for surface runoff collection and treatment (including in the Contractor's approved Site Temporary Drainage Management Plan) were audited. Throughout June 2018, no adverse observations were made

in relation to muddy surface runoff, and no muddy surface runoff was observed as overflowing from the HY/2013/04 site area into these box culverts or the open waters.

It is concluded that the source of the discharged runoff is not related to this contract and may be upstream of the HY/2013/04 works area.

The Contractor is reminded to observe all conditions stated in the relevant discharge licence and implement all necessary water quality mitigation measures identified in the EM&A Manual.

The ET's investigation report for the abovementioned complaint is presented in **Appendix J**.

Notifications of Summons and Successful Prosecutions

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

Reporting Changes

There was no reporting change during the reporting period.

Future Key Issues

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

- Retaining wall, E&M works, segment erection, excavation with road and drainage works, water pipe works, outfall works (land-based), asphalt paving, in situ deck structure, sign gantry works, road lighting and ducting.

1 Introduction

1.1 Background

On 13 March 2015, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by China State Construction Engineering (Hong Kong) Limited (also referred to as “the Contractor”) to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II (Southern Portion)” (“the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR).

The Contract is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 13 March 2015 and the construction works commenced on 13 July 2015. The works areas of the contract are shown in **Appendix A**.

This is the 37th Monthly EM&A Report summarising the findings of EM&A activities conducted under the Contract from 1 to 31 July 2018 (the “reporting period”) and is submitted to fulfil Condition 5.4 of the EP.

1.2 Project Description

The Proposed works under this Contract comprise the following:

- Construction of vehicular bridge and at-grade roads at the southern portion of Hong Kong Boundary Crossing Facilities;
- Construction of associated street lighting, street furniture, road marking, road signage, box culverts and outfalls, 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 for Traffic Control and Surveillance System (TCSS); and
- Other works in accordance with the Contract.

1.3 Project Organisation

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are 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
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Alfred Cheng	3958 7471	3468 2076
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Y H Hui	3465 2888	3465 2899
	Independent Environmental Checker	Raymond Dai	3465 2888	3465 2899
	Environmental Site Supervisor	Ray Yan	5181 8165	3465 2899
Contractor (China State Construction Engineering (Hong Kong) Limited)	Site Agent	Jason Chung	9127 8369	2459 4336
	Environmental Officer	Xavier Lam	9493 2944	2459 4336
		Billy Lao	6679 1950	2459 4336
Environmental Team (Mott MacDonald Hong Kong Limited)	Environmental Team Leader	Gary Chow	2828 5874	2827 1823
24-hour Complaint Hotline	-	-	5236 7111	-

1.4 Construction Programme

The Construction Works Programme of the Project is provided in **Appendix C**.

1.5 Construction Works undertaken during the Reporting Period

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

- Box Culvert D: whole structure completed
- Box Culvert C: whole structure completed
- Segment Erection: 31 no. pcs. completed
- No marine-based segment delivery (all segments stored at segment storage yard on HKBCF island site)
- Depressed road: whole structure completed
- No generation of excavated marine sediment

Marine-based outfall works and soft landscaping works had not commenced during this reporting month.

2 Air Quality Monitoring

2.1 Monitoring Locations

The air quality monitoring works for the Contract are covered by Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7B as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract No. HY/2013/01 and HY/2011/03. **Figure 2.1** shows the locations of air monitoring stations.

Table 2.1: Construction Dust Monitoring Locations

Identification No.	Location Description
AMS6 ⁽¹⁾	Dragonair/CNAC (Group) Building
AMS7B ⁽¹⁾	3RS Site Offices

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

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 Nos. HY/2013/01 and HY/2011/03.

The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.2** and **Table 2.3** respectively. The same baseline and Action/Limit Levels for air quality, as derived from the baseline monitoring data recorded at AMS7, apply with the abovementioned relocation to AMS7B.

Table 2.2: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair / SNAC (Group) Building (HKIA)	360	500
AMS7B – 3RS Site Offices	370	500

Table 2.3: Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair / SNAC (Group) Building (HKIA)	173	260
AMS7B – 3RS Site Offices	183	260

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

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 and Exceedance Investigations

The monitoring results for AMS6 and AMS7B are reported in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2013/01 respectively.

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 AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

3 Noise Monitoring

3.1 Monitoring Locations

The noise monitoring works for the Contract are covered by Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building”. The ET of the Contract or another ET of the HZMB project is required to conduct noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2013/01. **Figure 3.1** 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)}	AECOM PRE's Office

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

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.

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.

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

3.3 Monitoring Results

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 Water Quality Monitoring

4.1 Monitoring Locations

The water quality monitoring works for the Contract are covered by Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building”. A total of twenty-one stations (nine Impact Stations, seven Sensitive Receiver Stations and five Control/Far Field Stations) are covered by the current EM&A programme. The ET of the Contract or another ET of the HZMB project is required to conduct water quality monitoring at these stations as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2013/01. **Table 4.1** and **Figure 4.1** shows the locations of water quality monitoring stations.

Table 4.1: Impact Water Quality Monitoring Stations

Station	Description	East	North
IS5	Impact Station (Close to HKBCF construction site)	811579	817106
IS(Mf)6	Impact Station (Close to HKBCF construction site)	812101	817873
IS7	Impact Station (Close to HKBCF construction site)	812244	818777
IS8	Impact Station (Close to HKBCF construction site)	814251	818412
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850
IS10(N)	Impact Station (Close to HKBCF construction site)	812942	820881
IS(Mf)11	Impact Station (Close to HKBCF construction site)	813562	820716
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497
IS17	Impact Station (Close to HKBCF construction site)	814539	820391
SR3(N)	Sensitive receivers (San Tau SSSI)	810689	816591
SR4(N)	Sensitive receivers (Tai Ho)	814705	817859
SR5(N)	Sensitive receivers (Artificial Reef in NE Airport)	812569	821475
SR6	Sensitive receivers (Sha Chau and Lung Kwu Chau Marine Park)	805837	821818
SR7	Sensitive receivers (Tai Mo Do)	814293	821431
SR10A(N)	Sensitive receivers (Ma Wan FCZ) 1	823644	823484
SR10B(N2)	Sensitive receivers (Ma Wan FCZ) 2	823689	823159
CS(Mf)3(N)	Control Station	808814	822355
CS(Mf)5	Control Station	817990	821129
CS4	Control Station	810025	824004
CS6	Control Station	817028	823992

4.2 Monitoring Requirements

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/2013/01.

The Action and Limit Levels for water quality are provided in **Table 4.2**.

Table 4.2: Action and Limit Levels for Water Quality

Parameters	Action	Limit
DO in mg L ⁻¹ (Surface, Middle & Bottom)	Surface and Middle 5.0 Bottom 4.7	Surface and Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6
SS in mg L ⁻¹ (depth-averaged) at all monitoring stations and control stations	23.5 and 120% of upstream control station's SS at the same tide of the same day*	34.4 and 130% of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes*
Turbidity in NTU (depth-averaged)	27.5 and 120% of upstream control station's turbidity at the same tide of the same day*	47.0 and 130% of upstream control station's

Remarks:

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

Notes:

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

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

4.3 Monitoring Results and Exceedance Investigations

The monitoring results for the twenty-one monitoring stations are reported in the monthly EM&A Reports prepared for Contract No. HY/2013/01.

Sixty-four exceedances of water quality (consisting of 39 Action Level and 18 Limit Level exceedances of dissolved oxygen, one Action Level exceedance of turbidity and six Action Level exceedances of suspended solids) were recorded by the Environmental Team of Contract No. HY/2013/01 during the reporting period and were referred to this Contract for follow-up. The ET of this Contract conducted investigations and the findings with respect to the Contract can be referred to the corresponding monthly EM&A Report prepared under Contract No. HY/2013/01.

Water quality exceedances recorded during the reporting period are summarised in **Table 4.3**.

Table 4.3: Action and Limit Level Exceedance for Water Quality

Date	Parameter	Station	Depth	Exceedance Recorded during Mid-ebb Tide	Exceedance Recorded during Mid-flood Tide
2 Jul 2018	DO	IS10(N)	Bottom	Action Level	Action Level
2 Jul 2018	DO	IS(M)11	Bottom	-	Action Level
2 Jul 2018	DO	SR5(N)	Bottom	Action Level	Action Level
2 Jul 2018	DO	SR10A(N)	Bottom	-	Action Level
4 Jul 2018	DO	IS5	Bottom	Action Level	Action Level
4 Jul 2018	DO	IS10(N)	Bottom	Action Level	-
4 Jul 2018	DO	IS(M)11	Bottom	-	Action Level
4 Jul 2018	DO	SR10A(N)	Bottom	-	Action Level

Date	Parameter	Station	Depth	Exceedance Recorded during Mid-ebb Tide	Exceedance Recorded during Mid-flood Tide
6 Jul 2018	DO	IS5	Bottom	Action Level	Action Level
6 Jul 2018	DO	IS10(N)	Bottom	Limit Level	Limit Level
6 Jul 2018	DO	IS(Mf)11	Bottom	Action Level	Limit Level
6 Jul 2018	DO	IS17	Bottom	Limit Level	-
6 Jul 2018	DO	SR5(N)	Bottom	Action Level	Action Level
6 Jul 2018	DO	SR10A(N)	Bottom	Action Level	Limit Level
6 Jul 2018	DO	SR10B(N2)	Bottom	Action Level	Action Level
9 Jul 2018	DO	IS5	Bottom	Limit Level	Action Level
9 Jul 2018	DO	IS8	Bottom	Action Level	-
9 Jul 2018	DO	IS10(N)	Surface and Middle	Action Level	Action Level
9 Jul 2018	DO	IS10(N)	Bottom	Limit Level	Limit Level
9 Jul 2018	DO	IS(Mf)11	Surface and Middle	-	Action Level
9 Jul 2018	DO	IS(Mf)11	Bottom	Limit Level	Action Level
9 Jul 2018	DO	IS(Mf)16	Bottom	Action Level	-
9 Jul 2018	DO	IS17	Bottom	Action Level	Action Level
9 Jul 2018	DO	SR3(N)	Bottom	Action Level	-
9 Jul 2018	DO	SR5(N)	Surface and Middle	Action Level	-
9 Jul 2018	DO	SR5(N)	Bottom	Limit Level	Limit Level
9 Jul 2018	DO	SR6	Bottom	Limit Level	-
9 Jul 2018	DO	SR10A(N)	Bottom	-	Limit Level
9 Jul 2018	DO	SR10B(N2)	Surface and Middle	Limit Level	-
9 Jul 2018	DO	SR10B(N2)	Bottom	-	Action Level
11 Jul 2018	DO	IS5	Bottom	Action Level	-
11 Jul 2018	DO	SR10B(N2)	Bottom	-	Action Level
11 Jul 2018	Turbidity	IS10(N)	Depth Average	-	Action Level
13 Jul 2018	DO	SR6	Surface and Middle	Action Level	Action Level
13 Jul 2018	DO	SR6	Bottom	Action Level	-
13 Jul 2018	DO	SR10A(N)	Surface and Middle	-	Limit Level
13 Jul 2018	DO	SR10A(N)	Bottom	-	Action Level
13 Jul 2018	DO	SR10B(N2)	Surface and Middle	-	Limit Level
13 Jul 2018	SS	IS(Mf)11	Depth Average	-	Action Level
13 Jul 2018	SS	SR6	Depth Average	-	Action Level
13 Jul 2018	SS	SR10B(N2)	Depth Average	-	Action Level
16 Jul 2018	DO	SR10A(N)	Surface and Middle	-	Limit Level
16 Jul 2018	DO	SR10A(N)	Bottom	-	Action Level
16 Jul 2018	DO	SR10B(N2)	Surface and Middle	-	Limit Level
16 Jul 2018	DO	SR10B(N2)	Bottom	-	Action Level
16 Jul 2018	SS	SR6	Depth Average	-	Action Level
16 Jul 2018	SS	SR7	Depth Average	-	Action Level
27 Jul 2018	SS	SR10B(N2)	Depth Average	-	Action Level

The details of water quality exceedances can be referred to in the monthly EM&A Report under Contract No. HY/2013/01.

5 Dolphin Monitoring

5.1 Monitoring Locations

The dolphin monitoring works for the Contract are covered by Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building”. The ET of the Contract or another ET of the HZMB project is required to conduct dolphin monitoring at the twenty-four transects as part of EM&A programme if these transects are no longer covered under Contract No. HY/2013/01. The dolphin monitoring should adopt line-transect vessel survey method. The survey follows pre-set and fixed transect lines in the two areas defined by AFCD as: Northeast Lantau survey area; and Northwest Lantau survey area.

Table 5.1 shows the co-ordinates for the transect lines and layout map.

The revised layout map showing the transect lines have been provided by AFCD and are shown in **Figure 5.1**.

Table 5.1: Impact Dolphin Monitoring Line Transect Co-ordinates (Provided by AFCD)

Transect	HK Grid System		Long Lat in WGS84	
	X	Y	Long	Lat
1#	804671	815456	113.870287	22.277678
	804671	831404	113.869975	22.421696
2#^	805476	820800	113.877995	22.325951
	805476	826654	113.877882	22.378815
3^	806464	821150	114.030267	22.196697
	806464	822911	114.047344	22.196712
4^	807518	821500	114.033651	22.206219
	807518	829230	114.108618	22.206267
5^	808504	821850	114.037037	22.215126
	808504	828602	114.102523	22.215169
6^	809490	822150	114.039938	22.224033
	809490	825352	114.070995	22.224056
7#^	810499	822000	114.038474	22.233143
	810499	824613	114.063820	22.233163
8#	811508	821123	113.936539	22.328966
	811508	824254	113.936486	22.357241
9#	812516	821303	113.946320	22.330606
	812516	824254	113.946279	22.357255
10*	813525	820827	113.956112	22.326321
	813525	824657	113.956066	22.360908
11#	814556	818853	113.966155	22.304858
	814556	820992	113.966125	22.327820
12	815542	818807	113.975726	22.308109
	815542	824882	113.975647	22.362962

Transect	HK Grid System		Long Lat in WGS84	
13	816506	819480	113.985072	22.314192
	816506	824859	113.985005	22.362771
14	817537	820220	113.995070	22.320883
	817537	824613	113.995018	22.360556
15	818568	820735	114.005071	22.325550
	818568	824433	114.005030	22.358947
16	819532	821420	114.014420	22.331747
	819532	824209	114.014390	22.356933
17	820451	822125	114.023333	22.338117
	820451	823671	114.023317	22.352084
18	821504	822371	114.033556	22.340353
	821504	823761	114.033544	22.352903
19	822513	823268	114.043340	22.348458
	822513	824321	114.043331	22.357971
20	823477	823402	114.052695	22.349680
	823477	824613	114.052686	22.360610
21	805476	827081	113.877878	22.382668
	805476	830562	113.877811	22.414103
22	806464	824033	113.887520	22.355164
	806464	829598	113.887416	22.405423
23	814559	821739	113.966142	22.334574
	814559	824768	113.966101	22.361920
24 [^]	805476	815900	113.979368	22.187721
	805476	819100	114.010398	22.187756

Remarks:

- (a) * Due to the presence of deployed silt curtain systems at the site boundaries of the Contract, some of the transect lines shown in Figure 5.1 could not be fully surveyed during the regular survey. Transect 10 is reduced from 6.4km to approximately 3.6km in length due to the HKBCF construction site. Therefore the total transect length for both NEL and NWL combined is reduced to approximately 108km.
- (b) # Coordinates for transect lines 1, 2, 7, 8, 9 and 11 have been updated in respect to the Proposal for Alteration of Transect Line for Dolphin Monitoring approved by EPD on 19 August 2015.
- (c) [^] The change of transect lines 2, 3, 4, 5, 6 and 7 and new transect line 24 were justified and verified by the ET Leader for Contract No. HY/2010/02 and the IEC respectively on 24 March 2017 and it was approved by EPD on 12 May 2017.

5.2 Monitoring Requirements

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/2013/01.

The Action and Limit Levels for Chinese White Dolphin Monitoring are provided in **Table 5.2** and **Table 5.3**, respectively.

Table 5.2: Action and Limit Levels for Chinese White Dolphin Monitoring - Approach to Define Action Level (AL) and Limit Level (LL)

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

Table 5.3: Derived Value of Action Level (AL) and Limit Level (LL) for Chinese White Dolphin Monitoring

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

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

If exceedance(s) at these survey transect(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.

5.3 Monitoring Results

The monitoring results for dolphin monitoring during the reporting period are reported in the monthly EM&A Report (for the reporting period) prepared for Contract No. HY/2013/01.

6 Environmental Site and Audit

6.1 Site Inspection

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 4, 11, 18, 23 and 30 July 2018.

When soft landscaping works within the site boundaries of the Contract are commenced, construction phase landscape and visual mitigation measures would be implemented in accordance with the EP, EIA and EM&A Manual. Monitoring and audit of landscape and visual mitigation measures would be conducted bi-weekly in accordance with Section 14.2 of the Updated EM&A Manual for HKBCF (Version 1.0). Soft landscaping works within the Contract site had not commenced during the reporting period.

Particular observations during the site inspections and corrective actions undertaken by the Contractor are described below.

11 June 2018

- a. Loose general refuse was observed in the vicinity of Bridge D9c. Subsequently, the loose general refuse near Bridge D9c was removed. The observation was closed on 4 July 2018.

27 June 2018

- a. Visible smoke was observed in the exhaust of an excavator near P1302. Subsequently, the excavator was repaired and maintained regularly to prevent visible smoke emission. The observation was closed on 4 July 2018.
- b. Loose general refuse and C&D waste were observed at RW11 and the segment storage area. Subsequently, the general refuse and C&D waste were cleared. The observation was closed on 4 July 2018.

4 July 2018

- a. Gaps were observed at the silt curtain near Box Culvert C. Subsequently, the silt curtain near Box Culvert C was fixed and no gaps were observed at the silt curtain. The observation was closed on 11 July 2018.
- b. Unsorted C&D waste and general refuse was observed near P803 area. Subsequently, the C&D waste and general refuse were sorted and the general refuse was cleared. The observation was closed on 11 July 2018.
- c. A general refuse tank with no cover was observed near D9c area. Subsequently, the general refuse tank was cleared. The observation was closed on 11 July 2018.

11 July 2018

- a. Accumulation of C&D waste near P803 was observed. Subsequently, the C&D waste was removed. The observation was closed on 18 July 2018.
- b. Dust emission was observed near the haul road near Bridge P14 area. Subsequently, water spray was provided for the haul road. The observation was closed on 18 July 2018.
- c. Accumulation of general refuse was observed near Bridge D9c area. Subsequently, the general refuse was cleared. The observation was closed on 18 July 2018.

18 July 2018

- a. Stagnant water pond was observed inside HY/2013/04 WA3 Works Area. Subsequently, the stagnant water pond was cleared. The observation was closed on 23 July 2018.
- b. Loose general refuse was observed under Bridge D10 between P1001 and P1002. Subsequently, the general refuse was cleared. The observation was closed on 23 July 2018.
- c. Chemical container was observed on the ground without drip tray under Bridge D10 between P1001 and P1002. Subsequently, the chemical container was removed. The observation was closed on 23 July 2018.

23 July 2018

- a. Loose general refuse was observed near P1001 area. Subsequently, the general refuse was cleared. The observation was closed on 30 July 2018.
- b. Loose general refuse was observed near P1002 area. Subsequently, the general refuse was cleared. The observation was closed on 30 July 2018.
- c. Leakage of site runoff was observed outside the silt curtain at Box Culvert C. Subsequently, the silt curtain near Box Culvert C was extended in length and no leakage of site runoff was observed. The observation was closed on 30 July 2018.

30 July 2018

- a. Accumulation of general refuse was observed near P1202 area. The Contractor was reminded to clear the general refuse as soon as possible. Follow-up actions for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.
- b. Loose general refuse was observed near P1005 area. The Contractor was reminded to clear the general refuse as soon as possible. Follow-up actions for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.

6.2 Advice on the Solid and Liquid Waste Management Status

The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting. As a practical means, the disposal operation is managed by a single HKBCF contractor who is also responsible for applying dumping permit and its subsequent extension applications from EPD. Contract No. HY/2013/03 has been assigned to coordinate and arrange for disposal of extracted marine sediment from this Contract.

There was no generation of excavated sediment for treatment during this reporting period. Any treatment of excavated marine sediment will be conducted using cement solidification/stabilization (Cement S/S) techniques and the treated sediment will be reused onsite for either backfilling or landscaping (e.g. berm material).

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

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.

6.2.1 Disposal of Marine Sediment Extracted from Bored Piling Works

6.2.1.1 Background

After the acceptance of the review of the approved Sediment Quality Report (SQR) for this Project under EPD letter dated 19 August 2015, an approval to dispose the marine sediment extracted from bored piling for this Project was then approved under memo from Secretary, Marine Fill Committee of CEDD dated 20 August 2015 for the disposal of marine sediment extracted from bored piling works. The disposal sites allocated to this Project are the Mud Pit CMP2 of the Confined Marine Sediment Disposal Facility to the South of The Brothers (or at the East of Sha Chau). As advised by CEDD in the memo dated 19 February 2016, from 00:00 on 22 March 2016 onward, the disposal space at CMP2 of the South of The Brothers is closed and all disposal of contaminated sediment is to be carried out at CMP Vd to the East of Sha Chau (ESC).

As Contract No. HY/2013/01 has commenced treatment of the extracted marine sediment, treatment will continue and the treated marine sediment will be re-used within the HKBCF Island. On the other hand, Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04 have not commenced the treatment of extracted marine sediment. Therefore the marine sediment extracted from these three Contracts will be disposed to the allocated disposal sites directly without treatment. As a practical means, the disposal operation is managed by one contractor who is also responsible for applying dumping permit and its subsequent extension applications from EPD. Contract No. HY/2013/03 has been assigned to coordinate and arrange for disposal of extracted marine sediment from all three Contracts.

The SQR was further reviewed in mid-2016. EPD has no comment to extend the validity of the SQR to August 2017 under letter dated 18 August 2016.

Based on the actual piling operation, the estimated quantity of marine sediment to be extracted has been revised from 85,000 m³ to 126,000 m³ (bulk volume). EPD has no comments on the request as in the letter dated 20 October 2016. The Secretary of Marine Fill Committee, CEDD approved the increasing quantity in the memo dated 10 November 2016.

During the course of reviewing the SQR, it was noted that the contamination level of the marine sediment extracted from the inner part of the HKBCF Island was not identified during the previous sampling and testing. As requested by EPD, sampling and testing are required. The Sediment Sampling and Testing Proposal (SSTP) for the inner area of the HKBCF Island was approved by EPD on 2 June 2016.

As in the agreed SSTP for the inner area of the HKBCF Island, samples were taken from the seventeen batches of stockpiled marine sediments and from five boreholes each in one of the five sampling grids. After conducting chemical tests on samples, six batches of stockpiled samples under Contract No. HY/2013/03 and all eight batches of stockpiled samples under Contract No. HY/2013/04 are classified as Category L sediment. The Secretary of Marine Fill Committee of CEDD allocated disposal sites under memo dated 24 October 2016 and dated 22 November 2016 for disposal of a total of 9,500 m³ in-situ volume of Category L sediment (using a bulk factor of 1.3). The Category L sediment was disposed in December 2016.

One sample from the batch of stockpiled marine sediment under Contract No. HY/2013/03 and samples from all five sampling grids had contamination levels exceeding the Lower Chemical Exceedance Levels (LCEL) and biological screenings were carried out. All samples passed the biological screenings and are classified as Category Mp sediment and to be disposed off site using Type II confined marine disposal method the same method used for marine sediment extracted from other part of the HKBCF Island.

6.2.1.2 Dumping Arrangements

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

During dumping, each Contractor is responsible for transporting the marine sediment from his site area to the barge. The estimated quantity of marine sediment in each truck is confirmed by Resident Site Staff of each Contract. The trip tickets for transportation and disposal of marine sediment are collected and checked. Contract No. HY/2013/03 as the dumping permit holder is responsible for reporting to EPD the quantity disposed of as the condition stipulated in the dumping permit.

6.2.1.3 Reporting

AECOM has confirmed that the disposal of excavated marine sediments to allocated dumping site via Contract No. HY/2013/03 has been completed with the last batch disposal on 30 August 2017. The total quantities disposed are presented in the following table (**Table 6.1**):

Table 6.1: Summary of Marine Sediment disposed to Dumping Site via Contract No. HY/2013/03

	Type of Sediment and Quantity Disposed (m ³)	
	Cat. L (in Type I)	Type II
Total	3,570	39,814

Note: For monthly breakdown of these quantities, please refer to the waste flow table in **Appendix E**.

6.3 Environmental Licenses and Permits

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

6.4 Implementation Status of Environmental Mitigation Measures

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

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.

Implementation status of the Regular Marine Travel Route Plan (RMTRP) was checked by ET. Training of marine travel route for marine vessel operator was given to relevant staff and relevant records were kept properly.

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract during the reporting month.

The localised silt curtains under this Contract were deployed on 15 July 2017. No dolphins were observed by the trained MMOs during the reporting month. Regarding the implementation of dolphin monitoring and protection measures (i.e. implementation of Dolphin Watching Plan, Dolphin Exclusion Zone and Silt Curtain Integrity Check), regular checking was conducted by the experienced MMOs within the works area to ensure no dolphin was trapped by the enclosed silt curtain systems. Any dolphin spotted within the enclosed silt curtain systems was reported

and recorded. Relevant procedures were followed and measures were well implemented. Silt curtain systems were also inspected timely in accordance to the submitted plan. All inspection records were kept properly.

6.5 Summary of Exceedance of the Environmental Quality Performance Limit

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 AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

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

Water quality monitoring exceedances were recorded by the ET of Contract No. HY/2013/01 during the reporting period and were referred to this Contract for follow-up. The ET of this Contract conducted investigations and the findings with respect to the Contract can be referred to the corresponding monthly EM&A Report prepared under Contract No. HY/2013/01.

Impact dolphin monitoring results at all transects during the reporting period are reported in the monthly EM&A Report (for the reporting period) prepared for Contract No. HY/2013/01.

6.6 Summary of Complaints, Notification of Summons and Successful Prosecution

Complaints

The complaint received in relation to the environmental impact during June 2018 was investigated by the ET of the Contract. The summary of environmental complaints is presented in **Table 6.2**. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.

Table 6.2: Summary of Environmental Complaints for the Reporting Month

Log No.	Environmental Complaint Ref. No.	Date of Complaint Receipt	Description
009	ENPO-C0135	22 June 2018	Water Quality

The complaint was about discharge of muddy water from HKBCF. According to site photos provided by HyD, it is noticed that there was muddy water discharged via as-constructed box culverts/outfall structures at various parts of seawall on 13 June 2018.

This investigation reports the findings with respect to Box Culverts C and D which are located inside HY/2013/04 works site. It is noted that more than one HKBCF contract site was subject to the present complaint.

It is noted that the construction of Box Culverts C and D is divided into two parts, with HY/2013/04 and the adjacent BCF contract each responsible for the part inside its respective site boundary. The general HY/2013/04 site arrangement map showing the locations of Box Culverts C and D relative to these contracts is provided in Attachment 2 of ET's investigation report.

As informed by the Contractor of HY/2013/04, land-based construction of the main structure of Box Culverts C and D (including the outfalls) were completed by May 2018 and no further works inside the main structures were conducted. Since then, land-based reinstatement of the seawall at ground level were in progress.

Prior to the subject incident, ET conducted weekly site inspection on 11 June 2018, during which the HY/2013/04 site shoreline interfacing with open waters was inspected. There was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline, including at Box Culverts C and D. Silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters. No HY/2013/04 site works were observed which may be a potential cause of muddy water discharge. Relevant photos are presented in Attachment 3 of ET's investigation report.

It is noted that amber rainstorm warning signal was issued during the daytime on 13 June 2018 from 15:00 to 18:15. The relevant record from the Hong Kong Observatory is presented in Attachment 4 of ET's investigation report.

The Contractor confirmed that prior to the heavy rain on 13 June 2018 it had inspected the silt curtains which were functioning properly with no leakage of muddy water into the open waters. Photo provided by the Contractor is presented in Attachment 3 of ET's investigation report.

After the heavy rain, the silt curtains were inspected and readjusted to ensure no leakage of site runoff into the open waters. Photo taken by the Contractor on 16 June 2018 is also presented in Attachment 3 of ET's investigation report.

ET conducted weekly site inspection on 20 June 2018, during which the HY/2013/04 site shoreline interfacing with open waters was inspected. There was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline. Silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters. According to the Contractor, the opening in the silt curtain at Box Culvert C was repaired by 20 June 2018. Relevant photos are presented in Attachment 3 of ET's investigation report.

Following receipt of the subject complaint, ET conducted weekly site inspections on 27 June 2018, during which the HY/2013/04 site shoreline interfacing with open waters was inspected. There was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline. Silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters. No HY/2013/04 site works were observed which may be a potential cause of muddy water discharge. Relevant photos are presented in Attachment 3 of ET's investigation report.

As part of the regular weekly site inspection process, mitigation measures for surface runoff collection and treatment were audited. According to the Contractor's approved Site Temporary Drainage Management Plan (Section 4.1.1 for HKBCF island site), in the event of flooding on site due to heavy rainstorm, the effluent and surface water would be collected by temporary drainage channels to on-site waste water treatment facilities (including, but not limited to, sedimentation tank and Wetsep) and then discharged by discharge well on-site; furthermore, temporary drainage channel or earth bund shall be formed in front of the existing crest of sloping seawall within the site area in order to prevent the effluent from being overflowed into the sea due to heavy rainstorm. It is noted that the temporary site drainage system are not connected to Box Culverts C and D within HY/2013/04 site and therefore it is not anticipated that muddy surface runoff would flow into these box culverts. The Layout Plan for Site Temporary Drainage is presented in Attachment 5 of ET's investigation report. Throughout June 2018, no adverse observations were made in relation to muddy surface runoff, and no muddy

surface runoff was observed as overflowing from the HY/2013/04 site area into these box culverts or the open waters.

It is concluded that the source of the discharged runoff is not related to this contract and may be upstream of the HY/2013/04 works area.

The Contractor is reminded to observe all conditions stated in the relevant discharge licence and implement all necessary water quality mitigation measures identified in the EM&A Manual.

The following specific mitigation measures, as stated in the EMIS of EM&A Manual, are highlighted for constant maintenance and reinforcement to prevent future recurrence:

- single layer silt curtains will be applied around all works; and
- silt curtain shall be fully maintained throughout the works.

Specifically, for land works:

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

To prevent recurrence of this incident, the following measures are proposed for Contractor's consideration:

- more frequent checking of the silt curtain's integrity;
- more frequent pumping of the runoff contained inside the silt curtain; and
- a larger silt curtain to contain a larger area of silt runoff within.

The ET's investigation report for the abovementioned complaint is presented in **Appendix J**.

Notification of Summons and Successful Prosecution

No notification of summons or prosecutions was received during the reporting period.

Statistics on notifications of summons and successful prosecutions are summarized in **Appendix H**.

7 Future Key Issues

7.1 Construction Programme for the Coming Months

As informed by the Contractor, the major construction activities for August 2018 are summarized in **Table 7.1**.

Table 7.1: Construction Activities for August 2018

Site Area	Description of Activities
HKBCF	<ul style="list-style-type: none"> Retaining wall, E&M works, segment erection, excavation with road and drainage works, water pipe works, outfall works (land-based), asphalt paving, in situ deck structure, sign gantry works, road lighting and ducting.

7.2 Environmental Site Inspection Schedule for the Coming Month

The tentative schedule for weekly site inspections for August 2018 is provided in **Appendix I**.

8 Conclusions

8.1 Conclusions

General

Commencement of the Contract took place on 13 March 2015 and the construction works of the Contract commenced on 13 July 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 AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

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

Sixty-four exceedances of water quality (consisting of 39 Action Level and 18 Limit Level exceedances of dissolved oxygen, one Action Level exceedance of turbidity and six Action Level exceedances of suspended solids) were recorded by the Environmental Team of Contract No. HY/2013/01 during the reporting period and were referred to this Contract for follow-up. The ET of this Contract conducted investigations and the findings with respect to the Contract can be referred to the corresponding monthly EM&A Report prepared under Contract No. HY/2013/01.

Impact dolphin monitoring results at all transects during the reporting period are reported in the monthly EM&A Report (for the reporting period) prepared for Contract No. HY/2013/01.

Environmental Site Inspections

Environmental site inspections were carried out on 4, 11, 18, 23 and 30 July 2018. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site inspections.

Complaints

The complaint received in relation to the environmental impact during June 2018 was investigated by the ET of the Contract.

The complaint was about discharge of muddy water from HKBCF. According to site photos provided by HyD, it is noticed that there was muddy water discharged via as-constructed box culverts/outfall structures at various parts of seawall on 13 June 2018.

As informed by the Contractor of HY/2013/04, land-based construction of the main structure of Box Culverts C and D (including the outfalls) were completed by May 2018 and no further works inside the main structures were conducted. Since then, land-based reinstatement of the seawall at ground level were in progress.

ET's regular weekly site inspections on 11, 20 and 27 June 2018 included inspection of the open waters interfacing with the HY/2013/04 site shoreline. During these site inspections, there was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline, including at Box Culverts C and D; silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters; and no HY/2013/04 site works were observed which may be a potential cause of muddy water discharge.

It is noted that amber rainstorm warning signal was issued during the daytime on 13 June 2018 from 15:00 to 18:15. The Contractor confirmed that prior to the heavy rain on 13 June 2018 it had inspected the silt curtains which were functioning properly with no leakage of muddy water into the open waters. After the heavy rain, the silt curtains were inspected and readjusted to ensure no leakage of site runoff into the open waters.

As part of the regular weekly site inspection process, mitigation measures for surface runoff collection and treatment (including in the Contractor's approved Site Temporary Drainage Management Plan) were audited. Throughout June 2018, no adverse observations were made in relation to muddy surface runoff, and no muddy surface runoff was observed as overflowing from the HY/2013/04 site area into these box culverts or the open waters.

It is concluded that the source of the discharged runoff is not related to this contract and may be upstream of the HY/2013/04 works area.

The Contractor is reminded to observe all conditions stated in the relevant discharge licence and implement all necessary water quality mitigation measures identified in the EM&A Manual.

Notifications of Summons and Successful Prosecutions

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

Figures

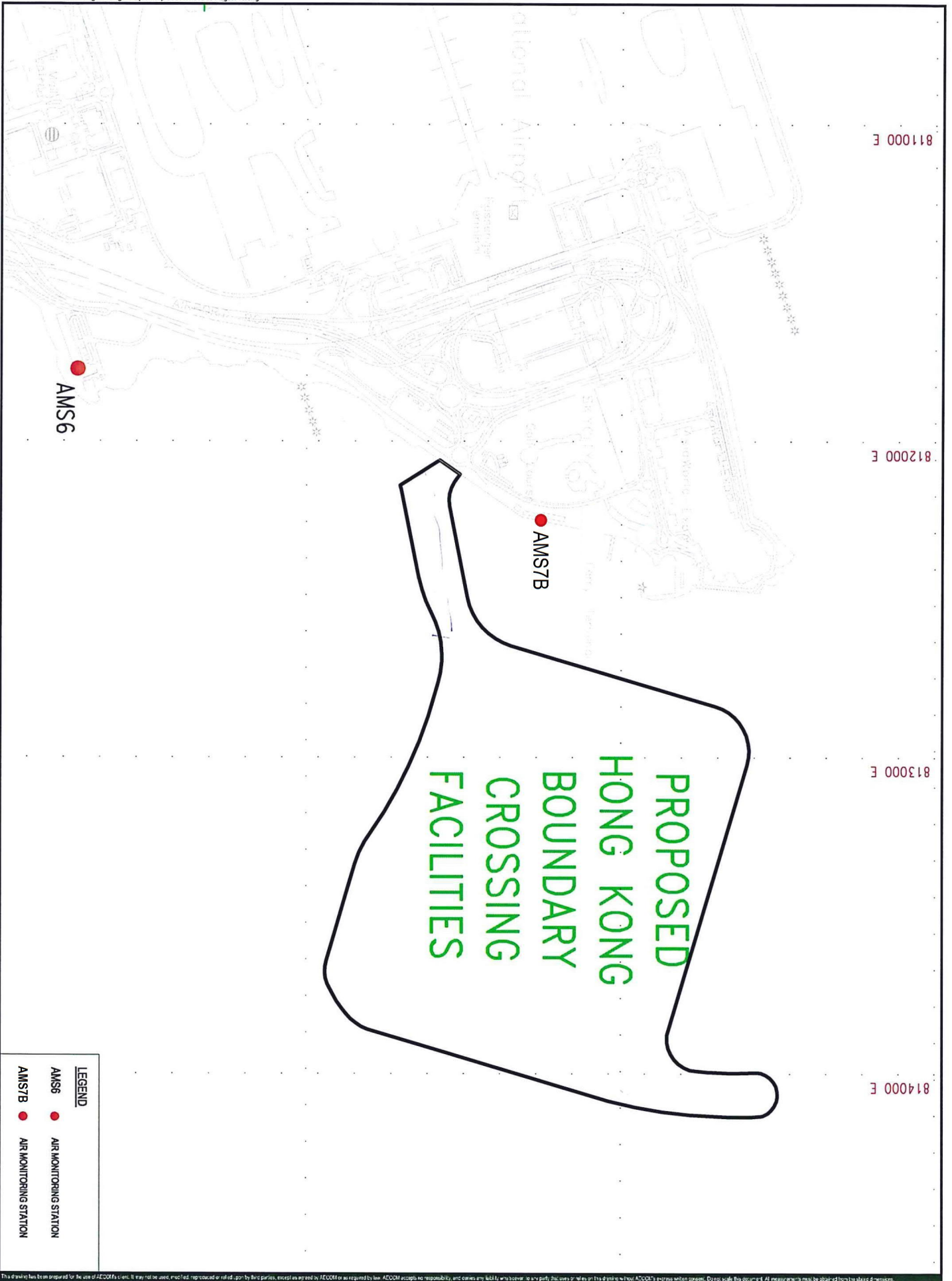
Figure 2.1 Location of Air Quality Monitoring Stations

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Project Management Initials:

Checked:

ISO A3 297mm x 420mm



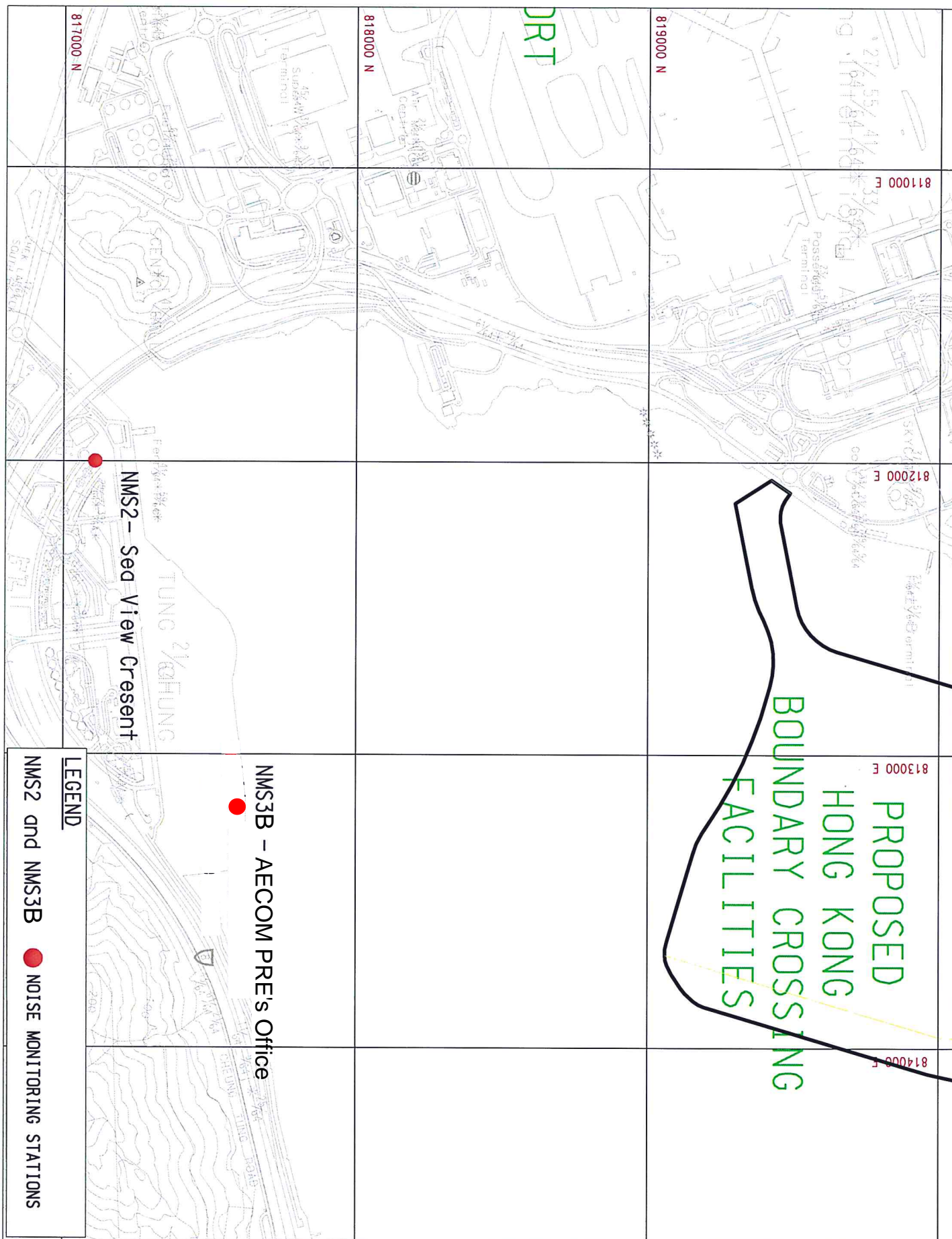
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Figure 3.1 Location of Noise Quality Monitoring Stations

Plot File by: LAMMCL 15/03/2012
 PATH P:\0249820\1.01\CAD\Drawing\Figure\Figure 2(15mar).dwg

Project Management Initials: Checked:

ISO A3 297mm x 420mm





Station	East	North
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(Mf)9	813273	818850
IS10(N)	812942	820881
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
SR3(N)	810689	816591
SR4(N)	814705	817859
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A(N)	823644	823484
SR10B(N2)	823689	823159
CS(Mf)3(N)	808814	822355
CS(Mf)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

FIGURE 4.1— LOCATION OF WATER QUALITY MONITORING STATIONS

LEGEND




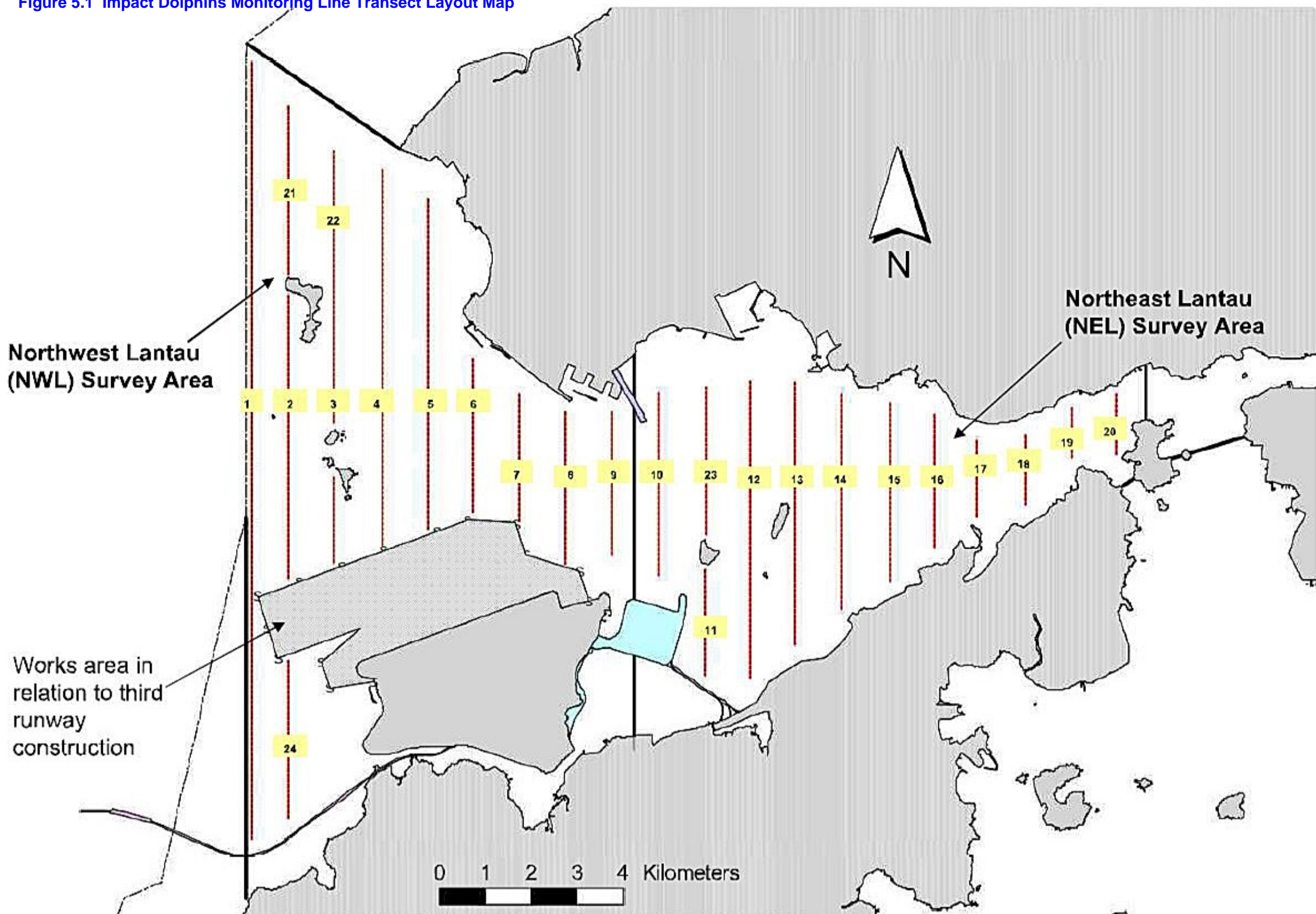
-  IS IMPACT STATIONS
-  CS CONTROL / FAR FIELD STATIONS
-  SR SENSITIVE RECEIVERS STATIONS

Figure 5.1 Impact Dolphins Monitoring Line Transect Layout Map



Appendix A. Location of Works Areas



- NOTES:**
- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 - DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

- LEGEND:**
- SITE BOUNDARY
 - WORKS AREA

ROAD
 825000 N
 820000 N
 815000 N
 810000 E
 815000 E
 820000 E
 825000 E
 P.S. [1] By : 22.11.24 W46.C57
 P:\PROJECTS\SYSTEMS\DRAWING\GEN\FACTORY\0000-2005-0001.DWG

REV.	DESCRIPTION	DATE
1	TENDER DRAWING	FEB.14

路政處 HIGHWAYS DEPARTMENT
 港珠澳跨境通道工程營地處
 Heng Kong-Zhuhai-Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - INFRASTRUCTURE WORKS STAGE 1 (SOUTHERN PORTION)

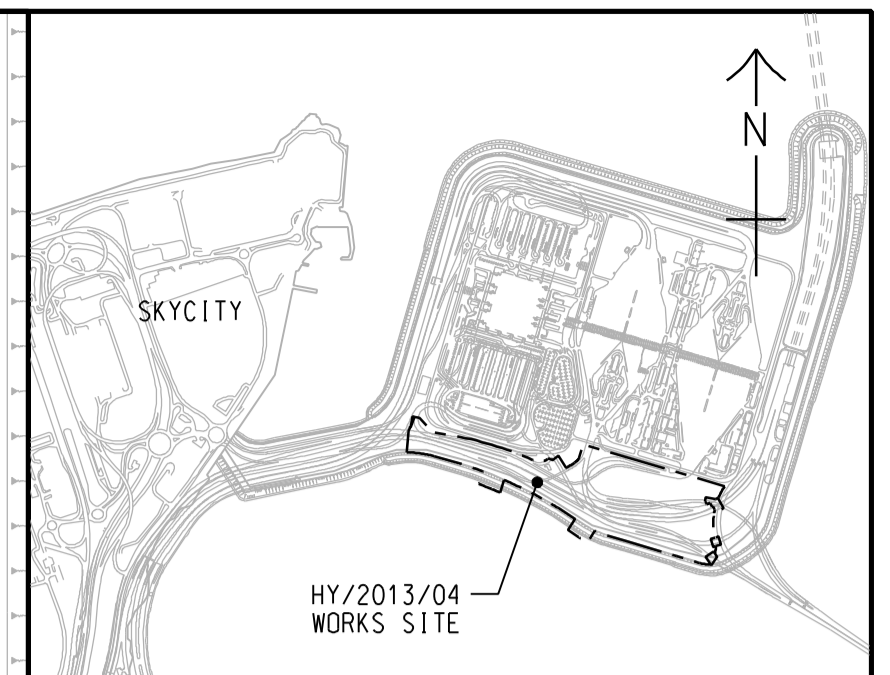
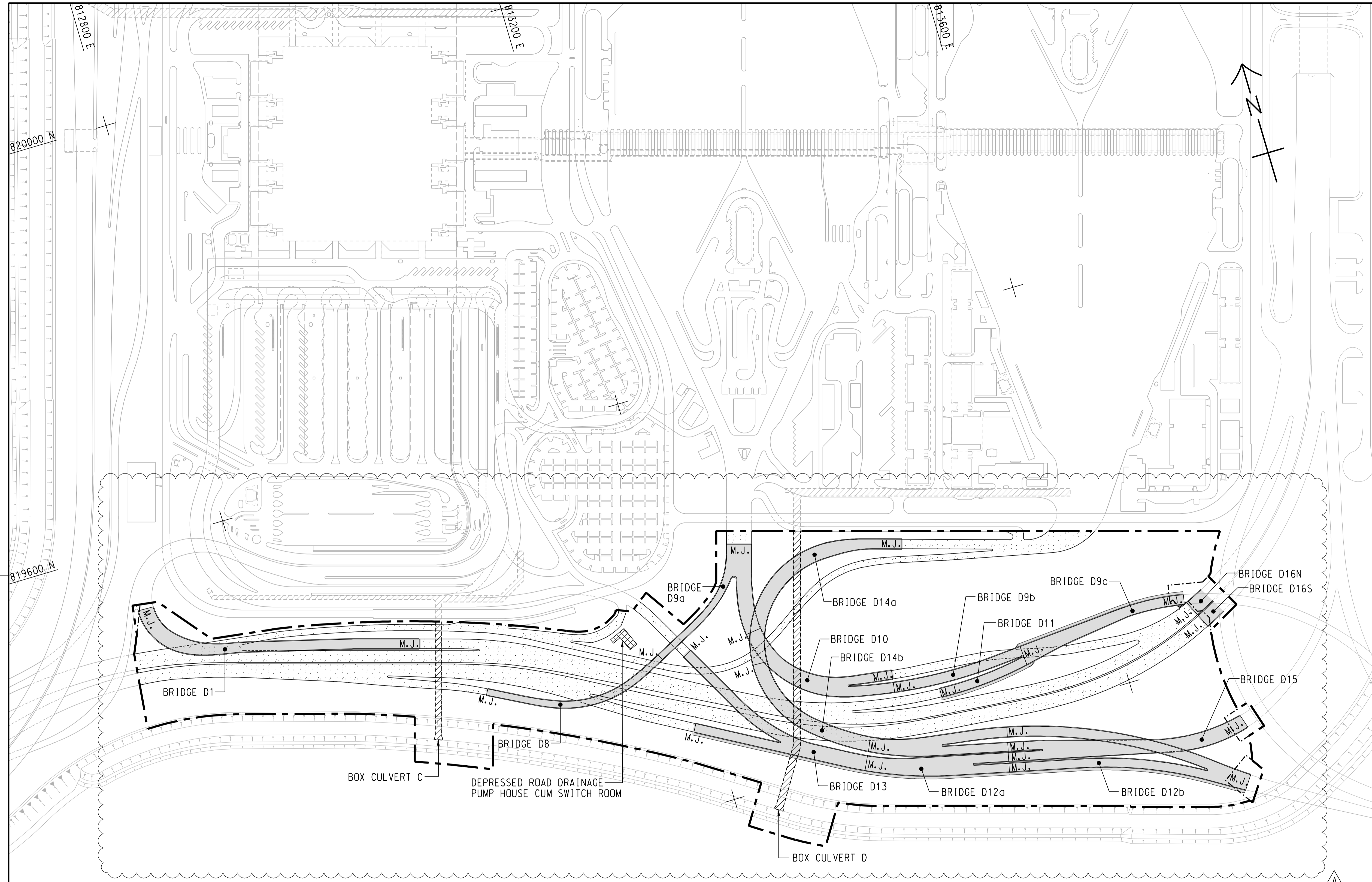
SITE LOCATION PLAN

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

DRG. NO. 60191048/C4/000/C00/1000
 圖紙編號

DESIGNED BY	CONTRACT NO.	APPROVED BY
BWCW	HY/2013/04	TKH
DRAWN BY	STATUS	
MSY	REV.	

SCALE 1:25000
 DIMENSIONS ARE IN METRES
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LOCATION PLAN
SCALE 1 : 25000

- LEGEND:**
- SITE BOUNDARY
 - AT-GRADE WORKS LIMIT
 - MOVEMENT JOINT
 - BRIDGE
 - BUILDING/FACILITIES
 - AT-GRADE ROAD
 - BOX CULVERT

B	WORKING DRAWING	BWCW SCI	APR. 15
A	TENDER ADDENDUM NO. 3	BWCW SCI	MAY. 14
-	TENDER DRAWING	BWCW SCI	FEB. 14
REV.	DESCRIPTION	CHECKED	DATE
修訂	內容摘要	審核	日期

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

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - INFRASTRUCTURE WORKS STAGE II (SOUTHERN PORTION)

GENERAL ARRANGEMENT

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

DRG.NO. 60191048/C4/000/C00/1002B
 圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/04	P. O. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段	WORKING DRAWING		

SCALE 比例 A1 1 : 2000
 DIMENSIONS ARE IN 尺寸單位 METRES
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Plot File by : 2014/5/7 WANGSY

SETTING OUT POINT

POINT	EASTING	NORTHING
301	817467.265	819162.683
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	817620.269	819000.620
313	817445.362	819013.131
314	817450.595	819032.307
315	817495.828	819059.595
316	817522.110	819075.388
317	817566.404	819028.472
318	817568.506	819008.526
319	817531.155	819001.066
320	817533.346	818991.306

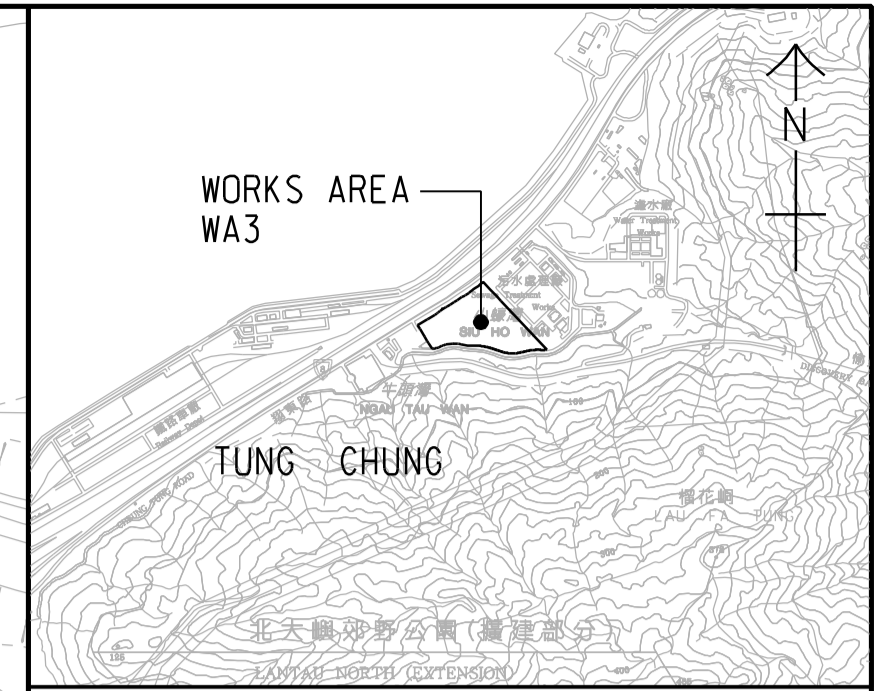
81200 E

81400 E

81600 E

81200 N

819000 N



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

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

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

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

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

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

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

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

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

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

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

小濠灣污水處理廠
Siu Ho Wan Sewage Treatment Works

小濠灣污水處理廠
Siu Ho Wan Sewage Treatment Works

B	WORKING DRAWING	BWCW SCI	APR. 15
A	TENDER ADDENDUM NO. 2	BWCW SCI	APR. 14
-	TENDER DRAWING	BWCW SCI	FEB. 14
REV.	DESCRIPTION	CHKD.	DATE
01	ISSUED FOR TENDER	BWCW	14/02/14

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

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- INFRASTRUCTURE WORKS STAGE II (SOUTHERN PORTION)

WORKS AREA WA3

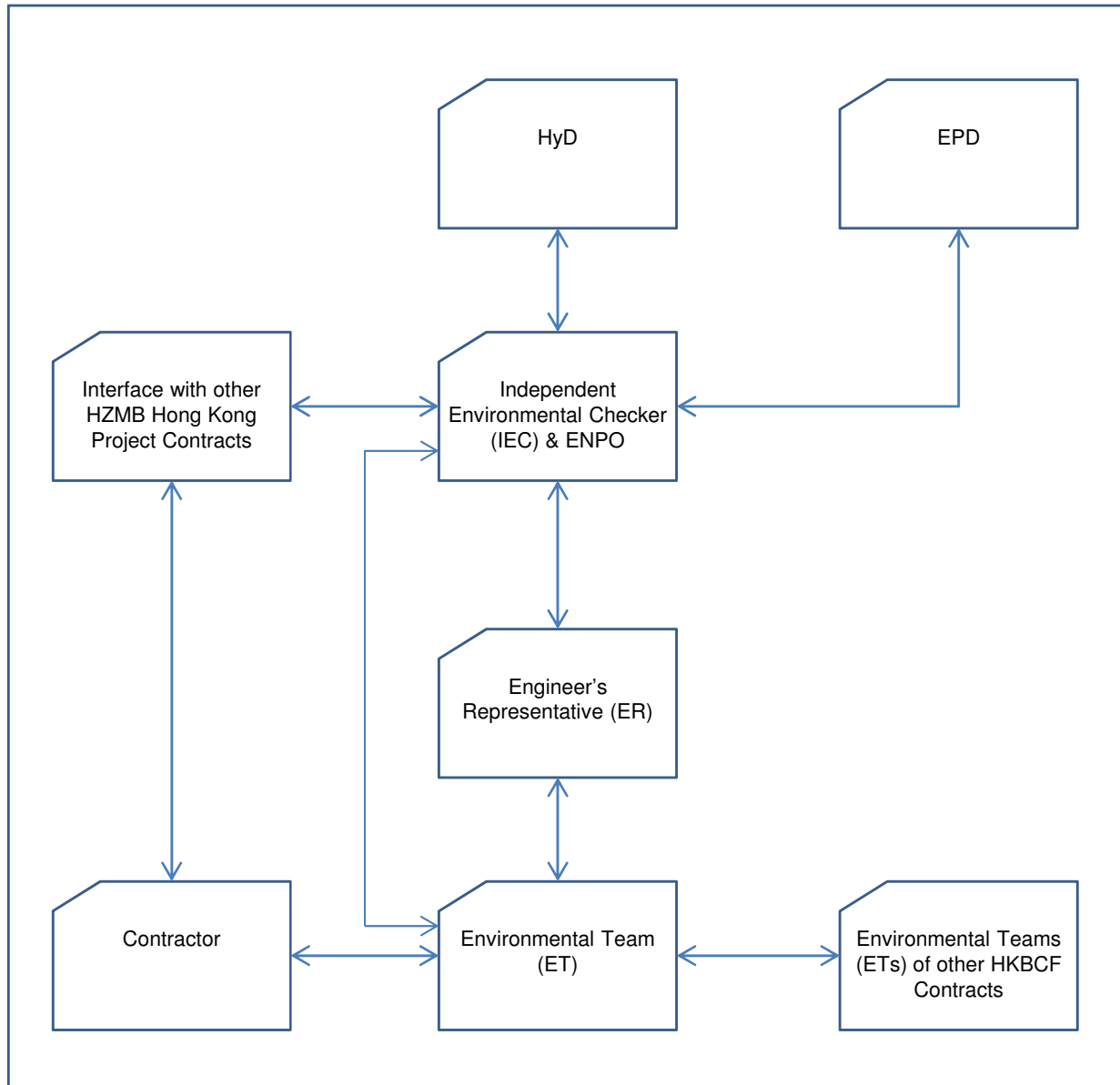
AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C4/000/C00/1041B
圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/04	P. Dir. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段	WORKING DRAWING		
SCALE 比例	A1 1 : 1000				
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Appendix B. Project Organization for Environmental Works

Project Organisation for Environmental Works



↔ Line of Communication

Appendix C. Construction Programme

Activity ID	Activity Name	2015				2016				2017				2018				2019				2020				2021																			
		A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
Essential Works Updates - Tier 1 - 26 C																																													
Contract Key Dates																																													
CON.KD.0005	Letter of Acceptance (LOA)	Letter of Acceptance (LOA)																																											
CON.KD.0010	Commencement Date	Commencement Date																																											
CON.KD.0020	Completion of the whole of the Works (1520)	◆ 11-May-19, Completion of the whole of the Works (1520)																																											
Possession Dates																																													
CON.PD.1010	Site Possession of Portion A1 (61) - 8	◆ Site Possession of Portion A1 (61) - 8																																											
CON.PD.1020	Site Possession of Portion A2 (61)	◆ Site Possession of Portion A2 (61)																																											
CON.PD.1050	Site Possession of Portion A5 (61)	◆ Site Possession of Portion A5 (61)																																											
CON.PD.1060	Site Possession of Portion A6 (61)	◆ Site Possession of Portion A6 (61)																																											
CON.PD.1070	Site Possession of Portion B1-5 (92)	◆ Site Possession of Portion B1-5 (92)																																											
CON.PD.1080	Site Possession of Portion B2 (123)	◆ Site Possession of Portion B2 (123)																																											
CON.PD.1130	Site Possession of Portion B5 (123)	◆ Site Possession of Portion B5 (123)																																											
CON.PD.1140	Site Possession of Portion C1 (184)	06-Oct-16 ◆ Site Possession of Portion C1 (184)																																											
CON.PD.1150	Site Possession of Portion C2 (184)	◆ Site Possession of Portion C2 (184)																																											
CON.PD.1160	Site Possession of Portion D1 (183)	◆ Site Possession of Portion D1 (183)																																											
CON.PD.1180	Site Possession of Portion D3 (183)	◆ Site Possession of Portion D3 (183)																																											
CON.PD.1190	Site Possession of Portion A1 (61) - 2	◆ Site Possession of Portion A1 (61) - 2																																											
CON.PD.1200	Site Possession of Portion A1 (61) - 5	◆ Site Possession of Portion A1 (61) - 5																																											
CON.PD.1210	Site Possession of Portion A1 (61) - 1	◆ Site Possession of Portion A1 (61) - 1																																											
CON.PD.1220	Site Possession of Portion C1 -1 (184)	◆ Site Possession of Portion C1 -1 (184)																																											
CON.PD.1230	Site Possession of Portion C1 -2 (184)	◆ Site Possession of Portion C1 -2 (184)																																											
CON.PD.1240	Site Possession of Portion B1 -1 (92)	◆ Site Possession of Portion B1 -1 (92)																																											
CON.PD.1250	Site Possession of Portion B1 -2 (92)	◆ Site Possession of Portion B1 -2 (92)																																											
CON.PD.1260	Site Possession of Portion A1 (61) - 7	◆ Site Possession of Portion A1 (61) - 7																																											
CON.PD.1270	Site Possession of Portion B1-3 (92)	◆ Site Possession of Portion B1-3 (92)																																											
CON.PD.1280	Site Possession of Portion B1-4 (92)	◆ Site Possession of Portion B1-4 (92)																																											
CON.PD.1290	Site Possession of Portion C1 -3 (184)	◆ Site Possession of Portion C1 -3 (184)																																											
Site Access Dates																																													
CON.PD.1030	Site Access of Portion A3 (476)	06-Oct-16 ◆ Site Access of Portion A3 (476)																																											
CON.PD.1040	Site Access of Portion A4 (627)	29-Nov-16 ◆ Site Access of Portion A4 (627)																																											
CON.PD.1090	Site Access of Portion B3 (476)	06-Oct-16 ◆ Site Access of Portion B3 (476)																																											
CON.PD.1100	Site Access of Portion B4 (627)	29-Nov-16 ◆ Site Access of Portion B4 (627)																																											
CON.PD.1170	Site Access of Portion D2 (488)	06-Oct-16 ◆ Site Access of Portion D2 (488)																																											
Contractual Key Dates - Stage / Section I																																													
CON.FOT.KD01	KD01 - Achievement of Stage 1A (525)	◆ 06-Oct-16, KD01 - Achievement of Stage 1A (525)																																											
CON.FOT.KD02	KD02 - Achievement of Stage 1B (650)	◆ 22-Dec-16, KD02 - Achievement of Stage 1B (650)																																											
CON.FOT.KD03	KD03 - Achievement of Stage 2 (525)	◆ 06-Oct-16, KD03 - Achievement of Stage 2 (525)																																											
CON.FOT.KD04	KD04 - Achievement of Stage 3 (465)	◆ 06-Oct-16, KD04 - Achievement of Stage 3 (465)																																											
CON.FOT.KD05	KD05 - Achievement of Stage 4 (615)	◆ 17-Nov-16, KD05 - Achievement of Stage 4 (615)																																											
CON.FOT.KD06	KD06 - Achievement of Stage 5 (615)	◆ 17-Nov-16, KD06 - Achievement of Stage 5 (615)																																											
CON.FOT.KD07	KD07 - Achievement of Stage 6 (270)	◆ 06-Oct-16, KD07 - Achievement of Stage 6 (270)																																											
CON.FOT.KD08	KD08 - Completion of Section I of the Works (795)	◆ 16-May-17, KD08 - Completion of Section I of the Works (795)																																											
CON.FOT.KD09	KD09 - Completion of Section II of the Works (803)	◆ 24-May-17, KD09 - Completion of Section II of the Works (803)																																											
CON.FOT.KD10	KD10 - Completion of Section III of the Works (803)	◆ 24-May-17, KD10 - Completion of Section III of the Works (803)																																											
CON.FOT.KD11	KD11 - Completion of Section IV of the Works (565)	◆ 06-Oct-16, KD11 - Completion of Section IV of the Works (565)																																											
CON.FOT.KD12	KD12 - Completion of Section V of the Works (803)	◆ 24-May-17, KD12 - Completion of Section V of the Works (803)																																											
CON.FOT.KD13	KD13 - Completion of Section VI of the Works (465)	◆ 06-Oct-16, KD13 - Completion of Section VI of the Works (465)																																											
CON.FOT.KD14	KD14 - Completion of Section VII of the Works (1155)	◆ 11-May-18, KD14 - Completion of Section VII of the Works (1155)																																											
CON.FOT.KD15	KD15 - Completion of Section VIIIA of the Works (795)	◆ 16-May-17, KD15 - Completion of Section VIIIA of the Works (795)																																											
CON.FOT.KD16	KD16 - Completion of Section VIIIB of the Works (1155)	◆ 11-May-18, KD16 - Completion of Section VIIIB of the Works (1155)																																											
CON.FOT.KD17	KD17 - Achievement of Stage 7 (718)	◆ 28-Feb-17, KD17 - Achievement of Stage 7 (718)																																											
CON.FOT.KD17A	KD17A - Completion of Section VIIIC of the Works (795)	◆ 16-May-17, KD17A - Completion of Section VIIIC of the Works (795)																																											
CON.FOT.KD18	KD18 - Completion of Section VIID of the Works (1155)	◆ 11-May-18, KD18 - Completion of Section VIID of the Works (1155)																																											
CON.FOT.KD19	KD19 - Completion of Section IXA of the Works (1160)	◆ 16-May-18, KD19 - Completion of Section IXA of the Works (1160)																																											
CON.FOT.KD20	KD20 - Completion of Section IXB of the Works (1520)	◆ 11-May-19, KD20 - Completion of Section IXB of the Works (1520)																																											
Contractual Handover Dates to Employer																																													
CON.HD.1190	Handover of Portion A1 (KD8+28 days)	◆ 13-Jun-17, Handover of Portion A1 (KD8+28 days)																																											
CON.HD.1200	Handover of Portion A2 (KD8+28 days)	◆ 13-Jun-17, Handover of Portion A2 (KD8+28 days)																																											
CON.HD.1210	Handover of Portion A3 (KD9+28 days)	◆ 21-Jun-17, Handover of Portion A3 (KD9+28 days)																																											
CON.HD.1220	Handover of Portion A4 (KD10+28 days)	◆ 21-Jun-17, Handover of Portion A4 (KD10+28 days)																																											
CON.HD.1240	Handover of Portion A5 (KD13+0 days)	◆ 06-Oct-16, Handover of Portion A5 (KD13+0 days)																																											

◆ Current Milestone
 Late Bar
 Actual Work

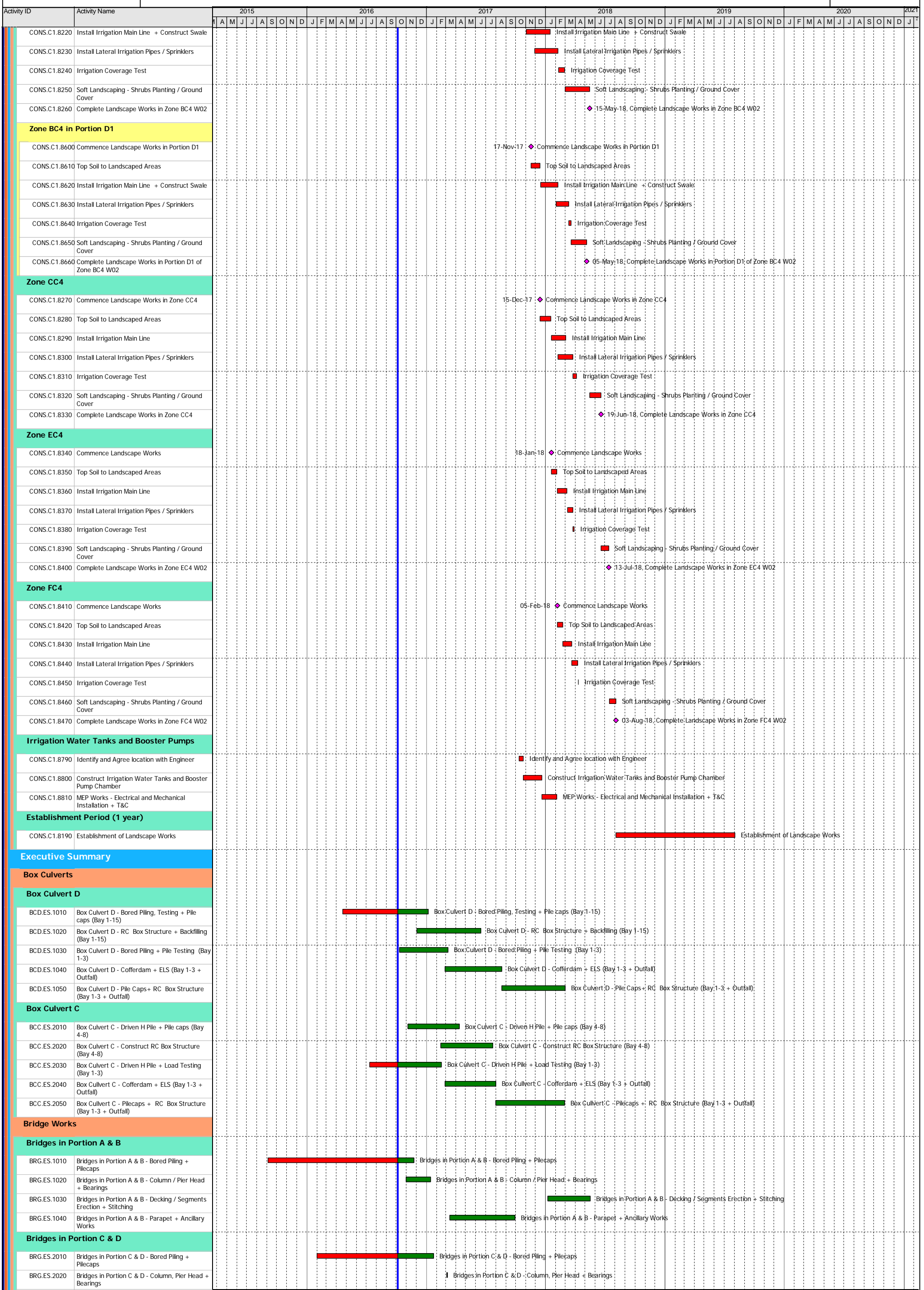
HY/2013/04 - Detailed Works Programme

Detailed Works Programme (IWP) Rev. 04			
Date	Revision	Chec...	Approved
09-Sep-15	Detailed Works Programme ...	WN/WC	ET
17-Oct-15	Detailed Works Programme ...	WN/WC	ET
29-Oct-15	Detailed Works Programme ...	WN/WC	ET
25-Nov-15	Detailed Works Programme ...	WN/WC	ET

Activity ID	Activity Name	2015				2016				2017				2018				2019				2020				2021							
		A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
PROC.MA.1610	Detailed Design / Shop Drawings and Materials Submission	Detailed Design / Shop Drawings and Materials Submission																															
PROC.MA.1615	Engineer's Review / Approval	Engineer's Review / Approval																															
PROC.MA.1650	Production / Manufacturing / Fabrication	Production / Manufacturing / Fabrication																															
PROC.MA.1670	Materials Delivery (first delivery)	21-Nov-16 ♦ Materials Delivery (first delivery)																															
Precast Concrete - Segments																																	
PROC.MA.1760	Moulds Detailed Design Preparation / Submission	Moulds Detailed Design Preparation / Submission																															
PROC.MA.1765	Engineer's Review / Approval	Engineer's Review / Approval																															
PROC.MA.1770	Mould Fabrication	Mould Fabrication																															
PROC.MA.1780	Cast Prototype / Inspection and Approval	Cast Prototype / Inspection and Approval																															
PROC.MA.2570	Production of Precast Segments	Production of Precast Segments																															
PROC.MA.2590	Materials Delivery (First Delivery)	14-Nov-16 ♦ Materials Delivery (First Delivery)																															
Segment Fabrication and Post Pouring																																	
Segment Fabrication Type A																																	
Fab.A1.001	Segment Fabrication for Bridge D1 (96 nos)	Segment Fabrication for Bridge D1 (96 nos)																															
Segment Fabrication Type C1																																	
Fab.TC1.0010	Segment Fabrication for Bridge D12b (91-106) 16 nos.	Segment Fabrication for Bridge D12b (91-106) 16 nos.																															
Fab.TC1.0020	Segment Fabrication for Bridge D9c (1-3) 3 nos.	Segment Fabrication for Bridge D9c (1-3) 3 nos.																															
Fab.TC1.0030	Segment Fabrication for Bridge D14a (1-30) 30 nos.	Segment Fabrication for Bridge D14a (1-30) 30 nos.																															
Fab.TC1.0040	Segment Fabrication for Bridge D12a (66-80) 15 nos.	Segment Fabrication for Bridge D12a (66-80) 15 nos.																															
Fab.TC1.0050	Segment Fabrication for Bridge D14b (14-27) 14 nos.	Segment Fabrication for Bridge D14b (14-27) 14 nos.																															
Fab.TC1.0060	Segment Fabrication for Bridge D14c (1-15) 15 nos.	Segment Fabrication for Bridge D14c (1-15) 15 nos.																															
Fab.TC1.0080	Segment Fabrication for Bridge D9c (4-14) 11 nos.	Segment Fabrication for Bridge D9c (4-14) 11 nos.																															
Fab.TC2.00060	Segment Fabrication for Bridge D15 (48-64) 17 nos.	Segment Fabrication for Bridge D15 (48-64) 17 nos.																															
Fab.TC3.0060	Segment Fabrication for Bridge D15 (31-47) 17 nos.	Segment Fabrication for Bridge D15 (31-47) 17 nos.																															
Fab.TC4.0030	Segment Fabrication for Bridge D13 (103-129) 27 nos.	Segment Fabrication for Bridge D13 (103-129) 27 nos.																															
Fab.TC4.0060	Segment Fabrication for Bridge D14c (46-60) 15 nos.	Segment Fabrication for Bridge D14c (46-60) 15 nos.																															
Segment Fabrication Type C2																																	
Fab.TC1.0070	Segment Fabrication for Bridge D15 (1-15) 15 nos.	Segment Fabrication for Bridge D15 (1-15) 15 nos.																															
Fab.TC2.00010	Segment Fabrication for Bridge D12b (112-127) 16 nos.	Segment Fabrication for Bridge D12b (112-127) 16 nos.																															
Fab.TC2.00020	Segment Fabrication for Bridge D14a (31-59) 29 nos.	Segment Fabrication for Bridge D14a (31-59) 29 nos.																															
Fab.TC2.00030	Segment Fabrication for Bridge D9c (29-42) 14 nos.	Segment Fabrication for Bridge D9c (29-42) 14 nos.																															
Fab.TC2.00040	Segment Fabrication for Bridge D12a (48-65) 18 nos.	Segment Fabrication for Bridge D12a (48-65) 18 nos.																															
Fab.TC2.00050	Segment Fabrication for Bridge D14c (16-30) 15 nos.	Segment Fabrication for Bridge D14c (16-30) 15 nos.																															
Fab.TC3.0010	Segment Fabrication for Bridge D12b (44-84, 107-111) 46 nos.	Segment Fabrication for Bridge D12b (44-84, 107-111) 46 nos.																															
Fab.TC3.0050	Segment Fabrication for Bridge D14c (31-45) 15 nos.	Segment Fabrication for Bridge D14c (31-45) 15 nos.																															
Fab.TC4.0070	Segment Fabrication for Bridge D15 (65-78) 14 nos.	Segment Fabrication for Bridge D15 (65-78) 14 nos.																															
Segment Fabrication Type C3																																	
Fab.TC3.0020	Segment Fabrication for Bridge D9c (15-28) 14 nos.	Segment Fabrication for Bridge D9c (15-28) 14 nos.																															
Fab.TC3.0030	Segment Fabrication for Bridge D13 (43-70 & 100-102) 31 nos.	Segment Fabrication for Bridge D13 (43-70 & 100-102) 31 nos.																															
Fab.TC3.0040	Segment Fabrication for Bridge D14b (28-49) 22 nos.	Segment Fabrication for Bridge D14b (28-49) 22 nos.																															
Fab.TC4.0010	Segment Fabrication for Bridge D12b (1-43, 85-90) 49 nos.	Segment Fabrication for Bridge D12b (1-43, 85-90) 49 nos.																															
Fab.TC4.0020	Segment Fabrication for Bridge D14a (60-75) 16 nos.	Segment Fabrication for Bridge D14a (60-75) 16 nos.																															
Fab.TC4.0040	Segment Fabrication for Bridge D12a (81-95) 15 nos.	Segment Fabrication for Bridge D12a (81-95) 15 nos.																															
Fab.TC4.0050	Segment Fabrication for Bridge D14b (1-13) 13 nos.	Segment Fabrication for Bridge D14b (1-13) 13 nos.																															
Segment Fabrication Type D2																																	
Fab.T1.0020	Segment Fabrication for Bridge D9a (75-86 & 92-104) 25 nos.	Segment Fabrication for Bridge D9a (75-86 & 92-104) 25 nos.																															
Fab.T1.0040	Segment Fabrication for Bridge D13 (33-46) 14 nos.	Segment Fabrication for Bridge D13 (33-46) 14 nos.																															
Fab.T1.0050	Segment Fabrication for Bridge D9a (1-15) 15 nos.	Segment Fabrication for Bridge D9a (1-15) 15 nos.																															
Fab.T2.0010	Segment Fabrication for Bridge D9a (32-46) 15 nos.	Segment Fabrication for Bridge D9a (32-46) 15 nos.																															
Fab.T2.0030	Segment Fabrication for Bridge D9b (1-15) 15 nos.	Segment Fabrication for Bridge D9b (1-15) 15 nos.																															
Fab.T2.0040	Segment Fabrication for Bridge D10 (33-47) 14 nos.	Segment Fabrication for Bridge D10 (33-47) 14 nos.																															
Fab.T2.0050	Segment Fabrication for Bridge D13 (29-41) 13 nos.	Segment Fabrication for Bridge D13 (29-41) 13 nos.																															
Fab.T3.0030	Segment Fabrication for Bridge D9a (47-57, 70-74) 16 nos.	Segment Fabrication for Bridge D9a (47-57, 70-74) 16 nos.																															
Fab.T3.0040	Segment Fabrication for Bridge D10 (68-88 & 27-32) 27 nos.	Segment Fabrication for Bridge D10 (68-88 & 27-32) 27 nos.																															
Fab.T3.0070	Segment Fabrication for Bridge D15 (1-14) 14 nos.	Segment Fabrication for Bridge D15 (1-14) 14 nos.																															
Fab.T4.0020	Segment Fabrication for Bridge D10 (61-67 & 89-95) 14 nos.	Segment Fabrication for Bridge D10 (61-67 & 89-95) 14 nos.																															
Fab.T4.0040	Segment Fabrication for Bridge D8 (48-62) 15 nos.	Segment Fabrication for Bridge D8 (48-62) 15 nos.																															
Fab.T4.0050	Segment Fabrication for Bridge D13 (78-98) 21 nos.	Segment Fabrication for Bridge D13 (78-98) 21 nos.																															
Fab.T4.0060	Segment Fabrication for Bridge D10 (96-109) 14 nos.	Segment Fabrication for Bridge D10 (96-109) 14 nos.																															
Segment Fabrication Type D3																																	
Fab.T1.0010	Segment Fabrication for Bridge D11 (17-31) 15 nos.	Segment Fabrication for Bridge D11 (17-31) 15 nos.																															
Fab.T1.0030	Segment Fabrication for Bridge D10 (1-26) 26 nos.	Segment Fabrication for Bridge D10 (1-26) 26 nos.																															
Fab.T1.0060	Segment Fabrication for Bridge D8 (1-16) 16 nos.	Segment Fabrication for Bridge D8 (1-16) 16 nos.																															
Fab.T1.0070	Segment Fabrication for Bridge D12a (1-16) 16 nos.	Segment Fabrication for Bridge D12a (1-16) 16 nos.																															
Fab.T2.0020	Segment Fabrication for Bridge D11 (1-16) 16 nos.	Segment Fabrication for Bridge D11 (1-16) 16 nos.																															
Fab.T2.0060	Segment Fabrication for Bridge D8 (17-31) 15 nos.	Segment Fabrication for Bridge D8 (17-31) 15 nos.																															

Activity ID	Activity Name	2015				2016				2017				2018				2019				2020				2021																															
		A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
Bridge D12a																																																									
CONS.B1.1835	Site Possession / Access to Portion B1	06-Oct-16 Site Possession / Access to Portion B1																																																							
CONS.B1.1837	Site Survey and Setting Out	Site Survey and Setting Out																																																							
CONS.B1.1840.1	Predrilling (17 nos) (D12a)	Predrilling (17 nos) (D12a)																																																							
CONS.B1.1840.2	GI Report and Verification / Agreement to Founding Level	GI Report and Verification / Agreement to Founding Level																																																							
CONS.B1.1850	D12a Bored Piling (17 nos. 2000mm dia x 60m + 1.0m Rock Socket)	D12a Bored Piling (17 nos. 2000mm dia x 60m + 1.0m Rock Socket)																																																							
CONS.B1.1855	Pile Testing	Pile Testing																																																							
CONS.B1.1860	Pile Trimming	Pile Trimming																																																							
CONS.B1.1890	Bridge D12a - Erect Precast Segments + Stitching + Stressing (6 spans)	Bridge D12a - Erect Precast Segments + Stitching + Stressing (6 spans)																																																							
CONS.B1.1900	D12a Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge Lighting, & Sign Gantry	D12a Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge Lighting, & Sign Gantry																																																							
CONS.B1.1905	D12a Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge Lighting, Signages	D12a Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge Lighting, Signages																																																							
CONS.B1.1910	D12a Final Asphalt Paving + Road Markings	D12a Final Asphalt Paving + Road Markings																																																							
CONS.B1.1920	Bridge D12a complete	04-Jul-18, Bridge D12a complete																																																							
CONS.B1.2020	Pier Columns (P1201 & P1204)	Pier Columns (P1201 & P1204)																																																							
CONS.B1.2040	Pier Columns (P1202 & P1205)	Pier Columns (P1202 & P1205)																																																							
CONS.B1.2050	Pier Columns (P1203 & P1414)	Pier Columns (P1203 & P1414)																																																							
CONS.B1.2070	Pier Columns (P1206)	Pier Columns (P1206)																																																							
CONS.B1.2440	Pile Caps (P1206)	Pile Caps (P1206)																																																							
CONS.B1.2450	Pile Caps (P1201)	Pile Caps (P1201)																																																							
CONS.B1.2460	Pile Caps (P1202)	Pile Caps (P1202)																																																							
CONS.B1.2470	Pile Caps (P1203)	Pile Caps (P1203)																																																							
CONS.B1.2480	Pier Head & Bearing (P1201 & P1204)	Pier Head & Bearing (P1201 & P1204)																																																							
CONS.B1.2500	Pier Head & Bearing (P1202 & P1205)	Pier Head & Bearing (P1202 & P1205)																																																							
CONS.B1.2520	Pier Head & Bearing (P1203 & P1414)	Pier Head & Bearing (P1203 & P1414)																																																							
CONS.B1.2530	Pier Head & Bearing (P1206)	Pier Head & Bearing (P1206)																																																							
Bridge D12b																																																									
CONS.B2.2015	Site Possession / Access to Portion B2 & B5	06-Oct-16 Site Possession / Access to Portion B2 & B5																																																							
CONS.B2.2018	Site Survey / Setting out	Site Survey / Setting out																																																							
CONS.B2.2020.1	Predrilling (18 nos) (D12b)	Predrilling (18 nos) (D12b)																																																							
CONS.B2.2020.2	GI Report and Verification / Agreement to Founding Level	GI Report and Verification / Agreement to Founding Level																																																							
CONS.B2.2030	D12b Bored Piling (18 nos. 2000mm dia x 64m + 3.3m Rock Socket)	D12b Bored Piling (18 nos. 2000mm dia x 64m + 3.3m Rock Socket)																																																							
CONS.B2.2035	Pile Testing	Pile Testing																																																							
CONS.B2.2040	Pile Trimming	Pile Trimming																																																							
CONS.B2.2070	Bridge D12b - Erect Precast Segments + Stitching + Stressing (4 spans)	Bridge D12b - Erect Precast Segments + Stitching + Stressing (4 spans)																																																							
CONS.B2.2080	D12b Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge Lighting, & Sign Gantry	D12b Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge Lighting, & Sign Gantry																																																							
CONS.B2.2085	D12b Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge Lighting, Signages	D12b Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge Lighting, Signages																																																							
CONS.B2.2090	Final Paving, Road Markings and Signages	Final Paving, Road Markings and Signages																																																							
CONS.B2.2100	Pier Columns (P1211)	Pier Columns (P1211)																																																							
CONS.B2.2110	Pier Columns (P1212)	Pier Columns (P1212)																																																							
CONS.B2.2120	Pier Columns (P1214)	Pier Columns (P1214)																																																							
CONS.B2.2130	Pier Columns (P1213) - A (Portal)	Pier Columns (P1213) - A (Portal)																																																							
CONS.B2.2140	Pier Columns (P1210)	Pier Columns (P1210)																																																							
CONS.B2.2150	Pier Columns (P1213) - B (Portal)	Pier Columns (P1213) - B (Portal)																																																							
CONS.B2.2160	Pier Columns (P1208)	Pier Columns (P1208)																																																							
CONS.B2.2170	Pier Columns (P1209)	Pier Columns (P1209)																																																							
CONS.B2.2190	Pile Caps (P1211)	Pile Caps (P1211)																																																							
CONS.B2.2200	Pile Caps (P1212)	Pile Caps (P1212)																																																							
CONS.B2.2210	Pile Caps (P1213 - A)	Pile Caps (P1213 - A)																																																							
CONS.B2.2220	Pile Caps (P1213 - B)	Pile Caps (P1213 - B)																																																							
CONS.B2.2230	Pile Caps (P1214)	Pile Caps (P1214)																																																							
CONS.B2.2240	Pile Caps (P1207)	Pile Caps (P1207)																																																							
CONS.B2.2250	Pile Caps (P1208)	Pile Caps (P1208)																																																							
CONS.B2.2260	Pile Caps (P1209)	Pile Caps (P1209)																																																							
CONS.B2.2270	Pile Caps (P1210)	Pile Caps (P1210)																																																							
CONS.B2.2280	Pier Columns (P1207)	Pier Columns (P1207)																																																							
CONS.B2.2290	Pier Head & Bearing (P1211)	Pier Head & Bearing (P1211)																																																							
CONS.B2.2300	Pier Head & Bearing (P1214)	Pier Head & Bearing (P1214)																																																							
CONS.B2.2320	Pier Head & Bearing (P1212)	Pier Head & Bearing (P1212)																																																							
CONS.B2.2340	Pier Head & Bearing (P1207)	Pier Head & Bearing (P1207)																																																							
CONS.B2.2350	Pier Head & Bearing (P1210)	Pier Head & Bearing (P1210)																																																							
CONS.B2.2360	Pier Head & Bearing (P1208)	Pier Head & Bearing (P1208)																																																							
CONS.B2.2370	Pier Head & Bearing (P1209)	Pier Head & Bearing (P1209)																																																							
CONS.B2.2380	Bridge D12b - Erect Precast Segments + Stitching + Stressing (4 spans)	Bridge D12b - Erect Precast Segments + Stitching + Stressing (4 spans)																																																							
Bridge D12b (cast in-situ) in Portion B3 (Inter																																																									
CONS.B3.2110	Site Possession/Access to Portion B3	06-Oct-16 Site Possession/Access to Portion B3																																																							
CONS.B3.2120	Survey / Setting Out	Survey / Setting Out																																																							

Activity ID	Activity Name	2015					2016					2017					2018					2019					2020					2021																																																																																									
		A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
CONS.B5.2106	Survey/ Site Setting Out	Survey/ Site Setting Out																																																																																																																							
CONS.B5.2110.1	Predrilling (11 nos) (D15)	Predrilling (11 nos) (D15)																																																																																																																							
CONS.B5.2110.2	GI Report and Verification / Agreement to Founding Level	GI Report and Verification / Agreement to Founding Level																																																																																																																							
CONS.B5.2120	D15 Bored Piling (11 nos. 2000mm dia x 65m + 3.3m Rock Socket)	D15 Bored Piling (11 nos. 2000mm dia x 65m + 3.3m Rock Socket)																																																																																																																							
CONS.B5.2125	Pile Testing	Pile Testing																																																																																																																							
CONS.B5.2130	Pile Trimming	Pile Trimming																																																																																																																							
CONS.B5.2150	Bridge D15 - Construct Deck (cast in-situ) Pier P1501/P1502-1503	Bridge D15 - Construct Deck (cast in-situ) Pier P1501/P1502-1503																																																																																																																							
CONS.B5.2160	Bridge D15 - Erect Precast Segments + Stitching + Stressing (2 spans)	Bridge D15 - Erect Precast Segments + Stitching + Stressing (2 spans)																																																																																																																							
CONS.B5.2170	D15 Bridge Ancillary - Parapet/TCSS, Railing, MU, Drainage, Bridge Lighting, & Sign Gantry	D15 Bridge Ancillary - Parapet/TCSS, Railing, MU, Drainage, Bridge Lighting, & Sign Gantry																																																																																																																							
CONS.B5.2180	D15 Final Asphalt Paving, Road Markings and Signages	D15 Final Asphalt Paving, Road Markings and Signages																																																																																																																							
CONS.B5.2190	Pier Columns (P1501 & P1502)	Pier Columns (P1501 & P1502)																																																																																																																							
CONS.B5.2210	Pier Columns (P1503)	Pier Columns (P1503)																																																																																																																							
CONS.B5.2220	Pier Columns (P1504)	Pier Columns (P1504)																																																																																																																							
CONS.B5.2230	Pier Columns (P1505)	Pier Columns (P1505)																																																																																																																							
CONS.B5.2250	Pile Caps (P1501 & P1502)	Pile Caps (P1501 & P1502)																																																																																																																							
CONS.B5.2260	Pile Caps (P1503)	Pile Caps (P1503)																																																																																																																							
CONS.B5.2270	Pile Caps (P1504)	Pile Caps (P1504)																																																																																																																							
CONS.B5.2280	Pile Caps (P1505)	Pile Caps (P1505)																																																																																																																							
CONS.B5.2290	Pier Head & Bearing (P1501)	Pier Head & Bearing (P1501)																																																																																																																							
CONS.B5.2310	Pier Head & Bearing (P1503)	Pier Head & Bearing (P1503)																																																																																																																							
CONS.B5.2320	Pier Head & Bearing (P1504)	Pier Head & Bearing (P1504)																																																																																																																							
CONS.B5.2330	Pier Head & Bearing (P1505)	Pier Head & Bearing (P1505)																																																																																																																							
CONS.B5.2340	Bridge D15 - Erect Precast Segments + Stitching + Stressing (2 spans)	Bridge D15 - Erect Precast Segments + Stitching + Stressing (2 spans)																																																																																																																							
Bridge D15 in Portion B4 (Interface with Cont																																																																																																																									
CONS.B4.2170	Site Possession/Access to Portion B4	29-Nov-16 ♦ Site Possession/Access to Portion B4																																																																																																																							
CONS.B4.2180	Survey / Site Setting Out	Survey / Site Setting Out																																																																																																																							
CONS.B4.2190	Bridge D15 - Erect Precast Segments on Falseworks at Portion B4 Interface (1 span)	Bridge D15 - Erect Precast Segments on Falseworks at Portion B4 Interface (1 span)																																																																																																																							
CONS.B4.2200	D15 Bridge Ancillary - Parapet/TCSS, Railing, MU, Drainage, Bridge Lighting, & Sign Gantry	D15 Bridge Ancillary - Parapet/TCSS, Railing, MU, Drainage, Bridge Lighting, & Sign Gantry																																																																																																																							
CONS.B4.2210	D15 Final Asphalt Paving, Road Markings and Signages	D15 Final Asphalt Paving, Road Markings and Signages																																																																																																																							
CONS.B4.2220	Inspection and Handover	Inspection and Handover																																																																																																																							
CONS.B4.2230	Completion of Section V (KD12) Works within Portion B4 including Bridge D15	18-Aug-18, Completion of Section V (KD12) Works within Portion B4 including Bridge D15																																																																																																																							
Bridge D16S and D16N and Abutment A1601 in																																																																																																																									
CONS.A4.2230	Commence Works for Abutment A1601	06-Oct-16 ♦ Commence Works for Abutment A1601																																																																																																																							
CONS.A4.2240	Survey / Site Setting Out	Survey / Site Setting Out																																																																																																																							
CONS.A4.2250.1	Predrilling (2 nos) (D16) - BH 03 & BH 04 at Portion A6	Predrilling (2 nos) (D16) - BH 03 & BH 04 at Portion A6																																																																																																																							
CONS.A4.2250.2	GI Report and Verification / Agreement to Founding Level to BH 03 and BH 04	GI Report and Verification / Agreement to Founding Level to BH 03 and BH 04																																																																																																																							
CONS.A4.2250.3	Predrilling (2 nos) (D16) - BH 01 & BH 02 at Portion A3	Predrilling (2 nos) (D16) - BH 01 & BH 02 at Portion A3																																																																																																																							
CONS.A4.2250.4	GI Report and Verification / Agreement to Founding Level to BH 01 and BH 02	GI Report and Verification / Agreement to Founding Level to BH 01 and BH 02																																																																																																																							
CONS.A4.2260	D16S Bored Piling (2 nos x 1800mm dia)	D16S Bored Piling (2 nos x 1800mm dia)																																																																																																																							
CONS.A4.2265	Pile Testing - BH 03 & BH 04	Pile Testing - BH 03 & BH 04																																																																																																																							
CONS.A4.2280	Construct Abutment A1601	Construct Abutment A1601																																																																																																																							
CONS.A4.2340	D16N Bored Piling (2 nos x 1800mm dia)	D16N Bored Piling (2 nos x 1800mm dia)																																																																																																																							
CONS.A4.2350	Pile Testing - BH 01 & BH 02	Pile Testing - BH 01 & BH 02																																																																																																																							
CONS.A4.2360	Pile Trimming + Pile Caps	Pile Trimming + Pile Caps																																																																																																																							
Bridge D16S and D16N in Portion A4																																																																																																																									
CONS.A4.2285	Site Possession / Site Access to Portion A4	20-Mar-17 ♦ Site Possession / Site Access to Portion A4																																																																																																																							
CONS.A4.2290	Bridge D16S & D16N - Construct Deck (cast in-situ)	Bridge D16S & D16N - Construct Deck (cast in-situ)																																																																																																																							
CONS.A4.2300	D16N & D16S Bridge Ancillary - Parapet, MU, Drainage, Bridge Lighting, TCSS & Signages	D16N & D16S Bridge Ancillary - Parapet, MU, Drainage, Bridge Lighting, TCSS & Signages																																																																																																																							
CONS.A4.2310	D16 Final Asphalt Paving, Road Markings and Signages	D16 Final Asphalt Paving, Road Markings and Signages																																																																																																																							
CONS.A4.2320	Inspection and Handover of Bridge D16	Inspection and Handover of Bridge D16																																																																																																																							
CONS.A4.2330	Completion of Bridge D16N and D16S	21-Aug-18, Completion of Bridge D16N and D16S																																																																																																																							
RW16S (15m / 1 bay) in Portion A6																																																																																																																									
CONS.A1.3500	Commence RW16s Retaining Wall (29m / 2 bays)	13-Feb-17 ♦ Commence RW16s Retaining Wall (29m / 2 bays)																																																																																																																							
CONS.A1.3510	Survey / Setting Out	Survey / Setting Out																																																																																																																							
CONS.A1.3520	Excavate to formation level (open cut / slope)	Excavate to formation level (open cut / slope)																																																																																																																							
CONS.A1.3530	Cast Base & Wall Stem 1 bay (ribbed finish to 1m below F.G.L)	Cast Base & Wall Stem 1 bay (ribbed finish to 1m below F.G.L)																																																																																																																							
CONS.A1.3540	Install U/G Utilities - TCSS, ELV & LV Ducting & Draw Pits	Install U/G Utilities - TCSS, ELV & LV Ducting & Draw Pits																																																																																																																							
CONS.A1.3550	Backfill to final ground level	Backfill to final ground level																																																																																																																							
RW16N (15m / 1 bay) in Portion A6																																																																																																																									
CONS.A1.3440	Commence RW16n Retaining Wall (29m / 2 bays)	13-Feb-17 ♦ Commence RW16n Retaining Wall (29m / 2 bays)																																																																																																																							
CONS.A1.3450	Survey / Setting Out	Survey / Setting Out																																																																																																																							
CONS.A1.3460	Excavate to formation level (open cut / slope)	Excavate to formation level (open cut / slope)																																																																																																																							
CONS.A1.3470	Cast Base & Wall Stem 1 bay (ribbed finish to 1m below F.G.L)	Cast Base & Wall Stem 1 bay (ribbed finish to 1m below F.G.L)																																																																																																																							
CONS.A1.3480	Install U/G Utilities - TCSS, ELV & LV Ducting	Install U/G Utilities - TCSS, ELV & LV Ducting																																																																																																																							
CONS.A1.3490	Backfill to final ground level	Backfill to final ground level																																																																																																																							
Depressed Road RC Structure																																																																																																																									



Appendix D. Event and Action Plan

Event/Action Plan for Air Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor and ER; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Repeat measurement on next day of exceedance to confirm findings. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working methods; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-compliance in writing; 2. Discuss with IEC on the proposed mitigation measures; 3. Make agreement on mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET and IEC on possible remedial actions and propose mitigation measures to IEC and ER; 5. Implement the agreed mitigation measures. 6. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and ER; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Action level; 8. Repeat measurement on next day of exceedance to confirm findings. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-compliance in writing; 2. Discuss with IEC on the proposed mitigation measures; 3. Make agreement on mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented; 5. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET and IEC on possible remedial actions and propose mitigation measures to IEC and ER within 3 working days of notification; 5. Implement the agreed mitigation measures; 6. Amend working methods if appropriate.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor, ER and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Request Contractor to critically review the working methods; 4. Ensure mitigation measures are properly implemented; 5. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER; 5. Implement the agreed mitigation measures; 6. Amend working methods if appropriate.
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, ER and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Request Contractor to critically review the working methods; 4. Make agreement on the mitigation measures to be implemented; 5. Ensure mitigation measures are properly implemented; 6. Assess the effectiveness of the implemented mitigation measures; 7. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Take immediate action to avoid further exceedance; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER; 6. Implement the agreed mitigation measures; 7. Resubmit proposals of mitigation measures if problem still not under control; 8. As directed by the Engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Event / Action Plan for Dolphin Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor. 	<ol style="list-style-type: none"> 1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER/SOR; 3. Implement the agreed measures.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly. 	<ol style="list-style-type: none"> 1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures. 3. Supervise the implementation of additional monitoring and/or any other mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures. 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary. 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

Appendix E. Waste Flow Table

Monthly Summary Waste Flow Table for 2018

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	Reused in the Contract	Transported to other Projects (Note 2)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (Note 1)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0	0	0	0	0	0	0	0	0	0	0.1293
Feb	0	0	0	0	0	0	0	0	0	0.2	0.1397
Mar	0	0	0	0	0	0	0	0	0	0	0.1346
Apr	0	0	0	0	0	0	0	0	0	0	0.2334
May	0	0	0	0	0	0	0	0	0	0	0.1748
Jun	0	0	0	0	0	0	0	0	0	0	0.2044
Sub-total	0.000	0	0	0.000	0	0	0	0	0	0.2	1.0162
Jul	0	0	0	0	0	0	0	0	0	0	0.2036
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.000	0	0	0.000	0	0	0	0	0	0.2	1.2198

Note: (1) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

(2) "Other Projects" refers to HKBCF Contract No. HY/2013/03

Monthly Summary of Excavated Marine Sediment for 2018

Month	a. Estimated Volume of Excavated Marine Sediment Generated	b. Estimate Volume of Accumulated Excavated Marine Sediment Treated	c. Reused in the Contract	d. Estimated Volume of Excavated Marine Sediment Transported to Other Projects (Note 1)	e. Estimated Volume of Treated Excavated Marine Sediment Stored on Site (Unused)
	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)
Jan	0	0	0	0	0
Feb	0	0	0	0	0
Mar	0	0	0	0	0
Apr	0	0	0	0	0
May	0	0	0	0	0
Jun	0	0	0	0	0
Sub-total	0	0	0	0	0
Jul	0	0	0	0	0
Aug					
Sep					
Oct					
Nov					
Dec					
Total	0	0	0	0	0

Note: (1) "Other Projects" refers to HKBCF Contract No. HY/2013/03. The disposal of excavated marine sediments to allocated dumping site via Contract No. HY/2013/03 has been completed with the last batch disposal on 30 August 2017.

Appendix F. Environmental Licences and Permits

Environmental Licences and Permits

Item No.	Type of Permit / Licence	Reference No.	Application Date	Valid from	Valid until	Remark
1	Environmental Permit under EIAO	EP-353/2009/K	24 Mar 2016	11 Apr 2016	N/A	Issued
2	Construction Dust Notification (HKBCF Southern Portion)	387156	26 Mar 2015	1 Apr 2015	N/A	Notified
3	Construction Waste Disposal Account	7022038	16 Mar 2015	1 Apr 2015	N/A	Account approved
4	Registration as a Chemical Waste Producer (HKBCF Southern Portion)	Waste Producer Number (WPN): 5213-951-C3952-01	27 Mar 2015	27 Apr 2015	N/A	Registration completed
5	Discharge Licence under WPCO (Works Area WA3)	WT00022316-2015	1 Jun 2015	14 Aug 2015	31 Aug 2020	Issued
6	Discharge Licence under WPCO (HKBCF Works Area)	WT00028782-2017	25 May 2017	19 Jul 2017	31 Jul 2022	Issued
7	Construction Noise Permit	GW-RS0293-18	23 Mar 2018	1 May 2018	31 Oct 2018	Issued

Appendix G. Implementation Schedule for Environmental Mitigation Measures (EMIS)

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Air Quality				
S5.5.6.1	A1	1) The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides 	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> 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 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. 	All construction sites	V
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4	A4	4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the Contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected representative dust monitoring station	V (covered by Contract No. HY/2013/01 & HY/2011/03)
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant:	Selected representative dust	N/A

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<ul style="list-style-type: none"> • Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; • All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; • Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; • The materials which may generate airborne dusty emissions should be wetted by water spray system; • All receiving hoppers should be enclosed on three sides up to 3m above unloading point; • All conveyor transfer points should be totally enclosed; • All access and route roads within the premises should be paved and wetted; and • Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body. 	monitoring station	
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"> • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points. 	All construction sites	N/A
Construction Noise (Air borne)				
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"> • 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 works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	All construction sites	V
S6.4.11	N2	<p>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.</p>	All construction sites	V
S6.4.12	N3	<p>3) Install movable noise barriers (typically density @ 14kg/m²), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.</p>	For plant items listed in Appendix 6D of the EIA report at all construction sites	V
S6.4.13	N4	<p>4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.</p>	For plant items listed in Appendix 6D of the EIA report at all construction sites	V
S6.4.14	N5	<p>5) Sequencing operation of construction plants where practicable.</p>	All construction sites where practicable	V
	N6	<p>6) Implement a noise monitoring under EM&A programme.</p>	Selected representative noise monitoring station	V (covered by Contract No. HY/2013/01)
Sediment				
S7.3	S1	<p>1) The requirements as recommended in ETWB TC(W) 34/2002 Management of Dredged/Excavated Sediment shall be included in the Particular Specification as appropriate.</p>	All construction sites	V
Waste Management (Construction Noise)				
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"> • 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 	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>aggregates where appropriate;</p> <ul style="list-style-type: none"> • 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; and • Implement an enhanced Waste Management Plan similar to ETWB TC(W) 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. 		
S8.3.9- S8.3.11	WM2	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	All construction sites	V
S8.2.12- S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> • 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. 	All construction sites	V
S8.3.16	WM4	<p><u>Sewage</u></p> <ul style="list-style-type: none"> • 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. 	All construction sites	V
S8.3.17	WM5	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • 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, aluminium 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. 	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Water Quality (Construction Phase)				
S9.11.1.1	W1	<p><u>Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below.</u></p> <ul style="list-style-type: none"> • Floating type perimeter silt curtains shall be around the HKBCF site before the commencement of marine works. • Silt curtain shall be fully maintained throughout the works. 	Marine works	V
S9.11.1.7	W2	<p><u>Land Works</u></p> <p>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"> • 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 W PCO or collected for disposal offsite. The use of soakaways shall be avoided; • storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; • 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 W PCO or collected for off site disposal; • the Contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system. 	Land-based works areas	V
S9.14	W3	Implement a water quality monitoring programme	At identified monitoring locations	V (covered by Contract No. HY/2013/01)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Ecology (Construction Phase)				
S10.7	E2	<ul style="list-style-type: none"> • Install silt curtain during the construction. Limit dredging and works fronts. • Good site practices. • Site runoff control. 	Marine works and Land-based works areas	V
S10.7	E4	Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Land-based works areas	V
S10.7	E5	Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time	Land-based works areas	V
S10.7	E6	<ul style="list-style-type: none"> • Dolphin Exclusion Zone; • Dolphin watching plan 	Marine works	V
S10.7	E7	<ul style="list-style-type: none"> • Decouple compressors and other equipment on working vessels • Avoidance of percussive piling 	Marine works	V
S10.7	E8	<ul style="list-style-type: none"> • Control vessel speed • Skipper training • Predefined and regular routes for working vessels; avoid Brother Islands. 	Marine Traffic	V
S10.10	E9	<ul style="list-style-type: none"> • Dolphin vessel monitoring 	North Lantau and West Lantau	V (covered by Contract No. HY/2013/01)
Fisheries				
S11.7	F4	<ul style="list-style-type: none"> • Maritime Oil Spill Response Plan (MOSRP); • Contingency plan. 	HKBCF	V
Landscape & Visual (Detailed Design Phase)				
S14.3.3.1	LV1	<p>General design measures include:</p> <ul style="list-style-type: none"> • Roadside planting and planting along the edge of the HKBCF Island is proposed; • Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting; • Protection measures for the trees to be retained during construction activities; • Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid visually-sensitive locations; • Maximizing new tree, shrub and other vegetation planting to 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 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 • Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF. 	HKBCF	V
Landscape & Visual (Construction Phase)				
S14.3.3.3	LV2	<p><u>Mitigate both Landscape and Visual Impacts</u></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</p>	HKBCF	N/A

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		effect; G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall. G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline.		
S14.3.3.3	LV3	<u>Mitigate Visual Impacts</u> V1. Minimize time for construction activities during construction period. V2. Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKBCF construction.		N/A
EM&A				
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	All construction sites	V
S15.5 - S15.6	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	All construction sites	V
Legend:	V = implemented; x = not implemented; N/A = not applicable			

Appendix H. Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of construction to end of reporting month	10	0	0

Appendix I. Environmental Site Inspection Schedule

Environmental Site Inspection Schedule for July 2018

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

Tentative Environmental Site Inspection Schedule for August 2018

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

Appendix J. Complaint Investigation Report

Environmental Complaint Form

RECEIPT OF COMPLAINT		Ref: ENPO-C0135
Date:	22 June 2018	
Time:	N/A	
Via:	HyD	
COMPLAINANT		
Name:	Not specified in complaint	Address: N/A
Contact no.:	N/A	
DETAILS OF COMPLAINT		
Date:	-	
Time:	13 June 2018	
Parameter:	Water Quality	Other (specify): N/A
Description:	The complaint was about discharge of muddy water from HKBCF. According to site photos provided by HyD (see Attachment 1), it is noticed that there was muddy water discharged via as-constructed box culverts/outfall structures at various parts of seawall on 13 June 2018. An opening in the silt curtain at Box Culvert C was also observed.	
INVESTIGATION RESULT & RESPONSE		
IEC and ER notified on:	25 June 2018	
ET inspected site on:	27 June 2018	
Result of investigation:	<p>This investigation reports the findings with respect to Box Culverts C and D which are located inside HY/2013/04 works site. It is noted that more than one HKBCF contract site was subject to the present complaint.</p> <p>It is noted that the construction of Box Culverts C and D is divided into two parts, with HY/2013/04 and the adjacent BCF contract each responsible for the part inside its respective site boundary. The general HY/2013/04 site arrangement map showing the locations of Box Culverts C and D relative to these contracts is provided in Attachment 2.</p> <p>As informed by the Contractor of HY/2013/04, land-based construction of the main structure of Box Culverts C and D (including the outfalls) were completed by May 2018 and no further works inside the main structures were conducted. Since then, land-based reinstatement of the seawall at ground level were in progress.</p> <p>Prior to the subject incident, ET conducted weekly site inspection on 11 June 2018, during which the HY/2013/04 site shoreline interfacing with open waters was inspected. There was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline, including at Box Culverts C and D. Silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters. No HY/2013/04 site works were observed which may be a potential cause of muddy water discharge. Relevant photos are presented in Attachment 3.</p> <p>It is noted that amber rainstorm warning signal was issued during the daytime on 13 June 2018 from 15:00 to 18:15. The relevant record from the Hong Kong Observatory is presented in Attachment 4.</p> <p>The Contractor confirmed that prior to the heavy rain on 13 June 2018 it had inspected the silt curtains which were functioning properly with no leakage of muddy water into the open waters. Photo provided by the Contractor is presented in Attachment 3.</p>	

After the heavy rain, the silt curtains were inspected and readjusted to ensure no leakage of site runoff into the open waters. Photo taken by the Contractor on 16 June 2018 is also presented in **Attachment 3**.

ET conducted weekly site inspection on 20 June 2018, during which the HY/2013/04 site shoreline interfacing with open waters was inspected. There was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline. Silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters. According to the Contractor, the opening in the silt curtain at Box Culvert C was repaired by 20 June 2018. Relevant photos are presented in **Attachment 3**.

Following receipt of the subject complaint, ET conducted weekly site inspections on 27 June 2018, during which the HY/2013/04 site shoreline interfacing with open waters was inspected. There was no observation regarding any overflow of site runoff or presence of silty water in the open waters associated with that shoreline. Silt curtains at Box Culverts C and D were observed as secured with no leakage of muddy water into the open waters. No HY/2013/04 site works were observed which may be a potential cause of muddy water discharge. Relevant photos are presented in **Attachment 3**.

As part of the regular weekly site inspection process, mitigation measures for surface runoff collection and treatment were audited. According to the Contractor's approved Site Temporary Drainage Management Plan (Section 4.1.1 for HKBCF island site), in the event of flooding on site due to heavy rainstorm, the effluent and surface water would be collected by temporary drainage channels to on-site waste water treatment facilities (including, but not limited to, sedimentation tank and Wetsep) and then discharged by discharge well on-site; furthermore, temporary drainage channel or earth bund shall be formed in front of the existing crest of sloping seawall within the site area in order to prevent the effluent from being overflowed into the sea due to heavy rainstorm. It is noted that the temporary site drainage system are not connected to Box Culverts C and D within HY/2013/04 site and therefore it is not anticipated that muddy surface runoff would flow into these box culverts. The Layout Plan for Site Temporary Drainage is presented in **Attachment 5**. Throughout June 2018, no adverse observations were made in relation to muddy surface runoff, and no muddy surface runoff was observed as overflowing from the HY/2013/04 site area into these box culverts or the open waters.

It is concluded that the source of the discharged runoff is not related to this contract and may be upstream of the HY/2013/04 works area.

RECOMMENDATIONS / MITIGATION MEASURES / ACTIONS

The Contractor is reminded to observe all conditions stated in the relevant discharge licence and implement all necessary water quality mitigation measures identified in the EM&A Manual.

The following specific mitigation measures, as stated in the EMIS of EM&A Manual, are highlighted for constant maintenance and reinforcement to prevent future recurrence:

- single layer silt curtains will be applied around all works; and
- silt curtain shall be fully maintained throughout the works.

Specifically, for land works:

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

To prevent recurrence of this incident, the following measures are proposed for Contractor's consideration:

- more frequent checking of the silt curtain's integrity.
- more frequent pumping of the runoff contained inside the silt curtain; and
- a larger silt curtain to contain a larger area of silt runoff within.

Prepared by: Gary Chow	Title: Environmental Team Leader
Signature: 	Date: 31 July 2018

ATTACHMENTS

1. Site photos of muddy water discharge (from HyD)
2. General HY/2013/04 site arrangement map
3. Photo records of Box Culverts C and D
4. Hong Kong Observatory weather warnings and signals record (13 Jun 2018)
5. Layout Plan for Site Drainage Management (extracted from Appendix A, Site Temporary Drainage Management Plan)

Attachment 1



Date: 13 June 2018

Location: Box Culvert at Portion AC1 (off PCB)



Date: 13 June 2018

Location: Box Culvert at Portion AC1 (off PCB)



Date: 13 June 2018

Location: Box Culvert C at Portion B (Ch. 840)



Date: 13 June 2018

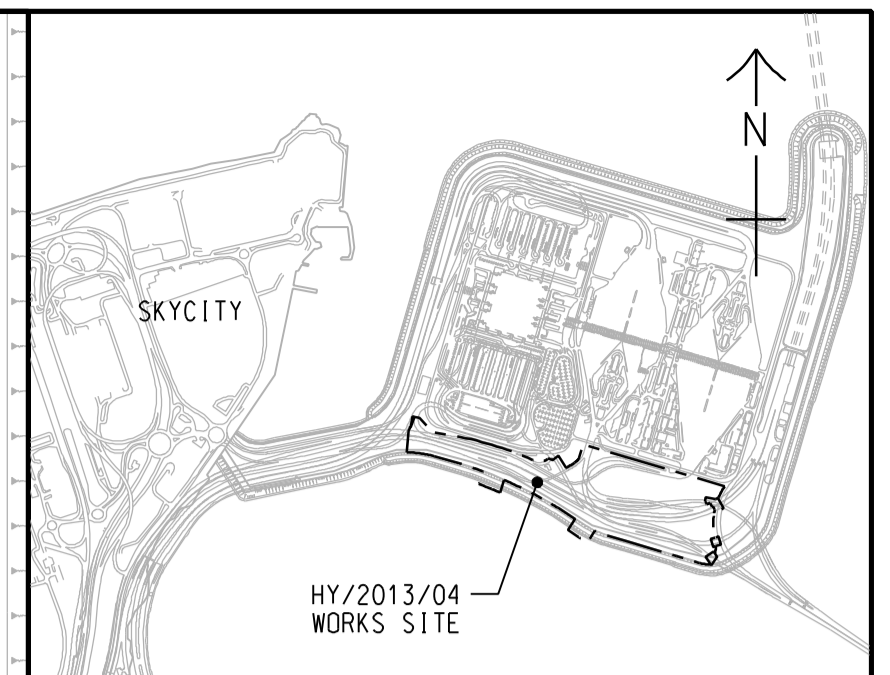
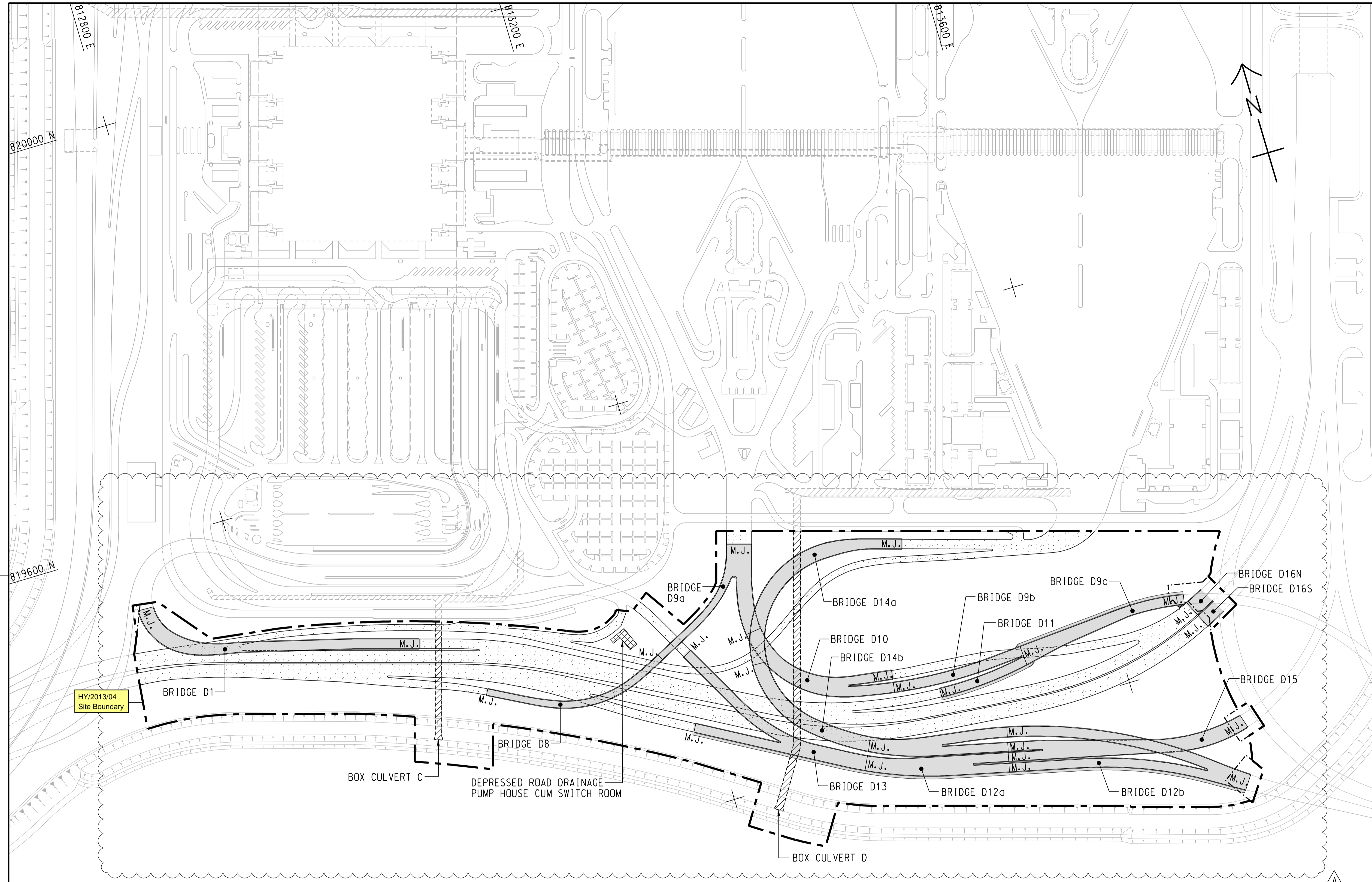
Location: Box Culvert D at Portion B (near cell K030)



Date: 13 June 2018

Location: Box Culvert B at Portion C2b (near cell C093)

Attachment 2



LOCATION PLAN
SCALE 1 : 25000

- LEGEND:**
- SITE BOUNDARY
 - AT-GRADE WORKS LIMIT
 - MOVEMENT JOINT
 - BRIDGE
 - BUILDING/FACILITIES
 - AT-GRADE ROAD
 - BOX CULVERT

B	WORKING DRAWING	BWCW SCI	APR. 15
A	TENDER ADDENDUM NO. 3	BWCW SCI	MAY. 14
-	TENDER DRAWING	BWCW SCI	FEB. 14

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

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - INFRASTRUCTURE WORKS STAGE II (SOUTHERN PORTION)

GENERAL ARRANGEMENT

AECOM
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C4/000/C00/1002B
 圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/04	P. O. APPROVED 批准人	TKH
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DRAWN BY
繪圖
WSY
STATUS
階段
WORKING DRAWING

SCALE
比例
A1 1 : 2000
DIMENSIONS ARE IN
尺寸單位
METRES
© COPYRIGHT RESERVED
版權所有

Plot File by : 2014/5/7 WANGSY

Attachment 3

Photo record on 11 June 2018 (during ET's weekly site audit)

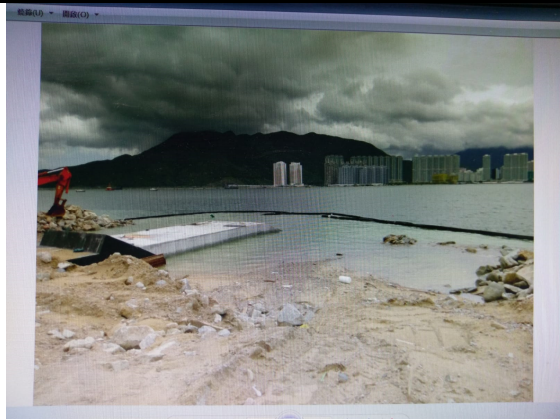


1. Silt curtain at Box Culvert C was observed as secured. No leakage of muddy water into the open waters was observed.



2. Silt curtain at Box Culvert D was observed as secured. No leakage of muddy water into the open waters was observed.

Photo record on 13 & 16 June 2018 (by Contractor)



1. 13 June 2018 (daytime): Silt curtain at Box Culvert C was observed as secured. No leakage of muddy water into the open waters was observed.



2. 16 June 2018: Silt curtain at Box Culvert C was observed as secured. No leakage of muddy water into the open waters was observed.

Photo record on 20 June 2018 (during ET's weekly site audit)



1. Silt curtain at Box Culvert C was observed as secured. No leakage of muddy water into the open waters was observed.



2. Silt curtain at Box Culvert D was observed as secured. No leakage of muddy water into the open waters was observed.

Photo record on 27 June 2018 (during ET's weekly site audit)



1. Silt curtain at Box Culvert C was observed as secured. No leakage of muddy water into the open waters was observed.



2. Silt curtain at Box Culvert D was observed as secured. No leakage of muddy water into the open waters was observed.

Attachment 4



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Weather Warning and Signals Record (13/Jun/2018)

Rainstorm Warnings

	Warning and Signals	Start Time		End Time	
		hh:mm	dd/mon/yyyy	hh:mm	dd/mon/yyyy
	Amber Rainstorm Warning Signal	02:10	13/Jun/2018	05:45	13/Jun/2018
	Amber Rainstorm Warning Signal	15:00	13/Jun/2018	18:15	13/Jun/2018

Thunderstorm Warning

	Warning and Signals	Start Time		End Time	
		hh:mm	dd/mon/yyyy	hh:mm	dd/mon/yyyy
	Thunderstorm Warning	01:35	13/Jun/2018	06:00	13/Jun/2018
	Thunderstorm Warning	07:05	13/Jun/2018	08:30	13/Jun/2018
	Thunderstorm Warning	10:50	13/Jun/2018	12:00	13/Jun/2018
	Thunderstorm Warning	13:10	13/Jun/2018	19:30	13/Jun/2018

2003 [Important notices](#)

Last revision date: <18 Jun 2013>

Attachment 5

THE LAYOUT PLAN FOR THE SITE HAUL ROAD

