



**中國建築工程(香港)有限公司**  
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

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

## CONTRACTOR SUBMISSION FORM (CSF)

|                 |                                                         |                |               |
|-----------------|---------------------------------------------------------|----------------|---------------|
| <b>To</b>       | Engineer's Representative                               | <b>Attn.</b>   | Mr. Peter Lee |
| <b>Ref. No.</b> | CDG/CSF/EN02.02/2019/9477                               | <b>CSF No.</b> | CSF/ 03309/A  |
| <b>Subject</b>  | Quarterly EM&A Report for October 2018 to November 2018 |                |               |

| Item | Description                                                                                                                                                                                                                                                   |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <p>In accordance with the PS 25.41, we would like to submit herewith the <b>Quarterly EM&amp;A Report for October 2018 to November 2018</b> for your approval.</p> <p>1) 1 copy of EM&amp;A Report<br/>2) a copy of full EM&amp;A Report in CD Rom format</p> |

**Remarks :**

**Purpose of Submission :**

For Approval

For Information

For Record Purposes

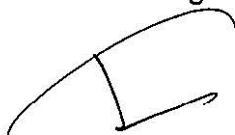
**Expected Reply Date :**

**From : Contractor's Representative**

Name : Jason Chung

Date : 2-7-2019

Signature :




A409379

Prepared by: WHW

Ramboll Hong Kong Limited  
21st Floor, BEA Harbour View Centre  
56 Gloucester Road  
Wan Chai, Hong Kong

Attn:  
Mr. Ray Yan – 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/al/T355861/02/  
02/L123

**Quarterly EM&A Report for October 2018 to November 2018**

3/F International Trade  
Tower (formerly  
Mapletree Bay Point)  
348 Kwun Tong Road  
Kowloon  
Hong Kong

25 June 2019

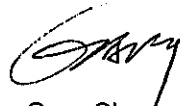
**By Email**

T +852 2828 5757  
F +852 2827 1823  
mottmac.hk

Dear Sir,

In accordance with Section 16.4 of the updated EM&A Manual for Hong Kong Boundary Crossing Facilities (Version 1.0) covering the captioned contract, we are pleased to submit the certified Quarterly EM&A Report for October 2018 to November 2018 for your verification.

Yours faithfully  
For MOTT MACDONALD HONG KONG LIMITED



Gary Chow  
Environmental Team Leader

Encl.

cc.

AECOM – Mr. Peter Lee (By Email)  
China State Construction Engineering (Hong Kong) Ltd. – Mr. Xavier Lam / Mr. Ng  
Ka Po (By Email)

27 June 2019

By Fax (3468 2076) and By Post

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

Attention: Mr. Peter Lee

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**

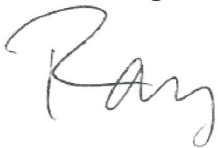
**Contract No. HY/2013/04 – HZMB HKBCF – Infrastructure Works Stage II  
(Southern Portion)  
Quarterly EM&A Report for October 2018 to November 2018**

Reference is made to the Environmental Team's submission of the Quarterly Environmental Monitoring & Audit Report for October 2018 to November 2018 certified by the ET Leader (ET's ref.: "TC/GC/al/T355861/02/02/L123" dated 25 June 2019) and provided to us via e-mail on 25 June 2019.

We are pleased to inform you that we have no adverse comment on the captioned Quarterly EM&A Report for October 2018 to November 2018.

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



Ray Yan  
Independent Environmental Checker

|      |      |                 |                     |
|------|------|-----------------|---------------------|
| c.c. | HyD  | Mr. Cheng Pan   | (By Fax: 3188 6614) |
|      | HyD  | Mr. Harry Louie | (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)

Quarterly EM&A Report for October 2018 to  
November 2018

June 2019

**Information class: Standard**

---

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

---

# Contents

|                                                                                                 |           |
|-------------------------------------------------------------------------------------------------|-----------|
| Executive summary                                                                               | 1         |
| <b>1 Introduction</b>                                                                           | <b>4</b>  |
| 1.1 Basic Project Information                                                                   | 4         |
| 1.2 Project Organisation                                                                        | 4         |
| 1.3 Construction Programme                                                                      | 5         |
| 1.4 Construction Works undertaken during the Reporting Period                                   | 5         |
| <b>2 EM&amp;A Requirements</b>                                                                  | <b>6</b>  |
| 2.1 Summary of EM&A Requirements                                                                | 6         |
| 2.2 Monitoring Requirements                                                                     | 9         |
| 2.3 Action and Limit Levels                                                                     | 9         |
| 2.4 Event and Action Plans                                                                      | 10        |
| 2.5 Mitigation Measures                                                                         | 11        |
| <b>3 Environmental Monitoring and Audit</b>                                                     | <b>12</b> |
| 3.1 Air Quality Monitoring Results                                                              | 12        |
| 3.2 Noise Monitoring Results                                                                    | 12        |
| 3.3 Water Quality Monitoring Results                                                            | 12        |
| 3.4 Dolphin Monitoring Results                                                                  | 13        |
| 3.5 Implementation of Environmental Measures                                                    | 14        |
| 3.6 Advice on the Solid and Liquid Waste Management Status                                      | 14        |
| 3.6.1 Disposal of Marine Sediment Extracted from Bored Piling Works                             | 15        |
| 3.7 Environmental Licences and Permits                                                          | 16        |
| <b>4 Summary of Exceedances, Complaints, Notification of Summons and Successful Prosecution</b> | <b>17</b> |
| 4.1 Summary of Exceedance of the Environmental Quality Performance Limit                        | 17        |
| 4.2 Summary of Complaints, Notification of Summons and Successful Prosecution                   | 17        |
| <b>5 Comments, Recommendations and Conclusions</b>                                              | <b>19</b> |
| 5.1 Comments                                                                                    | 19        |
| 5.2 Recommendations                                                                             | 19        |
| 5.3 Conclusions                                                                                 | 20        |

## Figures

- Figure 2.1: Location of Air Quality Monitoring Stations
- Figure 2.2: Location of Noise Monitoring Stations
- Figure 2.3: Location of Water Quality Monitoring Stations
- Figure 2.4: Impact Dolphins Monitoring Line Transect Layout Map

## Appendices

- Appendix A. Location of Works Areas
- Appendix B. Project Organization for Environmental Works
- Appendix C. Construction Programme
- Appendix D. Event and Action Plan
- Appendix E. Implementation Schedule for Environmental Mitigation Measures (EMIS)
- Appendix F. Site Audit Findings and Corrective Actions
- Appendix G. Waste Flow Table
- Appendix H. Environmental Licences and Permits
- Appendix I. Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions
- Appendix J. Impact Dolphin Monitoring Survey Findings and Analysis
- Appendix K. Incident Report on Action Level or Limit Level Non-compliance

## Tables

|                                                                                                                                     |    |
|-------------------------------------------------------------------------------------------------------------------------------------|----|
| Table 1.1: Contact Information of Key Personnel                                                                                     | 4  |
| Table 2.1: Construction Dust and Noise Monitoring Locations                                                                         | 6  |
| Table 2.2: Impact Water Quality Monitoring Stations                                                                                 | 6  |
| Table 2.3: Impact Dolphin Monitoring Line Transect Co-ordinates (Provided by AFCD)                                                  | 7  |
| Table 2.4: Action and Limit Levels for 1-hour TSP                                                                                   | 9  |
| Table 2.5: Action and Limit Levels for 24-hour TSP                                                                                  | 9  |
| Table 2.6: Action and Limit Level for Construction Noise                                                                            | 9  |
| Table 2.7: Action and Limit Levels for Water Quality                                                                                | 9  |
| Table 2.8: Action and Limit Levels for Chinese White Dolphin Monitoring - Approach to Define Action Level (AL) and Limit Level (LL) | 10 |
| Table 2.9: Derived Value of Action Level (AL) and Limit Level (LL) for Chinese White Dolphin Monitoring                             | 10 |
| Table 3.1: Summary of Water Quality Exceedances during Reporting Period                                                             | 12 |
| Table 3.2: Summary of Key Dolphin Survey Findings in the Reporting Period                                                           | 13 |
| Table 3.3: Summary of STG and ANI encounter rates in the Reporting Period                                                           | 13 |
| Table 3.4: Summary of Marine Sediment disposed to Dumping Site via Contract No. HY/2013/03                                          | 16 |
| Table 4.1: Summary of Environmental Complaints for the Reporting Period                                                             | 17 |

# Executive summary

This Quarterly 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 14<sup>th</sup> Quarterly EM&A Report for the Contract which summarises findings of the EM&A works for air quality, noise, water quality and waste management for October to November 2018 and the impact dolphin monitoring data and analyses for September to November 2018 (which together form the “reporting period”) in order to tally with the project dolphin monitoring quarterly review period.

## Environmental Monitoring and Audit Progress

The EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0).

The remaining air quality, noise, water quality and dolphin monitoring works under Contract No. HY/2013/01 “HZMB HKBCF – Passenger Clearance Building” were suspended from 1 October 2018. The ET of Contract No. HY/2013/04 is required and continues the full implementation of environmental monitoring commencing on 1 October 2018.

Air quality monitoring stations AMS2, AMS3C and AMS7B are covered by this Contract. It should be noted that the air quality monitoring station AMS6 is covered by Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road (HZMB HKLR) – Section between Scenic Hill and HKBCF”. If the impact air quality monitoring at AMS6 is no longer covered under Contract No. HY/2011/03, it is required to continue such monitoring at AMS6 as part of EM&A programme. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

Noise monitoring stations NMS2 and NMS3C, water quality monitoring works and dolphin monitoring works under HZMB HKBCF are covered by this Contract.

A summary of monitoring and audit activities conducted in the reporting period is listed below:



- 1-hour Total Suspended Particulates (TSP) monitoring: 23 sessions
- 24-hour TSP monitoring: 17 sessions
- Noise monitoring: 10 sessions
- Impact water quality monitoring: 25 sessions
- Impact dolphin monitoring: 6 surveys conducted
- Joint Environmental site inspection: 9 sessions

### 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.

A summary of environmental exceedances for the reporting period as recorded by the Environmental Team of this Contract are listed below:

| Environmental Monitoring | Parameters            | Action Level | Limit Level |
|--------------------------|-----------------------|--------------|-------------|
| Air Quality              | 1-hour TSP            | -            | -           |
|                          | 24-hour TSP           | -            | -           |
| Noise                    | Leq (30 min)          | -            | -           |
| Water Quality            | Suspended Solids (SS) | 6            | -           |
|                          | Turbidity             | 1            | -           |
|                          | Dissolved Oxygen (DO) | -            | -           |
| Dolphin Monitoring       | Quarterly analysis    | -            | 1           |

The ET of this Contract conducted investigations into the exceedances of impact water quality monitoring and impact dolphin monitoring, and the findings are presented in this report.

Furthermore, impact dolphin monitoring results at all transects during September 2018 are reported in the monthly EM&A Reports for Contract No. HY/2013/01, while impact dolphin monitoring results at all transects during October 2018 and November 2018 are reported in the monthly EM&A Reports for this Contract.

### Complaint Log

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

| Log No. | Environmental Complaint Ref. No. | Date of Complaint Receipt | Description |
|---------|----------------------------------|---------------------------|-------------|
| 010     | ENPO-C0139                       | 3 October 2018            | Air Quality |

The complaint referred to a large amount of dust generated due to lack of water spraying on dirt road at HKBCF Island site. As informed by EPD, the location under complaint was near the exit/entrance of Contract No. HY/2013/04 as advised by the complainant.

The complaint was investigated by the ET of this Contract and the findings are also presented in this report.

### Notifications of Summons and Successful Prosecutions

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

### Reporting Changes

The remaining air quality, noise, water quality and dolphin monitoring works under Contract No. HY/2013/01 "HZMB HKBCF – Passenger Clearance Building" were suspended from 1 October

2018. The ET of Contract No. HY/2013/04 is required and continues the full implementation of environmental monitoring commencing on 1 October 2018.

It should be noted that the air quality monitoring station AMS6 is covered by Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road (HZMB HKLR) – Section between Scenic Hill and HKBCF”.

A proposal by ET to temporarily suspend the water quality monitoring under the EM&A programme during a scheduled period of no marine works under HZMB HKBCF was verified by IEC on 26 October 2018 and approved by EPD on 21 November 2018. Subsequently, the water quality monitoring programme was temporarily suspended by ET after completion of water quality monitoring on 26 November 2018.

# 1 Introduction

## 1.1 Basic Project Information

This Quarterly 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. The works areas of the contract are shown in **Appendix A**.

This is the 14<sup>th</sup> Quarterly EM&A Report for the Contract which summarises findings of the EM&A works for air quality, noise, water quality and waste management for October to November 2018 and the impact dolphin monitoring data and analyses for September to November 2018 (which together form the “reporting period”) in order to tally with the project dolphin monitoring quarterly review period.

## 1.2 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<br>(AECOM Asia Co. Ltd.)                                        | Chief Resident Engineer              | Alfred Cheng                      | 3958 7471 | 3468 2076 |
| Environmental Project Office /<br>Independent Environmental<br>Checker (Ramboll Hong Kong<br>Limited) | Environmental Project Office Leader  | Y H Hui                           | 3465 2888 | 3465 2899 |
|                                                                                                       | Independent Environmental<br>Checker | Raymond Dai                       | 3465 2888 | 3465 2899 |
|                                                                                                       | Environmental Site Supervisor        | Ray Yan                           | 5181 8165 | 3465 2899 |
| Contractor<br>(China State Construction<br>Engineering (Hong Kong)<br>Limited)                        | Site Agent                           | Jason Chung                       | 9127 8369 | 2459 4336 |
|                                                                                                       | Environmental Officer                | Xavier Lam                        | 9493 2944 | 2459 4336 |
|                                                                                                       |                                      | Desmond Ho<br>(until 20 Oct 2018) | 6351 3811 | 2459 4336 |
|                                                                                                       |                                      | K P Ng<br>(from 22 Oct 2018)      | 9626 9961 | 2459 4336 |

| Party                                                    | Position                  | Name      | Telephone | Fax       |
|----------------------------------------------------------|---------------------------|-----------|-----------|-----------|
| Environmental Team<br>(Mott MacDonald Hong Kong Limited) | Environmental Team Leader | Gary Chow | 2828 5874 | 2827 1823 |
| 24-hour Complaint Hotline                                | -                         | -         | 5236 7111 | -         |

### 1.3 Construction Programme

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

### 1.4 Construction Works undertaken during the Reporting Period

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

- Erection of sign gantries
- Erection of precast segments
- Erection of precast bridge structures
- Construction of parapets for bridge structures
- Construction of Abutment A1601 and associated retaining walls
- Construction of Retaining Wall RW16N and RW16S
- Construction of Bridge D16 in-situ deck
- Construction of utilities cross-over frame under Bridge D9c
- Backfilling walls and formation of fill slopes and road embankment
- Drainage works and watermains laying
- Roadworks and road furniture
- Maintenance of TTA associated with the commissioning of HKBCF and TM-CLKL-SC
- No marine-based segment delivery (all segments stored at segment storage yard on HKBCF island site)
- No generation of excavated marine sediment

During this reporting period, temporary soft landscaping works were conducted and marine-based outfall works had not commenced.

## 2 EM&A Requirements

### 2.1 Summary of EM&A Requirements

The EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0).

For this reporting period, the remaining air quality, noise, water quality and dolphin monitoring works under Contract No. HY/2013/01 “HZMB HKBCF – Passenger Clearance Building” were suspended from 1 October 2018. The ET of Contract No. HY/2013/04 is required and continues the full implementation of environmental monitoring commencing on 1 October 2018.

Air quality monitoring at stations AMS2, AMS3C and AMS7B, and noise monitoring at station NMS2 and NMS3C, are covered by this Contract. It should be noted that the air quality monitoring station AMS6 is covered by Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road (HZMB HKLR) – Section between Scenic Hill and HKBCF”. If the impact air quality monitoring at AMS6 is no longer covered under Contract No. HY/2011/03, it is required to continue such monitoring at AMS6 as part of EM&A programme. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

A summary of air and noise monitoring locations are presented in **Table 2.1**. The location of air quality and noise monitoring stations are shown as in **Figure 2.1** and **Figure 2.2**, respectively.

**Table 2.1: Construction Dust and Noise Monitoring Locations**

| Environmental Monitoring | Identification No.   | Location Description                     |
|--------------------------|----------------------|------------------------------------------|
| Air Quality              | AMS2 <sup>(3)</sup>  | Tung Chung Development Pier              |
|                          | AMS3C                | Ying Tung Estate Market Rooftop          |
|                          | AMS6 <sup>(1)</sup>  | Dragonair / CNAC (Group) Building        |
|                          | AMS7B <sup>(3)</sup> | 3RS Site Offices                         |
| Noise                    | NMS2 <sup>(3)</sup>  | Seaview Crescent                         |
|                          | NMS3C <sup>(2)</sup> | Ying Tung Estate Refuse Collection Point |

Remarks: (1) The ET of this Contract should conduct impact air quality monitoring at station AMS6 listed in the table as part of EM&A programme according to latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.

(2) The Action and Limit Levels for schools will be applied for this alternative monitoring location.

(3) Monitoring works at this location by the ET of this Contract commenced on 1 October 2018.

The water quality monitoring works for HZMB HKBCF under the approved EM&A Manual for the reporting period are covered by this Contract. 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.

**Table 2.2** and **Figure 2.3** show the locations of water quality monitoring stations.

**Table 2.2: Impact Water Quality Monitoring Stations**

| Station | Description                                       | East   | North  |
|---------|---------------------------------------------------|--------|--------|
| IS5     | Impact Station (Close to HKBCF construction site) | 811579 | 817106 |

| Station    | Description                                                  | East   | North  |
|------------|--------------------------------------------------------------|--------|--------|
| 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 |
| CSA        | Control Station                                              | 818103 | 823064 |

The dolphin monitoring works for the Contract are covered by Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road (HZMB HKLR) – Section between Scenic Hill and HKBCF” with the reporting of reporting results presented by the ET of Contract No. HY/2013/04. 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 2.3** 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 2.4**.

**Table 2.3: Impact Dolphin Monitoring Line Transect Co-ordinates (Provided by AFCD)**

| Transect        | HK Grid System |        | Long Lat in WGS84 |           |
|-----------------|----------------|--------|-------------------|-----------|
|                 | X              | Y      | Long              | Lat       |
| 1 <sup>#</sup>  | 804671         | 815456 | 113.870287        | 22.277678 |
|                 | 804671         | 831404 | 113.869975        | 22.421696 |
| 2 <sup>#^</sup> | 805476         | 820800 | 113.877995        | 22.325951 |
|                 | 805476         | 826654 | 113.877882        | 22.378815 |
| 3 <sup>^</sup>  | 806464         | 821150 | 114.030267        | 22.196697 |
|                 | 806464         | 822911 | 114.047344        | 22.196712 |
| 4 <sup>^</sup>  | 807518         | 821500 | 114.033651        | 22.206219 |
|                 | 807518         | 829230 | 114.108618        | 22.206267 |
| 5 <sup>^</sup>  | 808504         | 821850 | 114.037037        | 22.215126 |
|                 | 808504         | 828602 | 114.102523        | 22.215169 |
| 6 <sup>^</sup>  | 809490         | 822150 | 114.039938        | 22.224033 |
|                 | 809490         | 825352 | 114.070995        | 22.224056 |

| Transect        | HK Grid System |        | Long Lat in WGS84 |           |
|-----------------|----------------|--------|-------------------|-----------|
| 7 <sup>#^</sup> | 810499         | 822000 | 114.038474        | 22.233143 |
|                 | 810499         | 824613 | 114.063820        | 22.233163 |
| 8 <sup>#</sup>  | 811508         | 821123 | 113.936539        | 22.328966 |
|                 | 811508         | 824254 | 113.936486        | 22.357241 |
| 9 <sup>#</sup>  | 812516         | 821303 | 113.946320        | 22.330606 |
|                 | 812516         | 824254 | 113.946279        | 22.357255 |
| 10 <sup>*</sup> | 813525         | 820827 | 113.956112        | 22.326321 |
|                 | 813525         | 824657 | 113.956066        | 22.360908 |
| 11 <sup>#</sup> | 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 |
| 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 <sup>^</sup> | 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 2.4 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.

## 2.2 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 this Contract and Contract No. HY/2011/03.

## 2.3 Action and Limit Levels

The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.4** and **Table 2.5** respectively.

**Table 2.4: Action and Limit Levels for 1-hour TSP**

| Monitoring Station                              | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|-------------------------------------------------|----------------------------------------|---------------------------------------|
| AMS2 – Tung Chung Development Pier              | 374                                    | 500                                   |
| AMS3C – Ying Tung Estate Market Rooftop         | 368                                    | 500                                   |
| AMS6 – Dragonair / CNAC (Group) Building (HKIA) | 360                                    | 500                                   |
| AMS7B – 3RS Site Offices                        | 370                                    | 500                                   |

**Table 2.5: Action and Limit Levels for 24-hour TSP**

| Monitoring Station                              | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|-------------------------------------------------|----------------------------------------|---------------------------------------|
| AMS2 – Tung Chung Development Pier              | 176                                    | 260                                   |
| AMS3C – Ying Tung Estate Market Rooftop         | 167                                    | 260                                   |
| AMS6 – Dragonair / CNAC (Group) Building (HKIA) | 173                                    | 260                                   |
| AMS7B – 3RS Site Offices                        | 183                                    | 260                                   |

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 quarterly EM&A report.

The Action and Limit Levels for construction noise are defined in **Table 2.6**.

**Table 2.6: Action and Limit Level for Construction Noise**

| Monitoring Station | Time Period                            | Action Level                              | Limit Level  |
|--------------------|----------------------------------------|-------------------------------------------|--------------|
| NMS2               | 07:00 – 19:00 hours on normal weekdays | When one documented complaint is received | 70 dB(A)     |
| NMS3C              |                                        |                                           | 70/65 dB(A)* |

Remark: Limit Level for schools will be applied for NMS3C. Day time noise Limit Level of 70 dB(A) applies to education institutions, while 65 dB(A) applies during the school examination period.

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 quarterly EM&A Report.

The Action and Limit Levels for water quality are provided in **Table 2.7**.

**Table 2.7: Action and Limit Levels for Water Quality**

| Parameters                                             | Action                                     | Limit                                                              |
|--------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------|
| DO in $\text{mg L}^{-1}$<br>(Surface, Middle & Bottom) | Surface and Middle<br>5.0<br>Bottom<br>4.7 | Surface and Middle<br>4.2 (except 5 mg/L for FCZ)<br>Bottom<br>3.6 |



| Parameters                                                                                | Action                                                                                  | Limit                                                                                                                |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| SS in mg L <sup>-1</sup> (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.

The Action and Limit Levels for Chinese White Dolphin Monitoring are provided in **Table 2.8** and **Table 2.9**, respectively.

**Table 2.8: 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 2.9: 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)] |                            |

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.

## 2.4 Event and Action Plans

The event and action plans for air quality, noise, water quality and dolphin monitoring are provided in **Appendix D**.

## 2.5 Mitigation Measures

Environmental mitigation measures for the contract were recommended in the approved EIA Report. **Appendix E** lists the recommended mitigation measures and the implementation status.

## 3 Environmental Monitoring and Audit

### 3.1 Air Quality Monitoring Results

The monitoring results for AMS2, AMS3C and AMS7B are reported in the monthly EM&A Report prepared for this Contract.

The monitoring results for AMS6 are reported in the monthly EM&A Reports prepared for Contract No. HY/2011/03.

Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 is reported in the monthly EM&A Reports (for October and November 2018) 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 AMS2, AMS3C and AMS7B by the Environmental Team of this Contract during the reporting period.

### 3.2 Noise Monitoring Results

The monitoring results for NMS2 and NMS3C are reported in the monthly EM&A Reports (for October and November 2018) prepared for this Contract.

No noise exceedances were recorded at stations NMS2 and NMS3C by the ET of this Contract during the reporting period.

### 3.3 Water Quality Monitoring Results

The monitoring results for the twenty-one monitoring stations are reported in the monthly EM&A Report (for October and November 2018) prepared for this Contract.

During the reporting period, a total of seven exceedances of water quality (consisting of 6 Action Level exceedances of suspended solids and one Action Level exceedance of turbidity) were recorded by the Environmental Team of this Contract during October and November 2018. Following investigations, it was concluded that the exceedances were not related to the HZMB HKBCF project. The detailed investigation results of these exceedances recorded are presented in **Appendix K**.

Water quality exceedances recorded during the reporting period are summarised in **Table 3.1**.

**Table 3.1: Summary of Water Quality Exceedances during Reporting Period**

| Date        | Parameter (Units) | Station  | Depth         | Exceedance Recorded during Mid-ebb Tide | Exceedance Recorded during Mid-flood Tide |
|-------------|-------------------|----------|---------------|-----------------------------------------|-------------------------------------------|
| 10 Oct 2018 | SS                | SR6      | Depth Average | -                                       | Action Level                              |
| 24 Oct 2018 | TURB              | IS(Mf)6  | Depth Average | Action Level                            | -                                         |
| 23 Nov 2018 | SS                | IS10(N)  | Depth Average | -                                       | Action Level                              |
| 23 Nov 2018 | SS                | IS(Mf)11 | Depth Average | -                                       | Action Level                              |
| 23 Nov 2018 | SS                | SR7      | Depth Average | -                                       | Action Level                              |
| 26 Nov 2018 | SS                | SR10A(N) | Depth Average | -                                       | Action Level                              |

| Date        | Parameter (Units) | Station   | Depth         | Exceedance Recorded during Mid-ebb Tide | Exceedance Recorded during Mid-flood Tide |
|-------------|-------------------|-----------|---------------|-----------------------------------------|-------------------------------------------|
| 26 Nov 2018 | SS                | SR10B(N2) | Depth Average | -                                       | Action Level                              |

### 3.4 Dolphin Monitoring Results

In accordance with the updated EM&A Manual, pre-set and fixed transect line vessel based dolphin survey was required in two AFCD designated areas (Northeast Lantau (NEL) and Northwest Lantau (NWL) survey areas). The impact dolphin monitoring at each survey area should be conducted twice per month.

The impact dolphin monitoring conducted is vessel-based and combines line-transect and photo-ID methodology, which have adopted similar survey methodologies as that adopted during baseline monitoring to facilitate comparisons between data sets.

The layout map of impact dolphin monitoring has been provided by AFCD and is shown in Figure 1 of **Appendix J**.

The effort summary and sighting details during the reporting period are shown in the **Appendix J**. A summary of key findings of the dolphin surveys completed during the reporting period is shown below in **Table 3.2**:

**Table 3.2: Summary of Key Dolphin Survey Findings in the Reporting Period**

| Parameter                                                      | Findings                                                                                 |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Number of Impact Surveys Completed <sup>^</sup>                | 6                                                                                        |
| Survey Distance Travelled under Favourable On-Effort Condition | 795 km                                                                                   |
| Number of Sightings                                            | 6 sightings (all sightings were recorded during “on effort” search)                      |
| Number of dolphin individual sighted                           | 14 individuals                                                                           |
| Dolphin Encounter Rate <sup>#</sup>                            | NEL: 0.00<br>NWL: 1.5 ± 2.25                                                             |
| Dolphin Group Size                                             | Average of NEL: 0<br>Average of NWL: 2.3 ± 1.03 (n = 6)<br>Varied from 1 – 4 individuals |
| Most frequent dolphin sighting area                            | NWL, in waters around Lung Kwu Chau                                                      |

Remarks: <sup>^</sup> Completion of line transect survey of NEL and NWL survey area once was counted as one complete survey.

$$\# \text{ Dolphin Encounter Rate} = \frac{\text{Sum of 1}^{\text{st}}, 2^{\text{nd}} \text{ \& } 3^{\text{rd}} \text{ month's total sighting}}{\text{Sum of 1}^{\text{st}}, 2^{\text{nd}} \text{ \& } 3^{\text{rd}} \text{ month's total effort}} \times 100 \text{ km}$$

(encounter rates are calculated using on effort sightings made under favourable conditions only.)

. Event and Action Plan for Impact Dolphin Monitoring was triggered. For details of investigation, please refer to **Appendix K**.

**Table 3.3: Summary of STG and ANI encounter rates in the Reporting Period**

|       | NEL | NWL        | Level Exceeded |
|-------|-----|------------|----------------|
| STG*  | 0.0 | 1.5 ± 2.25 | Limit          |
| ANI** | 0.0 | 3.0 ± 3.89 |                |

Remarks: \* Quarterly Average Encounter Rate of Number of Dolphin Sightings (STG) presents averaged encounter rates of the three monitored months in terms of groups per 100km per survey event.

$$\text{(Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{)}$$

Remarks: \* Quarterly Average Encounter Rate of Number of Dolphin Sightings (STG) presents averaged encounter rates of the three monitored months in terms of groups per 100km per survey event.

$$\text{STG Encounter rate} = \frac{\text{Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{ completed survey}^{\#} \text{ of 1}^{\text{st}} \text{ month} + \text{Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{ completed survey}^{\#} \text{ of 2}^{\text{nd}} \text{ month} + \text{Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{ completed survey}^{\#} \text{ of 3}^{\text{rd}} \text{ month}}{3} \times 100\text{km}$$

\*\* Quarterly Average Encounter Rate of Total Number of Dolphins (ANI) presents averaged encounter rates of the three monitored months in terms of individuals per 100km per survey event.

$$\text{ANI Encounter rate} = \frac{\text{Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{ completed survey}^{\#} \text{ of 1}^{\text{st}} \text{ month} + \text{Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{ completed survey}^{\#} \text{ of 2}^{\text{nd}} \text{ month} + \text{Average of (total number of Individual/total effort) of 1}^{\text{st}} \text{ and 2}^{\text{nd}} \text{ completed survey}^{\#} \text{ of 3}^{\text{rd}} \text{ month}}{3} \times 100 \text{ km}$$

Details of the comparison and analysis methodology and their findings and discussions are annexed in **Appendix J**.

### 3.5 Implementation of Environmental Measures

In response to the site audit findings, the Contractor carried out corrective actions. Details of site audit findings and the corrective actions during the reporting period are presented in **Appendix F**.

A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. Most of the necessary mitigation measures were implemented properly.

Implementation status of the Regular Marine Travel Route Plan (RMTRP) including checking of Contractor's marine traffic records by ER, ETL and IEC/ENPO would be conducted in the event of Contract-related marine traffic taking place during the reporting period.

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 period.

Implementation status of the Dolphin Watching Plan (DWP) was checked by ET. Training of marine mammal observer (MMO) was given to relevant staff and relevant records were kept properly. Silt curtains were provided at each box culvert for marine works areas in accordance with the approved Dolphin Watching Plan. The silt curtains were inspected regularly by ET and Contractor and the implementation was found to be in working order.

### 3.6 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 summary of waste flow table is detailed in **Appendix G**.

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.

### 3.6.1 Disposal of Marine Sediment Extracted from Bored Piling Works

#### 3.6.1.1 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 m<sup>3</sup> to 126,000 m<sup>3</sup> (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 m<sup>3</sup> 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.

### 3.6.1.2 Dumping Arrangements

The barge for disposal of marine sediment will morn at the temporary loading and unloading at the east shore of the HKBCF Island, which has been being used by reclamation contractor (Contract No. HY/2010/02) for reclamation activities. In terms of safety consideration, 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.

### 3.6.1.3 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 3.4**):

**Table 3.4: Summary of Marine Sediment disposed to Dumping Site via Contract No. HY/2013/03**

| Month/Year | Type of Sediment and Quantity Disposed (m <sup>3</sup> ) |         |
|------------|----------------------------------------------------------|---------|
|            | 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 G**.

## 3.7 Environmental Licences and Permits

The valid environmental licences and permits during the reporting period are summarized in **Appendix H**.

## 4 Summary of Exceedances, Complaints, Notification of Summons and Successful Prosecution

### 4.1 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 is reported in the monthly EM&A Reports (for October and November 2018) 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 stations AMS2, AMS3C and AMS7B by the Environmental Team of this Contract the reporting period.

There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3C by the Environmental Team of this Contract during the reporting period.

During the reporting period, a total of seven exceedances of water quality (consisting of 6 Action Level exceedances of suspended solids and one Action Level exceedance of turbidity) were recorded by the Environmental Team of this Contract during October and November 2018. Following investigations, it was concluded that the exceedances were not related to the HZMB HKBCF project.

Furthermore, Limit Level exceedance of impact dolphin monitoring during September to November 2018 was recorded by the Environmental Team of this Contract.

Impact dolphin monitoring results at all transects during September 2018 are reported in the monthly EM&A Reports for Contract No. HY/2013/01. Impact dolphin monitoring results at all transects during October 2018 and November 2018 are reported in the monthly EM&A Reports for this Contract.

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

There was one complaint received in relation to the environmental impact during the reporting period and investigated by the ET of the Contract. The summary of environmental complaints is presented in **Table 4.1**. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.

**Table 4.1: Summary of Environmental Complaints for the Reporting Period**

| Log No. | Environmental Complaint Ref. No. | Date of Complaint Receipt | Description |
|---------|----------------------------------|---------------------------|-------------|
| 010     | ENPO-C0139                       | 3 October 2018            | Air Quality |

#### **Environmental Complaint Ref. No. ENPO-C0139**

The complaint referred to a large amount of dust generated due to lack of water spraying on dirt road at HKBCF Island site. As informed by EPD, the location under complaint was near the exit/entrance of Contract No. HY/2013/04 as advised by the complainant.



The relevant mitigation measures for access roads for the HZMB BCF Island site, as required in the EMIS and statutory requirements in the Air Pollution Control (Construction Dust) Regulations and other applicable environmental legislation, are consolidated as follows:

- Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty materials from its body and wheels and to ensure that no earth, mud or debris is deposited by them on roads.
- 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.
- Every main haul road shall be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials, or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet.
- 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.
- The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.

The Contractor's site watering record for 2 and 3 October 2018 as checked by ET was normal with watering provided 8 times per day.

As informed by the Contractor of HY/2013/04, water spray was provided by water truck for the HY/2013/04 site on the morning of 3 October 2018.

During ET's regular weekly site inspection on 3 October 2018 (between 14:00 and 15:00), a site observation regarding air quality was made, namely dust emission was observed along haul road near bridge D12 area; the Contractor was reminded to provide water spraying to ensure wet surface. Other haul roads within HY/2013/04 site were found to have been provided with water spray.

The vehicular entrance of and the wheel wash facility at the vehicular exit of HY/2013/04 site boundary were also inspected and found to be operating normally with no fugitive dust observed.

The Contractor's site watering plan (annotated with locations of the abovementioned photos) and wheel wash facility are presented in Attachments 3 and 4 respectively of the investigation report.

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

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

# 5 Comments, Recommendations and Conclusions

## 5.1 Comments

According to the environmental site inspections undertaken during the reporting period, the following recommendations were provided:

- The Contractor was reminded to reinstate the silt curtains.
- The Contractor was reminded to clear the C&D waste as soon as possible.
- The Contractor was reminded to sort the C&D waste and clear the general refuse as soon as possible.
- The Contractor was reminded to provide water spraying on the haul road regularly to keep the road surface wet.
- The Contractor was reminded to clearly sign and designate the C&D waste collection area.
- The Contractor was reminded to clear the loose general refuse as soon as possible.
- The Contractor was reminded to provide drip tray for chemical containers.
- The Contractor was reminded to ensure that all vehicles exited the site area via the wheel wash area.
- The Contractor was reminded to provide the required labels for chemical containers.
- The Contractor was reminded to provide a new NRMM label for the generator.
- The Contractor was reminded to properly designate the temporary storage area for construction materials.

A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. Most of the necessary mitigation measures were implemented properly.

## 5.2 Recommendations

With implementation of the recommended environmental mitigation measures, the contract's environmental impacts were considered environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.

The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the contract. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensured the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

## 5.3 Conclusions

### General

Commencement of the Contract took place on 13 March 2015 and the construction works of the Contract commenced on 13 July 2015. This is the 14<sup>th</sup> Quarterly EM&A Report for the Contract which summaries findings of the EM&A works from 1 October 2018 to 30 November 2018, as well as the EM&A works for dolphin monitoring from 1 September 2018 to 30 November 2018 (which together form the “reporting period”) in order to tally with the project dolphin monitoring quarterly review period.

### Breaches of Action and Limit Levels

#### *Air Quality*

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at stations AMS2, AMS3C and AMS7B by the Environmental Team of this Contract during the reporting period.

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 Reports (for October and November 2018) prepared by Contract No. HY/2011/03.

#### *Noise*

There was no Action and Limit Level exceedance for noise recorded at stations NMS2 and NMS3C by the Environmental Team of this Contract during the reporting period.

#### *Water Quality*

During the reporting period, a total of seven exceedances of water quality (consisting of 6 Action Level exceedances of suspended solids and one Action Level exceedance of turbidity) were recorded by the Environmental Team of this Contract during October and November 2018. Following investigations, it was concluded that the exceedances were not related to the HZMB HKBCF project.

#### *Chinese White Dolphin*

Limit Level exceedance of impact dolphin monitoring was recorded by the Environmental Team of this Contract for the period of September 2018 to November 2018.

Impact dolphin monitoring results at all transects during September 2018 are reported in the monthly EM&A Reports for Contract No. HY/2013/01, while impact dolphin monitoring results at all transects during October 2018 and November 2018 are reported in the monthly EM&A Reports for this Contract.

### Environmental Site Inspections

Environmental site inspection was carried out on 3, 10, 18, 22 and 31 October and 7, 14, 19 and 28 November 2018. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.

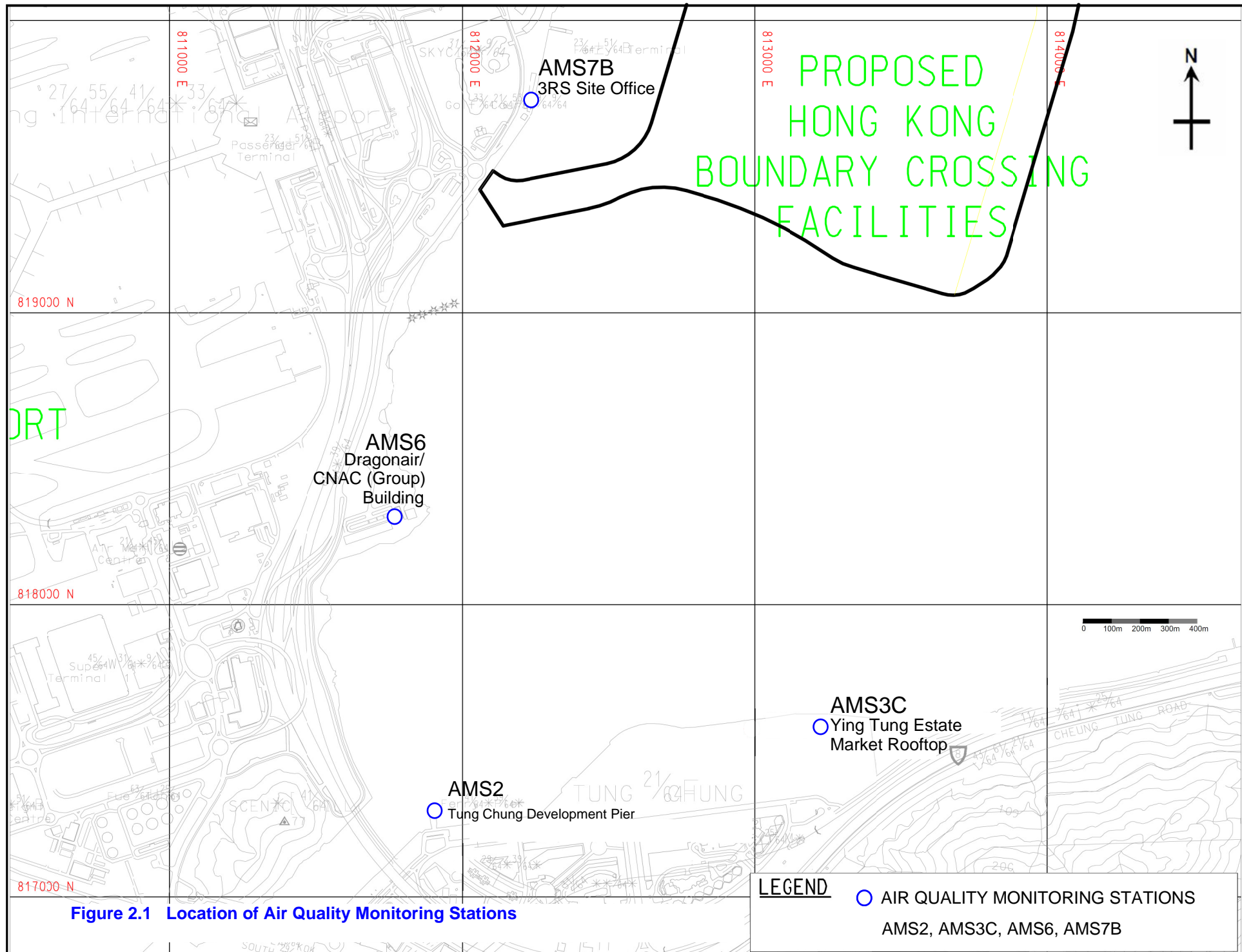
### Complaints

There was one new complaint received in relation to the environmental impact during the reporting period. The complaint referred to a large amount of dust generated due to lack of water spraying on dirt road at HKBCF Island site. As informed by EPD, the location under complaint was near the exit/entrance of Contract No. HY/2013/04 as advised by the complainant. The complaint was investigated by the ET of this Contract.

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

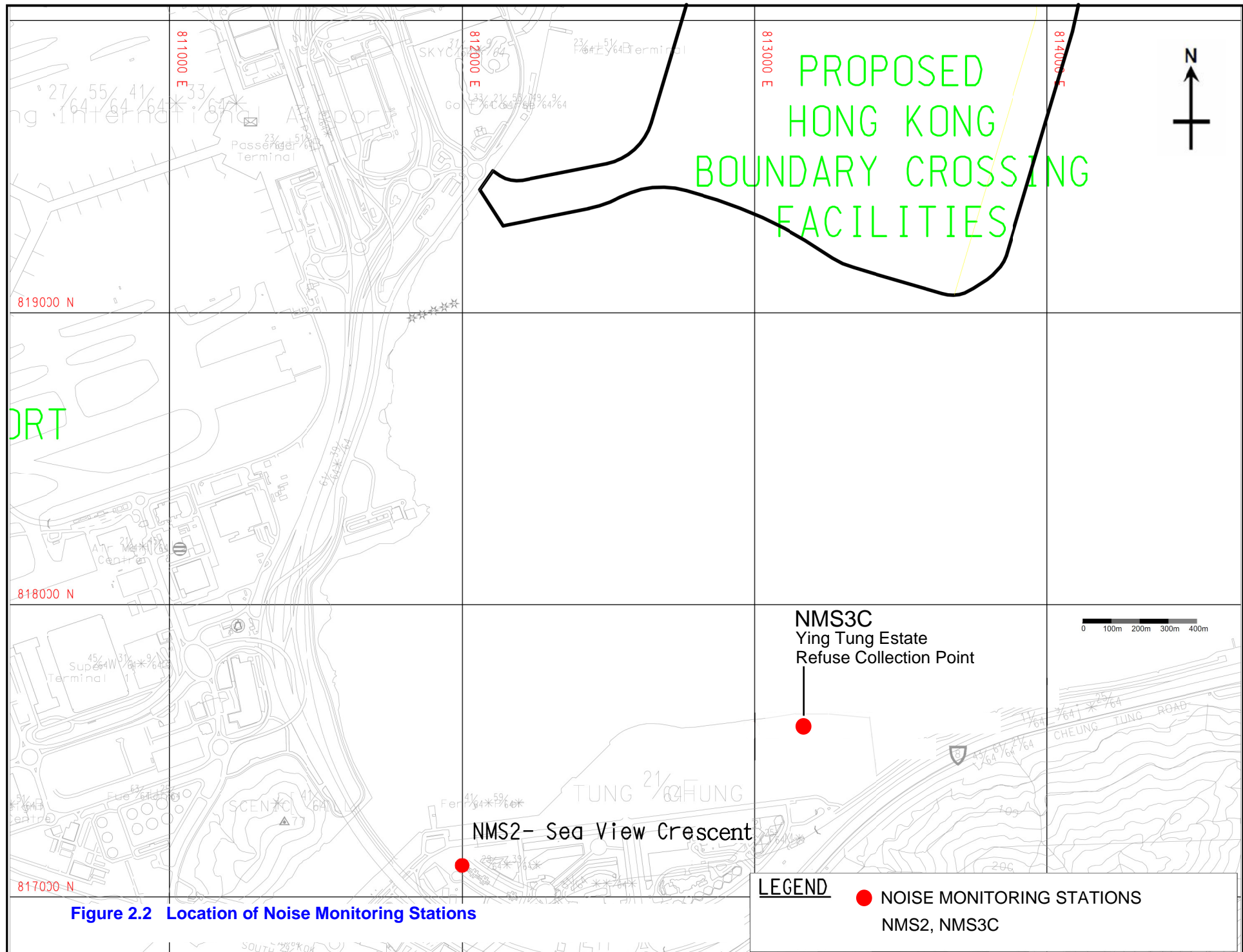
There were no notifications of summons or prosecutions received during the reporting period.

# Figures



**Figure 2.1 Location of Air Quality Monitoring Stations**

**LEGEND** ○ AIR QUALITY MONITORING STATIONS  
AMS2, AMS3C, AMS6, AMS7B



**Figure 2.2 Location of Noise Monitoring Stations**



| 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 2.3 – LOCATION OF WATER QUALITY MONITORING STATIONS

**LEGEND**




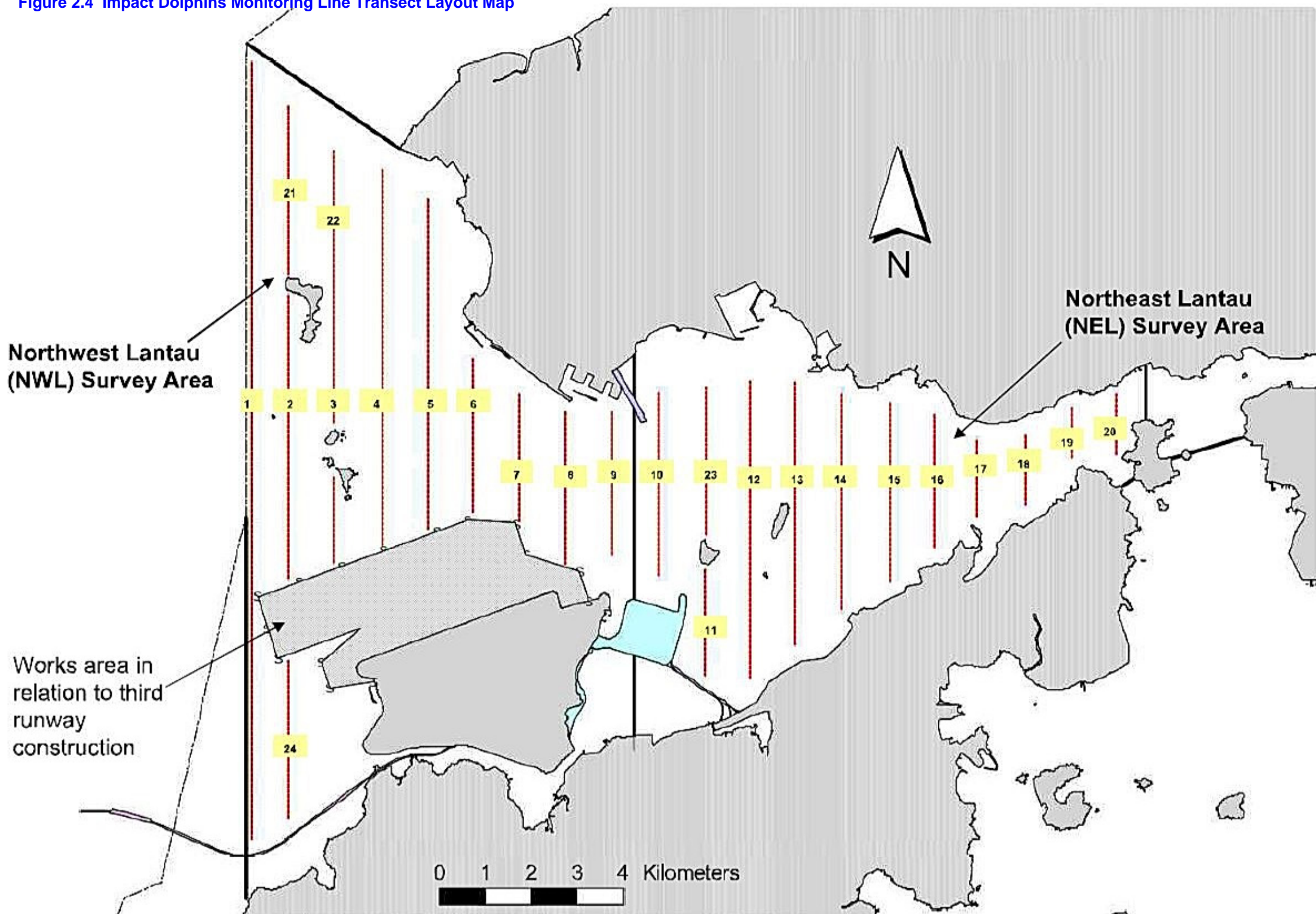
-  IS      IMPACT STATIONS
-  CS      CONTROL / FAR FIELD STATIONS
-  SR      SENSITIVE RECEIVERS STATIONS



Figure 2.4 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

THE SITE SEE DRAWING NO. 60191048/C4/000/C00/1010

WORKS AREA 'WA3'  
SEE DRAWING NO. 60191048/C4/000/C00/1041

RECLAMATION FOR HKBCF (SLAND) (BY OTHERS)  
OTHER INFRASTRUCTURE AND BUILDING WORKS OUTSIDE SITE BOUNDARY (BY OTHERS)

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

NORTH LANTAU HIGHWAY

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

|          |                |         |
|----------|----------------|---------|
| REV. NO. | DESCRIPTION    | DATE    |
| 1        | TENDER DRAWING | FEB. 14 |

路政處 HIGHWAYS DEPARTMENT  
 港珠澳大橋香港工程管理局 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**

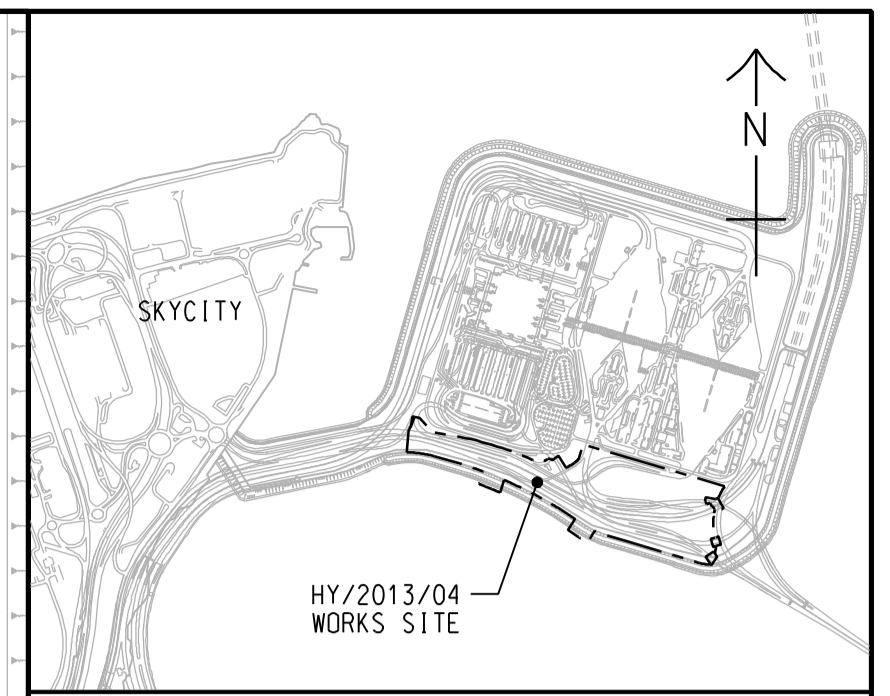
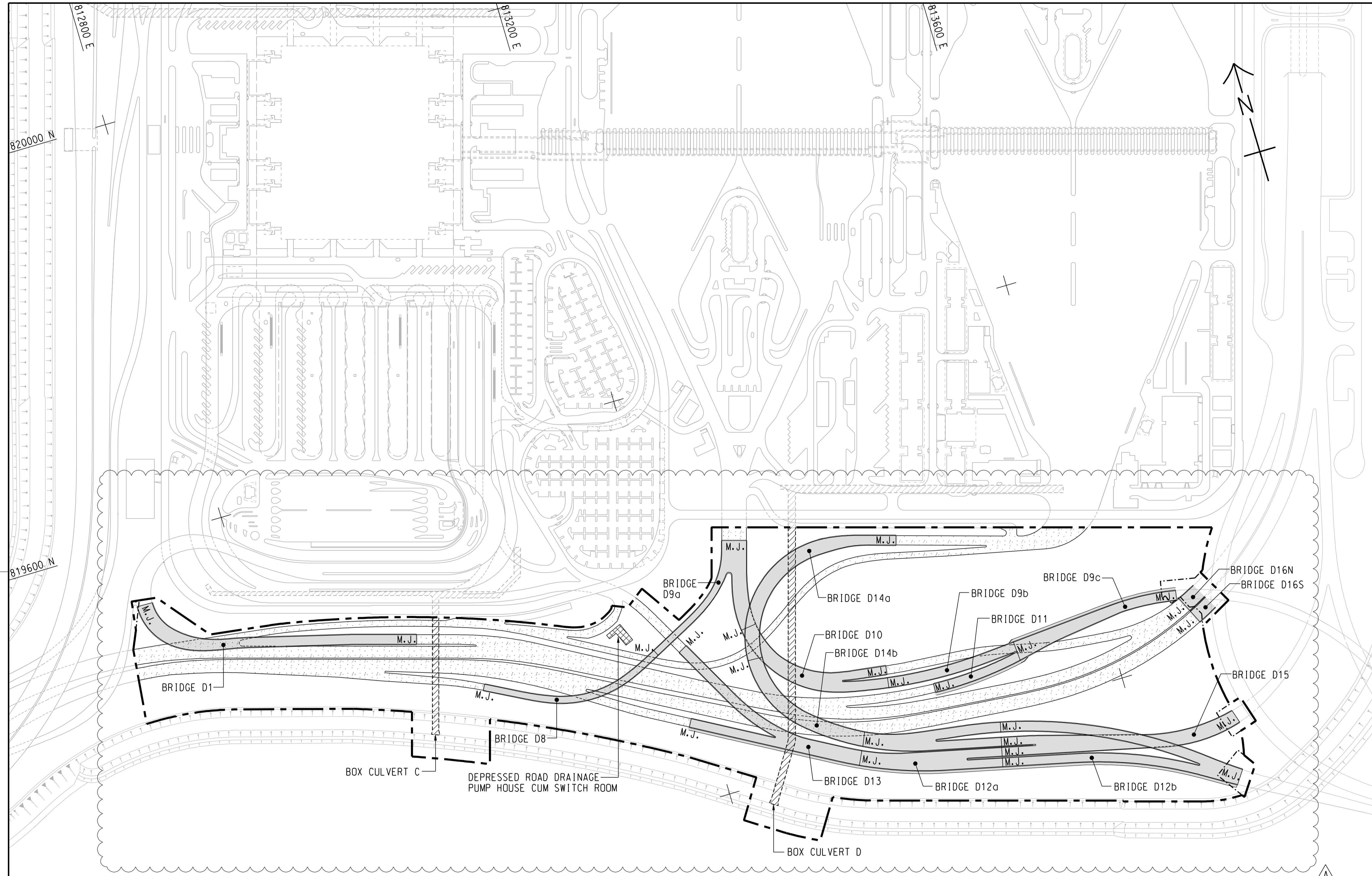
Rogers Stirk Harbour + Partners  
 BURD HAPPOLD ATKINS ADI

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

|             |              |            |
|-------------|--------------|------------|
| DESIGNED BY | CONTRACT NO. | SCALE      |
| BWCW        | HY/2013/04   | A1 : 25000 |
| DRAWN BY    | STATUS       |            |
| MSY         | REV.         |            |

DIMENSIONS ARE IN METRES  
 © COPYRIGHT RESERVED  
 版權所 有

P.S. [T] By : 22.12.24 24.03.24



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處  
 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<br>設計 | BWCW | CONTRACT NO.<br>合約編號 | HY/2013/04 | P. Dir.<br>批准人 | APPROVED<br>批准 | 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  
© COPYRIGHT RESERVED  
版權所有

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 |

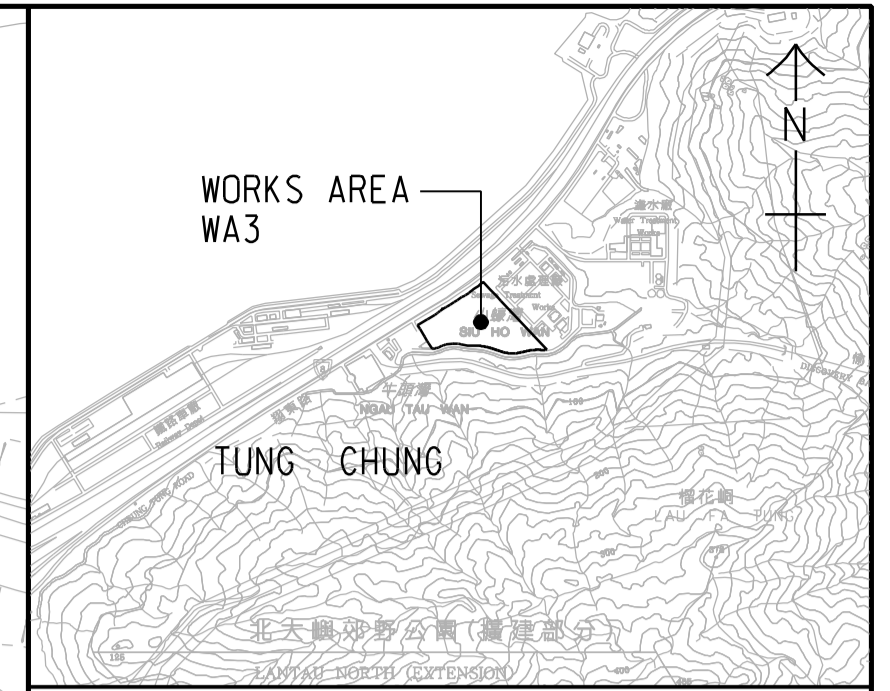
81200 E

81400 E

81600 E

819200 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

Plot File by : 2014/4/11 WANGSY

|      |                       |          |          |
|------|-----------------------|----------|----------|
| 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     | 14/04/14 |

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

WORKS AREA WA3

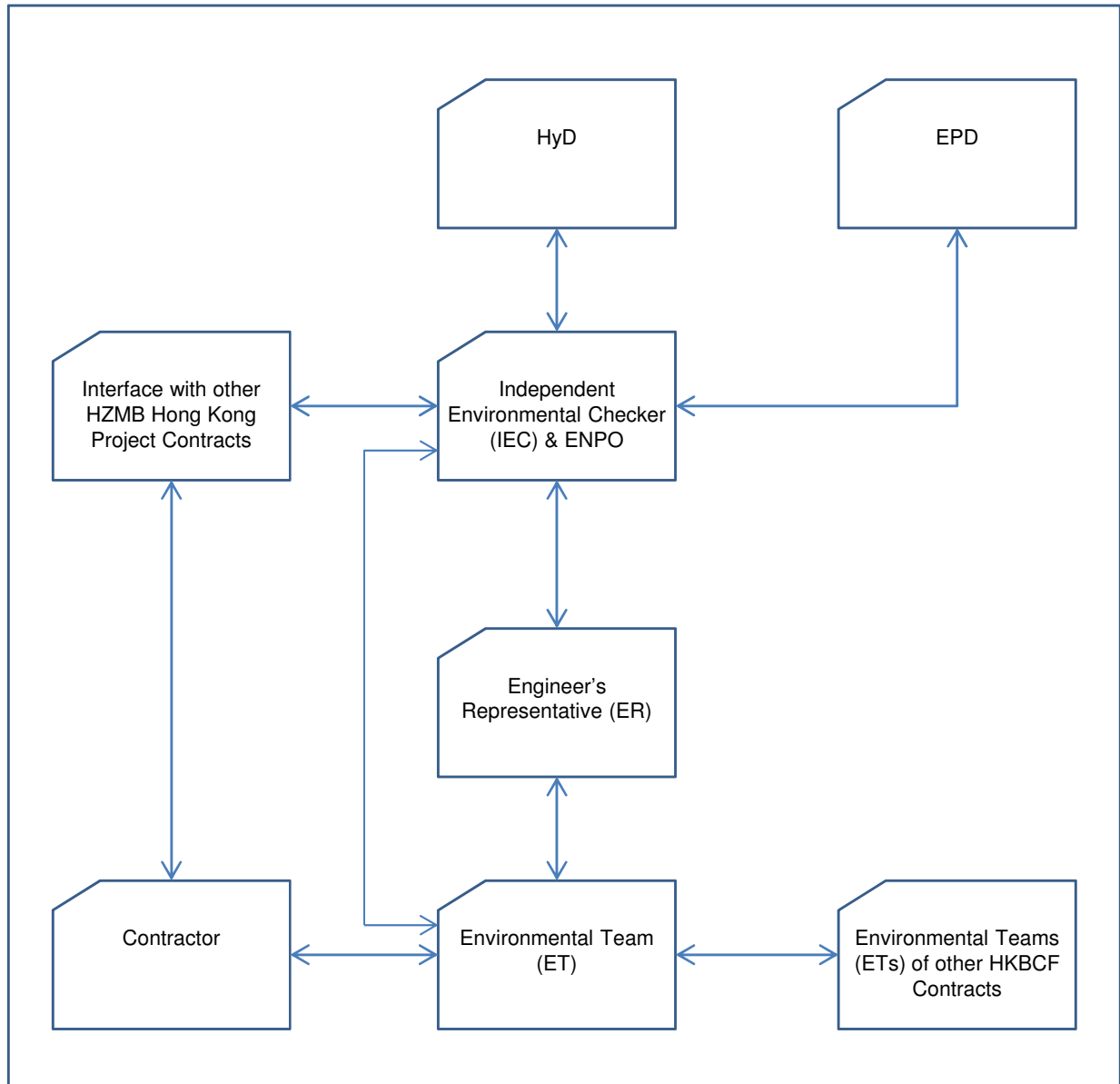
**AECOM** **Aedas**  
Rogers Stirk Harbour + Partners  
BURO HAPPOLD ATKINS ADI

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

|                           |             |                               |                        |                         |     |
|---------------------------|-------------|-------------------------------|------------------------|-------------------------|-----|
| DESIGNED BY<br>設計         | BWCW        | CONTRACT NO.<br>合約編號          | HY/2013/04             | P. Dir. APPROVED<br>批核人 | TKH |
| DRAWN BY<br>繪圖            | WSY         | STATUS<br>階段                  | <b>WORKING DRAWING</b> |                         |     |
| SCALE<br>比例               | A1 1 : 1000 |                               |                        |                         |     |
| DIMENSIONS ARE IN<br>尺寸單位 | METRES      | © COPYRIGHT RESERVED<br>版權所 有 |                        |                         |     |

# 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 |
| <b>Essential Works Updates - Tier 1 - 26 C</b> |                                                        |                                                                   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Contract Key Dates</b>                      |                                                        |                                                                   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)          |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Possession Dates</b>                        |                                                        |                                                                   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)                          |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Site Access Dates</b>                       |                                                        |                                                                   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)                       |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Contractual Key Dates - Stage / Section</b> |                                                        |                                                                   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Contractual Handover Dates to Employer</b>  |                                                        |                                                                   |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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 | D | J | F | M | A |
| 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)              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Precast Concrete - Segments</b>          |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication and Post Pouring</b> |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication Type A</b>           |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Fab.A1.001                                  | Segment Fabrication for Bridge D1 (96 nos)                   | Segment Fabrication for Bridge D1 (96 nos)                   |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication Type C1</b>          |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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.          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication Type C2</b>          |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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.           |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication Type C3</b>          |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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.           |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication Type D2</b>          |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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.          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Segment Fabrication Type D3</b>          |                                                              |                                                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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 |
| <b>Mobilisation and Site Establishment</b>                      |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0100                                                    | Site Possession / Access to Portion A1, A2, A5 & A6                                |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0110                                                    | Mobilisation, Site Clearing and Site Set-up                                        |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0120                                                    | Install Temporary Facilities / Hygiene Facilities                                  | ■    |   |   |   |   | Install Temporary Facilities / Hygiene Facilities |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Gates and Haul Road Construction (as per DW)</b>             |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.1010                                                    | Site Possession / Access to Portion A1                                             |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.1020                                                    | Survey/ Setting Out                                                                |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.1030                                                    | Construct Gate 1 at Haul Road                                                      |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.B1.1010                                                    | Site Possession / Access to Portion B1                                             |      |   |   |   |   |                                                   |   |   |   |   | 06-Oct-16                                                                                           | ♦ |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.B1.1020                                                    | Mobilisation, Site Survey and Setting Out                                          |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.B1.1030                                                    | Construct Gate 3 and Temporary Haul Road                                           |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.B2.1010                                                    | Site Possession / Access to Portion B2 & B5                                        |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.B2.1020                                                    | Site Survey / Setting out                                                          |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.B2.1030                                                    | Construct Temporary Haul Road                                                      |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Preliminary Bored Pile with Additional Instrumentation</b>   |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0180                                                    | Commence Preliminary Bored Pile at Abutment A1101                                  |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0190                                                    | Mobilise Plant & Set-up Support                                                    |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0195.1                                                  | Predrilling to Preliminary Bored Pile (D11)                                        |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0195.2                                                  | GI Report and Verification / Agreement to Founding Level                           |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0200                                                    | Preliminary Bored Piling with Additional Instrumentation at Abutment A1101 (1 no.) | ■    |   |   |   |   |                                                   |   |   |   |   | Preliminary Bored Piling with Additional Instrumentation at Abutment A1101 (1 no. 2000mm dia x 42m) |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0210                                                    | Pile Curing                                                                        |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0220                                                    | Pile Load Testing & Submit Report                                                  |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Replacement Preliminary Bored Pile and Load</b>              |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0195.6                                                  | GI Report and Verification / Agreement to Founding Level                           |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0195.7                                                  | Engineer's Representative confirmed the replacement bored pile at Pier P908-P1     |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0280                                                    | Commence Replacement Preliminary Bored Pile at Abutment A1004                      |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0290                                                    | Mobilise Plant & Set-up Support                                                    |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0300                                                    | Replacement Preliminary Bored Piling - Pier P908                                   |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0310                                                    | Pile Curing                                                                        |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0320                                                    | Pile Load Testing & Submit Report                                                  |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Preliminary Bored Pile and Load Testing at Abutment A106</b> |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0400                                                    | Commence Preliminary Bored Pile at Abutment A106                                   |      |   |   |   |   |                                                   |   |   |   |   | 06-Oct-16                                                                                           | ♦ |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0410                                                    | Mobilise Plant & Set-up Support                                                    |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0415.1                                                  | Predrilling to Preliminary Bored Pile (D1)                                         |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0415.2                                                  | GI Report and Verification / Agreement to Founding Level                           |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0420                                                    | Preliminary Bored Piling - Abutment A106 (1 no. 2000mm dia x 52m)                  |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0430                                                    | Pile Curing                                                                        |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0440                                                    | Pile Load Testing and Submit Report                                                |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Preliminary Driven H Piles and Load Testing</b>              |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.4360                                                    | Test Pile approved, commence permanent driven h-pile                               |      |   |   |   |   |                                                   |   |   |   |   | 15-Oct-16                                                                                           | ♦ |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0510                                                    | Engineer select Preliminary Test Pile (Driven H Pile)                              |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0520                                                    | Mobilise Plant & Set-up Support                                                    |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0530.1                                                  | Pre-drilling (2 nos) (Sign Gantry - Preliminary Pile)                              |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0530.2                                                  | GI Report and Verification / Agreement to Founding Level                           |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0540                                                    | Preliminary Driven H Pile (2 nos)                                                  |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0550                                                    | Pile Load Testing and Submit Report                                                |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Preliminary Pre-Bored H-Pile and Load Testing</b>            |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0195.3                                                  | Predrilling to Preliminary Pre-Bored H-Pile - 1 no.                                |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0195.4                                                  | GI Report and Verification / Agreement to Founding Level                           |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0230                                                    | Engineer select Preliminary Test Pile (Pre-Bored H-Pile)                           |      |   |   |   |   |                                                   |   |   |   |   | 06-Oct-16                                                                                           | ♦ |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0240                                                    | Mobilise Plant & Set-up Support                                                    |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0250                                                    | Preliminary Pre-Bored H-Piling - 1 no.                                             |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.A1.0270                                                    | Pile Load Testing & Submit Report                                                  |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Treatment for Bored Piling Excavated Materials</b>           |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.EX.1010                                                    | Set-up Stockpile for Excavated Marine Mud                                          |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.EX.1020                                                    | Pilot Test for Marine Mud Treatment                                                |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.EX.1030                                                    | Solidification / Stabilisation / Approval Method                                   |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.EX.1040                                                    | Set-up Treatment Facilities and Storage Yard                                       |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.EX.1050                                                    | Full Scale Solidification / Stabilization Treatment and Verification Testing       |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.EX.1060                                                    | Decommissioning of Treatment Facilities                                            |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Site Set Up at Portion C1</b>                                |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.1010                                                    | Site Possession / Access to Portion C1 and C2                                      |      |   |   |   |   |                                                   |   |   |   |   | 06-Oct-16                                                                                           | ♦ |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.1020                                                    | Site Possession / Access to Portion D1 and D3                                      |      |   |   |   |   |                                                   |   |   |   |   | 06-Oct-16                                                                                           | ♦ |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.1030                                                    | Site Set-Up                                                                        |      |   |   |   |   |                                                   |   |   |   |   | ■                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Pump House cum Switch Room</b>                               |                                                                                    |      |   |   |   |   |                                                   |   |   |   |   |                                                                                                     |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5110                                                    | Commence Pump House Cum Switch Room (2B+ GF)                                       |      |   |   |   |   |                                                   |   |   |   |   | ♦                                                                                                   |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

| 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 |
| CONS.C1.5120                                     | Mobilisation / Survey/ Setting Out                                          |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5125                                     | Cofferdam - Sheet Piling                                                    |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5130                                     | Install Dewatering Wells + Pump Test                                        |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5140                                     | ELS Works to Formation level (Basement 2)                                   |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5150                                     | Blinding, Waterproofing and Base Slab                                       |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5160                                     | Construct Walls and Slab to Upper Basement                                  |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5170                                     | Construct Walls and Slab to Ground Level                                    |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5200                                     | Construct Walls and Roof Slab                                               |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5205                                     | ABWF & Building Service Works to Pump House / Switch Room                   |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5210                                     | Achievement of Stage 5 (KD6) / Interface with C3                            |                                                                            |   |   |      |   |   | ◆    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5215                                     | Pump House/ Switch Rm - Allow Access to Contract HY/2013/03                 |                                                                            |   |   |      |   |   | ◆    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5225                                     | MEP installation for Pump House/Switch Room by C3                           |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5235                                     | Testing and Commissioning and Statutory Permits / Certification by FSD / BD |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5245                                     | ABWF Works and External Works                                               |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.5255                                     | E&M Equipment Installation                                                  |                                                                            |   |   |      |   |   | ■    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Box Culverts</b>                              |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Box Culvert D - Cost Savings Design</b>       |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Contractors Design</b>                        |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0001                                        | Approval in Principle for Cost Savings Design                               | ◆ 06-Oct-16 Approval in Principle for Cost Savings Design                  |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0100                                        | Detailed Design / Shop Drawings and Material Submission                     | ■ Detailed Design / Shop Drawings and Material Submission                  |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0110                                        | Engineer's Review / Approval                                                | ■ Engineer's Review / Approval                                             |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Preliminary Driven Pile and Load Test</b>     |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0470.30                                     | Predrilling (1 nos) (Box Culvert D)                                         | ■ Predrilling (1 nos) (Box Culvert D)                                      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0470.40                                     | GI Report and Verification / Agreement to Founding Level                    | ■ GI Report and Verification / Agreement to Founding Level                 |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0510                                        | Engineer advise Test Pile/ Preliminary Driven H Pile at Box Culvert D       | ◆ Engineer advise Test Pile/ Preliminary Driven H Pile at Box Culvert D    |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0520                                        | Mobilize Plant & Set-up Support                                             | ■ Mobilize Plant & Set-up Support                                          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0530                                        | Preliminary Driven H Pile (2 nos)                                           | ■ Preliminary Driven H Pile (2 nos)                                        |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.0540                                        | Pile Load Testing and Submit Report                                         | ■ Pile Load Testing and Submit Report                                      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Box Culvert D - 15 Bays</b>                   |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1055.30                                     | Predrilling at Portion A1 (30 nos) (Box Culvert D)                          | ■ Predrilling at Portion A1 (30 nos) (Box Culvert D)                       |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1055.40                                     | GI Report and Verification / Agreement to Founding Level                    | ■ GI Report and Verification / Agreement to Founding Level                 |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1095.30                                     | Box Culvert - Base Slab, Wall & Top Slab - Part 1 (8 bays)                  | ■ Box Culvert - Base Slab, Wall & Top Slab - Part 1 (8 bays)               |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1095.40                                     | Box Culvert - Base Slab, Wall & Top Slab - Part 2 (7 bays)                  | ■ Box Culvert - Base Slab, Wall & Top Slab - Part 2 (7 bays)               |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1110                                        | Access to Portion A1 (Interface with Contract 03)                           | ◆ 06-Oct-16 Access to Portion A1 (Interface with Contract 03)              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1120                                        | Box Culvert D - Driven H-Pile Works                                         | ■ Box Culvert D - Driven H-Pile Works                                      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1130                                        | Install Dewatering Wells + Pump Test + Open Cut Excavation to formation     | ■ Install Dewatering Wells + Pump Test + Open Cut Excavation to formation  |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1150                                        | Backfill / Reinstatement and Connect UU and Road Works SOL101 and SOL102    | ■ Backfill / Reinstatement and Connect UU and Road Works SOL101 and SOL102 |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1160                                        | Survey / Setting Out                                                        | ■ Survey / Setting Out                                                     |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1170                                        | Pile Testing                                                                | ■ Pile Testing                                                             |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.1180                                        | Mobilization and Plant Set Up                                               | ■ Mobilization and Plant Set Up                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ADA1.2250                                        | Pile Trimming and Pile Caps (30 nos)                                        | ■ Pile Trimming and Pile Caps (30 nos)                                     |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Box Culvert D - 3 Bays and Outfall</b>        |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.1180.30                                    | Predrilling (6 nos) (Box Culvert D along Seawall Area)                      | ■ Predrilling (6 nos) (Box Culvert D along Seawall Area)                   |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.1180.40                                    | GI Report and Verification / Agreement to Founding Level                    | ■ GI Report and Verification / Agreement to Founding Level                 |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2235                                       | Pile Trimming and Construction of Pile Caps                                 | ■ Pile Trimming and Construction of Pile Caps                              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2250                                       | Remove Piling Platform                                                      | ■ Remove Piling Platform                                                   |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2260                                       | Install Seawall Block & Rockfill near Seawall                               | ■ Install Seawall Block & Rockfill near Seawall                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2270                                       | General Fill                                                                | ■ General Fill                                                             |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2280                                       | ELS Works (2 levels of Strut)                                               | ■ ELS Works (2 levels of Strut)                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2330                                       | Box Culvert D - Driven H-Pile with Steel Plate                              | ■ Box Culvert D - Driven H-Pile with Steel Plate                           |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2350                                       | Backfill, Remove Seawall Blocks & Reinstatement Rock Armour                 | ■ Backfill, Remove Seawall Blocks & Reinstatement Rock Armour              |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2360                                       | Complete Box Culvert D - based on CSD                                       | ◆ 02-Mar-18 Complete Box Culvert D - based on CSD                          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2370                                       | Construct Box Culvert Outfall & Connect Drainage                            | ■ Construct Box Culvert Outfall & Connect Drainage                         |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2380                                       | Divert/Shift Haul Road (on top of completed box culvert)                    | ■ Divert/Shift Haul Road (on top of completed box culvert)                 |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2390                                       | Sheet Piling Works                                                          | ■ Sheet Piling Works                                                       |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2400                                       | Install Dewatering Wells and Carry Out Pumping Test                         | ■ Install Dewatering Wells and Carry Out Pumping Test                      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| AD.B1.2410                                       | Commence Works on Box Culvert Outfall                                       | ◆ 27-Feb-17 Commence Works on Box Culvert Outfall                          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>MDN Application for Marine Plants</b>         |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.OF.1010                                     | Prepare Documents for Statutory Submission to Marine Department             | ■ Prepare Documents for Statutory Submission to Marine Department          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.OF.1020                                     | MD Vetting, Site Inspection and Approval                                    | ■ MD Vetting, Site Inspection and Approval                                 |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.OF.1030                                     | Marine Department Issues Permit / Consent                                   | ◆ 02-Dec-16 Marine Department Issues Permit / Consent                      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Box Culvert C (Portion C1)</b>                |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Preliminary Driven Piles and Load Testing</b> |                                                                             |                                                                            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0450                                     | Commence Preliminary Driven H Pile at Box Culvert C                         | ◆ 06-Oct-16 Commence Preliminary Driven H Pile at Box Culvert C            |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0460                                     | Mobilise Plant & Set-up Support                                             | ■ Mobilise Plant & Set-up Support                                          |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CONS.C1.0470                                     | Predrilling (4 nos) (Box Culvert C)                                         | ■ Predrilling (4 nos) (Box Culvert C)                                      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |











| 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 |
| <b>Bridge D12a</b>                                     |                                                                                             |                                                                                             |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)                                                                 |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Bridge D12b</b>                                     |                                                                                             |                                                                                             |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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)                      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <b>Bridge D12b (cast in-situ) in Portion B3 (Inter</b> |                                                                                             |                                                                                             |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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                                                                        |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |













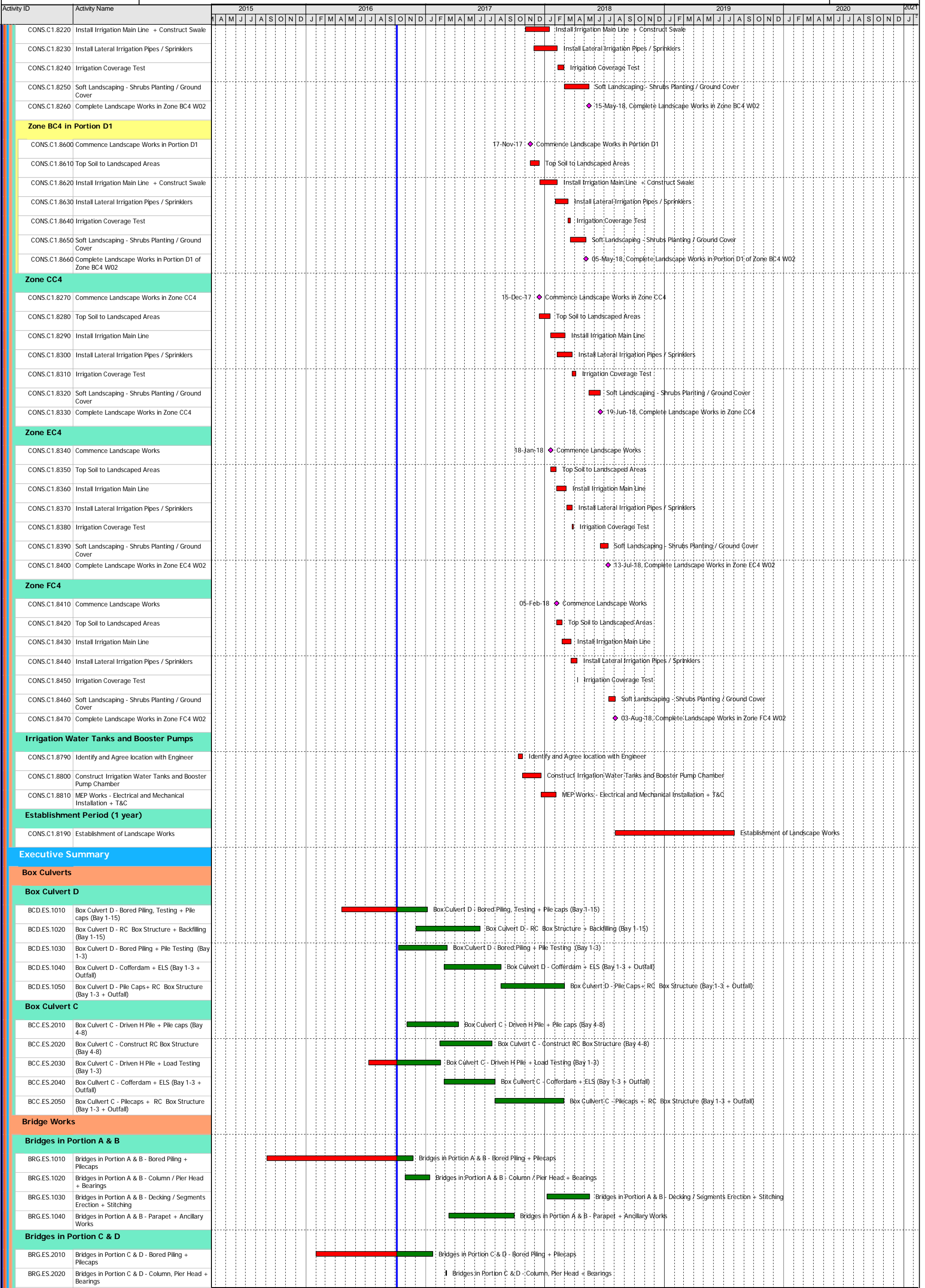








| Activity ID                                     | Activity Name                                                     | 2015 |   |   |   | 2016 |   |   |   | 2017 |   |   |   | 2018 |   |   |   | 2019 |   |   |   | 2020 |   |   |   | 2021 |   |   |   |   |   |   |   |
|-------------------------------------------------|-------------------------------------------------------------------|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|---|---|---|---|
|                                                 |                                                                   | 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 |
| CONS.RE.3790                                    | Road Base and Final Road Paving to Wearing Course                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.RE.3800                                    | Road Markings and Road Signages                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Landscaping and Irrigation System</b>        |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Landscaping - Water Meter W04</b>            |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone AC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8120                                    | Commence Landscape Works in Zone AC4 (after Bridgeworks complete) |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8130                                    | Top Soil to Landscaped Areas (600mm)                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8140                                    | Install Irrigation System Main Lines (900mm dia)                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8150                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8160                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8170                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8180                                    | Complete Landscape Works Zone AC4                                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone BC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8200                                    | Commence Landscape Works in Zone BC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8210                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8220                                    | Install Irrigation System Main Lines (900mm dia)                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8230                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8240                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8250                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8260                                    | Complete Landscape Works in Zone BC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone CC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8280                                    | Commence Landscape Works in Zone CC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8290                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8300                                    | Install Irrigation System Main Lines (900mm dia)                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8310                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8320                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8330                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8340                                    | Complete Landscape Works in Zone CC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone DC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8360                                    | Commence Landscape Works in DC4                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8370                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8380                                    | Install Irrigation System Main Lines (900mm dia)                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8390                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8400                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8410                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8420                                    | Complete Landscape Works in Portion C1 (West Section)             |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone EC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8440                                    | Commence Landscape Works in Zone EC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8450                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8460                                    | Install Irrigation System Main Lines                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8470                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8480                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8490                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8500                                    | Complete Landscape Works in Portion C1 (West Section)             |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone FC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8520                                    | Commence Landscape Works in Zone FC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8530                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8540                                    | Install Irrigation System Main Lines (900mm dia)                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8550                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8560                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8570                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8580                                    | Complete Landscape Works in Zone FC4                              |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Landscape Softworks in Portion A6 and B5</b> |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8590                                    | Commence Landscape Works in Zone AC4 in Portion A6 & B5           |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8595                                    | Clearing of unsuitable materials                                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8600                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8610                                    | Install Irrigation System Main Lines (900mm dia)                  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8620                                    | Install Lateral Irrigation Pipes & Sprinklers                     |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8630                                    | Irrigation Coverage Test                                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8640                                    | Soft Landscaping - Shrubs Planting / Ground Cover                 |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8650                                    | Complete Landscape Works Zone AC4 (KD16)                          |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.A1.8660                                    | Establishment Works for Landscape Softworks in Portion A6 and B5  |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Landscaping - Water Meter W02</b>            |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| <b>Zone BC4</b>                                 |                                                                   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.C1.8200                                    | Commence Landscape Works (Portion C1)                             |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |
| CONS.C1.8210                                    | Top Soil to Landscaped Areas                                      |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |      |   |   |   |   |   |   |   |





# Appendix D. Event and Action Plan



## Event/Action Plan for Air Quality Monitoring

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

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

## Event / Action Plan for Construction Noise Monitoring

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

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

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

## Event / Action Plan for Dolphin Monitoring

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

| EVENT       | ACTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | ET                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IEC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CONTRACTOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Limit Level | <ol style="list-style-type: none"> <li>1. Repeat statistical data analysis to confirm findings;</li> <li>2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&amp;A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences;</li> <li>3. Identify source(s) of impact;</li> <li>4. Inform the IEC, ER/SOR and Contractor of findings;</li> <li>5. Check monitoring data;</li> <li>6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.</li> <li>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.</li> </ol> | <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor;</li> <li>2. Discuss monitoring results and findings with the ET and the Contractor;</li> <li>3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures.</li> <li>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.</li> <li>5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly.</li> </ol> | <ol style="list-style-type: none"> <li>1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures.</li> <li>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.</li> <li>3. Supervise the implementation of additional monitoring and/or any other mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Inform the ER/SOR and confirm notification of the non-compliance in writing;</li> <li>2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures.</li> <li>3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary.</li> <li>4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.</li> </ol> |

# **Appendix E. Implementation Schedule for Environmental Mitigation Measures (EMIS)**



## Appendix E – Implementation Schedule of Environmental Mitigation Measures (EMIS)

| EIA Ref.           | EM&A Log Ref. | Recommended Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Location of the measures                        | Implementation Status                                                           |
|--------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Air Quality</b> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                 |                                                                                 |
| S5.5.6.1           | A1            | 1) The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 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"> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                              | All construction sites                          | V                                                                               |
| S5.5.6.2           | A2            | <ul style="list-style-type: none"> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides</li> </ul> | All construction sites                          | V                                                                               |
| S5.5.6.2           | A2            | <ul style="list-style-type: none"> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 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/2013/04 (AMS2, AMS3C, AMS7B) & HY/2011/03 (AMS6)) |
| S5.5.7.1           | A6            | The following mitigation measures should be adopted to prevent fugitive dust                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Selected                                        | N/A                                                                             |

| EIA Ref.                                     | EM&A Log Ref. | Recommended Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Location of the measures                                                          | Implementation Status                  |
|----------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------|
|                                              |               | <p>emissions for concrete batching plant:</p> <ul style="list-style-type: none"> <li>• Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system;</li> <li>• All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP;</li> <li>• Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system;</li> <li>• The materials which may generate airborne dusty emissions should be wetted by water spray system;</li> <li>• All receiving hoppers should be enclosed on three sides up to 3m above unloading point;</li> <li>• All conveyor transfer points should be totally enclosed;</li> <li>• All access and route roads within the premises should be paved and wetted; and</li> <li>• Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body.</li> </ul> | representative dust 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"> <li>• All road surface within the barging facilities will be paved;</li> <li>• Dust enclosures will be provided for the loading ramp;</li> <li>• Vehicles will be required to pass through designated wheels wash facilities; and</li> <li>• Continuous water spray at the loading points.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | All construction sites                                                            | N/A                                    |
| <b>Construction Noise (Air borne)</b>        |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                   |                                        |
| S6.4.10                                      | N1            | <p>1) Use of good site practices to limit noise emissions by considering the following:</p> <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>                                                                     | 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/m<sup>2</sup>), 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&amp;A programme.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Selected representative noise monitoring station                                  | V (covered by Contract No. HY/2013/04) |
| <b>Sediment</b>                              |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                   |                                        |
| 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                                      |
| <b>Waste Management (Construction Noise)</b> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                   |                                        |
| S8.3.8                                       | WM1           | <p><u>Construction and Demolition Material</u></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | All construction sites                                                            | V                                      |

| EIA Ref.            | EM&A Log Ref. | Recommended Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Location of the measures | Implementation Status |
|---------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|
|                     |               | <ul style="list-style-type: none"> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETWB TC(W) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                          |                       |
| S8.3.9-<br>S8.3.11  | WM2           | <p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>• Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>• The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | All construction sites   | V                     |
| S8.2.12-<br>S8.3.15 | WM3           | <p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>• Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>• Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>• The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> <li>• Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul> | All construction sites   | V                     |
| S8.3.16             | WM4           | <p><u>Sewage</u></p> <ul style="list-style-type: none"> <li>• Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | All construction sites   | V                     |
| S8.3.17             | WM5           | <p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>• General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>• A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>• Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>• Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium cans, plastic bottles etc., should be provided.</li> <li>• Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of</li> </ul>                                                                                                                                                                                                                                                                                                                                                            | All construction sites   | V                     |

| EIA Ref.                                  | EM&A Log Ref. | Recommended Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Location of the measures           | Implementation Status                  |
|-------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------|
|                                           |               | wastes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                    |                                        |
| <b>Water Quality (Construction Phase)</b> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                    |                                        |
| 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"> <li>• Floating type perimeter silt curtains shall be around the HKBCF site before the commencement of marine works.</li> <li>• Silt curtain shall be fully maintained throughout the works.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 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"> <li>• wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;</li> <li>• sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the W PCO or collected for disposal offsite. The use of soakaways shall be avoided;</li> <li>• storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks;</li> <li>• silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm;</li> <li>• temporary access roads should be surfaced with crushed stone or gravel;</li> <li>• rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;</li> <li>• measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;</li> <li>• open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;</li> <li>• manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers;</li> <li>• discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;</li> <li>• all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit;</li> <li>• wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain;</li> <li>• the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;</li> <li>• wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects;</li> <li>• vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the W PCO or collected for off site disposal;</li> <li>• the Contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately;</li> <li>• waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance;</li> <li>• all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and</li> <li>• surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.</li> </ul> | Land-based works areas             | V                                      |
| S9.14                                     | W3            | Implement a water quality monitoring programme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | At identified monitoring locations | V (covered by Contract No. HY/2013/04) |

| EIA Ref.                                              | EM&A Log Ref. | Recommended Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Location of the measures                | Implementation Status                  |
|-------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|
| <b>Ecology (Construction Phase)</b>                   |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         |                                        |
| S10.7                                                 | E2            | <ul style="list-style-type: none"> <li>• Install silt curtain during the construction.</li> <li>Limit dredging and works fronts.</li> <li>• Good site practices.</li> <li>• Site runoff control.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 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"> <li>• Dolphin Exclusion Zone;</li> <li>• Dolphin watching plan</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Marine works                            | V                                      |
| S10.7                                                 | E7            | <ul style="list-style-type: none"> <li>• Decouple compressors and other equipment on working vessels</li> <li>• Avoidance of percussive piling</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Marine works                            | V                                      |
| S10.7                                                 | E8            | <ul style="list-style-type: none"> <li>• Control vessel speed</li> <li>• Skipper training</li> <li>• Predefined and regular routes for working vessels; avoid Brother Islands.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Marine Traffic                          | V                                      |
| S10.10                                                | E9            | <ul style="list-style-type: none"> <li>• Dolphin vessel monitoring</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | North Lantau and West Lantau            | V (covered by Contract No. HY/2013/04) |
| <b>Fisheries</b>                                      |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         |                                        |
| S11.7                                                 | F4            | <ul style="list-style-type: none"> <li>• Maritime Oil Spill Response Plan (MOSRP);</li> <li>• Contingency plan.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HKBCF                                   | V                                      |
| <b>Landscape &amp; Visual (Detailed Design Phase)</b> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         |                                        |
| S14.3.3.1                                             | LV1           | <p>General design measures include:</p> <ul style="list-style-type: none"> <li>• Roadside planting and planting along the edge of the HKBCF Island is proposed;</li> <li>• Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting;</li> <li>• Protection measures for the trees to be retained during construction activities;</li> <li>• Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid visually-sensitive locations;</li> <li>• Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed;</li> <li>• Providing planting area around peripheral of HKBCF for tree planting screening effect;</li> <li>• Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline;</li> <li>• For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF; and</li> <li>• Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF.</li> </ul> | HKBCF                                   | V                                      |
| <b>Landscape &amp; Visual (Construction Phase)</b>    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         |                                        |
| 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;<br>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.<br>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><br>V1. Minimize time for construction activities during construction period.<br>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                   |
| <b>EM&amp;A</b> |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                        |                          |                       |
| 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.<br>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.<br>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 F. Site Audit Findings and Corrective Actions

## **Appendix F – Site Audit Findings and Corrective Actions**

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 3, 10, 18, 22 and 31 October and 7, 14, 19 and 28 November 2018.

Particular observations during the site inspections are described below.

### **17 September 2018**

- a. The silt curtains at Box Culvert C and D were disconnected from the coastal shoreline. The Contractor was reminded to reinstate the silt curtains. Subsequently, the silt curtain at Box Culvert D was fixed on 10 October 2018 and the silt curtain at Box Culvert C was removed on 28 November 2018. The observation was closed on 28 November 2018.

### **26 September 2018**

- a. C&D waste stockpiles were observed at P1211 and next to RW11. Subsequently, the stockpiles have been cleared. The observation was closed on 3 October 2018.

### **3 October 2018**

- a. Accumulation of C&D waste and general refuses were observed near Bridge D12 area. Subsequently, the C&D waste and general refuses were cleared. The observation was closed on 10 October 2018.
- b. Dust emission was observed along haul road near Bridge D12 area. Subsequently, the water spraying was provided along haul road. The observation was closed on 10 October 2018.

### **10 October 2018**

- a. A C&D waste collection area without clear signage and designation were observed near Bridge D12 area. Subsequently, the C&D waste collection area was relocated no further accumulation of C&D waste near Bridge D12 area was observed. The observation was closed on 18 October 2018.

### **18 October 2018**

- a. Loose general refuse was observed near P1211 area. Subsequently, the general refuse was cleared. The observation was closed on 22 October 2018.
- b. Chemical containers with no drip tray was observed near P1404 area. Subsequently, the chemical container was removed from site. The observation was closed on 22 October 2018.
- c. Vehicles were observed leaving the site without wheel wash near P1404 area. Subsequently, safety signage was posted at the site entrance and prominent area to prevent any improper exit. The observation was closed on 22 October 2018.

### **22 October 2018**

- a. Accumulation of general refuse was observed underneath Bridge D9a and on Bridge D15. Subsequently, the general refuse has been removed. The observation was closed on 31 October 2018.

### **31 October 2018**

- a. Accumulation of general refuse was observed near P911 area. Subsequently, The general refuse near P911 area was cleared. The observation was closed on 7 November 2018.

### **7 November 2018**

- a. Chemical containers without labelling was observed near P913 area. Subsequently, labellings were provided for the chemical containers. The observation was closed on 14 November 2018.

### **14 November 2018**

- a. Accumulation of general refuse was observed near P909 area. Subsequently, the general refuse was cleared. The observation was closed on 19 November 2018.



**19 November 2018**

- a. Discolour NRMM label affixed onto the generator was observed. Subsequently, the new NRMM label with appropriate colour was provided. The observation was closed on 28 November 2018.
- b. Fugitive dust was observed when vehicles passing by the haul road opposite to P1212. Subsequently, water spraying on haul road was provided. The observation was closed on 28 November 2018.
- c. Accumulation of construction materials at Bridge D12 was observed. Subsequently, removal of construction materials was in progress and temporary fencing was provided to designate the area for temporary storage. The observation was closed on 28 November 2018.

**28 November 2018**

- a. A chemical container without drip tray was observed on Bridge D15. The Contractor was reminded to provide drip tray for the chemical container. Follow-up action for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.

# Appendix G. 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 <sup>3</sup> )                                   | (in '000m <sup>3</sup> )            | (in '000m <sup>3</sup> ) | (in '000m <sup>3</sup> )               | (in '000m <sup>3</sup> ) | (in '000m <sup>3</sup> ) | (in '000kg)                                       | (in '000kg)                | (in '000kg)       | (in '000kg)    | (in '000m <sup>3</sup> )    |
| 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       | 0                                                          | 0                                   | 0                        | 0                                      | 0                        | 0                        | 0                                                 | 0                          | 0                 | 0              | 0.2856                      |
| Sep       | 0                                                          | 0                                   | 0                        | 0                                      | 0                        | 0                        | 0                                                 | 0                          | 0                 | 0              | 0.2044                      |
| Oct       | 0                                                          | 0                                   | 0                        | 0                                      | 0                        | 0                        | 0                                                 | 0                          | 0                 | 0              | 0.2183                      |
| Nov       | 5.324                                                      | 0                                   | 0                        | 0                                      | 5.324                    | 0                        | 0                                                 | 0                          | 0                 | 0              | 0.1643                      |
| Dec       |                                                            |                                     |                          |                                        |                          |                          |                                                   |                            |                   |                |                             |
| Total     | 5.324                                                      | 0                                   | 0                        | 0.000                                  | 5.3239                   | 0                        | 0                                                 | 0                          | 0                 | 0.2            | 2.0924                      |

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 <sup>3</sup> )                                       | (in m <sup>3</sup> )                                                | (in m <sup>3</sup> )      | (in m <sup>3</sup> )                                                                    | (in m <sup>3</sup> )                                                             |
| 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       | 0                                                          | 0                                                                   | 0                         | 0                                                                                       | 0                                                                                |
| Sep       | 0                                                          | 0                                                                   | 0                         | 0                                                                                       | 0                                                                                |
| Oct       | 0                                                          | 0                                                                   | 0                         | 0                                                                                       | 0                                                                                |
| Nov       | 0                                                          | 0                                                                   | 0                         | 0                                                                                       | 0                                                                                |
| 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 H. Environmental Licenses 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        | Further Environmental Permit under EIAO                            | FEP-01/353/2009/K                              | 29 Nov 2018      | N/A         | N/A         | Application under consideration by EPD during reporting period |
| 3        | Construction Dust Notification (HKBCF Southern Portion)            | 387156                                         | 26 Mar 2015      | 1 Apr 2015  | N/A         | Notified                                                       |
| 4        | Construction Waste Disposal Account                                | 7022038                                        | 16 Mar 2015      | 1 Apr 2015  | N/A         | Account approved                                               |
| 5        | 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                                         |
| 6        | Discharge Licence under WPCO (Works Area WA3)                      | WT00022316-2015                                | 1 Jun 2015       | 14 Aug 2015 | 31 Aug 2020 | Issued                                                         |
| 7        | Discharge Licence under WPCO (HKBCF Works Area)                    | WT00028782-2017                                | 25 May 2017      | 19 Jul 2017 | 31 Jul 2022 | Issued                                                         |
| 8        | Construction Noise Permit                                          | GW-RS0293-18                                   | 23 Mar 2018      | 1 May 2018  | 31 Oct 2018 | Expired during reporting period                                |
| 9        | Construction Noise Permit                                          | GW-RS0974-18                                   | 10 Oct 2018      | 31 Oct 2018 | 29 Mar 2019 | Issued                                                         |

# **Appendix I. 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                                            | 1          | 0                        | 0                       |
| From commencement date of construction to end of reporting month | 11         | 0                        | 0                       |



# Appendix J. Impact Dolphin Monitoring Survey Findings and Analysis

**CONTRACT NO. HY/2013/04**

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing  
Facilities – Infrastructure Works Stage II (Southern Portion)  
Dolphin Monitoring**

*Quarterly Progress Report (September-November 2018)*

*Submitted to Mott MacDonald Hong Kong Limited &  
China State Construction Engineering (Hong Kong) Limited*

Submitted by  
Samuel K.Y. Hung, Ph.D.  
Hong Kong Cetacean Research Project

10 April 2019

**1. Introduction**

- 1.1. For the Hong Kong-Zhuhai-Macao Bridge (HZMB) Hong Kong Boundary Crossing Facilities (HKBCF), the construction of the Infrastructure Works Stage II (Southern Portion) requires the contractor (i.e. China State Construction Engineering (Hong Kong) Limited) and the associated Environmental Team, Mott MacDonald Hong Kong Limited to implement the Environmental Monitoring and Audit (EM&A) programme.
- 1.2. According to the HKBCF EM&A Manual, monthly line-transect vessel surveys for Chinese White Dolphins should be conducted to cover the Northwest (NWL) and Northeast Lantau (NEL) survey areas, which should be the same as in AFCD annual marine mammal monitoring programme. However, as such construction-phase monitoring surveys have been undertaken by the HKLR03 project in the same areas (i.e. NWL and NEL), a combined monitoring approach is recommended by the Highways Department, that the HKBCF EM&A project should utilize the monitoring data collected by HKLR03 project to avoid any redundancy in monitoring effort.
- 1.3. In October 2018, the Director of Hong Kong Cetacean Research Project (HKCRP), Dr. Samuel Hung, has been appointed by the ET as the dolphin specialist for the HKBCF EM&A project. He is responsible for the dolphin monitoring study, including the

collection and collation of dolphin monitoring data from the HKLR03 project to examine any potential impacts of HKBCF constructions works on the dolphins. From the monitoring results, any changes in dolphin occurrence within the study area will be reviewed for possible causes, and appropriate actions and additional mitigation measures will be recommended as necessary.

- 1.4. The present quarterly progress report of this HKBCF construction-phase dolphin monitoring programme is submitted to the ET and the contractor, summarizing the result of the survey findings during the quarterly period of September to November 2018. Notably, for the present quarter, monitoring data collected in September 2018 through another HKBCF-Passenger Clearance Building (or HKBCF-PCB) Contract No. HY/2013/01 as well as in October-November 2018 through HKLR03 Contract No. HY/2011/03 were reviewed and utilized for various analyses. Moreover, the monitoring data from previous years obtained under the HKLR03 Contract are also referenced and compared to the present quarterly monitoring data from the HKBCF-PCB/HKLR03 combined dataset. All these previous monitoring data was collected by the same HKCRP survey team, to ensure 100% consistency in monitoring methodology including vessel survey method as well as various analyses. On the contrary, the previous monitoring data collected under HZMB HKBCF-Reclamation Works contract (Contract No. HY/2010/02) was from a different survey team that have adopted different survey methodology (e.g. two observers and one data recorder under HKBCF-Reclamation Works contract, as compared to one primary observer and one data recorder adopted by HKCRP team in the past 20+ years). Therefore, we cannot ensure that such monitoring data from that contract can be directly comparable to the HKBCF-PCB/HKLR03 monitoring data, and would rather use the previous HZMB monitoring data collected by HKCRP team instead for direct comparison with the present quarterly findings.

## 2. Monitoring Methodology

### 2.1. Vessel-based Line-transect Survey

- 2.1.1. According to the requirement of the updated EM&A manual, dolphin monitoring programme should cover all transect lines in NEL and NWL survey areas (see Figure 1) twice per month throughout the entire construction period. The co-ordinates of all transect lines are shown in Table 1.

Table 1 Co-ordinates of transect lines

| Line No. | Easting | Northing |  | Line No. | Easting | Northing |
|----------|---------|----------|--|----------|---------|----------|
|----------|---------|----------|--|----------|---------|----------|

|    |             |        |        |  |    |             |        |        |
|----|-------------|--------|--------|--|----|-------------|--------|--------|
| 1  | Start Point | 804671 | 815456 |  | 13 | Start Point | 816506 | 819480 |
| 1  | End Point   | 804671 | 831404 |  | 13 | End Point   | 816506 | 824859 |
| 2  | Start Point | 805476 | 820800 |  | 14 | Start Point | 817537 | 820220 |
| 2  | End Point   | 805476 | 826654 |  | 14 | End Point   | 817537 | 824613 |
| 3  | Start Point | 806464 | 821150 |  | 15 | Start Point | 818568 | 820735 |
| 3  | End Point   | 806464 | 822911 |  | 15 | End Point   | 818568 | 824433 |
| 4  | Start Point | 807518 | 821500 |  | 16 | Start Point | 819532 | 821420 |
| 4  | End Point   | 807518 | 829230 |  | 16 | End Point   | 819532 | 824209 |
| 5  | Start Point | 808504 | 821850 |  | 17 | Start Point | 820451 | 822125 |
| 5  | End Point   | 808504 | 828602 |  | 17 | End Point   | 820451 | 823671 |
| 6  | Start Point | 809490 | 822150 |  | 18 | Start Point | 821504 | 822371 |
| 6  | End Point   | 809490 | 825352 |  | 18 | End Point   | 821504 | 823761 |
| 7  | Start Point | 810499 | 822000 |  | 19 | Start Point | 822513 | 823268 |
| 7  | End Point   | 810499 | 824613 |  | 19 | End Point   | 822513 | 824321 |
| 8  | Start Point | 811508 | 821123 |  | 20 | Start Point | 823477 | 823402 |
| 8  | End Point   | 811508 | 824254 |  | 20 | End Point   | 823477 | 824613 |
| 9  | Start Point | 812516 | 821303 |  | 21 | Start Point | 805476 | 827081 |
| 9  | End Point   | 812516 | 824254 |  | 21 | End Point   | 805476 | 830562 |
| 10 | Start Point | 813525 | 821176 |  | 22 | Start Point | 806464 | 824033 |
| 10 | End Point   | 813525 | 824657 |  | 22 | End Point   | 806464 | 829598 |
| 11 | Start Point | 814556 | 818853 |  | 23 | Start Point | 814559 | 821739 |
| 11 | End Point   | 814556 | 820992 |  | 23 | End Point   | 814559 | 824768 |
| 12 | Start Point | 815542 | 818807 |  | 24 | Start Point | 805476 | 815900 |
| 12 | End Point   | 815542 | 824882 |  | 24 | End Point   | 805476 | 819100 |

2.1.2. The HKCRP survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 22 years of marine mammal monitoring surveys in Hong Kong (see Hung 2018). For each monitoring vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) was used to make

observations from the flying bridge area.

- 2.1.3. Two experienced observers (a data recorder and a primary observer) made up the on-effort survey team, and the survey vessel transited different transect lines at a constant speed of 13-15 km per hour. The data recorder searched with unaided eyes and filled out the datasheets, while the primary observer searched for dolphins continuously through 7 x 50 marine binoculars. Both observers searched the sea ahead of the vessel, between 270° and 90° (in relation to the bow, which is defined as 0°). At least one additional experienced observers were available on the boat to work in shift (i.e. rotate every 30 minutes) in order to minimize fatigue of the survey team members. All observers were experienced in small cetacean survey techniques and identifying local cetacean species.
- 2.1.4. During on-effort survey periods, the survey team recorded effort data including time, position (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance traveled in each series (a continuous period of search effort) with the assistance of a handheld GPS (e.g. *Garmin eTrex Legend*). Data including time, position and vessel speed were also automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.
- 2.1.5. When dolphins were sighted, the survey team would end the survey effort, and immediately record the initial sighting distance and angle of the dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel was diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, and behavioural observations. The perpendicular distance (PSD) of the dolphin group to the transect line was later calculated from the initial sighting distance and angle.
- 2.1.6. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as “primary” survey effort, while the survey effort conducted along the connecting lines between parallel lines was labeled as “secondary” survey effort. According to HKCRP long-term dolphin monitoring data, encounter rates of Chinese white dolphins deduced from effort and sighting data collected along primary and secondary lines were similar in NEL and NWL survey areas. Therefore, both primary and secondary survey effort were presented as on-effort survey effort in this report.

## 2.2. Photo-identification Work

- 2.2.1. When a group of Chinese White Dolphins were sighted during the line-transect survey, the survey team would end effort and approach the group slowly from the side and behind

to take photographs of them. Every attempt was made to photograph every dolphin in the group, and even photograph both sides of the dolphins, since the colouration and markings on both sides may not be symmetrical.

- 2.2.2. One to two professional digital cameras (e.g. *Canon* EOS 7D model), each equipped with long telephoto lenses (100-400 mm zoom), were available on board for researchers to take sharp, close-up photographs of dolphins as they surfaced. The images were shot at the highest available resolution and stored on Compact Flash memory cards for downloading onto a computer.
- 2.2.3. All digital images taken in the field were first examined, and those containing potentially identifiable individuals were sorted out. These photographs would then be examined in greater detail, and were carefully compared to the existing Chinese White Dolphin photo-identification catalogue maintained by HKCRP since 1995. Chinese White Dolphins can be identified by their natural markings, such as nicks, cuts, scars and deformities on their dorsal fin and body, and their unique spotting patterns were also used as secondary identifying features (Jefferson 2000).
- 2.2.4. All photographs of each individual were then compiled and arranged in chronological order, with data including the date and location first identified (initial sighting), re-sightings, associated dolphins, distinctive features, and age classes entered into a computer database.

### 2.3. *Data analysis*

- 2.3.1. Distribution Analysis – The line-transect survey data was integrated with the Geographic Information System (GIS) in order to visualize and interpret different spatial and temporal patterns of dolphin distribution using sighting positions. Location data of dolphin groups were plotted on map layers of Hong Kong using a desktop GIS (ArcView<sup>®</sup> 3.1) to examine their distribution patterns in details. The dataset was also stratified into different subsets to examine distribution patterns of dolphin groups with different categories of group sizes, young calves and activities.
- 2.3.2. Encounter rate analysis – Encounter rates of Chinese White Dolphins (number of on-effort sightings per 100 km of survey effort, and total number of dolphins sighted on-effort per 100 km of survey effort) were calculated in NEL and NWL survey areas in relation to the amount of survey effort conducted during each month of monitoring survey. Dolphin encounter rates were calculated in two ways for comparisons with the HZMB baseline monitoring results as well as to AFCD long-term marine mammal monitoring results.

- 2.3.3. Firstly, for the comparison with the HZMB baseline monitoring results, the encounter rates were calculated using primary survey effort alone, and only data collected under Beaufort 3 or below condition would be used for encounter rate analysis. The average encounter rate of sightings (STG) and average encounter rate of dolphins (ANI) were deduced based on the encounter rates from six events during the present quarter (i.e. six sets of line-transect surveys in North Lantau), which was also compared with the one deduced from the six events during the baseline period (i.e. six sets of line-transect surveys in North Lantau).
- 2.3.4. Secondly, the encounter rates were calculated using both primary and secondary survey effort collected under Beaufort 3 or below condition as in AFCD long-term monitoring study. The encounter rate of sightings and dolphins were deduced by dividing the total number of on-effort sightings (STG) and total number of dolphins (ANI) by the amount of survey effort for the present quarterly period.
- 2.3.5. Quantitative grid analysis on habitat use – To conduct quantitative grid analysis of habitat use, positions of on-effort sightings of Chinese White Dolphins collected during the quarterly impact phase monitoring period were plotted onto 1-km<sup>2</sup> grids among NWL and NEL survey areas on GIS. Sighting densities (number of on-effort sightings per km<sup>2</sup>) and dolphin densities (total number of dolphins from on-effort sightings per km<sup>2</sup>) were then calculated for each 1 km by 1 km grid with the aid of GIS.
- 2.3.6. Sighting density grids and dolphin density grids were then further normalized with the amount of survey effort conducted within each grid. The total amount of survey effort spent on each grid was calculated by examining the survey coverage on each line-transect survey to determine how many times the grid was surveyed during the study period. For example, when the survey boat traversed through a specific grid 50 times, 50 units of survey effort were counted for that grid. With the amount of survey effort calculated for each grid, the sighting density and dolphin density of each grid were then normalized (i.e. divided by the unit of survey effort).
- 2.3.7. The newly-derived unit for sighting density was termed SPSE, representing the number of on-effort sightings per 100 units of survey effort. In addition, the derived unit for actual dolphin density was termed DPSE, representing the number of dolphins per 100 units of survey effort. Among the 1-km<sup>2</sup> grids that were partially covered by land, the percentage of sea area was calculated using GIS tools, and their SPSE and DPSE values were adjusted accordingly. The following formulae were used to estimate SPSE and DPSE in each 1-km<sup>2</sup> grid within the study area:

$$SPSE = ((S / E) \times 100) / SA\%$$

$$DPSE = ((D / E) \times 100) / SA\%$$

where S = total number of on-effort sightings  
D = total number of dolphins from on-effort sightings  
E = total number of units of survey effort  
SA% = percentage of sea area

- 2.3.8. Behavioural analysis – When dolphins were sighted during vessel surveys, their behaviour was observed. Different activities were categorized (i.e. feeding, milling/resting, traveling, socializing) and recorded on sighting datasheets. This data was then input into a separate database with sighting information, which can be used to determine the distribution of behavioural data with a desktop GIS. Distribution of sightings of dolphins engaged in different activities and behaviours would then be plotted on GIS and carefully examined to identify important areas for different activities of the dolphins.
- 2.3.9. Ranging pattern analysis – Location data of individual dolphins that occurred during the 3-month impact phase monitoring period were obtained from the dolphin sighting database and photo-identification catalogue. To deduce home ranges for individual dolphins using the fixed kernel methods, the program Animal Movement Analyst Extension, was loaded as an extension with ArcView<sup>®</sup> 3.1 along with another extension Spatial Analyst 2.0. Using the fixed kernel method, the program calculated kernel density estimates based on all sighting positions, and provided an active interface to display kernel density plots. The kernel estimator then calculated and displayed the overall ranging area at 95% UD level.

### 3. Monitoring Results

#### 3.1. *Summary of survey effort and dolphin sightings*

- 3.1.1. A total of six sets of systematic line-transect vessel surveys were conducted for the HKBCF-PCB and HKLR03 contracts during the period of September to November 2018, to cover all transect lines in NWL and NEL survey areas twice per month. From these surveys, 795.4 km of total survey effort was collected, and 94.4% of such effort was conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the NEL and NWL survey areas, 293.3 km and 502.1 km of survey effort were collected respectively.



- 3.1.2. Moreover, 574.9 km of survey effort was conducted on primary lines, while another 220.5 km of survey effort was conducted on secondary lines. As mentioned in the methodology section, survey effort conducted on primary and secondary lines were all considered as on-effort survey data. A summary table of the survey effort for the three-month period is shown in Appendix I.
- 3.1.3. From September to November 2018, only six groups of 14 Chinese White Dolphins were sighted from the combined dataset of HKBCF-PCB/HKLR03, and the summary table of dolphin sightings is shown in Appendix II. All six groups were sighted during on-effort search, and five of the six on-effort sightings were made on primary lines. All dolphin groups were only sighted in NWL, with none being sighted in NEL at all during the three-month monitoring period.
- 3.2. *Distribution*
- 3.2.1. Distribution of the six dolphin groups being sighted during the September-November 2018 monitoring surveys is shown in Figure 1. These six sightings were all concentrated at the northwestern portion of the North Lantau region, mostly in waters around Lung Kwu Chau. On the contrary, no dolphin was sighted at all in the central, eastern and southwestern portions of the North Lantau region (Figure 1). All six groups were also sighted very far away from the HKBCF and HKLR03 reclamation sites, as well as the bridge alignments of HKLR09 and Tuen Mun-Chek Lap Kok Link (TMCLKL).
- 3.2.2. A comparison of dolphin distribution between the present impact phase period (September-November 2018) and the baseline monitoring period (September-November 2011) revealed considerable differences. For example, in NEL dolphin was not found during the survey in the present quarter but in the baseline survey they were frequently found in the same study area, including the waters near Shum Shui Kok and in the vicinity of the HKBCF reclamation site (Figure 1). Furthermore, dolphins were infrequently sighted in NWL waters and mainly at the northwestern end of the survey area during the present three-month period. This was in stark contrast with their frequent occurrences throughout the entire NWL survey area during the baseline period (Figure 1).
- 3.3. *Encounter rate*
- 3.3.1. The encounter rates of Chinese White Dolphins were deduced from the survey effort and on-effort sighting data from the primary transect lines under favourable conditions (Beaufort 3 or below) for each set of the surveys in NEL and NWL during the present three-month impact monitoring period, and are shown in Table 2. The average encounter rates deduced from the six sets of surveys were also compared with the ones

deduced from the baseline monitoring period (September-November 2011) (Table 3).

Table 2. Dolphin encounter rates (sightings per 100 km of survey effort) during September-November 2018

| SURVEY AREA      | DOLPHIN MONITORING DATES | Encounter rate (STG)<br>(no. of on-effort dolphin sightings per 100 km of survey effort) | Encounter rate (ANI)<br>(no. of dolphins from all on-effort sightings per 100 km of survey effort) |
|------------------|--------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|                  |                          | Primary Lines Only                                                                       | Primary Lines Only                                                                                 |
| Northeast Lantau | Set 1 (10 & 14 Sep 2018) | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 2 (19 & 24 Sep 2018) | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 3 (4 & 11 Oct 2018)  | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 4 (16 & 18 Oct 2018) | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 5 (1 & 6 Nov 2018)   | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 6 (8 & 13 Nov 2018)  | 0.0                                                                                      | 0.0                                                                                                |
| Northwest Lantau | Set 1 (10 & 14 Sep 2018) | 1.7                                                                                      | 5.0                                                                                                |
|                  | Set 2 (19 & 24 Sep 2018) | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 3 (4 & 11 Oct 2018)  | 0.0                                                                                      | 0.0                                                                                                |
|                  | Set 4 (16 & 18 Oct 2018) | 1.6                                                                                      | 3.3                                                                                                |
|                  | Set 5 (1 & 6 Nov 2018)   | 5.8                                                                                      | 9.7                                                                                                |
|                  | Set 6 (8 & 13 Nov 2018)  | 0.0                                                                                      | 0.0                                                                                                |

3.3.2. To facilitate another comparison with the AFCD long-term monitoring data, the encounter rates were also calculated for the present quarter using both primary and secondary survey effort. Such encounter rates of sightings (STG) and dolphins (ANI) in NEL were both nil, while the ones the in NWL were 1.3 sightings and 3.0 dolphins per 100 km of survey effort respectively for this quarter.

Table 3. Comparison of average dolphin encounter rates from impact monitoring period (September-November 2018) and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions;  $\pm$  denotes the standard deviation of the average encounter rates)

|                         | <b>Encounter rate (STG)</b><br>(no. of on-effort dolphin sightings per 100 km of survey effort) |                                  | <b>Encounter rate (ANI)</b><br>(no. of dolphins from all on-effort sightings per 100 km of survey effort) |                                  |
|-------------------------|-------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------|
|                         | <b>September – November 2018</b>                                                                | <b>September – November 2011</b> | <b>September – November 2018</b>                                                                          | <b>September – November 2011</b> |
| <b>Northeast Lantau</b> | 0.00                                                                                            | 6.0 $\pm$ 5.05                   | 0.0                                                                                                       | 22.2 $\pm$ 26.81                 |
| <b>Northwest Lantau</b> | 1.5 $\pm$ 2.25                                                                                  | 9.9 $\pm$ 5.85                   | 3.0 $\pm$ 3.89                                                                                            | 44.7 $\pm$ 29.85                 |

3.3.3. For the present three-month impact monitoring period, the average dolphin encounter rates (both STG and ANI) in NEL were both zero with no on-effort sighting being made. Such extremely low occurrence of dolphins in NEL has also been consistently recorded during the same autumn quarters throughout the HZMB monitoring period (Table 4).

Table 4. Comparison of average dolphin encounter rates in Northeast Lantau survey area from the same autumn quarters of HKLR03 and HKBCF impact monitoring periods and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions;  $\pm$  denotes the standard deviation of the average encounter rates)

|                                           | <b>Encounter rate (STG)</b><br>(no. of on-effort dolphin sightings per 100 km of survey effort) | <b>Encounter rate (ANI)</b><br>(no. of dolphins from all on-effort sightings per 100 km of survey effort) |
|-------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>September-November 2011 (Baseline)</b> | <b>6.0 <math>\pm</math> 5.05</b>                                                                | <b>22.2 <math>\pm</math> 26.81</b>                                                                        |
| September-November 2013 (HKLR03 Impact*)  | 1.0 $\pm$ 1.59                                                                                  | 3.8 $\pm$ 6.49                                                                                            |
| September-November 2014 (HKLR03 Impact*)  | 0.0                                                                                             | 0.0                                                                                                       |
| September-November 2015 (HKLR03 Impact*)  | 0.0                                                                                             | 0.0                                                                                                       |
| September-November 2016 (HKLR03 Impact*)  | 0.0                                                                                             | 0.0                                                                                                       |
| September-November 2017 (HKLR03 Impact*)  | 0.0                                                                                             | 0.0                                                                                                       |
| September-November 2018 (HKBCF Impact)    | 0.0                                                                                             | 0.0                                                                                                       |

\* As explained in Section 1.4, the previous monitoring data from Contract No. HY/2011/03 (i.e. HKLR03) were adopted for comparison with the baseline and present impact monitoring period

3.3.4. On the other hand, the average dolphin encounter rates (STG and ANI) in NWL during the present impact phase monitoring period were only small fractions of the ones recorded during the three-month baseline period (with reductions of 84.8% and 93.3% respectively), indicating a dramatic decline in dolphin usage of this survey area during the present impact phase period (Table 5).

Table 5. Comparison of average dolphin encounter rates in Northwest Lantau survey area from all autumn quarters of HKLR03 and HKBCF impact monitoring periods and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions;  $\pm$  denotes the standard deviation of the average encounter rates)

|                                           | <b>Encounter rate (STG)</b><br>(no. of on-effort dolphin sightings per 100 km of survey effort) | <b>Encounter rate (ANI)</b><br>(no. of dolphins from all on-effort sightings per 100 km of survey effort) |
|-------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>September-November 2011 (Baseline)</b> | <b>9.9 <math>\pm</math> 5.85</b>                                                                | <b>44.7 <math>\pm</math> 29.85</b>                                                                        |
| September-November 2013 (HKLR03 Impact*)  | 8.0 $\pm$ 1.10                                                                                  | 32.5 $\pm$ 26.51                                                                                          |
| September-November 2014 (HKLR03 Impact*)  | 5.1 $\pm$ 4.40                                                                                  | 20.5 $\pm$ 15.10                                                                                          |
| September-November 2015 (HKLR03 Impact*)  | 3.9 $\pm$ 1.57                                                                                  | 21.1 $\pm$ 17.19                                                                                          |
| September-November 2016 (HKLR03 Impact*)  | 2.9 $\pm$ 1.98                                                                                  | 10.9 $\pm$ 10.98                                                                                          |
| September-November 2017 (HKLR03 Impact*)  | 3.1 $\pm$ 1.91                                                                                  | 10.4 $\pm$ 9.66                                                                                           |
| September-November 2018 (HKBCF Impact)    | 1.5 $\pm$ 2.25                                                                                  | 3.0 $\pm$ 3.89                                                                                            |

\* As explained in Section 1.4, the previous monitoring data from Contract No. HY/2011/03 (i.e. HKLR03) were adopted for comparison with the baseline and present impact monitoring period

3.3.5. Both dolphin encounter rates in NWL in autumn 2018 were the lowest among all autumn quarters during the HZMB monitoring period, and apparently there has been a steady decline in dolphin occurrence in the past several years to reach to the lowest point in 2018 (Table 5). This is a very worrying trend as the dolphin occurrence should have recovered somewhat since the HKBCF reclamation works, which incurred permanent habitat loss, have been completed a few years ago and the remaining marine construction activities for the HKBCF are also nearly completed.

3.3.6. A two-way ANOVA with repeated measures and unequal sample size was conducted to examine whether there were any significant differences in the average encounter rates between the baseline and impact monitoring periods. The two variables that were examined included the two periods (baseline and impact phases) and two locations (NEL and NWL).

- 3.3.7. For the comparison between the baseline period and the present quarter, the p-values for the differences in average dolphin encounter rates of STG and ANI were 0.0029 and 0.0146 respectively. If the alpha value is set at 0.05, significant differences were detected between the baseline and present quarter in both the average dolphin encounter rates of STG and ANI.
- 3.3.8. Both distribution patterns and encounter rates of Chinese White Dolphins indicated that their usage have been dramatically reduced in both NEL and NWL survey areas during the present quarterly period, and such low occurrence of dolphins has been consistently documented in recent years of HZMB dolphin monitoring. Such significant decline in dolphin occurrence should raise serious concern, as the timing of the decline coincided well with the construction schedule of the HZMB related project as suggested by Hung (2018). Moreover, it is apparent that there has been no sign of recovery in dolphin usage, even with most of the marine works associated with the HZMB construction being completed. Continuous dolphin monitoring would be critical to examine whether the downward trend would continue, stabilize or revert in upcoming quarters.
- 3.4. *Group size*
- 3.4.1. From September to November 2018, the group sizes of Chinese White Dolphins ranged from one to four individuals per group in North Lantau region. The average dolphin group sizes from the present three-month period were compared with the ones deduced from the baseline period in September to November 2011, as shown in Table 6.

Table 6. Comparison of average dolphin group sizes from impact monitoring period (September-November 2018) and baseline monitoring period (September-November 2011) (Note:  $\pm$  denotes the standard deviation of average group size)

|                         | Average Dolphin Group Size |                           |
|-------------------------|----------------------------|---------------------------|
|                         | September – November 2018  | September – November 2011 |
| <b>Overall</b>          | 2.3 $\pm$ 1.03 (n = 6)     | 3.7 $\pm$ 3.13 (n = 66)   |
| <b>Northeast Lantau</b> | ---                        | 3.2 $\pm$ 2.16 (n = 17)   |
| <b>Northwest Lantau</b> | 2.3 $\pm$ 1.03 (n = 6)     | 3.9 $\pm$ 3.40 (n = 49)   |

- 3.4.2. During the present quarter, the average dolphin group size in NWL was much lower than the one recorded during the baseline period. However, it should also be noted that the sample size in the present quarter (six groups) was much smaller than the 66 groups sighted during the baseline period (Table 6).
- 3.4.3. All six dolphin groups were composed of small groups with 1-4 animals only (Appendix

II). This is in contrary to the baseline period when the larger groups (at least with five animals) were frequently sighted and evenly distributed in NWL, with a few also sighted in NEL waters.

### 3.5. *Habitat use*

- 3.5.1. During the present quarter, the quantitative grid analysis revealed that only six grids recorded dolphin occurrence, with just one grid adjacent to Lung Kwu Chau recorded higher dolphin density (Figures 2a and 2b). However, it should be emphasized that the amount of survey effort collected in each grid during the three-month period was fairly low (6-12 units of survey effort for most grids), and therefore the habitat use pattern derived from the three-month dataset should be treated with caution. A more complete picture of dolphin habitat use pattern should be examined when more survey effort for each grid will be collected throughout the impact phase monitoring programme.
- 3.5.2. When compared with the habitat use patterns during the baseline period, dolphin usage in NEL and NWL has drastically diminished in both areas during the present impact monitoring period (Figure 3). During the baseline period, many grids between Siu Mo To and Shum Shui Kok in NEL recorded moderately high to high dolphin densities, but the dolphins have completely disappeared from this area during the present impact phase period (Figure 3).
- 3.5.3. Moreover, the dolphin density patterns were also very different in NWL between the baseline and impact phase monitoring periods, with high usage throughout the area during the baseline period, while only two grids located adjacent to Lung Kwu Chau recoded moderate to high dolphin densities during the present impact phase period (Figure 3).

### 3.6. *Mother-calf pairs*

- 3.6.1. No mother-calf pair was sighted at all among the six dolphin groups during the present quarterly period. This was in stark contrast to the regular occurrence of young calves with their mothers in North Lantau waters during the baseline period, which should be of a serious concern.

### 3.7. *Activities and associations with fishing boats*

- 3.7.1. Only one of the six groups was engaged in both feeding and socializing activities during the present quarterly period, which was located to the north of Lung Kwu Chau (Figure 4). On the other hand, none of the groups was engaged in traveling or milling/resting activity.
- 3.7.2. When compared to the baseline period, distribution of various dolphin activities during the present quarterly period was drastically different with very rare occurrence of such

activities (Figure 4).

3.7.3. It should also be noted that none of the dolphin groups sighted during the present quarter was associated with any operating fishing vessels.

3.8. *Summary of photo-identification works*

3.8.1. Over 800 digital photographs of Chinese White Dolphins were taken from September to November 2018 for the photo-identification work during the HKBCF/HKLR03 surveys. A total of eight individuals were identified and sighted 12 times altogether (see summary table in Appendix III and photographs of identified individuals in Appendix IV). Re-sightings of individual dolphins were only made in NWL, while none was re-sighted in NEL during the quarterly period.

3.8.2. Five of the eight individuals were re-sighted only once, while the other three individuals (NL136, NL261 and NL328) were re-sighted twice or thrice during the quarterly period (Appendix III). Notably, none of these individuals sighted in NWL survey area during the HKBCF/HKLR03 monitoring surveys were also sighted in West Lantau waters during the HKLR09 monitoring surveys during the same quarterly period.

3.9. *Individual range use*

3.9.1. Ranging patterns of the eight individuals identified during the three-month study period were determined by fixed kernel method, and are shown in Appendix V.

3.9.2. While all eight individuals were sighted only in NWL waters in the present quarter, none of them occurred in NEL waters (Appendix V), which is in stark contrast to the extensive movements of many individual dolphins between NEL and NWL survey areas during the baseline period as well as in the earlier impact monitoring quarters. Moreover, none of the individuals has extended their range use to WL waters, even though such movements between North and West Lantau waters were quite common in the past several years.

3.9.4. Individual range use and movements should be continuously examined in the upcoming quarters, to determine whether there has been any consistent shifts of individual home ranges from North Lantau to West or Southwest Lantau, or vice versa.

#### 4. Conclusion

4.1. During the present quarter of dolphin monitoring, no adverse impact from the activities of this construction project on Chinese White Dolphins was noticeable from general

observations.

- 4.2. Although dolphins seldom occurred in the area of HKBCF construction in the past and during the baseline monitoring period, it is apparent that dolphin usage has been dramatically reduced in North Lantau waters in recent years, and many individuals have shifted away from this once-important habitat for the dolphins.
- 4.3. It is critical to continuously monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether there is any sign of recovery when the construction works have been completed.

## 5. References

- Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L., and Thomas, L. 2001. Introduction to distance sampling: estimating abundance of biological populations. Oxford University Press, London.
- Hung, S. K. 2008. Habitat use of Indo-Pacific humpback dolphins (*Sousa chinensis*) in Hong Kong. Ph.D. dissertation. University of Hong Kong, Hong Kong, 266 p.
- Hung, S. K. 2018. Monitoring of Marine Mammals in Hong Kong waters: final report (2017-18). An unpublished report submitted to the Agriculture, Fisheries and Conservation Department, 174 pp.
- Jefferson, T. A. 2000. Population biology of the Indo-Pacific hump-backed dolphin in Hong Kong waters. Wildlife Monographs 144:1-65.



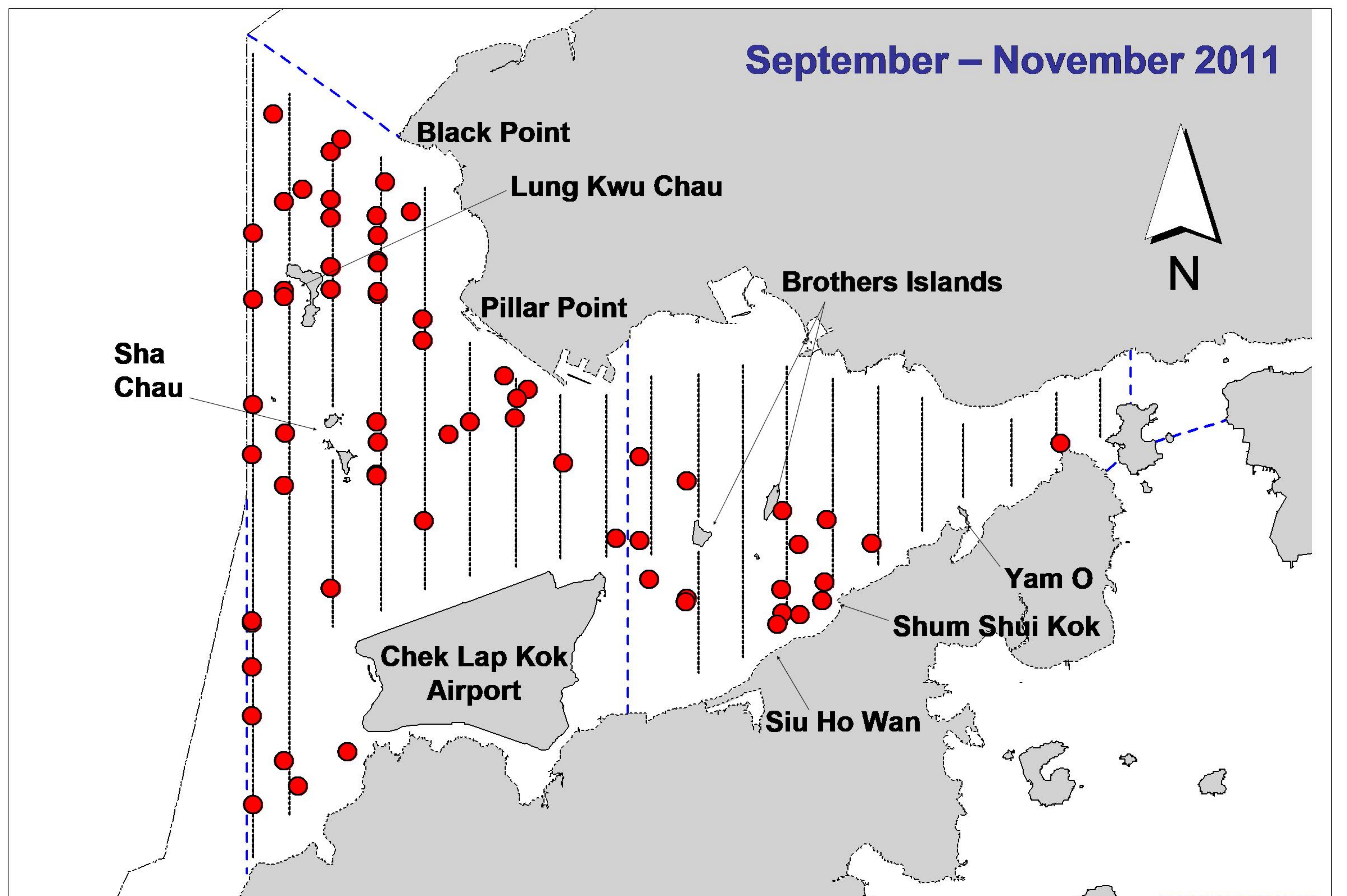
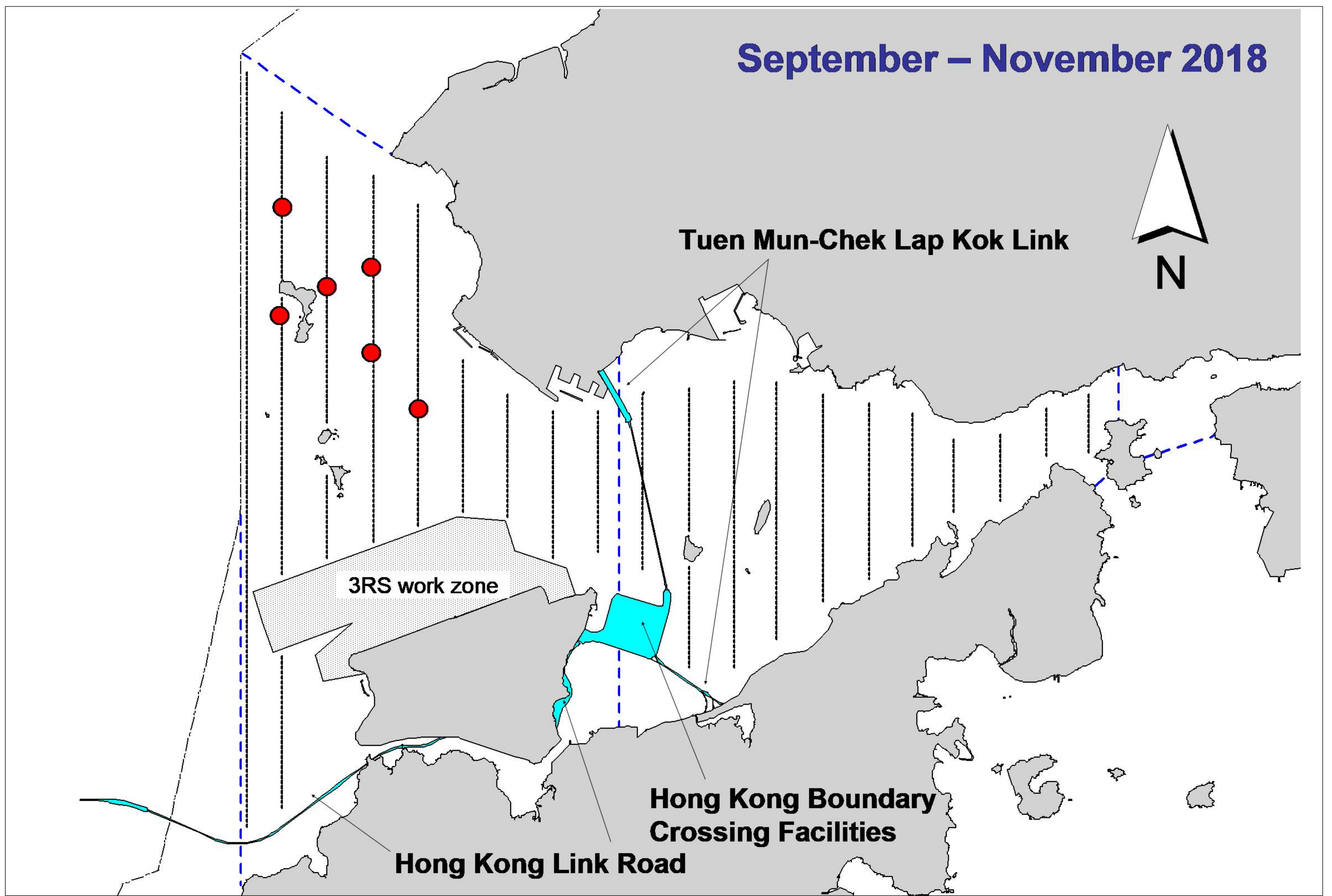


Figure 1. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during the present impact phase (top) and baseline monitoring surveys (bottom)

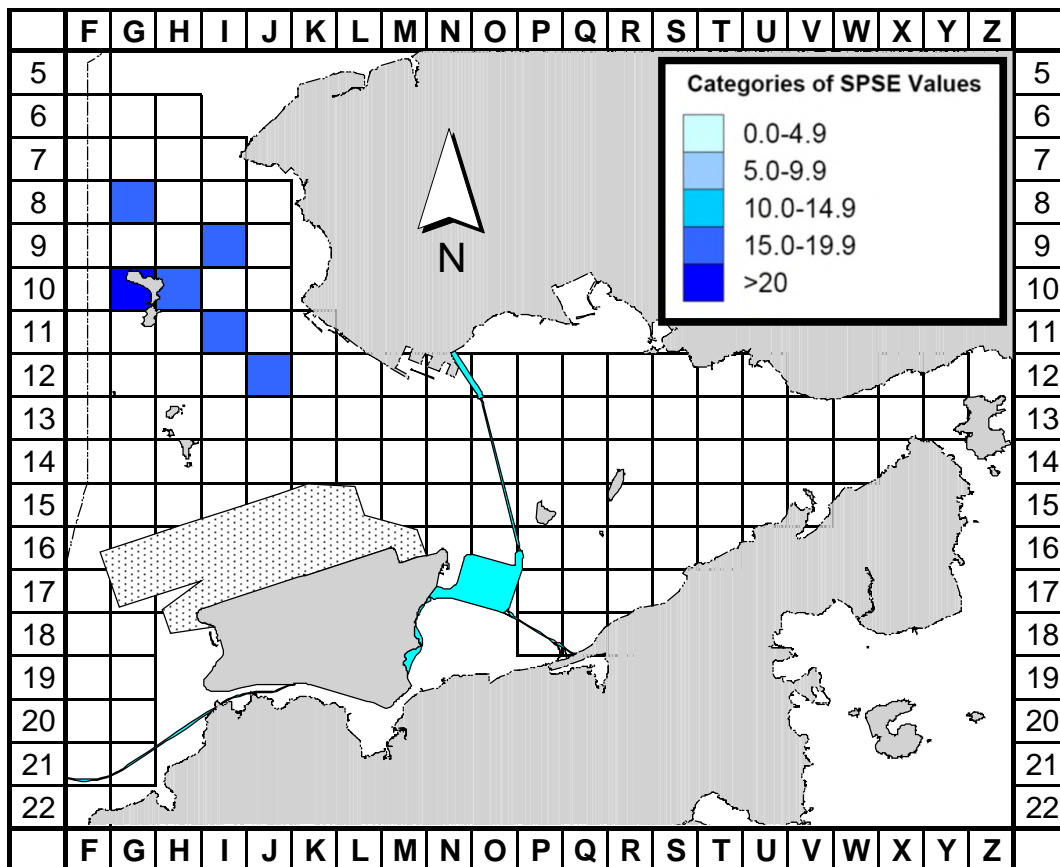


Figure 2a. Sighting density of Chinese white dolphins with corrected survey effort per km<sup>2</sup> in Northeast and Northwest Lantau survey areas, using data collected during the present impact monitoring period (Sep-Nov 18) (SPSE = no. of on-effort sightings per 100 units of survey effort)

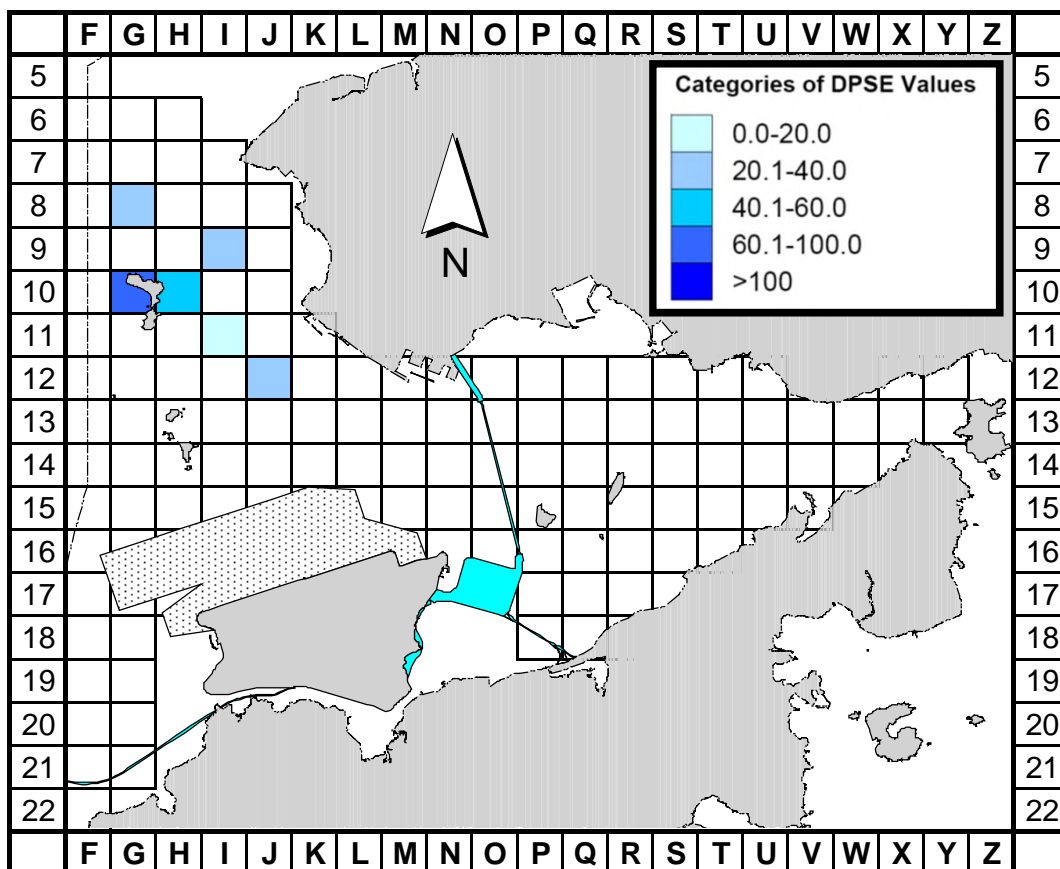


Figure 2b. Density of Chinese white dolphins with corrected survey effort per km<sup>2</sup> in Northeast and Northwest Lantau survey areas, using data collected during the present impact monitoring period (Sep-Nov 18) (DPSE = no. of dolphins per 100 units of survey effort)

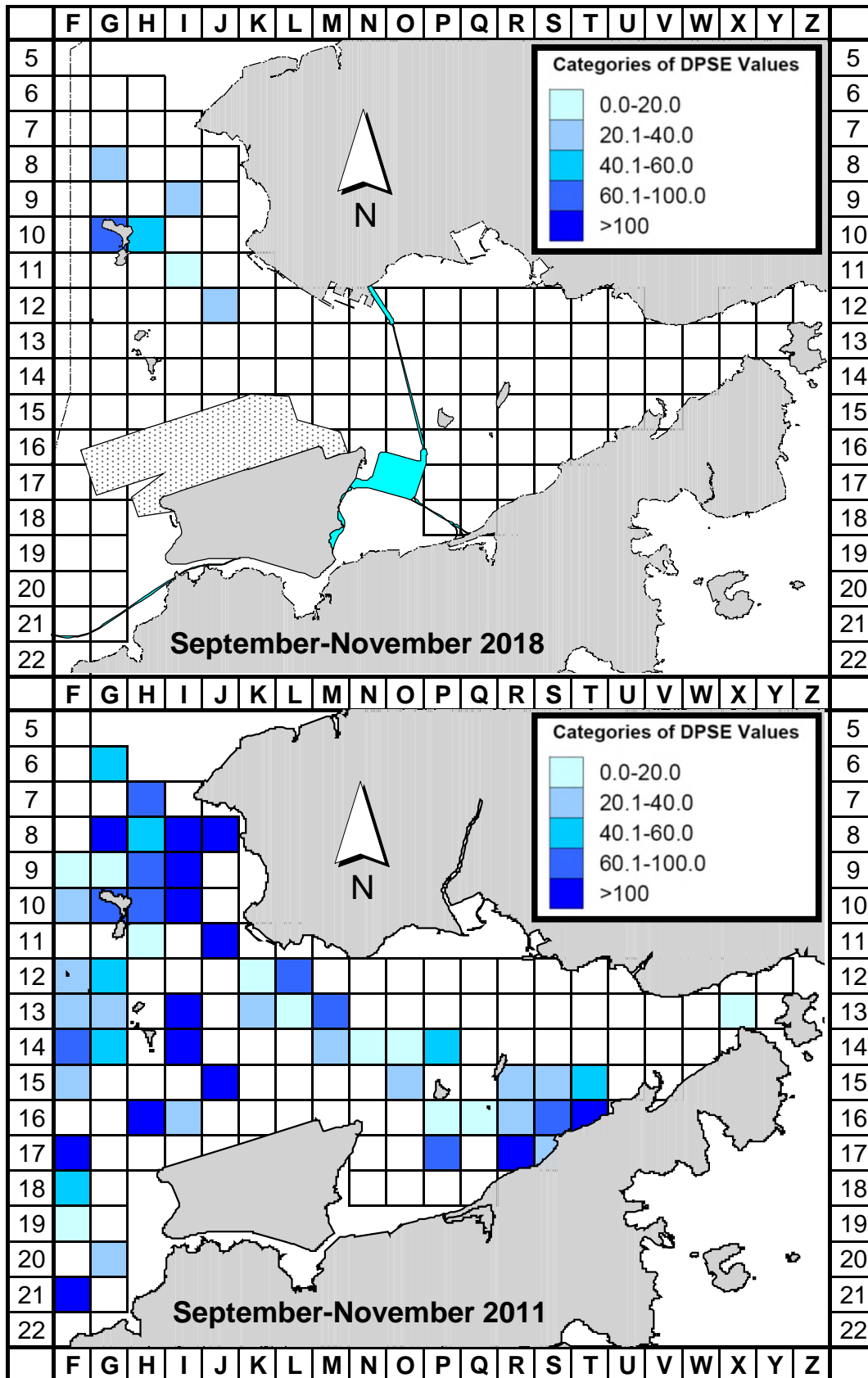


Figure 3. Comparison of density of Chinese white dolphins with corrected survey effort per km<sup>2</sup> in Northwest and Northeast Lantau survey area between the present impact monitoring period (September-November 2018) and baseline monitoring period (September-November 2011) (DPSE = no. of dolphins per 100 units of survey effort)

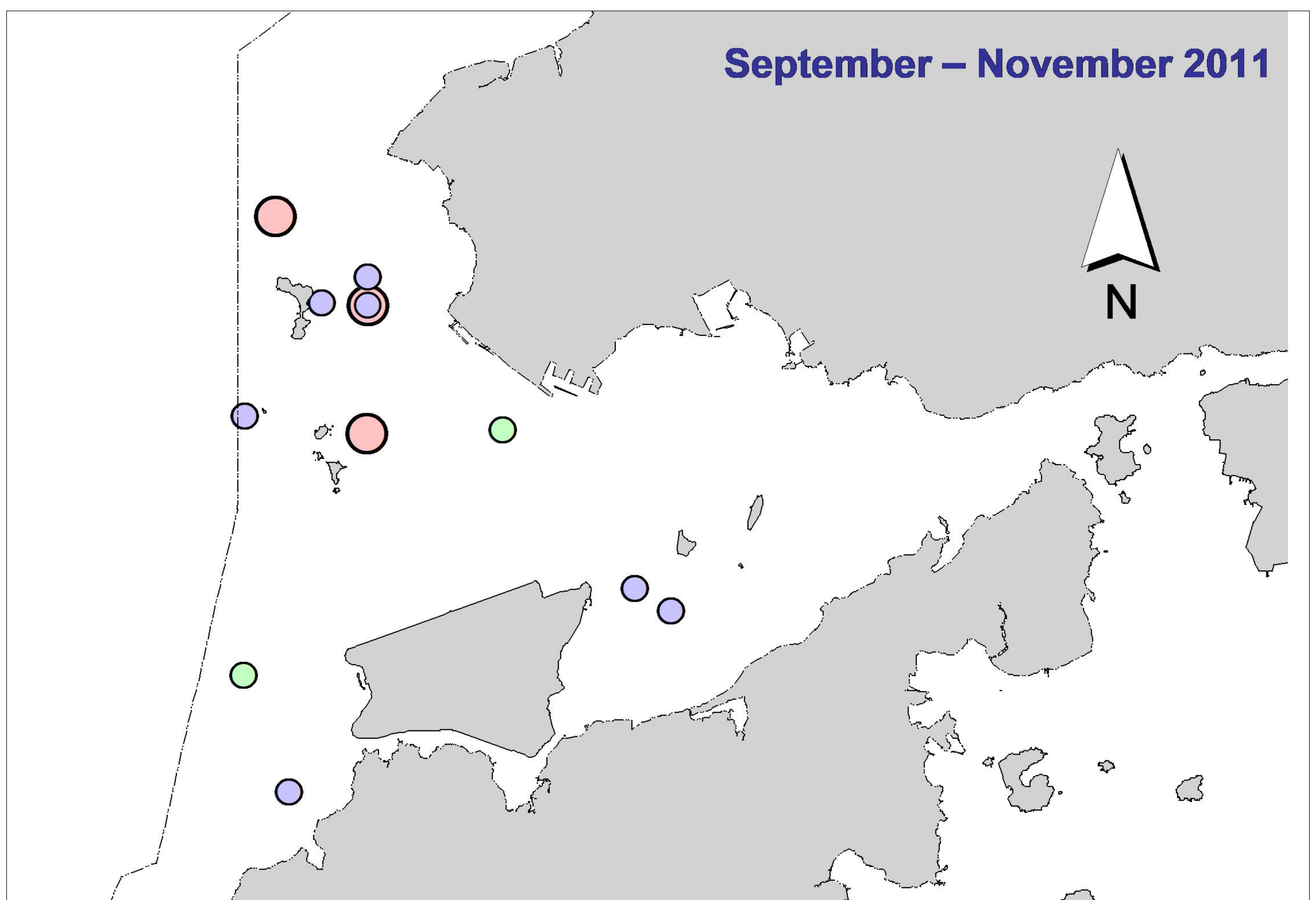
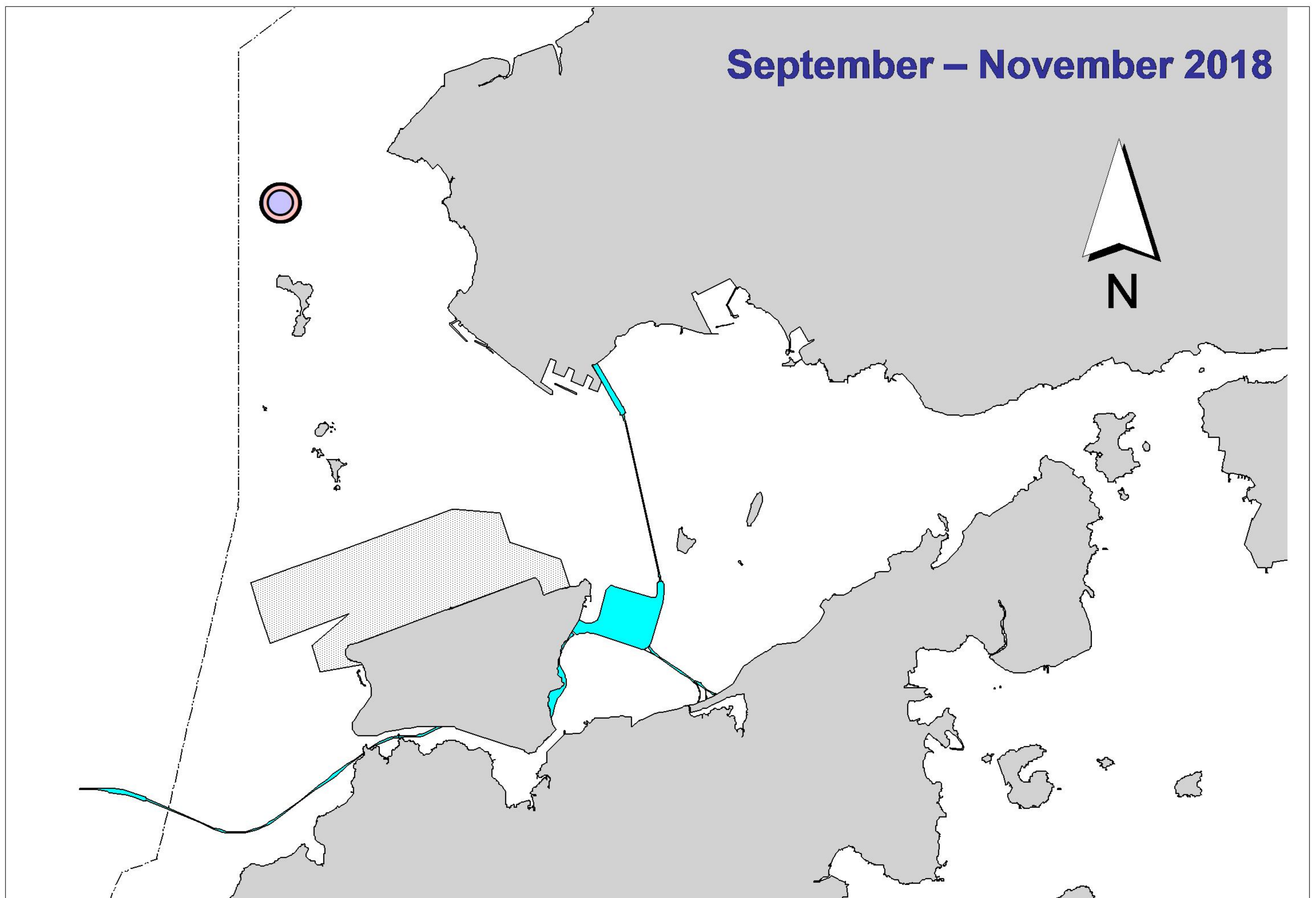


Figure 4. Distribution of Chinese white dolphins engaged in feeding (purple dots), socializing (pink dots) and traveling (green dots) activities during the present impact phase (top) and baseline monitoring surveys (bottom)

## Appendix I. HKBCF/HKLR03 Survey Effort Database in Sep-Nov 2018

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

| DATE      | AREA      | BEAU | EFFORT | SEASON | VESSEL         | TYPE  | P/S |
|-----------|-----------|------|--------|--------|----------------|-------|-----|
| 10-Sep-18 | NW LANTAU | 1    | 7.01   | AUTUMN | STANDARD36826  | HKBCF | P   |
| 10-Sep-18 | NW LANTAU | 2    | 28.97  | AUTUMN | STANDARD36826  | HKBCF | P   |
| 10-Sep-18 | NW LANTAU | 1    | 3.50   | AUTUMN | STANDARD36826  | HKBCF | S   |
| 10-Sep-18 | NW LANTAU | 2    | 9.92   | AUTUMN | STANDARD36826  | HKBCF | S   |
| 10-Sep-18 | NE LANTAU | 1    | 5.90   | AUTUMN | STANDARD36826  | HKBCF | P   |
| 10-Sep-18 | NE LANTAU | 2    | 30.19  | AUTUMN | STANDARD36826  | HKBCF | P   |
| 10-Sep-18 | NE LANTAU | 1    | 1.59   | AUTUMN | STANDARD36826  | HKBCF | S   |
| 10-Sep-18 | NE LANTAU | 2    | 12.32  | AUTUMN | STANDARD36826  | HKBCF | S   |
| 14-Sep-18 | NW LANTAU | 1    | 2.60   | AUTUMN | STANDARD138716 | HKBCF | P   |
| 14-Sep-18 | NW LANTAU | 2    | 21.43  | AUTUMN | STANDARD138716 | HKBCF | P   |
| 14-Sep-18 | NW LANTAU | 2    | 11.97  | AUTUMN | STANDARD138716 | HKBCF | S   |
| 19-Sep-18 | NW LANTAU | 2    | 31.78  | AUTUMN | STANDARD36826  | HKBCF | P   |
| 19-Sep-18 | NW LANTAU | 2    | 9.82   | AUTUMN | STANDARD36826  | HKBCF | S   |
| 19-Sep-18 | NW LANTAU | 3    | 1.20   | AUTUMN | STANDARD36826  | HKBCF | S   |
| 24-Sep-18 | NW LANTAU | 1    | 3.00   | AUTUMN | STANDARD36826  | HKBCF | P   |
| 24-Sep-18 | NW LANTAU | 2    | 19.49  | AUTUMN | STANDARD36826  | HKBCF | P   |
| 24-Sep-18 | NW LANTAU | 3    | 2.90   | AUTUMN | STANDARD36826  | HKBCF | P   |
| 24-Sep-18 | NW LANTAU | 2    | 10.71  | AUTUMN | STANDARD36826  | HKBCF | S   |
| 24-Sep-18 | NE LANTAU | 2    | 24.22  | AUTUMN | STANDARD36826  | HKBCF | P   |
| 24-Sep-18 | NE LANTAU | 3    | 12.02  | AUTUMN | STANDARD36826  | HKBCF | P   |
| 24-Sep-18 | NE LANTAU | 2    | 10.06  | AUTUMN | STANDARD36826  | HKBCF | S   |
| 24-Sep-18 | NE LANTAU | 3    | 1.20   | AUTUMN | STANDARD36826  | HKBCF | S   |
| 4-Oct-18  | NW LANTAU | 2    | 19.20  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 4-Oct-18  | NW LANTAU | 3    | 12.68  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 4-Oct-18  | NW LANTAU | 4    | 0.62   | AUTUMN | STANDARD36826  | HKLR  | P   |
| 4-Oct-18  | NW LANTAU | 2    | 6.10   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 4-Oct-18  | NW LANTAU | 3    | 5.60   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 4-Oct-18  | NE LANTAU | 2    | 19.33  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 4-Oct-18  | NE LANTAU | 3    | 15.44  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 4-Oct-18  | NE LANTAU | 2    | 8.06   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 4-Oct-18  | NE LANTAU | 3    | 5.07   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 11-Oct-18 | NW LANTAU | 2    | 15.31  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 11-Oct-18 | NW LANTAU | 3    | 12.41  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 11-Oct-18 | NW LANTAU | 2    | 4.07   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 11-Oct-18 | NW LANTAU | 3    | 9.41   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 16-Oct-18 | NW LANTAU | 2    | 23.58  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 16-Oct-18 | NW LANTAU | 3    | 5.15   | AUTUMN | STANDARD36826  | HKLR  | P   |
| 16-Oct-18 | NW LANTAU | 2    | 10.36  | AUTUMN | STANDARD36826  | HKLR  | S   |
| 16-Oct-18 | NW LANTAU | 3    | 2.11   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 18-Oct-18 | NW LANTAU | 2    | 32.45  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 18-Oct-18 | NW LANTAU | 2    | 11.05  | AUTUMN | STANDARD36826  | HKLR  | S   |
| 18-Oct-18 | NE LANTAU | 2    | 34.26  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 18-Oct-18 | NE LANTAU | 3    | 2.27   | AUTUMN | STANDARD36826  | HKLR  | P   |
| 18-Oct-18 | NE LANTAU | 2    | 11.07  | AUTUMN | STANDARD36826  | HKLR  | S   |
| 1-Nov-18  | NE LANTAU | 2    | 10.78  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 1-Nov-18  | NE LANTAU | 3    | 19.78  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 1-Nov-18  | NE LANTAU | 4    | 6.85   | AUTUMN | STANDARD36826  | HKLR  | P   |
| 1-Nov-18  | NE LANTAU | 2    | 4.88   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 1-Nov-18  | NE LANTAU | 3    | 7.41   | AUTUMN | STANDARD36826  | HKLR  | S   |
| 6-Nov-18  | NW LANTAU | 2    | 32.12  | AUTUMN | STANDARD36826  | HKLR  | P   |
| 6-Nov-18  | NW LANTAU | 3    | 19.50  | AUTUMN | STANDARD36826  | HKLR  | P   |

## Appendix I. (cont'd)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

| DATE      | AREA      | BEAU | EFFORT | SEASON | VESSEL        | TYPE | P/S |
|-----------|-----------|------|--------|--------|---------------|------|-----|
| 6-Nov-18  | NW LANTAU | 4    | 6.80   | AUTUMN | STANDARD36826 | HKLR | P   |
| 6-Nov-18  | NW LANTAU | 2    | 17.37  | AUTUMN | STANDARD36826 | HKLR | S   |
| 6-Nov-18  | NW LANTAU | 3    | 7.91   | AUTUMN | STANDARD36826 | HKLR | S   |
| 6-Nov-18  | NW LANTAU | 4    | 2.70   | AUTUMN | STANDARD36826 | HKLR | S   |
| 8-Nov-18  | NW LANTAU | 3    | 9.12   | AUTUMN | STANDARD36826 | HKLR | P   |
| 8-Nov-18  | NW LANTAU | 4    | 16.42  | AUTUMN | STANDARD36826 | HKLR | P   |
| 8-Nov-18  | NW LANTAU | 5    | 1.50   | AUTUMN | STANDARD36826 | HKLR | P   |
| 8-Nov-18  | NW LANTAU | 3    | 5.80   | AUTUMN | STANDARD36826 | HKLR | S   |
| 8-Nov-18  | NW LANTAU | 4    | 5.75   | AUTUMN | STANDARD36826 | HKLR | S   |
| 8-Nov-18  | NW LANTAU | 5    | 1.40   | AUTUMN | STANDARD36826 | HKLR | S   |
| 8-Nov-18  | NE LANTAU | 2    | 21.83  | AUTUMN | STANDARD36826 | HKLR | P   |
| 8-Nov-18  | NE LANTAU | 3    | 13.92  | AUTUMN | STANDARD36826 | HKLR | P   |
| 8-Nov-18  | NE LANTAU | 4    | 1.30   | AUTUMN | STANDARD36826 | HKLR | P   |
| 8-Nov-18  | NE LANTAU | 2    | 7.10   | AUTUMN | STANDARD36826 | HKLR | S   |
| 8-Nov-18  | NE LANTAU | 3    | 5.64   | AUTUMN | STANDARD36826 | HKLR | S   |
| 8-Nov-18  | NE LANTAU | 4    | 0.81   | AUTUMN | STANDARD36826 | HKLR | S   |
| 13-Nov-18 | NW LANTAU | 2    | 18.07  | AUTUMN | STANDARD36826 | HKLR | P   |
| 13-Nov-18 | NW LANTAU | 3    | 14.72  | AUTUMN | STANDARD36826 | HKLR | P   |
| 13-Nov-18 | NW LANTAU | 2    | 6.80   | AUTUMN | STANDARD36826 | HKLR | S   |
| 13-Nov-18 | NW LANTAU | 3    | 1.71   | AUTUMN | STANDARD36826 | HKLR | S   |

## Appendix II. HKBCF/HKLR03 Chinese White Dolphin Sighting Database in September-November 2018

(Abberviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; BOAT ASSOC. = Fishing Boat Association; P/S: Sighting Made on Primary/Secondary Lines)

| DATE      | STG # | TIME | HRD SZ | AREA      | BEAU | PSD | EFFORT | TYPE  | NORTHING | EASTING | SEASON | BOAT ASSOC. | P/S |
|-----------|-------|------|--------|-----------|------|-----|--------|-------|----------|---------|--------|-------------|-----|
| 10-Sep-18 | 1     | 1143 | 3      | NW LANTAU | 1    | 195 | ON     | HKBCF | 826872   | 806456  | AUTUMN | NONE        | P   |
| 11-Oct-18 | 1     | 1222 | 4      | NW LANTAU | 3    | 362 | ON     | HKLR  | 826265   | 805415  | AUTUMN | NONE        | S   |
| 18-Oct-18 | 1     | 1232 | 2      | NW LANTAU | 2    | 145 | ON     | HKLR  | 824310   | 808501  | AUTUMN | NONE        | P   |
| 6-Nov-18  | 1     | 1107 | 1      | NW LANTAU | 2    | 364 | ON     | HKLR  | 825486   | 807443  | AUTUMN | NONE        | P   |
| 6-Nov-18  | 2     | 1119 | 2      | NW LANTAU | 2    | 221 | ON     | HKLR  | 827280   | 807456  | AUTUMN | NONE        | P   |
| 6-Nov-18  | 3     | 1202 | 2      | NW LANTAU | 2    | 84  | ON     | HKLR  | 828546   | 805451  | AUTUMN | NONE        | P   |

**Appendix III. Individual dolphins identified during HKBCF/HKLR03 monitoring surveys in September-November 2018**

| <b>ID#</b> | <b>DATE</b> | <b>STG#</b> | <b>TYPE</b> | <b>AREA</b> |
|------------|-------------|-------------|-------------|-------------|
| CH34       | 10/09/18    | 1           | HKBCF       | NW LANTAU   |
| NL46       | 10/09/18    | 1           | HKBCF       | NW LANTAU   |
| NL136      | 10/09/18    | 1           | HKBCF       | NW LANTAU   |
|            | 11/10/18    | 1           | HKLR        | NW LANTAU   |
|            | 18/10/18    | 1           | HKLR        | NW LANTAU   |
| NL182      | 11/10/18    | 1           | HKLR        | NW LANTAU   |
| NL261      | 11/10/18    | 1           | HKLR        | NW LANTAU   |
|            | 06/11/18    | 3           | HKLR        | NW LANTAU   |
| NL272      | 11/10/18    | 1           | HKLR        | NW LANTAU   |
| NL286      | 06/11/18    | 2           | HKLR        | NW LANTAU   |
| NL328      | 18/10/18    | 1           | HKLR        | NW LANTAU   |
|            | 06/11/18    | 3           | HKLR        | NW LANTAU   |



Appendix IV. Eight individual dolphins that were identified during September to November 2018 under the present impact phase monitoring surveys

CH34



NL46



NL136



NL182



Appendix IV. (cont'd)

NL261



NL272



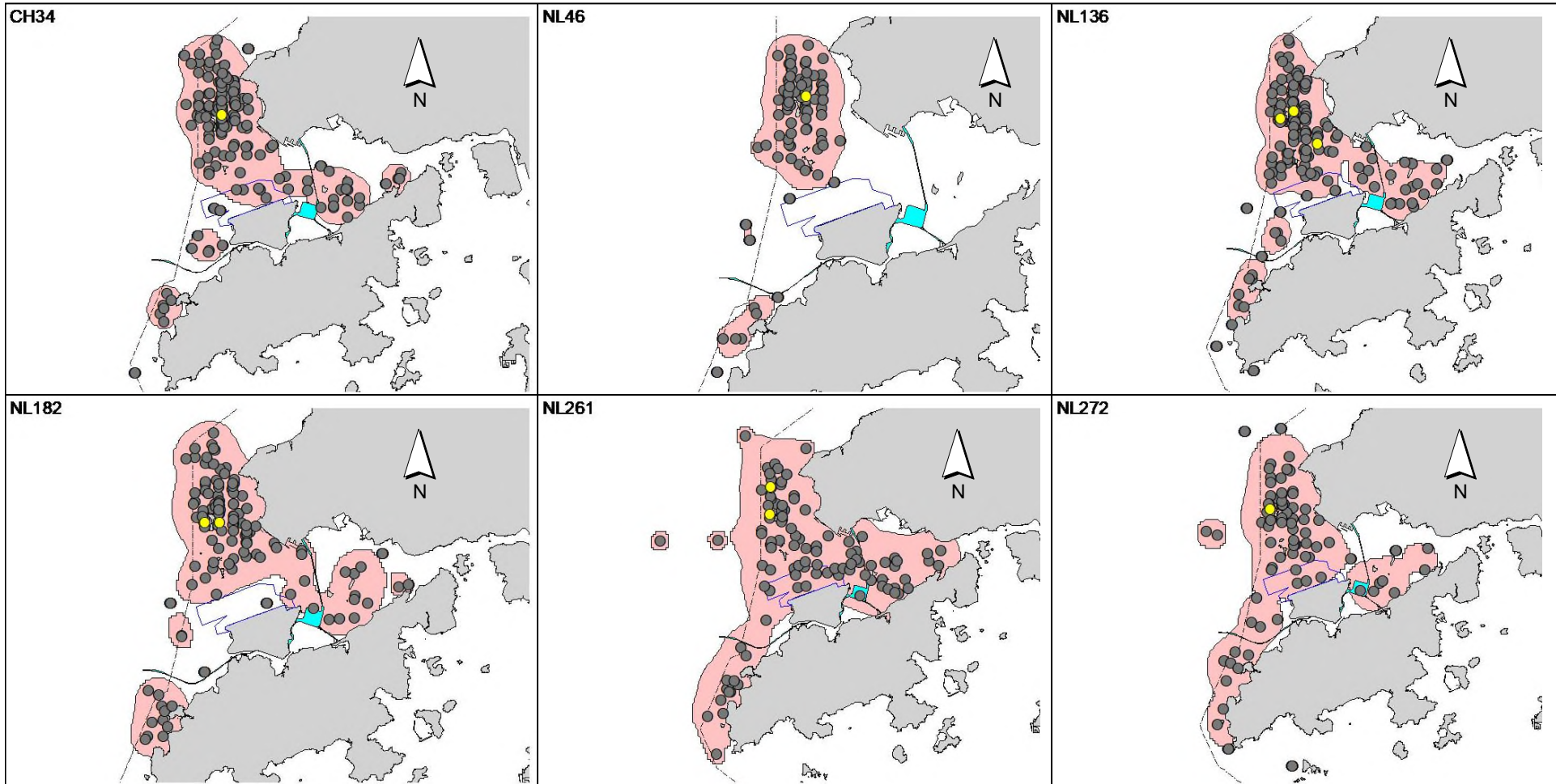
NL286



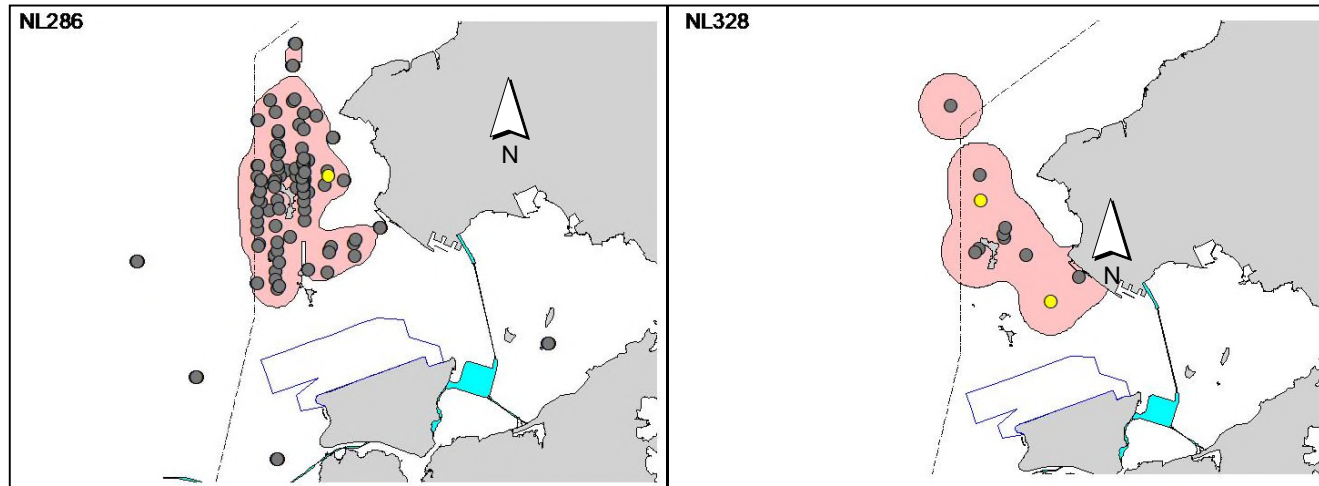
NL328



Appendix V. Ranging patterns (95% kernel ranges) of eight individual dolphins that were sighted during the present impact phase monitoring period from September to November 2018



Appendix V. (cont'd)



# **Appendix K. Incident Report on Action Level or Limit Level Non-compliance**


**Incident Report on Action Level or Limit Level Non-compliance**

| Contract                                                 | Contract No. HY/2013/04<br>HZMB HKBCF – Infrastructure Works Stage II (Southern Portion)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|----------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|--|---------|-----------|-----|-------|-------|---------|-------|-------|-----|-------|-------|-----|-------|-------|---------|-------|-------|---------|-------|-------|----------|-------|-------|----------|-------|-------|------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|-----|-------|-------|-----|-------|-------|----------|-------|-------|-----------|-------|-------|
| Ref. No.                                                 | E093                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Date                                                     | 10 October 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Time (hh:mm)                                             | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Monitoring Location                                      | SR6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Parameter                                                | Water Quality – Suspended Solids (in mg/L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Action Level                                             | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Limit Level                                              | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Measured Level                                           | Action & Limit Level (AL & LL) / Measured Level:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|                                                          | Param.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Unit      | Station | Depth          | Action Level                                                                                              | Limit Level                                                                                                                                   | Measurement at Mid-Ebb Tide | Measurement at Mid-Flood Tide |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|                                                          | SS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | mg/L      | SR6     | Depth Averaged | 23.5 and 120% (i.e. 14.9 for mid-flood) of upstream control station's SS at the same tide of the same day | 34.4 and 130% (i.e. 16.2 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 17.4                        | 29.4                          |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|                                                          | Sampling Time: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Mid-Ebb</th> <th>Mid-Flood</th> </tr> </thead> <tbody> <tr><td>IS5</td><td>12:07</td><td>08:01</td></tr> <tr><td>IS(Mf)6</td><td>12:13</td><td>07:55</td></tr> <tr><td>IS7</td><td>12:20</td><td>07:48</td></tr> <tr><td>IS8</td><td>12:31</td><td>07:31</td></tr> <tr><td>IS(Mf)9</td><td>12:25</td><td>07:37</td></tr> <tr><td>IS10(N)</td><td>12:55</td><td>07:18</td></tr> <tr><td>IS(Mf)11</td><td>13:00</td><td>07:12</td></tr> <tr><td>IS(Mf)16</td><td>12:54</td><td>07:09</td></tr> <tr><td>IS17</td><td>13:01</td><td>07:03</td></tr> <tr><td>SR3(N)</td><td>12:02</td><td>08:07</td></tr> <tr><td>SR4(N)</td><td>12:38</td><td>07:24</td></tr> <tr><td>SR5(N)</td><td>12:50</td><td>07:24</td></tr> <tr><td>SR6</td><td>12:01</td><td>08:20</td></tr> <tr><td>SR7</td><td>13:08</td><td>07:03</td></tr> <tr><td>SR10A(N)</td><td>13:49</td><td>06:12</td></tr> <tr><td>SR10B(N2)</td><td>13:44</td><td>06:20</td></tr> </tbody> </table>         |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  | Mid-Ebb | Mid-Flood | IS5 | 12:07 | 08:01 | IS(Mf)6 | 12:13 | 07:55 | IS7 | 12:20 | 07:48 | IS8 | 12:31 | 07:31 | IS(Mf)9 | 12:25 | 07:37 | IS10(N) | 12:55 | 07:18 | IS(Mf)11 | 13:00 | 07:12 | IS(Mf)16 | 12:54 | 07:09 | IS17 | 13:01 | 07:03 | SR3(N) | 12:02 | 08:07 | SR4(N) | 12:38 | 07:24 | SR5(N) | 12:50 | 07:24 | SR6 | 12:01 | 08:20 | SR7 | 13:08 | 07:03 | SR10A(N) | 13:49 | 06:12 | SR10B(N2) | 13:44 | 06:20 |
|                                                          | Mid-Ebb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mid-Flood |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS5                                                      | 12:07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 08:01     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)6                                                  | 12:13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:55     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS7                                                      | 12:20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:48     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS8                                                      | 12:31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:31     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)9                                                  | 12:25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:37     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS10(N)                                                  | 12:55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:18     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)11                                                 | 13:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:12     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)16                                                 | 12:54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:09     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS17                                                     | 13:01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:03     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR3(N)                                                   | 12:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 08:07     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR4(N)                                                   | 12:38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:24     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR5(N)                                                   | 12:50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:24     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR6                                                      | 12:01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 08:20     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR7                                                      | 13:08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07:03     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR10A(N)                                                 | 13:49                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 06:12     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR10B(N2)                                                | 13:44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 06:20     |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|                                                          | Remarks:<br>Bold means AL exceedance<br>Bold with underline means LL exceedance<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Possible reason for Action or Limit Level Non-compliance | <p>On 10 October 2018, 1 no. AL exceedance of SS at station SR6 was recorded during mid-flood tide.</p> <p><u>Contract No. HY/2013/01</u></p> <p>As confirmed with the RSS and ET of Contract No. HY/2013/01, there were no marine transportation and no marine-based works performed under the Contract after January 2018. No site runoff within the Contract site was observed. All wastewater generated from construction site which potentially contained organic matter was collected by the registered collector. No organic matter discharge/accumulation at active works area was observed on 10 October 2018. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/02</u></p> <p>As confirmed with RSS, marine works were completed on 10 September 2017. ET of Contract No. HY/2013/02 confirmed that no organic matter discharge/accumulation was observed at active works areas on the date of exceedance. Therefore, it is concluded that the exceedances was not related to the Contract.</p> |           |         |                |                                                                                                           |                                                                                                                                               |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |

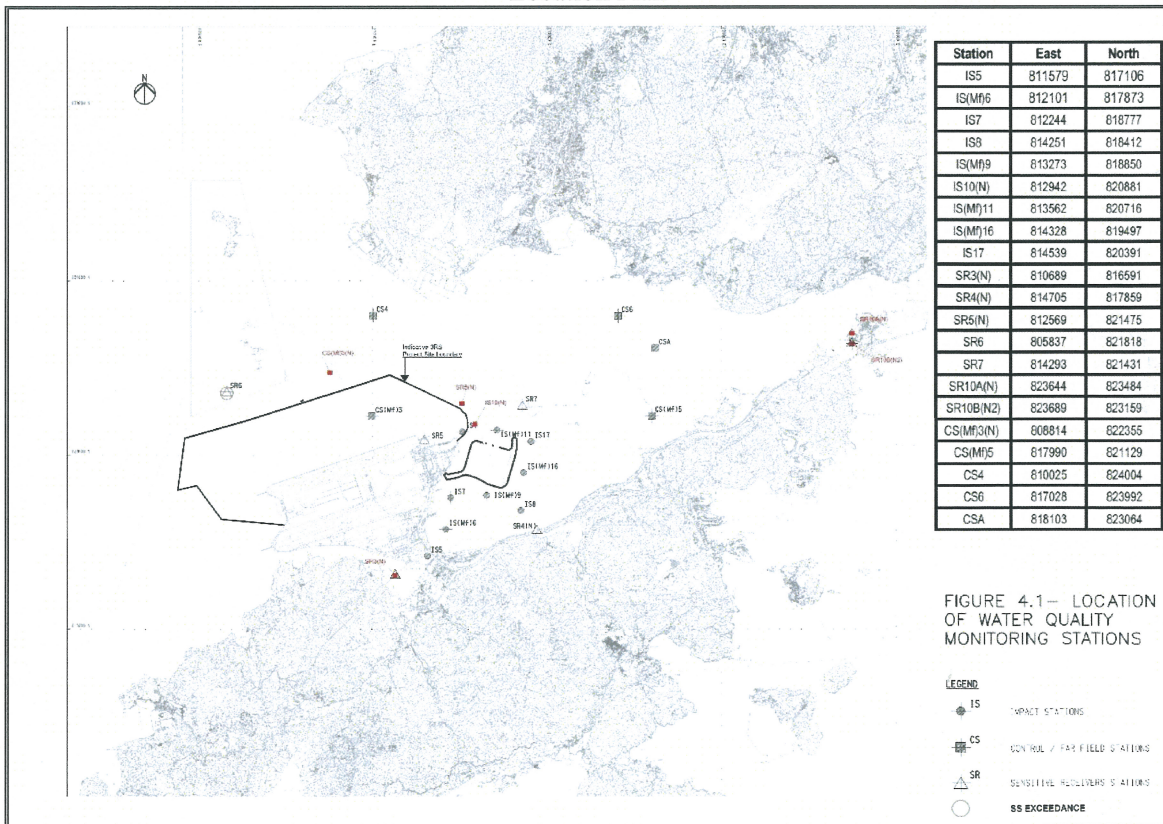
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <p><u>Contract No. HY/2013/03</u></p> <p>During weekly site audit on 4 and 11 October 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. There was no marine transportation on the date of exceedance. As confirmed with the Environmental Officer and operation team of this Contract, no organic matter discharge/accumulation at active works areas was observed on the date of exceedance. The marine-based works in Box Culvert B were completed. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the Contract.</p> <p><u>Contract No. HY/2013/04</u></p> <p>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 on 10 October 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 10 October 2018.</p> <p>HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 10 October 2018 (between 14:40 and 14:50). It was observed that the silt curtain at Box Culvert D was installed properly, however the silt curtain at Box Culvert C was not reinstated. The Contractor was reminded to reinstate the silt curtain at Box Culvert C as soon as possible. There were no other observations in relation to the same shoreline.</p> <p>It was concluded that the exceedance was not due to HY/2013/04.</p> <p><u>Contract No. HY/2014/05</u></p> <p>This Contract did not involve any marine transportation or marine-based works. No site runoff within the Contract site was observed. Therefore, it is concluded that the exceedance was not related to the Contract.</p> |
| <p>Actions taken / to be taken</p> | <p><u>Contract No. HY/2013/01</u></p> <p>Although the exceedance was considered not due to HY/2013/01, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/02</u></p> <p>Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/03</u></p> <p>During weekly site audit on 4 and 11 October 2018, ET of Contract No. HY/2013/03 confirmed that the Contractor had provided workable and effective water quality mitigation measures.</p> <p><u>Contract No. HY/2013/04</u></p> <p>Actions were taken under Event and Action Plan (EAP):</p> <ol style="list-style-type: none"> <li>1. In situ measurement was repeated to confirm findings;</li> <li>2. After considering the above-mentioned investigation results, it appears that it was unlikely that the exceedance was attributed to active construction activities of this Contract;</li> <li>3. IEC, Contractor and ER were informed via email;</li> <li>4. Monitoring data, all plant, equipment and Contractor's working methods were checked;</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <p>5. Since it is considered that the exceedance was unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.</p> <p>However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.</p> <p><u>Contract No. HY/2014/05</u></p> <p>Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> |
| <p>Remarks</p> | <p>ET of HY/2013/04 notified the exceedance as follows:</p> <ul style="list-style-type: none"> <li>• 24 October 2018 (Notification No. 20181010_NOE_r0)</li> <li>• 14 November 2018 (Notification No. 20181010_NOE_r1)</li> </ul>                                                                                                                                                                                                                                                                                                                                      |

(Location Plan – please refer below)

Prepared by: Gary Chow  
 Designation: Environmental Team Leader (Contract No. HY/2013/04)  
 Signature:   
 Date: 14 November 2018

Location Plan





**Incident Report on Action Level or Limit Level Non-compliance**

| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Contract No. HY/2013/04<br>HZMB HKBCF – Infrastructure Works Stage II (Southern Portion)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|----------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|--|---------|-----------|-----|-------|-------|---------|-------|-------|-----|-------|-------|-----|-------|-------|---------|-------|-------|---------|-------|-------|----------|-------|-------|----------|-------|-------|------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|-----|-------|-------|-----|-------|-------|----------|-------|-------|-----------|-------|-------|
| Ref. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | E094                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 24 October 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Time (hh:mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Monitoring Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | IS(Mf)6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Water Quality – Turbidity (in NTU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Action Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Limit Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Measured Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Action & Limit Level (AL & LL) / Measured Level:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Param.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Unit      | Station | Depth          | Action Level                                                                                                               | Limit Level                                                                                                                | Measurement at Mid-Ebb Tide | Measurement at Mid-Flood Tide |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TURB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | NTU       | IS(Mf)6 | Depth Averaged | 27.5 and 120%<br>(i.e. 11.7 for mid-ebb)<br>of upstream control station's<br>turbidity at the same tide of the<br>same day | 47.0 and 130%<br>(i.e. 12.7 for mid-ebb)<br>of upstream control station's<br>turbidity at the same tide of the<br>same day | 29.6                        | 7.2                           |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Sampling Time: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Mid-Ebb</th> <th>Mid-Flood</th> </tr> </thead> <tbody> <tr><td>IS5</td><td>13:26</td><td>17:04</td></tr> <tr><td>IS(Mf)6</td><td>13:19</td><td>17:11</td></tr> <tr><td>IS7</td><td>13:11</td><td>17:19</td></tr> <tr><td>IS8</td><td>12:55</td><td>17:35</td></tr> <tr><td>IS(Mf)9</td><td>13:02</td><td>17:28</td></tr> <tr><td>IS10(N)</td><td>12:38</td><td>18:01</td></tr> <tr><td>IS(Mf)11</td><td>12:32</td><td>18:07</td></tr> <tr><td>IS(Mf)16</td><td>12:37</td><td>17:52</td></tr> <tr><td>IS17</td><td>12:31</td><td>17:58</td></tr> <tr><td>SR3(N)</td><td>13:32</td><td>16:58</td></tr> <tr><td>SR4(N)</td><td>12:51</td><td>17:39</td></tr> <tr><td>SR5(N)</td><td>12:46</td><td>17:54</td></tr> <tr><td>SR6</td><td>13:41</td><td>16:58</td></tr> <tr><td>SR7</td><td>12:24</td><td>18:15</td></tr> <tr><td>SR10A(N)</td><td>11:23</td><td>19:00</td></tr> <tr><td>SR10B(N2)</td><td>11:29</td><td>18:56</td></tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  | Mid-Ebb | Mid-Flood | IS5 | 13:26 | 17:04 | IS(Mf)6 | 13:19 | 17:11 | IS7 | 13:11 | 17:19 | IS8 | 12:55 | 17:35 | IS(Mf)9 | 13:02 | 17:28 | IS10(N) | 12:38 | 18:01 | IS(Mf)11 | 12:32 | 18:07 | IS(Mf)16 | 12:37 | 17:52 | IS17 | 12:31 | 17:58 | SR3(N) | 13:32 | 16:58 | SR4(N) | 12:51 | 17:39 | SR5(N) | 12:46 | 17:54 | SR6 | 13:41 | 16:58 | SR7 | 12:24 | 18:15 | SR10A(N) | 11:23 | 19:00 | SR10B(N2) | 11:29 | 18:56 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Mid-Ebb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Mid-Flood |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13:26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:04     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13:19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:11     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13:11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:19     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 12:55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:35     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:28     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS10(N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 12:38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 18:01     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 12:32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 18:07     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS(Mf)16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 12:37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:52     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| IS17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 12:31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:58     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR3(N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13:32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 16:58     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR4(N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 12:51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:39     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR5(N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 12:46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17:54     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13:41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 16:58     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 12:24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 18:15     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR10A(N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 11:23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 19:00     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| SR10B(N2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 11:29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 18:56     |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Remarks:<br>Bold means AL exceedance<br>Bold with underline means LL exceedance<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |
| Possible reason for Action or Limit Level Non-compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>On 24 October 2018, 1 no. AL exceedance of turbidity at station IS(Mf)6 was recorded during mid-ebb tide.</p> <p><u>Contract No. HY/2013/01</u></p> <p>As confirmed with the RSS and ET of Contract No. HY/2013/01, there were no marine transportation and no marine-based works performed under the Contract after January 2018. No site runoff within the Contract site was observed. All wastewater generated from construction site which potentially contained organic matter was collected by the registered collector. No organic matter discharge/accumulation at active works area was observed on 24 October 2018. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/02</u></p> <p>As confirmed with RSS, marine works were completed on 10 September 2017. ET of Contract No. HY/2013/02 confirmed that no organic matter discharge/accumulation was observed at active works areas on the date of exceedance. Therefore, it is concluded that the exceedances was not related to the Contract.</p> |           |         |                |                                                                                                                            |                                                                                                                            |                             |                               |  |         |           |     |       |       |         |       |       |     |       |       |     |       |       |         |       |       |         |       |       |          |       |       |          |       |       |      |       |       |        |       |       |        |       |       |        |       |       |     |       |       |     |       |       |          |       |       |           |       |       |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <p><u>Contract No. HY/2013/03</u><br/>         During weekly site audits on 18 and 25 October 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. There was no marine transportation on the date of exceedance. As confirmed with the Environmental Officer and operation team of this Contract, no organic matter discharge/accumulation at active works areas was observed on the date of exceedance. The marine-based works in Box Culvert B were completed. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the Contract.</p> <p><u>Contract No. HY/2013/04</u><br/>         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 on 24 October 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 24 October 2018.</p> <p>HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspections on 22 October 2018 (between 14:25 and 14:45) and 31 October 2018 (between 14:55 and 15:15). At both site inspections, it was observed that the silt curtain at Box Culvert D was installed properly, however the silt curtain at Box Culvert C was not reinstated. The Contractor was reminded to reinstate the silt curtain at Box Culvert C as soon as possible. There were no other observations in relation to the same shoreline.</p> <p>It was concluded that the exceedance was not due to HY/2013/04.</p> <p><u>Contract No. HY/2014/05</u><br/>         This Contract did not involve any marine transportation or marine-based works. No site runoff within the Contract site was observed. Therefore, it is concluded that the exceedance was not related to the Contract.</p> |
| <p>Actions taken / to be taken</p> | <p><u>Contract No. HY/2013/01</u><br/>         Although the exceedance was considered not due to HY/2013/01, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/02</u><br/>         Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/03</u><br/>         During weekly site audits on 18 and 25 October 2018, ET of Contract No. HY/2013/03 confirmed that the Contractor had provided workable and effective water quality mitigation measures.</p> <p><u>Contract No. HY/2013/04</u><br/>         Actions were taken under Event and Action Plan (EAP):</p> <ol style="list-style-type: none"> <li>1. In situ measurement was repeated to confirm findings;</li> <li>2. After considering the above-mentioned investigation results, it appears that it was unlikely that the exceedance was attributed to active construction activities of this Contract;</li> <li>3. IEC, Contractor and ER were informed via email;</li> <li>4. Monitoring data, all plant, equipment and Contractor's working methods were</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>checked;</p> <p>5. Since it is considered that the exceedance was unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.</p> <p>However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.</p> <p><u>Contract No. HY/2014/05</u></p> <p>Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> |
| Remarks | <p>ET of HY/2013/04 notified the exceedance as follows:</p> <ul style="list-style-type: none"> <li>• 25 October 2018 (Notification No. 20181024_NOE_r0)</li> <li>• 20 November 2018 (Notification No. 20181024_NOE_r1)</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |

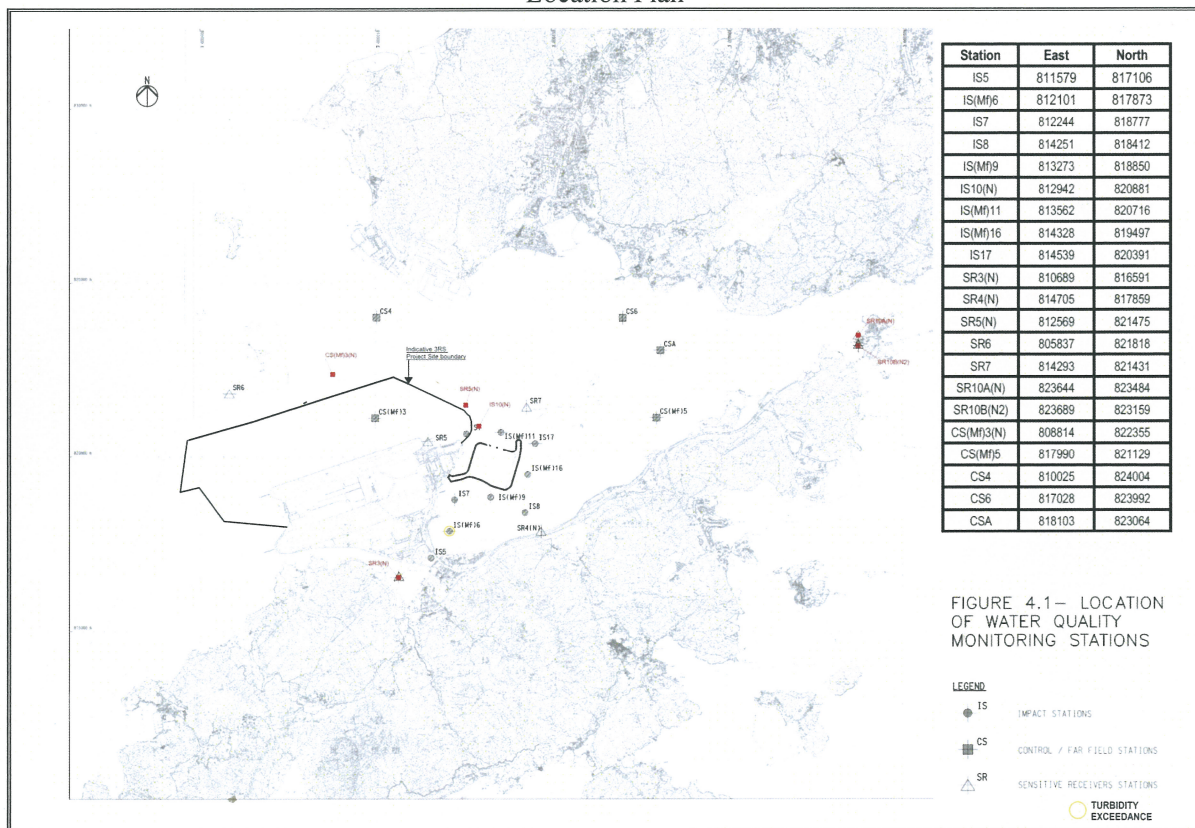
(Location Plan – please refer below)

Prepared by: Gary Chow  
 Designation: Environmental Team Leader (Contract No. HY/2013/04)  
 Signature:



Date: 20 November 2018

Location Plan



**Incident Report on Action Level or Limit Level Non-compliance**

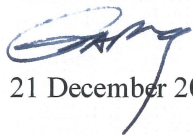
|                                                                   |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|
| Contract                                                          | Contract No. HY/2013/04<br>HZMB HKBCF – Infrastructure Works Stage II (Southern Portion)                                                                                                                                                                                                                                                             |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Ref. No.                                                          | E095                                                                                                                                                                                                                                                                                                                                                 |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Date                                                              | 23 November 2018                                                                                                                                                                                                                                                                                                                                     |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Time (hh:mm)                                                      | See below                                                                                                                                                                                                                                                                                                                                            |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Monitoring Location                                               | IS(10)N, IS(Mf)11, SR7                                                                                                                                                                                                                                                                                                                               |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Parameter                                                         | Water Quality – Suspended Solids (in mg/L)                                                                                                                                                                                                                                                                                                           |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Action Level                                                      | See below                                                                                                                                                                                                                                                                                                                                            |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Limit Level                                                       | See below                                                                                                                                                                                                                                                                                                                                            |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Measured Level                                                    | Action & Limit Level (AL & LL) / Measured Level:                                                                                                                                                                                                                                                                                                     |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | Param.                                                                                                                                                                                                                                                                                                                                               | Unit    | Station       | Depth                                                                                                     | Action Level                                                                                                                                  | Limit Level                                                                                                                                   | Measurement at Mid-Ebb Tide | Measurement at Mid-Flood Tide |
|                                                                   | SS                                                                                                                                                                                                                                                                                                                                                   | mg/L    | IS10(N)       | Depth Average                                                                                             | 23.5 and 120% (i.e. 15.4 for mid-flood) of upstream control station's SS at the same tide of the same day                                     | 34.4 and 130% (i.e. 16.7 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 10.6                        | 25.8                          |
|                                                                   | SS                                                                                                                                                                                                                                                                                                                                                   | mg/L    | IS(Mf)11      | Depth Average                                                                                             | 23.5 and 120% (i.e. 15.4 for mid-flood) of upstream control station's SS at the same tide of the same day                                     | 34.4 and 130% (i.e. 16.7 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 9.5                         | 27.8                          |
| SS                                                                | mg/L                                                                                                                                                                                                                                                                                                                                                 | SR7     | Depth Average | 23.5 and 120% (i.e. 15.4 for mid-flood) of upstream control station's SS at the same tide of the same day | 34.4 and 130% (i.e. 16.7 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 7.0                                                                                                                                           | 25.0                        |                               |
| Sampling Time:                                                    |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   |                                                                                                                                                                                                                                                                                                                                                      | Mid-Ebb | Mid-Flood     |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS5                                                                                                                                                                                                                                                                                                                                                  | 13:29   | 16:46         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS(Mf)6                                                                                                                                                                                                                                                                                                                                              | 13:20   | 16:54         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS7                                                                                                                                                                                                                                                                                                                                                  | 13:14   | 17:01         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS8                                                                                                                                                                                                                                                                                                                                                  | 12:55   | 17:15         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS(Mf)9                                                                                                                                                                                                                                                                                                                                              | 13:05   | 17:08         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS10(N)                                                                                                                                                                                                                                                                                                                                              | 12:10   | 17:41         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS(Mf)11                                                                                                                                                                                                                                                                                                                                             | 12:02   | 17:47         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS(Mf)16                                                                                                                                                                                                                                                                                                                                             | 12:28   | 17:33         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | IS17                                                                                                                                                                                                                                                                                                                                                 | 12:22   | 17:39         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR3(N)                                                                                                                                                                                                                                                                                                                                               | 13:36   | 16:43         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR4(N)                                                                                                                                                                                                                                                                                                                                               | 12:48   | 17:20         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR5(N)                                                                                                                                                                                                                                                                                                                                               | 12:15   | 17:35         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR6                                                                                                                                                                                                                                                                                                                                                  | 13:10   | 16:42         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR7                                                                                                                                                                                                                                                                                                                                                  | 11:51   | 17:56         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR10A(N)                                                                                                                                                                                                                                                                                                                                             | 11:07   | 18:36         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
|                                                                   | SR10B(N2)                                                                                                                                                                                                                                                                                                                                            | 11:19   | 18:40         |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Remarks:                                                          |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Bold means AL exceedance                                          |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| <u>Bold with underline</u> means LL exceedance                    |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4     |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |                                                                                                                                                                                                                                                                                                                                                      |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |
| Possible reason for Action or Limit Level Non-compliance          | <p>On 23 November 2018, 3 no. AL exceedances of suspended solids at stations IS10(N), IS(Mf)11 and SR7 were recorded during mid-flood tide.</p> <p><u>Contract No. HY/2013/01</u></p> <p>As confirmed with the RSS and ET of Contract No. HY/2013/01, there were no marine transportation and no marine-based works performed under the Contract</p> |         |               |                                                                                                           |                                                                                                                                               |                                                                                                                                               |                             |                               |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <p>after January 2018. No site runoff within the Contract site was observed. All wastewater generated from construction site which potentially contained organic matter was collected by the registered collector. No organic matter discharge/accumulation at active works area was observed on the date of exceedance. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/02</u></p> <p>As confirmed with RSS, marine works were completed on 10 September 2017. ET of Contract No. HY/2013/02 confirmed that no organic matter discharge/accumulation was observed at active works areas on the date of exceedance. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/03</u></p> <p>As confirmed with RSS, there were no marine-based works performed under the contract after October 2018. ET of Contract No. HY/2013/03 confirmed that no organic matter discharge/accumulation was observed at the works areas on the date of exceedance. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/04</u></p> <p>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 on 23 November 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 23 November 2018.</p> <p>HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspections on 19 November 2018 (between 14:50 and 15:00) and 28 November 2018 (between 14:20 and 15:00). On 19 November 2018, it was observed that the silt curtain at Box Culvert D was installed properly, however the silt curtain at Box Culvert C was not reinstated. The Contractor was reminded to reinstate the silt curtain at Box Culvert C as soon as possible. Subsequently, the silt curtain at Box Culvert C was removed and the observation was closed on 28 November 2018. There were no other observations (including the appearance of the open waters) in relation to the same shoreline on 19 and 28 November 2018.</p> <p>It was concluded that the exceedances were not due to HY/2013/04.</p> <p><u>Contract No. HY/2014/05</u></p> <p>This Contract did not involve any marine transportation or marine-based works. No site runoff within the Contract site was observed. Therefore, it is concluded that the exceedances were not related to the Contract.</p> |
| <p>Actions taken / to be taken</p> | <p><u>Contract No. HY/2013/01</u></p> <p>Although the exceedances were considered not due to HY/2013/01, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/02</u></p> <p>Although the exceedances were considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/03</u></p> <p>Although the exceedances were considered not due to HY/2013/03, the Contractor is reminded to implement all necessary water quality mitigation</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <p>measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/04</u></p> <p>Actions were taken under Event and Action Plan (EAP):</p> <ol style="list-style-type: none"> <li>1. In situ measurement was repeated to confirm findings;</li> <li>2. After considering the above-mentioned investigation results, it appears that it was unlikely that the exceedance was attributed to active construction activities of this Contract;</li> <li>3. IEC, Contractor and ER were informed via email;</li> <li>4. Monitoring data, all plant, equipment and Contractor's working methods were checked;</li> <li>5. Since it is considered that the exceedance was unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.</li> </ol> <p>However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.</p> <p><u>Contract No. HY/2014/05</u></p> <p>Although the exceedances were considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> |
| <p>Remarks</p> | <p>ET of HY/2013/04 notified the exceedances as follows:</p> <ul style="list-style-type: none"> <li>• 5 December 2018 (Notification No. 20181123_NOE_r0)</li> <li>• 6 December 2018 (Notification No. 20181123_NOE_r1)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

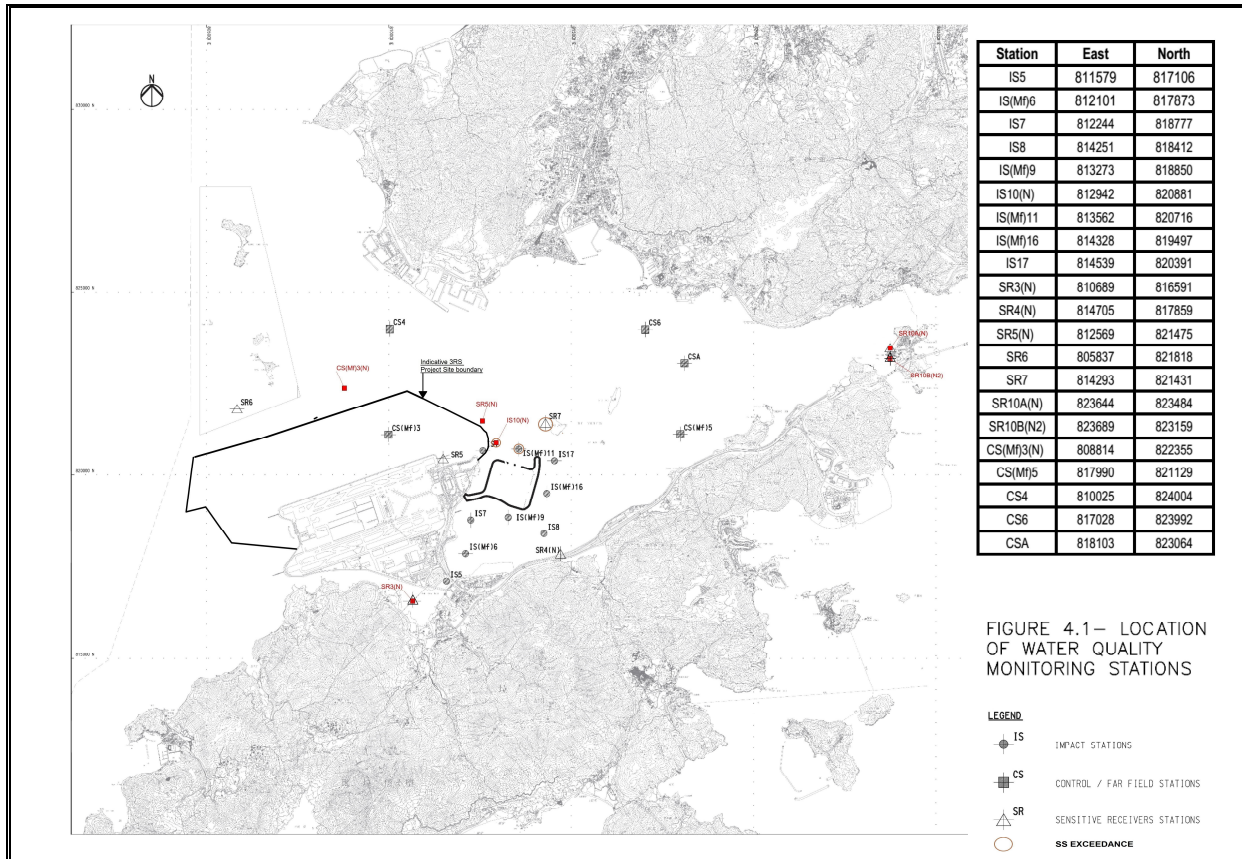
(Location Plan – please refer below)

Prepared by: Gary Chow  
 Designation: Environmental Team Leader (Contract No. HY/2013/04)  
 Signature:



Date: 21 December 2018

Location Plan



**Incident Report on Action Level or Limit Level Non-compliance**

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|---------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|
| Contract                                                          | Contract No. HY/2013/04<br>HZMB HKBCF – Infrastructure Works Stage II (Southern Portion)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Ref. No.                                                          | E096                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Date                                                              | 26 November 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Time (hh:mm)                                                      | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Monitoring Location                                               | SR10A(N), SR10B(N2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Parameter                                                         | Water Quality – Suspended Solids (in mg/L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Action Level                                                      | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Limit Level                                                       | See below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Measured Level                                                    | Action & Limit Level (AL & LL) / Measured Level:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
|                                                                   | Param.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Unit    | Station   | Depth         | Action Level                                                                                              | Limit Level                                                                                                                                   | Measurement at Mid-Ebb Tide | Measurement at Mid-Flood Tide |
|                                                                   | SS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/L    | SR10A(N)  | Depth Average | 23.5 and 120% (i.e. 16.8 for mid-flood) of upstream control station's SS at the same tide of the same day | 34.4 and 130% (i.e. 18.2 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 9.6                         | 24.7                          |
|                                                                   | SS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/L    | SR10B(N2) | Depth Average | 23.5 and 120% (i.e. 16.8 for mid-flood) of upstream control station's SS at the same tide of the same day | 34.4 and 130% (i.e. 18.2 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 10.5                        | 23.7                          |
| Sampling Time:                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Mid-Ebb | Mid-Flood |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS5                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:38   | 10:16     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS(Mf)6                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:45   | 10:11     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS7                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:51   | 10:02     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS8                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:06   | 09:48     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS(Mf)9                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:59   | 09:56     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS10(N)                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:31   | 09:30     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS(Mf)11                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:39   | 09:22     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS(Mf)16                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:31   | 09:30     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| IS17                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:40   | 09:23     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR3(N)                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:30   | 10:22     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR4(N)                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:14   | 09:43     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR5(N)                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:19   | 09:36     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR6                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:30   | 10:27     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR7                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15:07   | 09:15     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR10A(N)                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15:39   | 08:29     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| SR10B(N2)                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15:32   | 08:40     |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Remarks:                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Bold means AL exceedance                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| <u>Bold with underline</u> means LL exceedance                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |
| Possible reason for Action or Limit Level Non-compliance          | <p>On 26 November 2018, 2 no. AL exceedances of suspended solids at stations SR10A(N) and SR10B(N2) were recorded during mid-flood tide.</p> <p><u>Contract No. HY/2013/01</u></p> <p>As confirmed with the RSS and ET of Contract No. HY/2013/01, there were no marine transportation and no marine-based works performed under the Contract after January 2018. No site runoff within the Contract site was observed. All wastewater generated from construction site which potentially contained organic matter was collected by the registered collector. No organic matter discharge/accumulation at active works area was observed on the date of exceedance. Therefore, it is concluded that the exceedances were not related to the Contract.</p> |         |           |               |                                                                                                           |                                                                                                                                               |                             |                               |



|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <p><u>Contract No. HY/2013/02</u><br/>         As confirmed with RSS, marine works were completed on 10 September 2017. ET of Contract No. HY/2013/02 confirmed that no organic matter discharge/accumulation was observed at active works areas on the date of exceedance. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/03</u><br/>         As confirmed with RSS, there were no marine-based works performed under the contract after October 2018. ET of Contract No. HY/2013/03 confirmed that no organic matter discharge/accumulation was observed at the works areas on the date of exceedance. Therefore, it is concluded that the exceedances were not related to the Contract.</p> <p><u>Contract No. HY/2013/04</u><br/>         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 on 26 November 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 26 November 2018.<br/>         HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspections on 19 November 2018 (between 14:50 and 15:00) and 28 November 2018 (between 14:20 and 15:00). On 19 November 2018, it was observed that the silt curtain at Box Culvert D was installed properly, however the silt curtain at Box Culvert C was not reinstated. The Contractor was reminded to reinstate the silt curtain at Box Culvert C as soon as possible. Subsequently, the silt curtain at Box Culvert C was removed and the observation was closed on 28 November 2018. There were no other observations (including the appearance of the open waters) in relation to the same shoreline on 19 and 28 November 2018.<br/>         It was concluded that the exceedances were not due to HY/2013/04.</p> <p><u>Contract No. HY/2014/05</u><br/>         This Contract did not involve any marine transportation or marine-based works. No site runoff within the Contract site was observed. Therefore, it is concluded that the exceedances were not related to the Contract.</p> |
| <p>Actions taken / to be taken</p> | <p><u>Contract No. HY/2013/01</u><br/>         Although the exceedances were considered not due to HY/2013/01, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/02</u><br/>         Although the exceedances were considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/03</u><br/>         Although the exceedances were considered not due to HY/2013/03, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> <p><u>Contract No. HY/2013/04</u><br/>         Actions were taken under Event and Action Plan (EAP):<br/>         1. In situ measurement was repeated to confirm findings;<br/>         2. After considering the above-mentioned investigation results, it appears that it</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>was unlikely that the exceedance was attributed to active construction activities of this Contract;</p> <p>3. IEC, Contractor and ER were informed via email;</p> <p>4. Monitoring data, all plant, equipment and Contractor's working methods were checked;</p> <p>5. Since it is considered that the exceedance was unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.</p> <p>However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.</p> <p><u>Contract No. HY/2014/05</u></p> <p>Although the exceedances were considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&amp;A Manual.</p> |
| Remarks | <p>ET of HY/2013/04 notified the exceedances as follows:</p> <ul style="list-style-type: none"><li>• 6 December 2018 (Notification No. 20181126_NOE_r0 &amp; 20181126_NOE_r1)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

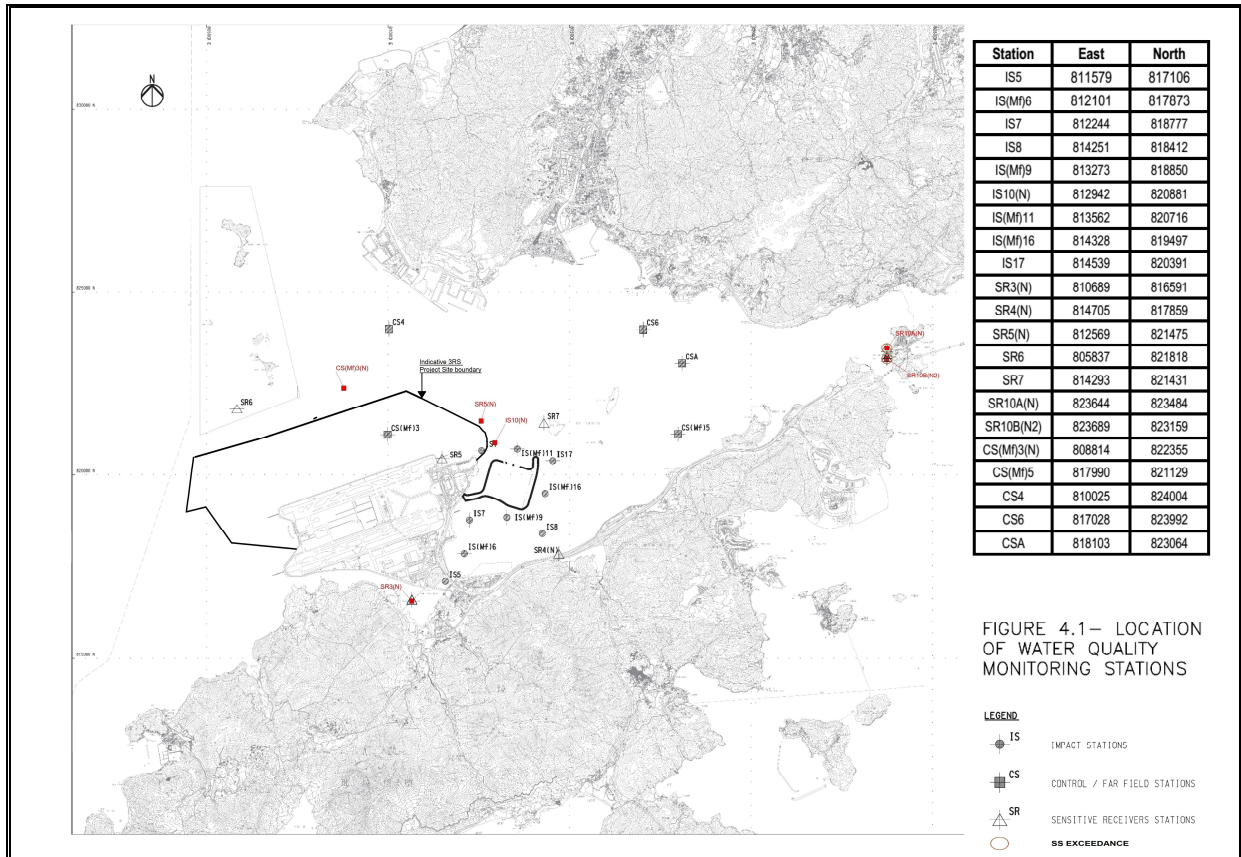
(Location Plan – please refer below)

Prepared by: Gary Chow  
Designation: Environmental Team Leader (Contract No. HY/2013/04)  
Signature:



Date: 21 December 2018

Location Plan



**Incident Report on Action Level or Limit Level Non-compliance**

|                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------|
| Contract                                                                                                                                                                                                                                                                                                                                                                                                                         | Contract No. HY/2013/04<br>HZMB HKBCF – Infrastructure Works Stage II (Southern Portion)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                                                                   |
| Ref. No.                                                                                                                                                                                                                                                                                                                                                                                                                         | E100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                                                                   |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                             | September – November 2018 (referred to as the “reporting period”)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        |                                                                   |
| Time (hh:mm)                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |                                                                   |
| Monitoring Location                                                                                                                                                                                                                                                                                                                                                                                                              | Northeast Lantau (NEL) & Northwest Lantau (NWL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |                                                                   |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                        | Ecology – Chinese White Dolphin (CWD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                        |                                                                   |
| Action Level                                                                                                                                                                                                                                                                                                                                                                                                                     | The Action and Limit Levels of CWD monitoring extracted from the enhanced Event and Action Plan for CWD Monitoring (as accepted by EPD on 7 May 2013) are reproduced below.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                                                                   |
| Limit Level                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |                                                                   |
| Measured Level                                                                                                                                                                                                                                                                                                                                                                                                                   | Action & Limit Levels (AL & LL):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        | Monitoring Results:                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | North Lantau Social Cluster                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        | for the Monitoring Period                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Action Level (AL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Limit Level (LL)       |                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | NEL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | STG < 4.2 & ANI < 15.5 | NEL: (STG < 2.4 & ANI < 8.9) and<br>NWL: (STG < 3.9 & ANI < 17.9) |
| NWL                                                                                                                                                                                                                                                                                                                                                                                                                              | STG < 6.9 & ANI < 31.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        | STG = 1.5 ± 2.25 & ANI = 3.0 ± 3.89                               |
| Remarks: 1. STG means quarterly encounter rate of number of dolphin sightings<br>2. ANI means quarterly encounter rate of total number of dolphins<br>3. For North Lantau Social Cluster, AL will be triggered if <u>either NEL or NWL</u> falls below the criteria; LL will be triggered if <u>both NEL and NWL</u> fall below the criteria<br>4. Bold means AL exceedance<br>5. <u>Bold with underline</u> means LL exceedance |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |                                                                   |
| Possible reason for Action or Limit Level Non-compliance                                                                                                                                                                                                                                                                                                                                                                         | <p><b>(a) Causes of Exceedance</b></p> <ul style="list-style-type: none"> <li>• During CWD monitoring in the reporting period, no adverse impact from the activities of HZMB HKBCF project on dolphin was noticeable from general observations.</li> <li>• After review of all available and relevant data, including the raw data and analyses of other parameters included in the EM&amp;A, no significant variation is detected in key environmental parameters.</li> <li>• As confirmed with Engineer’s Representative, there were no marine transportation and no marine-based works performed under Contract Nos. HY/2013/01, HY/2013/02 and HY/2013/03 in September–November 2018.</li> <li>• Also, 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 in September–November 2018. Moreover, the localised silt curtain at Box Culvert C under HY/2013/04 were removed on 17 November 2018.</li> <li>• Current mitigation measures were being upheld. Dolphin Watching Plans under Contract Nos. HY/2013/01 and HY/2013/04 were implemented in September–November 2018. There was no failure or reduction of dolphin-specific mitigation measures.</li> <li>• It was concluded that the HZMB construction work is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to individual HZMB contracts and processes cannot be separated from the other activities within the dolphin habitat.</li> </ul> |                        |                                                                   |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Actions taken / to be taken</p> | <p><b>(b) Action required under the action plan</b><br/>         Please refer to the corresponding Event and Action Plan</p> <p><b>(c) Action taken under the action plan</b></p> <p><b>1) Statistical data analysis has been repeated to confirm findings</b><br/>         It is noted that monitoring data collected in September 2018 through HZMB HKBCF Contract No. HY/2013/01 and in October and November 2018 through HZMB HLKR Contract No. HY/2011/03.<br/>         A two-way ANOVA with repeated measures and unequal sample size was conducted to examine whether there were any significant differences in the average encounter rates between the baseline and impact monitoring periods. The two variables that were examined included the two periods (baseline and impact phases) and two locations (NEL and NWL).<br/>         For the comparison between the baseline period and the present quarter, the p-values for the differences in average dolphin encounter rates of STG and ANI were 0.0029 and 0.0146 respectively. If the alpha value is set at 0.05, significant differences were detected between the baseline and present quarter in both the average dolphin encounter rates of STG and ANI.</p> <p><b>2) All available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&amp;A have been reviewed</b><br/>         The AFCD monitoring data during September to November 2018 has been reviewed by the dolphin specialist. During the same quarter, no dolphin was sighted from 172.60 km of survey effort on primary lines in NEL, while nine groups of 22 dolphins were sighted from 216.88 km of survey effort on primary lines in NWL. This review has confirmed that the low occurrence of dolphins reported by the monitoring surveys in autumn 2018 in NEL and NWL survey area is accurate.<br/>         Furthermore, for water quality monitoring during this reporting period, the following exceedances were recorded and investigated:</p> <ul style="list-style-type: none"> <li>• During September 2018, 184 exceedances of water quality (consisting of 153 Action Level and 29 Limit Level exceedances of dissolved oxygen and two Action Level exceedances of suspended solids) were recorded. <b>Following investigations, it was concluded that the exceedances were not related to the HZMB HKBCF project.</b></li> <li>• During October 2018, two exceedances of water quality (consisting of one Action Level exceedance of suspended solids and one Action Level exceedance of turbidity) were recorded. <b>Following investigations, it was concluded that the exceedances were not related to the HZMB HKBCF project.</b></li> <li>• During November 2018, five exceedances of water quality (all Action Level exceedances of suspended solids) were recorded. <b>Following investigations, it was concluded that the exceedances were not related to the HZMB HKBCF project.</b></li> </ul> |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**3) Identification of source of impact was carried out**

During this reporting period of dolphin monitoring, no adverse impact on dolphin from the works activities of HZMB HKBCF project was noticeable from general observations. Nevertheless, dolphin mitigation measures were being upheld and the Dolphin Watching Plan was implemented from the start of the works of the Project.

It is also noted that another ongoing project has expanded extensively in scale and now occupies considerable areas of NWL; it has prevented the successful completion of some of the transect lines and is in addition to the existing pressures the dolphins faced in the Lantau habitat before the HZMB development started (e.g. boat traffic, habitat degradation, pollution, competition with fisheries). The same project has already been noted as influencing a large part of NWL, which dolphins seem to have entirely vacated.

Investigation reports into previous dolphin monitoring exceedances prepared by the ET for Contract No. HY/2010/02 had concluded that there were ongoing construction works, both Project related and not, which were known to impact dolphins. While no adverse impact was observed from HZMB HKBCF activities on dolphins during this reporting period, the long-term impacts of these works cannot be assessed although expanding the scope of monitoring areas will provide better data on impacts outside the NEL and NWL zones.

**4) The IEC, ER and Contractor have been informed of findings**

ET of HY/2013/04 notified the exceedance as follows:

- 18 April 2019 (Notification No. 201809-201811D\_NOE)
- 20 May 2019 (Notification No. 201809-201811D\_NOE\_r1)

**5) Monitoring data have been checked**

See Point (2) above.

**6) Repeated review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary**

Site inspection of the silt curtain integrity was conducted during weekly site inspection. The appropriate mitigation monitoring was in place depending on site activities (i.e., Dolphin Exclusion Zone (DEZ)/Dolphin Watching Plan (DWP) for silt curtain deployment and all other Project activities, respectively).

After investigation, there was no evidence that indicated that the reduced number of dolphins in NWL and NEL was related solely to Project works. It was also concluded that the contribution of impacts due to the HZMB works as a whole (or individual contracts) cannot be quantified nor separate from the other stress factors.

**(d) ET's conclusions and recommendations for mitigation**

Current mitigation measures for CWD were implemented fully, and the Contractor was reminded to consistently implement existing mitigation measures.

Investigation reports into previous dolphin monitoring exceedances prepared by the ET for Contract No. HY/2010/02 have noted that the current monitoring works

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>under the EM&amp;A programmes have already provided a high level of monitoring effort, that additional monitoring in the monitoring areas was not considered necessary, and that existing data can be reviewed and alternative analytical methods can be explored to determine any new insight to the dolphin distribution pattern.</p> <p><b>(e) Contractor’s actions to implement the mitigation</b></p> <ul style="list-style-type: none"> <li>• Although this exceedance was considered not solely caused by HZMB HKBCF Project, the Contractor is reminded to fully implement all relevant mitigation measures identified in the EM&amp;A Manual.</li> <li>• It was recommended that the marine works of HZMB projects should be accelerated and completed as soon as possible so as to reduce the overall duration of impacts and allow the dolphin population to recover as early as possible.</li> </ul> |
| Remarks |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

(Location Plan – please refer below)

Prepared by: Gary Chow  
 Designation: Environmental Team Leader (Contract No. HY/2013/04)  
 Signature:



Date: 19 June 2019

Location Plan

