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Wan Chai, Hong Kong

Attn:
Mr. Raymond Dai - Independent Environmental Checker

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

Our Reference
JFP/GC/bw/T355861/02/
02/L074

Monthly EM&A Report for May 2017

20/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong
Kowloon
Hong Kong

15 June 2017

By Email

Dear Sir,

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mottmac.hk

In accordance with Condition 5.4 of the Environmental Permit (EP-353/2009/K) covering the captioned contract, we are pleased to submit the certified Monthly EM&A Report for May 2017 for your verification.

Yours faithfully
For MOTT MACDONALD HONG KONG LIMITED



Gary Chow
Environmental Team Leader

Encl.

cc.
AECOM – Mr. Alfred Cheng (By Email)
China State Construction Engineering (Hong Kong) Ltd. – Mr. Jason K F Chung
(By Email)

15 June 2017

By Fax (3468 2076) and By Post

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

Attention: Mr. Alfred Cheng

Dear Sir,

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

**Contract No. HY/2013/04 – HZMB HKBCF – Infrastructure Works Stage II
(Southern Portion)
Monthly Environmental Monitoring & Audit Report for May 2017**

Reference is made to the Environmental Team's submission of the Monthly Environmental Monitoring & Audit Report for May 2017 certified by the ET Leader (ET's ref.: "JFP/GC/bw/T355861/02/02/L074" dated 15 June 2017) and provided to us via e-mail on 15 June 2017.

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

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

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

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





Raymond Dai
Independent Environmental Checker

| | | | |
|------|-------|-----------------|---------------------|
| c.c. | HyD | Mr. Vico Cheung | (By Fax: 3188 6614) |
| | HyD | Mr. Horace Hong | (By Fax: 3188 6614) |
| | MMHK | Mr. Gary Chow | (By Fax: 2827 1823) |
| | CSCCE | Mr. Eddie Tang | (By Fax: 2459 4336) |

Internal: DY, YH, ENPO Site

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Contract No. HY/2013/04 HZMB HKBCF –
Infrastructure Works Stage II (Southern Portion)
Monthly EM&A Report for May 2017

June 2017

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Executive summary

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

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

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

This is the 23rd Monthly EM&A Report for the Contract which summaries findings of the EM&A works during the reporting period from 1 to 31 May 2017 (the “reporting period”).

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

The dates of site inspection during the reporting period are listed below:

- Environmental Site Inspection: 4, 10, 17, 22 and 31 May 2017

Breaches of Action and Limit Levels

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

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

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

Complaint Log

There were no complaints received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

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

Reporting Changes

On 15 May 2017, IEC/ENPO notified ET of changes to the EM&A Programme regarding some water quality monitoring stations and vessel-based transect lines for dolphin monitoring being conducted by Contract No. HY/2010/02. These changes were certified by the ETL of Contract No. HY/2010/02 and verified by the IEC on 24 March 2017, and approved by EPD on 12 May 2017. The changes are summarised in **Table ES.1** and **Table ES.2** below.

Table ES.1: Changes to Impact Water Quality Monitoring Stations (with effect from 15 May 2017)

| Station | Description | East | North |
|--------------------|--|---------------|---------------|
| IS10* | Impact Station (Close to HKBCF construction site) | 812577 | 820670 |
| IS10(N)# | Impact Station (Close to HKBCF construction site) | 812942 | 820881 |
| SR5* | Sensitive receivers (Artificial Reef in NE Airport) | 811489 | 820455 |
| SR5(N)# | Sensitive receivers (Artificial Reef in NE Airport) | 812569 | 821475 |
| CS(Mf)3* | Control Station | 809989 | 821117 |
| CS(Mf)3(N)# | Control Station | 808814 | 822355 |

Remark: Three monitoring stations, namely IS10, SR5 and CS(Mf)3 (marked *), were replaced by IS10(N), SR5(N) and CS(Mf)3(N) respectively (marked #, shown in **bold red font**).

Table ES.2: New Coordinates of Vessel-based Transect Lines (with effect from 15 May 2017)

| Transect | HK Grid System | |
|----------|----------------|---------------|
| | X | Y |
| 2 | 805476 | 820800 |
| | 805476 | 826654 |
| 3 | 806464 | 821150 |
| | 806464 | 822911 |
| 4 | 807518 | 821500 |
| | 807518 | 829230 |
| 5 | 808504 | 821850 |
| | 808504 | 828602 |
| 6 | 809490 | 822150 |
| | 809490 | 825352 |
| 7 | 810499 | 822000 |
| | 810499 | 824613 |
| 24 | 805476 | 815900 |
| | 805476 | 819100 |

Remark: New coordinates shown in **bold red font**.

Future Key Issues

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

- Pile cap, pier column, retaining wall, pump house, segment erection, segment delivery (marine-based), excavation with road and drainage works, marine-based works for the construction of box culverts.
- Generation of excavated marine sediment and/or transport to HKBCF Contract No. HY/2013/03 (if required).

1 Introduction

1.1 Background

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

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

This is the 23rd Monthly EM&A Report summarising the findings of EM&A activities conducted under the Contract from 1 to 31 May 2017 (the “reporting period”) and is submitted to fulfil Condition 5.4 of the EP.

1.2 Project Description

The Proposed works under this Contract comprise the following:

- Construction of vehicular bridge and at-grade roads at the southern portion of Hong Kong Boundary Crossing Facilities;
- Construction of associated street lighting, street furniture, road marking, road signage, box culverts and outfalls, drainage, sewerage, fresh water and flushing water supply, irrigation, landscape, electrical and mechanical (E&M), utilities and services works;
- Provisioning of civil engineering works and power supply for Traffic Control and Surveillance System (TCSS); and
- Other works in accordance with the Contract.

1.3 Project Organisation

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.3**.

Table 1.3: Contact Information of Key Personnel

| Party | Position | Name | Telephone | Fax |
|--|--|--------------|-----------|-----------|
| Engineer or Engineer's Representative (AECOM Asia Co. Ltd.) | Chief Resident Engineer | Alfred Cheng | 3958 7471 | 3468 2076 |
| Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited) | Environmental Project Office Leader | Y H Hui | 3465 2888 | 3465 2899 |
| | Independent Environmental Checker | Raymond Dai | 3465 2888 | 3465 2899 |
| | Environmental Site Supervisor | Ray Yan | 5181 8165 | 3465 2899 |
| Contractor (China State Construction Engineering (Hong Kong) Limited) | Site Agent | Eddie Tang | 9863 7686 | 2459 4336 |
| | Environmental Officer | Jason Chung | 9127 8369 | 2459 4336 |
| Environmental Team (Mott MacDonald Hong Kong Limited) | Environmental Team Leader | Gary Chow | 2828 5874 | 2827 1823 |
| 24-hour Complaint Hotline | - | - | 5236 7111 | - |

1.4 Construction Programme

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

1.5 Construction Works undertaken during the Reporting Period

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

- Box Culvert D: Bay 3 Base slab completed, Bay 4 Wall + roof slab completed
- Box Culvert C: Bay 5 Base slab completed
- Pile Cap: 4 completed
- Pier Column; 6 completed
- Segment Erection; 62 completed
- Segment Delivery: 134 pcs (marine-based)
- No generation of excavated marine sediment

2 Air Quality Monitoring

2.1 Monitoring Locations

The air quality monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract No. HY/2010/02 and HY/2011/03.

Figure 1 shows the locations of air monitoring stations.

Table 2.1: Construction Dust Monitoring Locations

| Identification No. | Location Description |
|---------------------|---------------------------------|
| AMS6 ⁽¹⁾ | Dragonair/CNAC (Group) Building |
| AMS7 ⁽¹⁾ | Hong Kong SkyCity Marriot Hotel |

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

2.2 Monitoring Requirements

The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology and monitoring schedule are detailed in the monthly EM&A Reports prepared for Contract Nos. HY/2010/02 and HY/2011/03.

The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.2** and **Table 2.3** respectively.

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

| Monitoring Station | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|---|--|---------------------------------------|
| AMS6 – Dragonair / SNAC (Group) Building (HKIA) | 360 | 500 |
| AMS7 – Hong Kong SkyCity Marriot Hotel | 370 | 500 |

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

| Monitoring Station | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|---|--|---------------------------------------|
| AMS6 – Dragonair / SNAC (Group) Building (HKIA) | 173 | 260 |
| AMS7 – Hong Kong SkyCity Marriot Hotel | 183 | 260 |

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

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

2.3 Monitoring Results

The monitoring results for AMS6 and AMS7 are reported in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2010/02 respectively.

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

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

3 Noise Monitoring

3.1 Monitoring Locations

The noise monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works”. The ET of the Contract or another ET of the HZMB project is required to conduct noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2010/02. **Figure 2** shows the locations of noise monitoring stations.

Table 3.1: Construction Noise Monitoring Locations

| Identification No. | Location Description |
|--------------------------|---|
| NMS2 ⁽¹⁾ | Seaview Crescent |
| NMS3B ^{(1) (2)} | Site Boundary of Site Office Area at Works Area WA2 |

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

3.2 Monitoring Requirements

The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology and monitoring schedule are detailed in the monthly EM&A Reports prepared for Contract No. HY/2010/02.

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

Table 3.2: Action and Limit Level for Construction Noise

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

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

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

3.3 Monitoring Results

The monitoring results for NMS2 and NMS3B are reported in the monthly EM&A Reports prepared for Contract No. HY/2010/02. No noise exceedances were recorded at stations NMS2 and NMS3B by the ET of Contract No. HY/2010/02 during the reporting period.

4 Water Quality Monitoring

4.1 Monitoring Locations

The water monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works”. A total of twenty-one stations (nine Impact Stations, seven Sensitive Receiver Stations and five Control/Far Field Stations) are covered by the current EM&A programme. The ET of the Contract or another ET of the HZMB project is required to conduct water quality monitoring at these stations as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2010/02. **Table 4.1** and **Figure 3** shows the locations of water quality monitoring stations.

Table 4.1: Impact Water Quality Monitoring Stations

| Station | Description | East | North |
|--------------------|--|---------------|---------------|
| IS5 | Impact Station (Close to HKBCF construction site) | 811579 | 817106 |
| IS(Mf)6 | Impact Station (Close to HKBCF construction site) | 812101 | 817873 |
| IS7 | Impact Station (Close to HKBCF construction site) | 812244 | 818777 |
| IS8 | Impact Station (Close to HKBCF construction site) | 814251 | 818412 |
| IS(Mf)9 | Impact Station (Close to HKBCF construction site) | 813273 | 818850 |
| IS10* | Impact Station (Close to HKBCF construction site) | 812577 | 820670 |
| IS10(N)# | Impact Station (Close to HKBCF construction site) | 812942 | 820881 |
| IS(Mf)11 | Impact Station (Close to HKBCF construction site) | 813562 | 820716 |
| IS(Mf)16 | Impact Station (Close to HKBCF construction site) | 814328 | 819497 |
| IS17 | Impact Station (Close to HKBCF construction site) | 814539 | 820391 |
| SR3 | Sensitive receivers (San Tau SSSI) | 810525 | 816456 |
| SR4(N) | Sensitive receivers (Tai Ho) | 814705 | 817859 |
| SR5* | Sensitive receivers (Artificial Reef in NE Airport) | 811489 | 820455 |
| 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 | Sensitive receivers (Ma Wan FCZ) 1 | 823741 | 823495 |
| SR10B(N) | Sensitive receivers (Ma Wan FCZ) 2 | 823683 | 823187 |
| CS(Mf)3* | Control Station | 809989 | 821117 |
| 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 |

Remark: On 15 May 2017, IEC/ENPO notified ET of changes to the EM&A Programme regarding some water quality monitoring stations being conducted by Contract No. HY/2010/02. These changes were certified by the ETL of Contract No. HY/2010/02 and verified by the IEC on 24 March 2017, and approved by EPD on 12 May 2017. Three monitoring stations, namely IS10, SR5 and CS(Mf)3 (marked *), were replaced by IS10(N), SR5(N) and CS(Mf)3(N) respectively (marked #, shown in **red bold** font).

4.2 Monitoring Requirements

The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared for Contract No. HY/2010/02.

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

Table 4.2: Action and Limit Levels for Water Quality

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

Remarks:

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

Notes:

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

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

4.3 Monitoring Result

The monitoring results for the monitoring stations are reported in the monthly EM&A Reports prepared for Contract No. HY/2010/02. No water quality monitoring exceedances were recorded by the ET of Contract No. HY/2010/02 during the reporting period.

5 Dolphin Monitoring

5.1 Monitoring Locations

The dolphin monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works”. The ET of the Contract or another ET of the HZMB project is required to conduct dolphin monitoring at the twenty-three transects as part of EM&A programme if these transects are no longer covered under Contract No. HY/2010/02. 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.

On 15 May 2017, IEC/ENPO notified ET of changes to the EM&A Programme regarding some vessel-based transect lines for dolphin monitoring being conducted by Contract No. HY/2010/02. These changes were certified by the ETL of Contract No. HY/2010/02 and verified by the IEC on 24 March 2017, and approved by EPD on 12 May 2017.

Table 5.1 shows the co-ordinates for the transect lines and layout map until 15 May 2017. The co-ordinates for those transect lines which were changed on 15 May 2017 are summarised in **Table 5.2** below.

The revised layout map showing the transect lines have been provided by AFCD and are shown in **Figure 4**.

Table 5.1: Impact Dolphin Monitoring Line Transect Co-ordinates (Provided by AFCD) (until 15 May 2017)

| Transect | HK Grid System | | Long Lat in WGS84 | |
|----------|----------------|--------|-------------------|-----------|
| | X | Y | Long | Lat |
| 1# | 804671 | 815456 | 113.870287 | 22.277678 |
| | 804671 | 831404 | 113.869975 | 22.421696 |
| 2# | 805475 | 815913 | 113.878079 | 22.281820 |
| | 805477 | 826654 | 113.877896 | 22.378814 |
| 3 | 806464 | 819435 | 113.887615 | 22.313643 |
| | 806464 | 822911 | 113.887550 | 22.345030 |
| 4 | 807518 | 819771 | 113.897833 | 22.316697 |
| | 807518 | 829230 | 113.897663 | 22.402113 |
| 5 | 808504 | 820220 | 113.907397 | 22.320761 |
| | 808504 | 828602 | 113.907252 | 22.396462 |
| 6 | 809490 | 820466 | 113.916965 | 22.323003 |
| | 809490 | 825352 | 113.916884 | 22.367128 |
| 7# | 810499 | 820880 | 113.926749 | 22.326757 |
| | 810499 | 824613 | 113.926688 | 22.360464 |
| 8# | 811508 | 821123 | 113.936539 | 22.328966 |
| | 811508 | 824254 | 113.936486 | 22.357241 |
| 9# | 812516 | 821303 | 113.946320 | 22.330606 |
| | 812516 | 824254 | 113.946279 | 22.357255 |

| Transect | HK Grid System | | Long Lat in WGS84 | |
|----------|----------------|--------|-------------------|-----------|
| | X | Y | Long | Lat |
| 10* | 813525 | 820827 | 113.956112 | 22.326321 |
| | 813525 | 824657 | 113.956066 | 22.360908 |
| 11# | 814556 | 818853 | 113.966155 | 22.304858 |
| | 814556 | 820992 | 113.966125 | 22.327820 |
| 12 | 815542 | 818807 | 113.975726 | 22.308109 |
| | 815542 | 824882 | 113.975647 | 22.362962 |
| 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 |

Remarks:

- (a) * Due to the presence of deployed silt curtain systems at the site boundaries of the Contract, some of the transect lines shown in Figure 5.1 could not be fully surveyed during the regular survey. Transect 10 is reduced from 6.4km to approximately 3.6km in length due to the HKBCF construction site. Therefore the total transect length for both NEL and NWL combined is reduced to approximately 108km
- (b) # Coordinates for transect lines 1, 2, 7, 8, 9 and 11 have been updated in respect to the Proposal for Alteration of Transect Line for Dolphin Monitoring approved by EPD on 19 August 2015.

Table 5.2: New Co-ordinates of Revised Impact Dolphin Monitoring Line Transects (with effect from 15 May 2017)

| Transect | HK Grid System | |
|----------|----------------|---------------|
| | X | Y |
| 2 | 805476 | 820800 |
| | 805476 | 826654 |
| 3 | 806464 | 821150 |
| | 806464 | 822911 |
| 4 | 807518 | 821500 |
| | 807518 | 829230 |

| Transect | HK Grid System | |
|----------|----------------|---------------|
| | X | Y |
| 5 | 808504 | 821850 |
| | 808504 | 828602 |
| 6 | 809490 | 822150 |
| | 809490 | 825352 |
| 7 | 810499 | 822000 |
| | 810499 | 824613 |
| 24 | 805476 | 815900 |
| | 805476 | 819100 |

Remark: New coordinates shown in **red bold** font.

5.2 Monitoring Requirements

The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared for Contract No. HY/2010/02.

The Action and Limit Levels for Chinese White Dolphin Monitoring are provided in **Table 5.3** and **Table 5.4**, respectively.

Table 5.3: Action and Limit Levels for Chinese White Dolphin Monitoring - Approach to Define Action Level (AL) and Limit Level (LL)

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

Table 5.4: Derived Value of Action Level (AL) and Limit Level (LL) for Chinese White Dolphin Monitoring

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

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

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

5.3 Monitoring Results

The monitoring results for dolphin monitoring are reported in the monthly EM&A Reports prepared for Contract No. HY/2010/02.

6 Environmental Site and Audit

6.1 Site Inspection

Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the project. During the reporting period, site inspections were carried out on 4, 10, 17, 22 and 31 May 2017.

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

7 March 2017

- a. A generator underneath the bridge deck was without NRMM label. The Contractor was reminded to display the relevant NRMM label as required under the relevant regulation. Subsequently, a new generator with properly-sized NRMM label had replaced this generator. The observation was closed on 31 May 2017.

26 April 2017

- a. A panel door of the generator under bridge D14a was open. The Contractor was reminded to keep this door closed during operation to reduced noise impact. Subsequently, the panel door was closed. The observation was closed on 4 May 2017.

4 May 2017

- a. The works site at a retaining wall ramp for bridge D14a was untidy with loose items of construction waste and general refuse observed. Subsequently, the loose items were cleared. The observation was closed on 10 May 2017.

10 May 2017

- a. Oily water was observed in a drip tray next to Box Culvert C. Subsequently, the oily water was cleared from the drip tray. The observation was closed on 17 May 2017.
- b. Oil drums on bare ground were observed next to bridge D9a. Subsequently, the oil drums were removed. The observation was closed on 17 May 2017.

17 May 2017

- a. Loose general refuse items were observed at excavation area next to HKBCF site office and at pump house works area. Subsequently, the loose general refuse was cleared. The observation was closed on 22 May 2017.
- b. A drip tray was full of accumulated stagnant water. Also, the oil drum inside this drip tray was not adequately labelled. Subsequently, chemical label for the oil drum was provided. The observation was closed on 31 May 2017.

22 May 2017

- a. No new observations were made.

31 May 2017

- a. Small air blower was observed. The Contractor was reminded to check if a NRMM label is required for this equipment. Follow-up actions for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.

6.2 Advice on the Solid and Liquid Waste Management Status

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

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

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

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

6.2.1 Disposal of Marine Sediment Extracted from Bored Piling Works

6.2.1.1 Background

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

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

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

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

During the course of reviewing the SQR, it was noted that the contamination level of the marine sediment extracted from the inner part of the HKBCF Island was not identified during the

previous sampling and testing. As requested by EPD, sampling and testing are required. The Sediment Sampling and Testing Proposal (SSTP) for the inner area of the HKBCF Island was approved by EPD on 2 June 2016.

As in the agreed SSTP for the inner area of the HKBCF Island, samples were taken from the seventeen batches of stockpiled marine sediments and from five boreholes each in one of the five sampling grids. After conducting chemical tests on samples, six batches of stockpiled samples under Contract No. HY/2013/03 and all eight batches of stockpiled samples under Contract No. HY/20013/04 are classified as Category L sediment. The Secretary of Marine Fill Committee of CEDD allocated disposal sites under memo dated 24 October 2016 and dated 22 November 2016 for disposal of a total of 9,500 m³ in-situ volume of Category L sediment (using a bulk factor of 1.3). The Category L sediment was disposed in December 2016.

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

6.2.1.2 Dumping Arrangements

The barge for disposal of marine sediment will 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.

6.2.1.3 Reporting

No marine sediment extracted from bored piling in this Contract was disposed to allocated dumping site via Contract No. HY/2013/03 during May 2017. The quantities disposed up to end of April 2017 are in following table (**Table 6.1**):

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

| Month/Year | Type of Sediment and Quantity Disposed (m ³) | |
|----------------------|--|---------|
| | Cat. L (in Type I) | Type II |
| Up to end April 2017 | 3,570 | 39,814 |
| May 2017 | 0 | 0 |
| Total = | 3,570 | 39,814 |

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

6.3 Environmental Licenses and Permits

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

6.4 Implementation Status of Environmental Mitigation Measures

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

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

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

6.5 Summary of Exceedance of the Environmental Quality Performance Limit

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

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

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

6.6 Summary of Complaints, Notification of Summons and Successful Prosecution

Complaints

There were no complaints received in relation to the environmental impact during the reporting period. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.

Notification of Summons and Successful Prosecution

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

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

7 Future Key Issues

7.1 Construction Programme for the Coming Months

As informed by the Contractor, the major construction activities for June 2017 are summarized in **Table 7.1**.

Table 7.1: Construction Activities for June 2017

| Site Area | Description of Activities |
|-----------|---|
| HKBCF | <ul style="list-style-type: none"> Pile cap, pier column, retaining wall, pump house, segment erection, segment delivery (marine-based), excavation with road and drainage works, marine-based works for the construction of box culverts. Generation of excavated marine sediment and/or transport to HKBCF Contract No. HY/2013/03 (if required). |

7.2 Environmental Site Inspection Schedule for the Coming Month

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

8 Conclusions

8.1 Conclusions

Commencement of the Contract took place on 13 March 2015 and the construction works of the Contract commenced on 13 July 2015.

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

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

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

Environmental site inspections were carried out on 4, 10, 17, 22 and 31 May 2017. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site inspections.

There were no complaints received in relation to the environmental impact during the reporting period.

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

Figures

Figure 1 Location of Air Quality Monitoring Stations

Plot File by: Manky 19/08/2013
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Checked:

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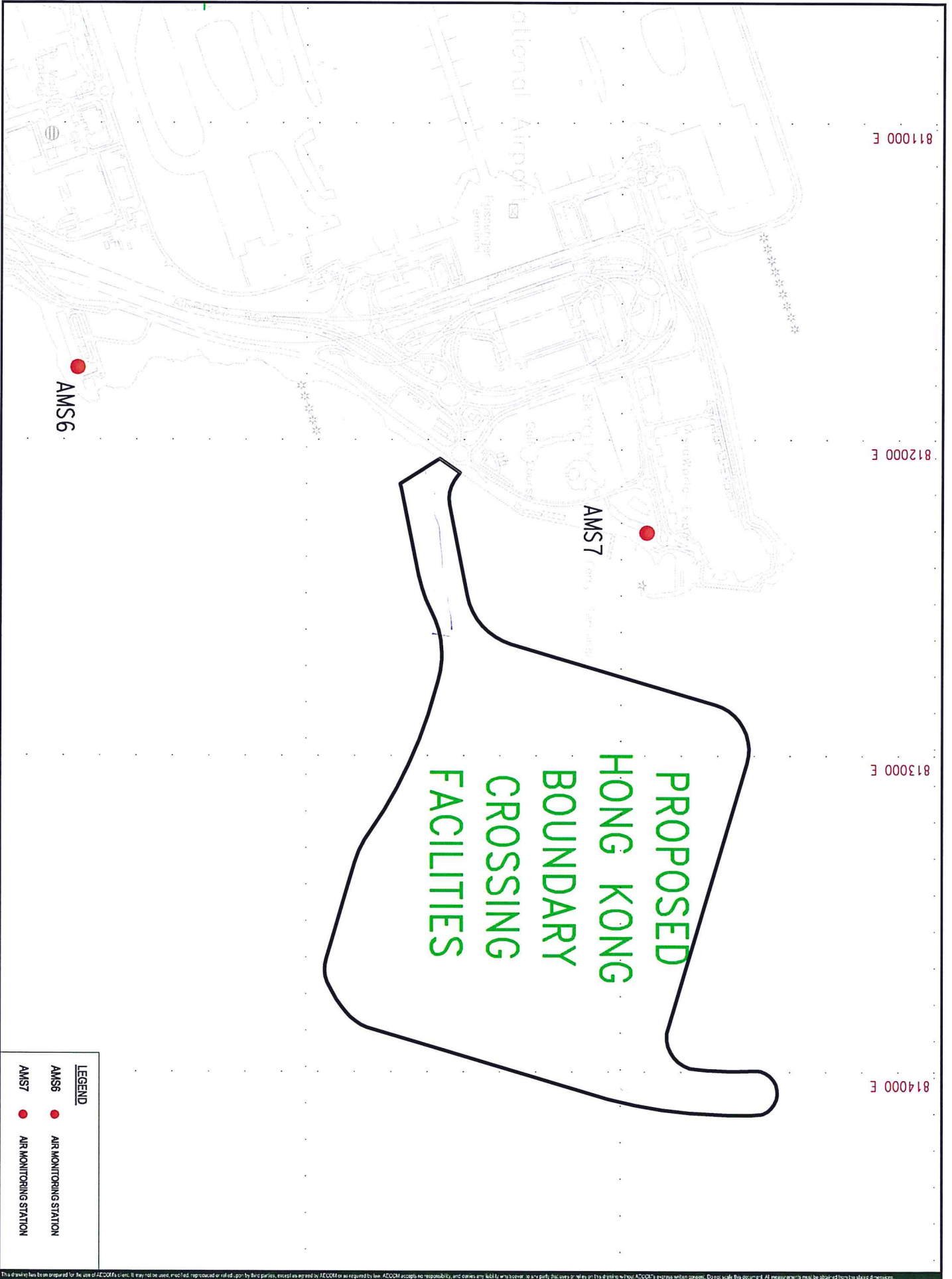


Figure 2 Location of Noise Quality Monitoring Stations

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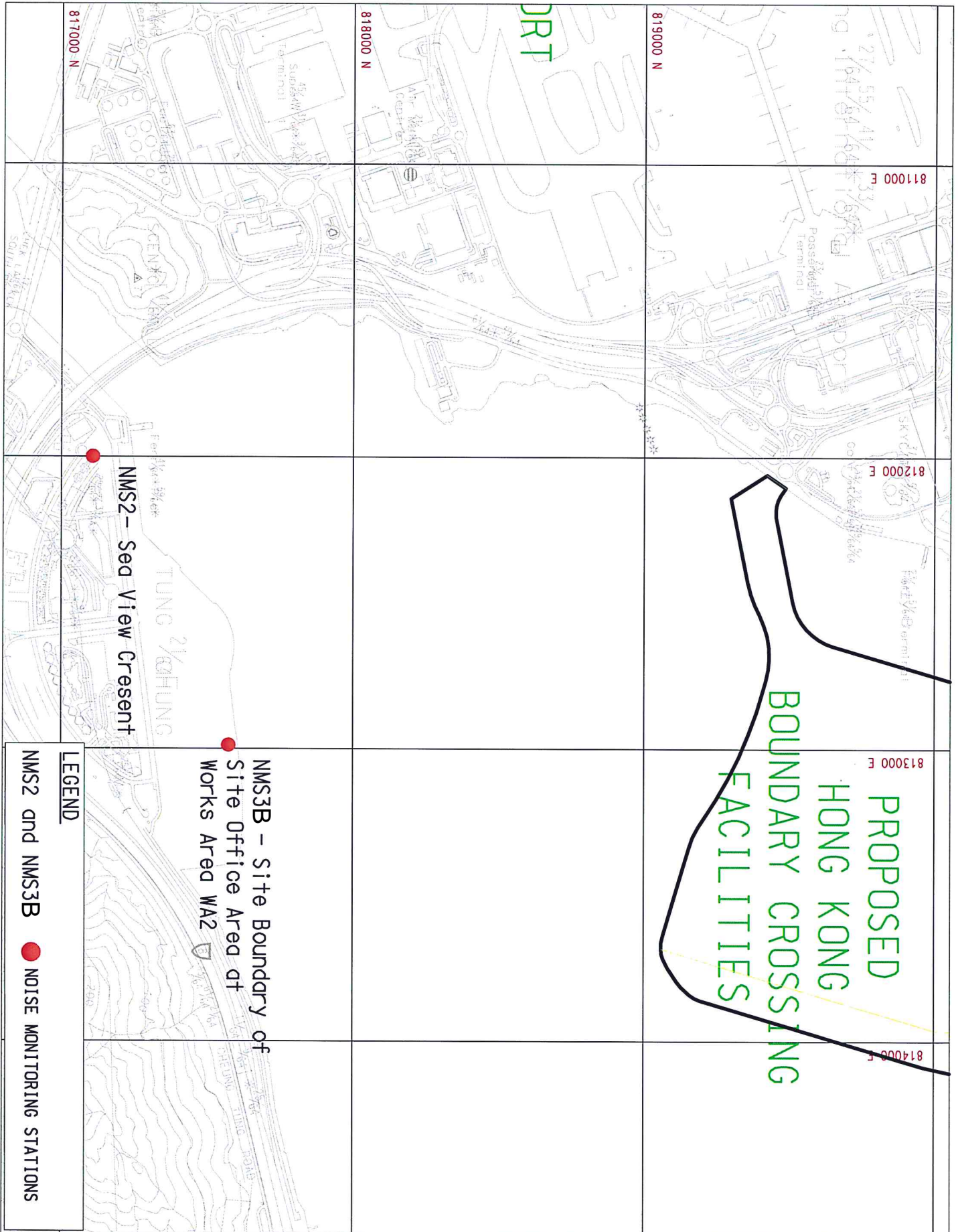
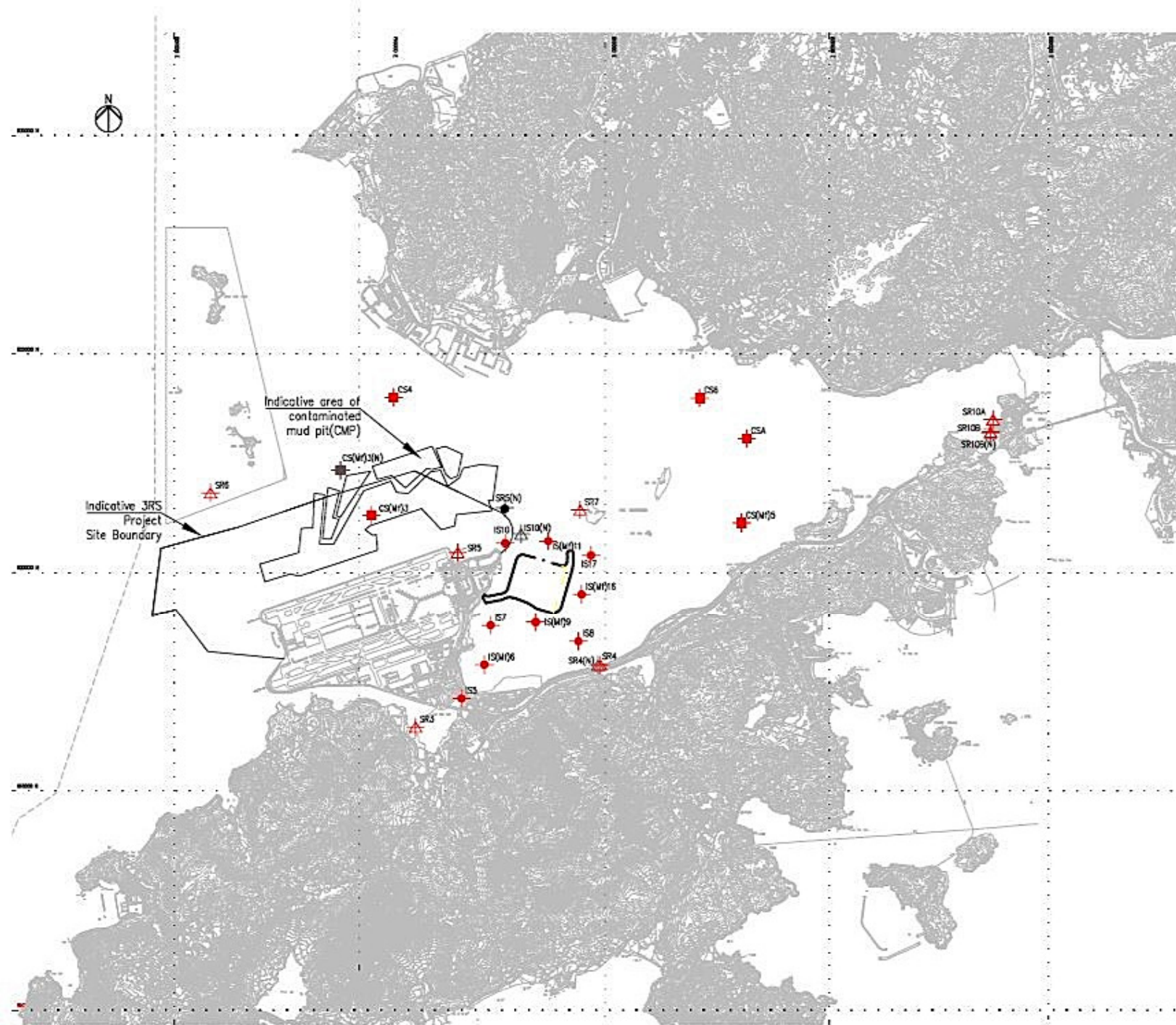


Figure 3 Location of Water Quality Monitoring Stations



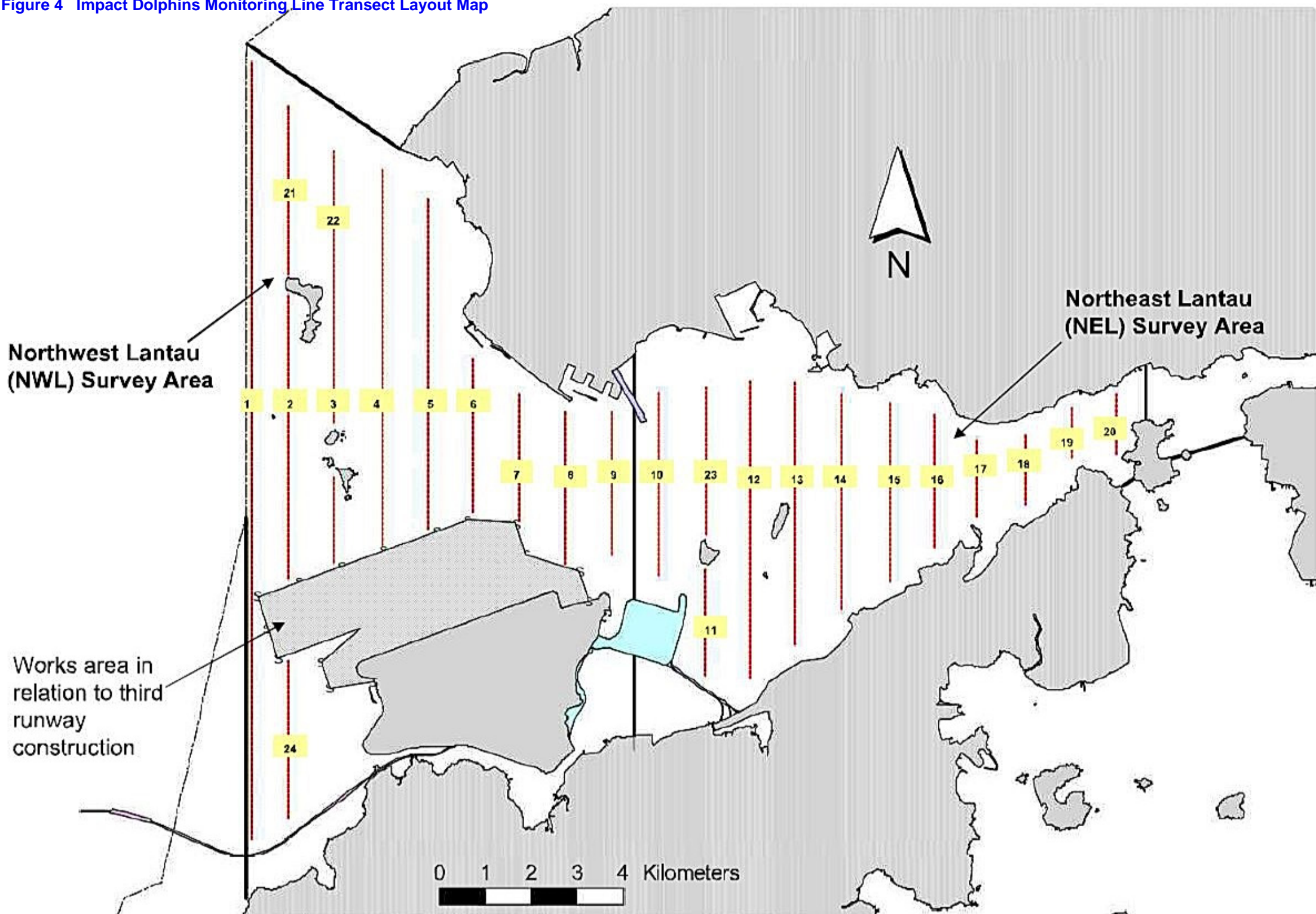
LEGEND

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

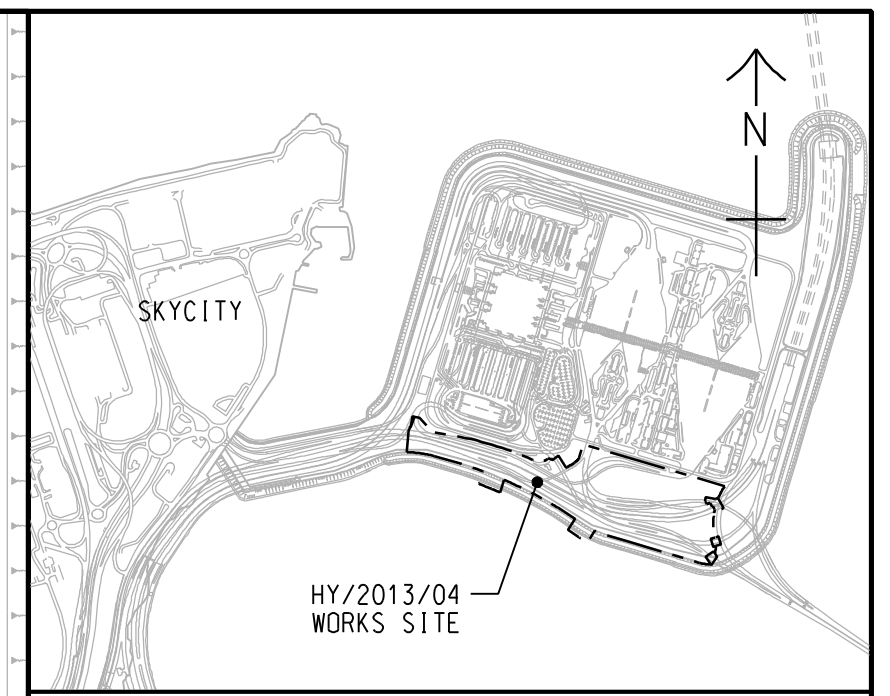
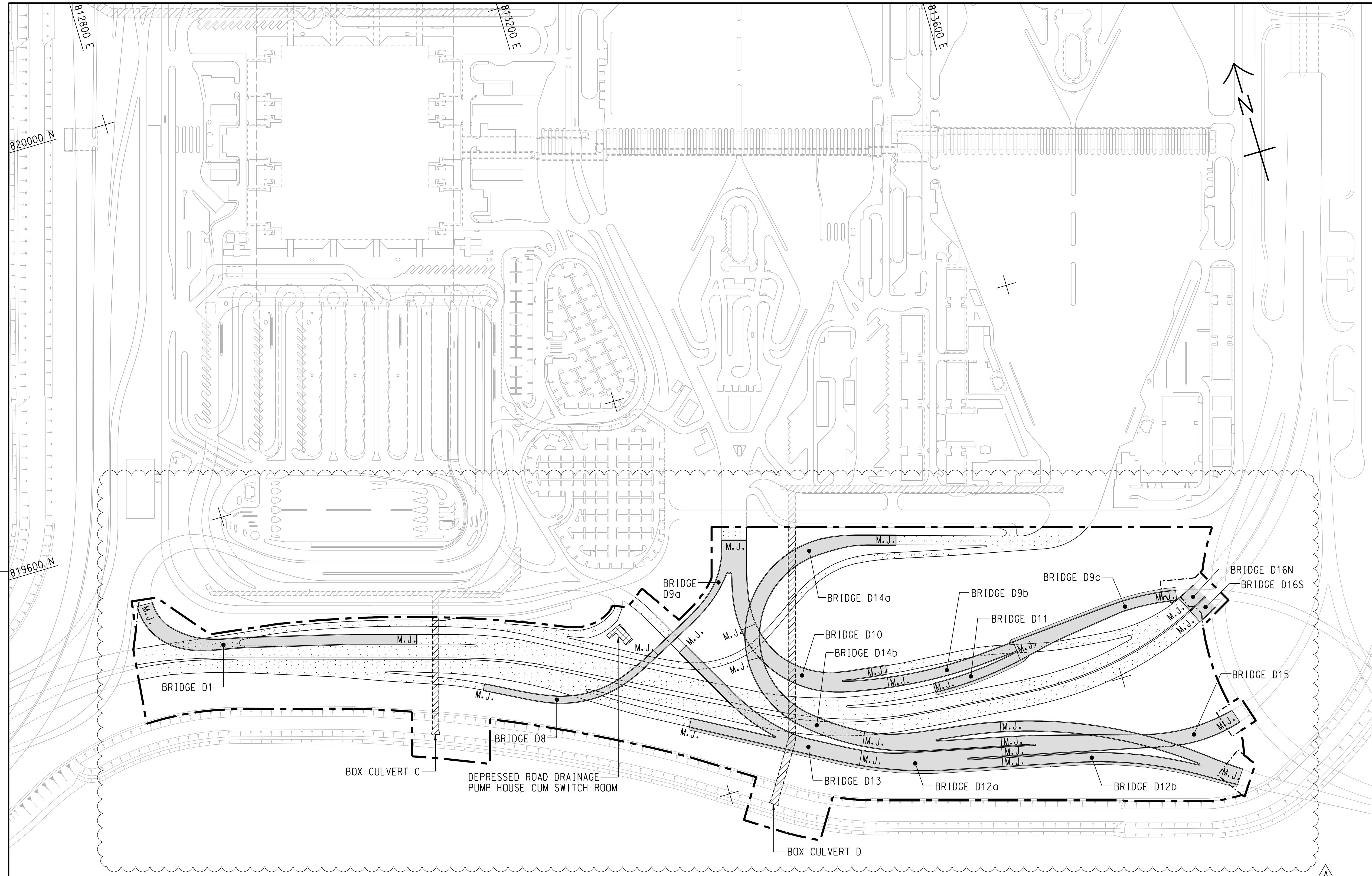
SETTING OUT SCHEDULE

| MONITORING STATIONS | CO-ORDINATES | |
|---------------------|--------------|----------|
| | EASTING | NORTHING |
| IS5 | 811579 | 817106 |
| IS(M)6 | 812101 | 817873 |
| IS7 | 812244 | 818777 |
| IS8 | 814251 | 818412 |
| IS(M)9 | 813273 | 818850 |
| SR5(N) | 812589 | 821475 |
| IS(M)11 | 813562 | 820716 |
| IS(M)16 | 814328 | 819497 |
| IS17 | 814538 | 820381 |
| SR3 | 810525 | 816456 |
| SR4(N) | 814705 | 817859 |
| IS10(N) | 812942 | 820881 |
| SR6 | 809837 | 821818 |
| SR7 | 814293 | 821431 |
| SR10A | 823741 | 823495 |
| SR10B(N) | 823683 | 823187 |
| CS(M)3(N) | 808814 | 822355 |
| CS(M)5 | 817990 | 821129 |
| CS4 | 810025 | 824004 |
| CS6 | 817028 | 823992 |
| CSA | 818103 | 823064 |
| IS10 | 812577 | 820670 |
| SR5 | 811489 | 820455 |
| CS(M)3 | 809989 | 821117 |

Figure 4 Impact Dolphins Monitoring Line Transect Layout Map



Appendix A. Location of Works Areas



LOCATION PLAN
SCALE 1 : 25000

LEGEND:

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

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

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

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

GENERAL ARRANGEMENT

AECOM
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI

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

| | | | | | |
|-------------------|------|----------------------|------------|-----------------------|-----|
| DESIGNED BY 設計 | BWCW | CONTRACT NO. 合約編號 | HY/2013/04 | P. O. APPROVED 批准人 | TKH |
|-------------------|------|----------------------|------------|-----------------------|-----|

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

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| 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 |
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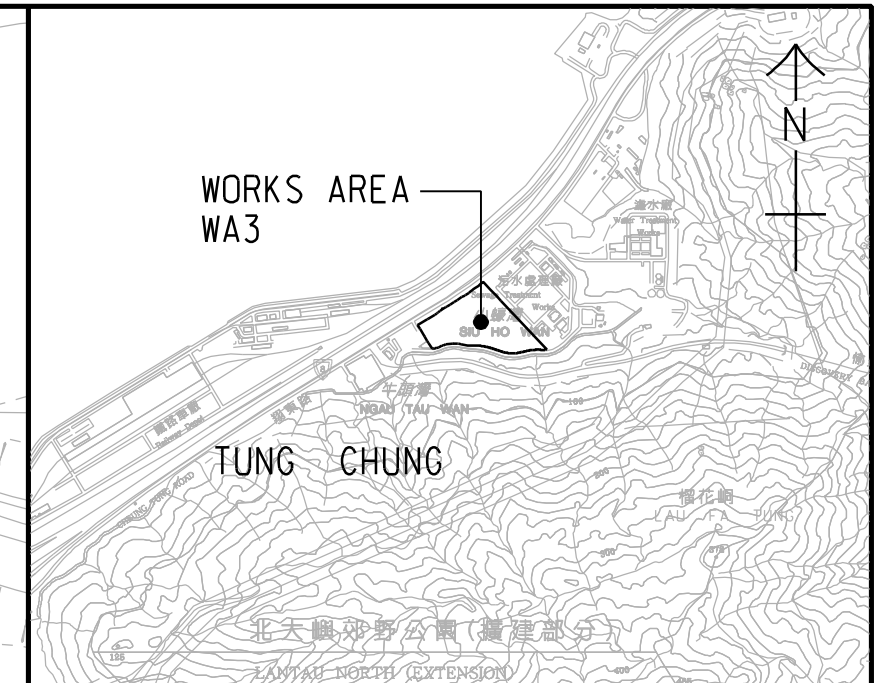
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81400 E

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

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| - | 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

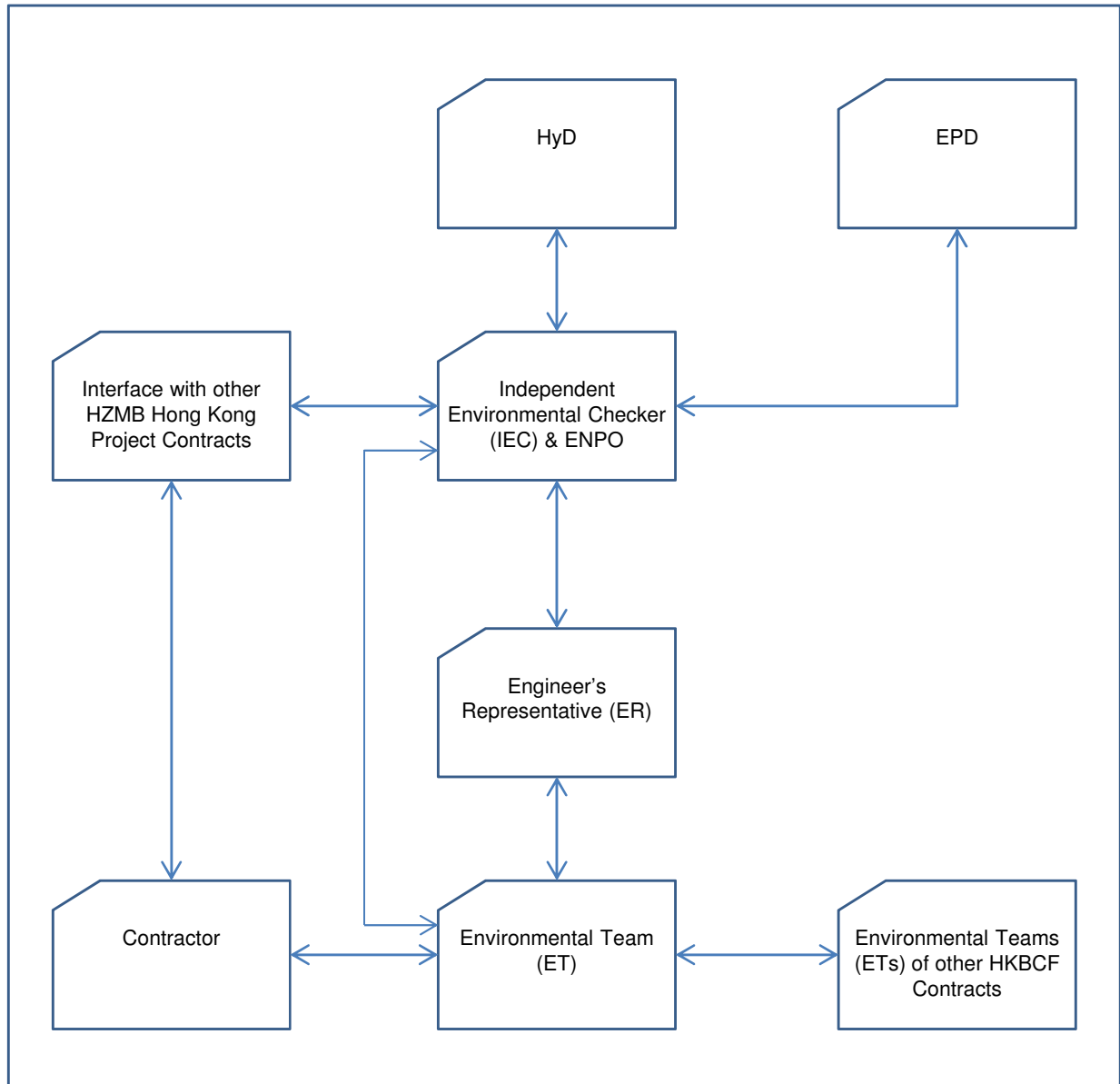
AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

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

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

Appendix B. Project Organization for Environmental Works

Project Organisation for Environmental Works



↔ Line of Communication

Appendix C. Construction Programme

Appendix D. Event and Action Plan

Event/Action Plan for Air Quality Monitoring

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

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

Event / Action Plan for Construction Noise Monitoring

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

Event / Action Plan for Water Quality Monitoring

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

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

Event / Action Plan for Dolphin Monitoring

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

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

Appendix E. Waste Flow Table

Monthly Summary Waste Flow Table for 2017

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|-------|--|-------------------------------------|--------------------------|--|--------------------------|--------------------------|---|----------------------------|-------------------|----------------|-----------------------------|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Transported to other Projects (Note 2) | Disposed as Public Fill | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (Note 1) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000m ³) |
| Jan | 6.552 | 0 | 0 | 6.552 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1068 |
| Feb | 1.38 | 0 | 0 | 1.38 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3315 |
| Mar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3025 |
| Apr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5456 |
| May | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4774 |
| Total | 7.932 | 0 | 0 | 7.932 | 0 | 0 | 0 | 0 | 0 | 0 | 1.7638 |

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 2017

| Month | a. Estimated Volume of Excavated Marine Sediment Generated | b. Estimate Volume of Accumulated Excavated Marine Sediment Treated | c. Reused in the Contract | d. Estimated Volume of Excavated Marine Sediment Transported to Other Projects (Note 1) | e. Estimated Volume of Treated Excavated Marine Sediment Stored on Site (Unused) |
|-------|--|---|---------------------------|---|--|
| | (in m ³) | (in m ³) | (in m ³) | (in m ³) | (in m ³) |
| Jan | 6552 | 0 | 0 | 6552 | 0 |
| Feb | 1380 | 0 | 0 | 1380 | 0 |
| Mar | 0 | 0 | 0 | 0 | 0 |
| Apr | 0 | 0 | 0 | 0 | 0 |
| May | 0 | 0 | 0 | 0 | 0 |
| Total | 7932 | 0 | 0 | 7932 | 0 |

Note: (1) "Other Projects" refers to HKBCF Contract No. HY/2013/03

Appendix F. Environmental Licences and Permits

Environmental Licences and Permits

| Item No. | Type of Permit / Licence | Reference No. | Application Date | Valid from | Valid until | Remark |
|----------|--|--|------------------|-------------|-------------|------------------------|
| 1 | Environmental Permit under EIAO | EP-353/2009/K | 24 Mar 2016 | 11 Apr 2016 | N/A | Issued |
| 2 | Construction Dust Notification (HKBCF Southern Portion) | 387156 | 26 Mar 2015 | 1 Apr 2015 | N/A | Notified |
| 3 | Construction Waste Disposal Account | 7022038 | 16 Mar 2015 | 1 Apr 2015 | N/A | Account approved |
| 4 | Registration as a Chemical Waste Producer (HKBCF Southern Portion) | Waste Producer Number (WPN): 5213-951-C3952-01 | 27 Mar 2015 | 27 Apr 2015 | N/A | Registration completed |
| 5 | Discharge Licence under WPCO (Works Area WA3) | WT00022316-2015 | 1 Jun 2015 | 14 Aug 2015 | 31 Aug 2020 | Issued |
| 6 | Construction Noise Permit | GW-RS0345-17 | 31 Mar 2017 | 1 May 2017 | 31 Oct 2017 | Issued |

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

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

| EIA Ref. | EM&A Log Ref. | Recommended Mitigation Measures | Location of the measures | Implementation Status |
|--------------------|---------------|---|---|---|
| Air Quality | | | | |
| S5.5.6.1 | A1 | 1) The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation | All construction sites | V |
| S5.5.6.2 | A2 | 2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; | All construction sites | V |
| S5.5.6.2 | A2 | <ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides | All construction sites | V |
| S5.5.6.2 | A2 | <ul style="list-style-type: none"> • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. | All construction sites | V |
| S5.5.6.3 | A3 | 3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase. | All construction sites | V |
| S5.5.6.4 | A4 | 4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the Contractor's attention to the relevant latest Practice Notes issued by EPD. | All construction sites | V |
| S5.5.6.4 | A5 | 5) Implement regular dust monitoring under EM&A programme during the construction stage. | Selected representative dust monitoring station | V (covered by Contract No. HY/2010/02 & HY/2011/03) |
| S5.5.7.1 | A6 | The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant: <ul style="list-style-type: none"> • Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; | Selected representative dust monitoring station | N/A |

| EIA Ref. | EM&A Log Ref. | Recommended Mitigation Measures | Location of the measures | Implementation Status |
|--|---------------|---|---|--|
| | | <ul style="list-style-type: none"> All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; The materials which may generate airborne dusty emissions should be wetted by water spray system; All receiving hoppers should be enclosed on three sides up to 3m above unloading point; All conveyor transfer points should be totally enclosed; All access and route roads within the premises should be paved and wetted; and Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body. | | |
| S5.5.2.7 | A7 | <p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> All road surface within the barging facilities will be paved; Dust enclosures will be provided for the loading ramp; Vehicles will be required to pass through designated wheels wash facilities; and Continuous water spray at the loading points. | All construction sites | N/A |
| Construction Noise (Air borne) | | | | |
| S6.4.10 | N1 | <p>1) Use of good site practices to limit noise emissions by considering the following:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; mobile plant should be sited as far away from NSRs as possible and practicable; material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. | All construction sites | V |
| S6.4.11 | N2 | 2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period. | All construction sites | V |
| S6.4.12 | N3 | 3) Install movable noise barriers (typically density @ 14kg/m ²), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw. | For plant items listed in Appendix 6D of the EIA report at all construction sites | V |
| S6.4.13 | N4 | 4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards. | For plant items listed in Appendix 6D of the EIA report at all construction sites | V |
| S6.4.14 | N5 | 5) Sequencing operation of construction plants where practicable. | All construction sites where practicable | V |
| | N6 | 6) Implement a noise monitoring under EM&A programme. | Selected representative noise monitoring station | V (covered by Contract No. HY/2010/02) |
| Sediment | | | | |
| S7.3 | S1 | 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. | All construction sites | V |
| Waste Management (Construction Noise) | | | | |
| S8.3.8 | WM1 | <p><u>Construction and Demolition Material</u></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; | 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"> • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWB TC(W) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation. | | |
| S8.3.9- S8.3.11 | WM2 | <p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. | All construction sites | V |
| S8.2.12- S8.3.15 | WM3 | <p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. | All construction sites | V |
| S8.3.16 | WM4 | <p><u>Sewage</u></p> <ul style="list-style-type: none"> • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. | All construction sites | V |
| S8.3.17 | WM5 | <p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium cans, plastic bottles etc., should be provided. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. | All construction sites | V |

| EIA Ref. | EM&A Log Ref. | Recommended Mitigation Measures | Location of the measures | Implementation Status |
|---|---------------|--|--------------------------|-----------------------|
| Water Quality (Construction Phase) | | | | |
| S9.11.1.7 | W2 | <p><u>Land Works</u></p> <p>General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> • wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; • sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the W PCO or collected for disposal offsite. The use of soakaways shall be avoided; • storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; • all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; • wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; • the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel; • wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; • vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the W PCO or collected for off site disposal; • the Contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system. | Land-based works areas | V |
| Ecology (Construction Phase) | | | | |
| S10.7 | E4 | Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater | Land-based works areas | V |
| S10.7 | E5 | Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time | Land-based works areas | V |
| S10.7 | E8 | <ul style="list-style-type: none"> • Control vessel speed • Skipper training • Predefined and regular routes for working vessels; avoid Brother Islands. | Marine Traffic | V |
| Fisheries | | | | |
| S11.7 | F4 | <ul style="list-style-type: none"> • Maritime Oil Spill Response Plan (MOSRP); • Contingency plan. | HKBCF | V |

| EIA Ref. | EM&A Log Ref. | Recommended Mitigation Measures | Location of the measures | Implementation Status |
|---|--|---|--------------------------|-----------------------|
| Landscape & Visual (Detailed Design Phase) | | | | |
| S14.3.3.1 | LV1 | <p>General design measures include:</p> <ul style="list-style-type: none"> • Roadside planting and planting along the edge of the HKBCF Island is proposed; • Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting; • Protection measures for the trees to be retained during construction activities; • Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid visually-sensitive locations; • Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed; • Providing planting area around peripheral of HKBCF for tree planting screening effect; • Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline; • For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF; and • Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF. | HKBCF | V |
| Landscape & Visual (Construction Phase) | | | | |
| S14.3.3.3 | LV2 | <p><u>Mitigate both Landscape and Visual Impacts</u></p> <p>G1. Grass-hydroseed bare soil surface and stock pile areas.</p> <p>G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic.</p> <p>G3. Not applicable as this is for HKLR.</p> <p>G4. For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF</p> <p>G5. Vegetation reinstatement and upgrading to disturbed areas</p> <p>G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed</p> <p>G7. Providing planting area around peripheral of HKBCF for tree planting screening effect;</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.</p> <p>G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline.</p> | HKBCF | N/A |
| S14.3.3.3 | LV3 | <p><u>Mitigate Visual Impacts</u></p> <p>V1. Minimize time for construction activities during construction period.</p> <p>V2. Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKBCF construction.</p> | | N/A |
| EM&A | | | | |
| S15.2.2 | EM1 | An Independent Environmental Checker needs to be employed as per the EM&A Manual. | All construction sites | V |
| S15.5 - S15.6 | EM2 | <p>1) An Environmental Team needs to be employed as per the EM&A Manual.</p> <p>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</p> <p>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.</p> | All construction sites | V |
| Legend: | V = implemented; x = not implemented; N/A = not applicable | | | |

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

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

| Reporting Period | Complaints | Notifications of Summons | Successful Prosecutions |
|--|------------|--------------------------|-------------------------|
| This reporting period | 0 | 0 | 0 |
| From commencement date of construction to end of reporting month | 5 | 0 | 0 |

Appendix I. Environmental Site Inspection Schedule

Environmental Site Inspection Schedule for May 2017

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

Tentative Environmental Site Inspection Schedule for June 2017

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