China Harbour Engineering Company Limited

Contract No. HY/2010/02

Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works

Quarterly EM&A Report for March 2015- May 2015

[01/2016]

	Name	Signature
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RAMBOLL ENVIRON

Ref.: HYDHZMBEEM00_0_3793L.16

20 January 2016

By Fax (3698 5999) and By Post

Ove Arup & Partners
Chief Resident Engineer's Office
5 Ying Hei Road, Tung Chung, Lantau
Hong Kong

Attention: Mr. Paul Appleton

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/2010/02 – HZMB HKBCF – Reclamation Works
Quarterly EM&A Report for March 2015 to May 2015

Reference is made to the Environmental Team's submission of the Quarterly Environmental Monitoring & Audit Report for March 2015 to May 2015 certified by the ET Leader (ET's ref.: "60249820/C/RMKY16012002" dated 20 January 2016) and provided to us via e-mail on 20 January 2016.

We are pleased to inform you that we have no adverse comment on the captioned Quarterly Environmental Monitoring & Audit Report for March 2015 to May 2015.

The ET Leader and the dolphin specialist of the ET are reminded that the EM&A report should never be regarded as a platform to express their own opinions towards a government topic, or to advocate his/her personal ideas, and also our verification to your report does not release any of your obligation in the EM&A Manual under the applicable Environmental Permit(s) for this project.

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

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

Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Matthew Fung	(By Fax: 3188 6614)
	HyD	Mr. Wai-Ping Lee	(By Fax: 3188 6614)
	AECOM	Ms. Echo Leong	(By Fax: 2317 7609)
	CHEC	Mr. Lim Kim Chuan	(By Fax: 2578 0413)

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

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EXECUTIVE SUMMARY

Contract No. HY/2010/02 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Work (here below, known as "the Project") mainly comprises reclamation at the northeast of the Hong Kong International Airport of an area of about 130-hectare for the construction of an artificial island for the development of the Hong Kong Boundary Crossing Facilities (HKBCF), and about 19-hectare for the southern landfall of the Tuen Mun - Chek Lap Kok Link (TMCLKL). It is a designated project and is governed by the current permits for the Project, i.e. the amended Environmental Permits (EPs) issued on 19 January 2015 (EP-353/2009/H) and 13 March 2015 (EP-354/2009/D) (for TMCLKL Southern Landfall Reclamation only).

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Project's reclamation works (i.e. the Engineer for the Project).

China Harbour Engineering Company Limited (CHEC) was awarded by HyD as the Contractor to undertake the construction work of the Project.

Ramboll Environ Hong Kong Limited (formerly ENVIRON Hong Kong Limited) was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

AECOM Asia Co. Ltd. (AECOM) was appointed by CHEC to undertake the role of Environmental Team for the Project for carrying out the environmental monitoring and audit (EM&A) works.

The construction phase of the Project under the EPs was commenced on 12 March 2012 and will be tentatively completed by early Year 2016. The EM&A programme, including air quality, noise, water quality and dolphin monitoring and environmental site inspections, was commenced on 12 March 2012.

This report documents the findings of EM&A works conducted in the period between 1 March 2015 and 31 May 2015. As informed by the Contractor, major activities in the reporting quarter were:-

Marine-base

- Cellular structure installation and backfilling
- Capping Beams structures
- Conforming sloping seawalls
- Surcharge remove & laying
- Earthwork fill
- Deep Cement Mixing
- Jet grout columns works
- Geotechnical Instrumentation works
- Removal of Temporary Seawall
- Installations of Precast Culverts except sloping outfalls
- Maintenance of silt curtain & silt screen at sea water intake of HKIA

Land-base

- Maintenance works of Site Office at Works Area WA2
- Maintenance works of Public Works Regional Laboratory at Works Area WA3
- Maintenance of Temporary Marine Access at Works Area WA2

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

24-hour Total Suspended Particulates (TSP) monitoring	16 sessions
1-hour TSP monitoring	16 sessions
Noise monitoring	13 sessions
Impact water quality monitoring	39 sessions
Impact dolphin monitoring	6 surveys
Joint Environmental site inspection	13 sessions

Breaches of Action and Limit Levels for Air Quality

All 1-Hour TSP and 24-Hour TSP results were below the Action and Limit Level in the reporting month.

Breaches of Action and Limit Levels for Noise

For construction noise, no exceedance was recorded at all monitoring stations in the reporting month.

Breaches of Action and Limit Levels for Water Quality

For water quality, two (2) Action Level Exceedances of SS at IS10 and SR5 during Flood tide were recorded on 23 March 2015. No Action and Limit Level exceedances were recorded on other monitoring date in the reporting month. After investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract.

Breaches of Action and Limit Levels for Impact Dolphin Monitoring

One (1) Limit Level exceedance of dolphin monitoring was recorded in the reporting quarter. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. Event Action Plan for Impact Dolphin Monitoring was triggered. For detail of investigation, please refer to appendix L. Event Action Plan for Impact Dolphin Monitoring was triggered. For detail of investigation, please refer to appendix L.

Implementation Status and Review of Environmental Mitigation Measures

Most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting quarter.

The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Project. The EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

Complaint, Notification of Summons and Successful Prosecution

As informed by the Contractor on 09 March 2015, there is an air quality complaint received on 06 March 2015. The complainant Mr. Fung requested for follow-up actions to be taken by relevant departments in response to his Complaint about sand and dust emission from 4-5 uncovered sand barges parking near the coastline of Tuen Mun, the complainant concerns about the health problems to residents as the sand is blown to their apartments. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.

Environmental Protection Department (EPD) referred a noise complaint to this project on 10 April 2015 and ENPO forwarded the noise complaint to Environmental Team on 15 April 2015. The complaint involves a complainant, who is resident of Caribbean Coast, Tung Chung and he was disturbed by noise from construction activities of the HZMB Project during weekends and holidays. After investigation, there is no adequate information to conclude the observed noise nuisance is related to this Contract.

A complainant contacted EPD through EPD's hotline on 21 May 2015 and complained that noise was generated from construction works when construction of artificial island at Lantau Island area was carried out overnight and dark smoke was emitted by construction plant. EPD's staff has contacted complainant and came to know that the dark smoke referring to could also be construction dust emitting from the filling work at the HKBCF. This complaint was subsequently referred by EPD to HZMB project team on 22 May 2015 to follow-up. With referred to the available information, it is unable to determine whether the night time noise and dark smoke complaint is related to this Contract.

No notification of summons or prosecution was received in the reporting period

1 INTRODUCTION

1.1 Background

1.1.1 Contract No. HY/2010/02 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Work (here below, known as "the Project") mainly comprises seawall construction and reclamation at the northeast of the Hong Kong International Airport of an area of about 130-hectare for the construction of an artificial island for the development of the Hong Kong Boundary Crossing Facilities (HKBCF), and about 19-hectare for the southern landfall of the Tuen Mun - Chek Lap Kok Link (TMCLKL).

1.1.2 The environmental impact assessment (EIA) reports (Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – EIA Report (Register No. AEIAR-145/2009) (HKBCFEIA) and Tuen Mun – Chek Lap Kok Link – EIA Report (Register No. AEIAR-146/2009) (TMCLKLEIA), and their environmental monitoring and audit (EM&A) Manuals (original EM&A Manuals), for the Project were approved by Environmental Protection Department (EPD) in October 2009.

1.1.3 EPD subsequently issued the Environmental Permit (EP) for HKBCF in November 2009 (EP-353/2009) and the Variation of Environmental Permit (VEP) in June 2010 (EP-353/2009/A), November 2010 (EP-353/2009/B), November 2011 (EP-353/2009/C), March 2012 (EP-353/2009/D), October 2012 (EP-353/2009/E), April 2013 (EP-353/2009/F), August 2013 (EP-353/2009/G) and January 2015 (EP-353/2009/H). Similarly, EPD issued the Environmental Permit (EP) for TMCLKL in November 2009 (EP-354/2009) and the Variation of Environmental Permit (VEP) in December 2010 (EP-354/2009/A), January 2014 (EP-354/2009/B), December 2014 (EP-354/2009/C) and March 2015 (EP-354/2009/D).

1.1.4 The Project is a designated project and is governed by the current permits for the Project, i.e. the amended EPs issued on 19 January 2015 (EP-353/2009/H) and 13 March 2015 (EP-354/2009/D) (for TMCLKL Southern Landfall Reclamation only).

1.1.5 A Project Specific EM&A Manual, which included all project-relation contents from the original EM&A Manuals for the Project, was issued in May 2012.

1.1.6 Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Project's reclamation works (i.e. the Engineer for the Project).

1.1.7 China Harbour Engineering Company Limited (CHEC) was awarded by HyD as the Contractor to undertake the construction work of the Project.

1.1.8 Ramboll Environ Hong Kong Limited (formerly ENVIRON Hong Kong Limited) was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

1.1.9 AECOM Asia Co. Ltd. (AECOM) was appointed by CHEC to undertake the role of Environmental Team for the Project for carrying out the EM&A works.

1.1.10 The construction phase of the Project under the EPs was commenced on 12 March 2012 and will be tentatively completed by early Year 2016.

1.1.11 According to the Project Specific EM&A Manual, there is a need of an EM&A programme including air quality, noise, water quality and dolphin monitoring and environmental site inspections. The EM&A programme of the Project commenced on 12 March 2012.

1.2 Scope of Report

1.2.1 This is the thirteen quarterly EM&A Report under the Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works. This report presents a

summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Project from 1 March 2015 to 31 May 2015.

1.3 Project Organization

1.3.1 The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Engineer's Representative (ER) (Ove Arup & Partners Hong Kong Limited)	Chief Resident Engineer	Roger Marechal	2528 3031	2668 3970
IEC / ENPO (Ramboll Environ Hong Kong Limited (formerly ENVIRON Hong Kong Limited))	Independent Environmental Checker	Raymond Dai	3465 2888	3548 6988
	Environmental Project Office Leader	Y.H. Hui	3547 2133	3465 2899
Contractor (China Harbour Engineering Company Limited)	General Manager (S&E)	Daniel Leung	3157 1086	2578 0413
	Environmental Officer	Richard Ng	36932253	2578 0413
	24-hour Hotline	Alan C.C. Yeung	9448 0325	--
ET (AECOM Asia Company Limited)	ET Leader	Echo Leong	3922 9280	2317 7609

1.4 Summary of Construction Works

1.4.1 The construction phase of the Project under the EP commenced on 12 March 2012.

1.4.2 As informed by the Contractor, details of the major works carried out in the reporting quarter are listed below:-

Marine-base

- Cellular structure installation and backfilling
- Capping Beams structures
- Conforming sloping seawalls
- Surcharge remove & laying
- Earthwork fill
- Deep Cement Mixing
- Jet grout columns works
- Geotechnical Instrumentation works
- Removal of Temporary Seawall
- Installations of Precast Culverts except sloping outfalls
- Maintenance of silt curtain & silt screen at sea water intake of HKIA

Land-base

- Maintenance works of Site Office at Works Area WA2
- Maintenance works of Public Works Regional Laboratory at Works Area WA3
- Maintenance of Temporary Marine Access at Works Area WA2

1.4.3 The 3-month rolling construction programme of the Project is shown in Appendix B.

1.4.4 The general layout plan of the Project site showing the detailed works areas is shown in Figure 1.

1.4.5 The environmental mitigation measures implementation schedule are presented in Appendix C.

2 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

2.1 Monitoring Parameters

2.1.1 The Project Specific EM&A Manual designated 4 air quality monitoring stations, 2 noise monitoring stations, 21 water monitoring stations (9 Impact Stations, 7 Sensitive Receiver Stations and 5 Control/Far Field Stations) to monitor environmental impacts on air quality, noise and water quality respectively. Pre-set and fixed transect line vessel based dolphin survey was required in two AFCD designated areas (Northeast and Northwest Lantau survey areas). The impact dolphin monitoring at each survey area should be conducted twice per month.

2.1.2 For impact air quality monitoring, monitoring locations AMS2 (Tung Chung Development Pier) and AMS7 (Hong Kong SkyCity Marriott Hotel) were set up at the proposed locations in accordance with Project Specific EM&A Manual. The conditional omission of Monitoring Station AMS6 was effective since 19 November 2012. For monitoring location AMS3 (Ho Yu College), as proposed in the Project Specific EM&A Manual, approval for carrying out impact monitoring could not be obtained from the principal of the school. Permission on setting up and carrying out impact monitoring works at nearby sensitive receivers, like Caribbean Coast and Coastal Skyline, was also sought. However, approvals for carrying out impact monitoring works within their premises were not obtained. Impact air quality monitoring was conducted at site boundary of the site office area in Works Area WA2 (AMS3B) respectively. Same baseline and Action Level for air quality, as derived from the baseline monitoring data recorded at Ho Yu College, was adopted for this alternative air quality location.

2.1.3 For impact noise monitoring, monitoring locations NMS2 (Seaview Crescent Tower 1) was set up at the proposed locations in accordance with Project Specific EM&A Manual. However, for monitoring location NMS3 (Ho Yu College), as proposed in the Project Specific EM&A Manual, approval for carrying out impact monitoring could not be obtained from the principal of the school. Permission on setting up and carrying out impact monitoring works at nearby sensitive receivers, like Caribbean Coast and Coastal Skyline, was also sought. However, approvals for carrying out impact monitoring works within their premises were not obtained. Impact noise monitoring was conducted at site boundary of the site office area in Works Area WA2 (NMS3B) respectively. Same baseline noise level, as derived from the baseline monitoring data recorded at Ho Yu College was adopted for this alternative noise monitoring location. Reference is made to ET's proposal of relocation of air quality monitoring station (AMS7) dated on 2 February 2015, with no further comment received from IEC on 2 February 2015 and no objection received from EPD on 5 February 2015, the impact air quality monitoring station AMS7 (Hong Kong SkyCity Marriott Hotel) has been relocated to AMS7A (Chu Kong Air-Sea Union Transportation Company Limited) on 3 February 2015. Action Level for air quality, as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel, was adopted for this alternative air quality location.

2.1.4 In accordance with the Project Specific EM&A Manual, twenty-one stations were designated for impact water quality monitoring. The nine Impact Stations (IS) were chosen on the basis of their proximity to the reclamation and thus the greatest potential for water quality impacts, the seven Sensitive Receiver Stations (SR) were chosen as they are close to the key sensitive receives and the five Control/ Far Field Stations (CS) were chosen to facilitate comparison of the water quality of the IS stations with less influence by the Project/ ambient water quality conditions.

2.1.5 Due to safety concern and topographical condition of the original locations of SR4 and SR10B, alternative impact water quality monitoring stations, naming as SR4(N) and SR10B(N), were adopted, which are situated in vicinity of the original impact water quality monitoring stations (SR4 and SR10B) and could be reachable. Same baseline and Action Level for water quality, as derived from the baseline monitoring data recorded, were adopted for these alternative impact water quality monitoring stations.

2.1.6 The monitoring locations used during the reporting quarter are depicted in Figures 2, 3 and 4 respectively.

2.1.7 The Project Specific EM&A Manual also required environmental site inspections for air quality, noise, water quality, chemical, waste management, marine ecology and landscape and visual impact.

2.2 Environmental Quality Performance (Action/Limit Levels)

2.2.1 The environmental quality performance limits (i.e. Action and/or Limit Levels) of air and water quality monitoring were derived from the baseline air and water quality monitoring results at the respective monitoring stations, while the environmental quality performance limits of noise monitoring were defined in the EM&A Manual.

2.2.2 The environmental quality performance limits of air quality, noise and water monitoring are given in Appendix D.

2.3 Environmental Mitigation Measures

2.3.1 Relevant environmental mitigation measures were stipulated in the Particular Specification and EPs (EP-353/2009/H and EP-354/2009/D) (for TMCLKL Southern Landfall Reclamation only) for the Contractor to adopt. A list of environmental mitigation measures and their implementation statuses are given in Appendix C.

3 MONITORING RESULTS

3.1 Air Quality Monitoring

3.1.1 In accordance with the Project Specific EM&A Manual, impact 1-hour Total Suspended Particulates (TSP) monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was carried out for at least once every 6 days at the 4 monitoring stations (AMS2, AMS3B, AMS6 and AMS7A).

3.1.2 The monitoring locations for impact air quality monitoring are depicted in Figure 2. However, for AMS6 (Dragonair/CNAC (Group) Building), permission on setting up and carrying out impact monitoring works was sought, however, access to the premise has not been granted yet on this report issuing date.

3.1.3 Reference is made to ET's proposal of relocation of air quality monitoring station (AMS7A) dated on 2 February 2015, with no further comment received from IEC on 2 February 2015 and no objection received from EPD on 5 February 2015, the impact air quality monitoring station AMS7 (Hong Kong SkyCity Marriott Hotel) has been relocated to AMS7A (Chu Kong Air-Sea Union Transportation Company Limited) on 3 February 2015. Action Level for air quality, as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel, was adopted for this alternative air quality location.

3.1.4 The weather was mostly fine and sunny, with occasional cloudy in the reporting quarter. The major dust source in the reporting quarter included construction activities from the Project, as well as nearby traffic emissions.

3.1.5 The number of monitoring events and exceedances recorded in each month of the reporting quarter are presented in Table 3.1 and Table 3.2 respectively.

Table 3.1 Summary of Number of Monitoring Events for 1-hr & 24-hr TSP Concentration

Monitoring Parameter	Location	No. of monitoring events		
		March 15	April 15	May 15
1-hr TSP	AMS2	15	18	15
	AMS3B	15	18	15
	AMS7A	15	18	15
24-hr TSP	AMS2	5	6	5
	AMS3B	5	6	5
	AMS7A	5	6	5

Table 3.2 Summary of Number of Exceedances for 1-hr & 24-hr TSP Monitoring

Monitoring Parameter	Location	Level of Exceedance	Numbers of Exceedance		
			March 15	April 15	May 15
1-hr TSP	AMS2	Action	0	0	0
		Limit	0	0	0
	AMS3B	Action	0	0	0
		Limit	0	0	0
	AMS7A	Action	0	0	0
		Limit	0	0	0
		Total	***0***	***0***	***0***
24-hr TSP	AMS2	Action	0	0	0
		Limit	0	0	0
	AMS3B	Action	***0***	0	0
		Limit	0	0	0
	AMS7A	Action	0	0	0
		Limit	0	0	0
		Total	***0***	***0***	***0***

3.1.6 All 24-Hour TSP and 1-Hour TSP results were below the Action and Limit Level in the reporting month.

3.1.7 The event action plan is annexed in Appendix K.

3.1.8 Meteorological information collected from the wind station during the monitoring periods on the monitoring dates, as shown in Figure 2, including wind speed and wind direction, is annexed in Appendix H of monthly EM&A report March 2015, April 2015 and May 2015 respectively.

3.2 Noise Monitoring

3.2.1 Impact noise monitoring was conducted at the 2 monitoring stations (NMS2 and NMS3B) for at least once per week during 07:00 – 19:00 in the reporting quarter.

3.2.2 The monitoring locations used during the reporting quarter are depicted in Figure 2.

3.2.3 No Action or Limit Level Exceedance of construction noise was recorded in the reporting quarter.

3.2.4 Major noise sources during the noise monitoring included construction activities of the Project and nearby traffic noise.

3.2.5 The number of impact noise monitoring events and exceedances are summarized in Table 3.3 and Table 3.4 respectively.

Table 3.3 Summary of Number of Monitoring Events for Impact Noise

Monitoring Parameter	Location	No. of monitoring events		
		March 15	April 15	May 15
	NMS2	5	4	4
	NMS3B	5	4	4

Table 3.4 Summary of Number of Monitoring Exceedances for Impact Noise

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance		
			March 15	April 15	May 15
	NMS2	Action	0	0	0
		Limit	0	0	0
	NMS3B	Action	0	0	0
		Limit	0	0	0
		Total	***0***	***0***	***0***

3.2.6 The graphical plots of the trends of the monitoring results are provided in Appendix F. No specific trend of the monitoring results or existence of persistent pollution source was noted.

3.2.7 The event action plan is annexed in Appendix K.

3.3 Water Quality Monitoring

3.3.1 The monitoring locations used during the reporting quarter are depicted in Figure 3.

3.3.2 A total of (2) two action level exceedances were recorded in this reporting quarter:

3.3.3 For water quality, two (2) Action Level Exceedances of SS at IS10 and SR5 were recorded on 23 March 2015 during Flood tide. No Action and Limit Level exceedances were recorded on other monitoring date in the reporting month. After investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract.

Table 3.5 Summary of Water Quality Exceedances in March 2015 – May 2015

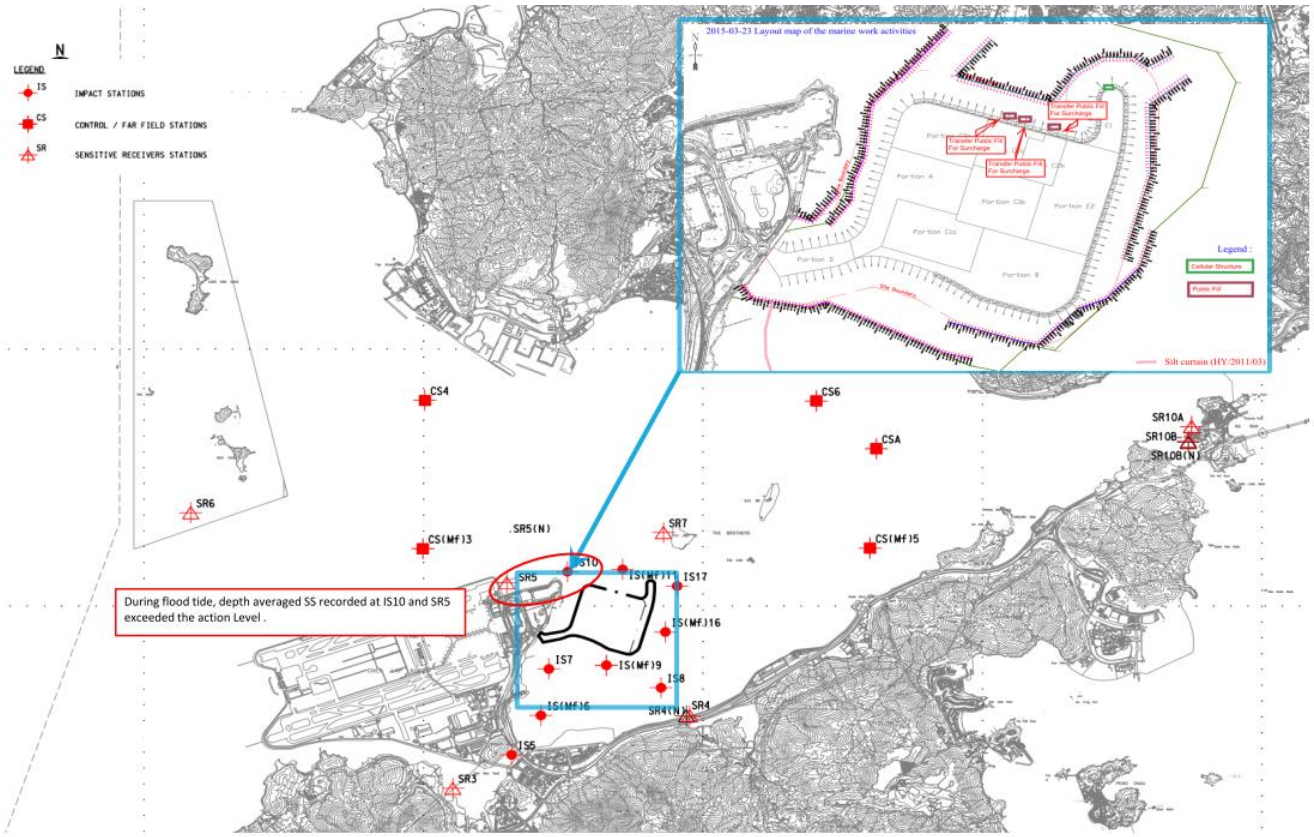
Station	Exceedance Level	DO (S&M)		DO (Bottom)		Turbidity		SS		Total	
		Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood
IS5	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf)6	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS7	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS8	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf)9	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS10	Action	0	0	0	0	0	0	0	**(1) 23 Mar15**	0	**1**
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf)11	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf)16	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS17	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR3	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR4(N)	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR5	Action	0	0	0	0	0	0	0	**(1) 23 Mar15**	0	**1**
	Limit	0	0	0	0	0	0	0	0	0	0
SR6	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR7	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR10A	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR10B (N)	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
Total	**Action**	0	0	0	0	0	0	0	**2**	**2**	
	Limit	0	0	0	0	0	0	0	0	0	

Note: S: Surface;
M: Mid-depth;

3.3.4 For water quality, two (2) Action Level Exceedances of SS at IS10 and SR5 during Flood tide were recorded on 23 March 2015. No Action and Limit Level exceedances were recorded on other monitoring date in the reporting month.

3.3.4.1 The exceedance was confirmed after checking against relevant control station(s) during flood tide i.e. CS6, CSA and CS(Mf)5 following the Action and Limit Levels for Water Quality.

3.3.4.2 Layout map below shows active works conducted on 23 March 2015. Transfer of public fill for surcharge was conducted at north part of HKBCF reclamation works and marine based construction works such cellular structure was conducted at northeast part of the HKBCF Reclamation Works.



3.3.4.3 Photo record which shows the sea condition near IS10 at northwest part of the HKBCF during flood tide on 23 March 2015

3.3.4.4 Exceedance recorded at IS10 and SR5 during mid-flood tide are unlikely due to marine based construction activities of the Project because:

3.3.4.5 With reference to the silt curtain checking record, defects such as disconnection of the silt curtain was not observed at northwest part of the perimeter silt curtain which are close to the IS10 and SR5.

3.3.4.6 The attached layout map shows transfer of public fill for surcharge was conducted at north part of HKBCF reclamation works, since it is not marine based work, therefore it was considered unlikely to cause the SS exceedances recorded at IS10 and SR5 during mid-flood tide.

3.3.4.7 The attached layout map shows that cellular structure was conducted at northeast part of the HKBCF Reclamation Works, however, the turbidity data retrieved from the IS17 and IS(Mf)11 which are in the vicinity of marine-based works (cellular structure) undertaken on 23 March 2015, did not exceed the action and limit level. As such, it was considered unlikely to cause the SS exceedances recorded at IS10 and SR5 during mid-flood tide.

3.3.4.8 Furthermore, no filling activities were observed in progress and no silt plume was observed to flow from the inside of the perimeter silt curtain to the outside of the perimeter silt curtain when monitoring was conducted at IS10 and SR5. (Also see attached for sea condition observed on 23 March 2015 during flood tide.)

3.3.4.9 Also, turbidity level recorded at SR5, IS10 and IS(Mf)11 were below the action and limit level. This indicates the turbidity level at area near SR5 and IS10 was not adversely affected.

3.3.4.10 The exceedances were likely due to local effects in the vicinity of SR5 and IS10.

3.3.4.11 After investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract.

3.3.4.12 Action taken under the action plan:

1. Not applicable as SS was not measured in situ;
2. After considering the above mentioned investigation results, it appears that it was unlikely that the SS exceedances were attributed to active construction activities of this Contract;
3. IEC, contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the SS exceedance is unlikely to be project related, as such, actions 5-7 under the EAP are not considered applicable.

3.3.4.13 Nevertheless, the Contractor was reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found.

3.3.4.14 Maintenance work of the silt curtain was carried out by the Contractor on a daily basis as necessary.

3.3.5 The event action plan is annexed in Appendix K.

3.4 Dolphin Monitoring

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

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

3.4.3 The layout map of impact dolphin monitoring have been provided by AFCD and is shown in Figure 4.

3.4.4 The effort summary and sighting details during the reporting quarter are shown in the Appendix H. A summary of key findings of the dolphin surveys completed during the reporting quarter is shown below:

Table 3.6 Summary of Key Dolphin Survey Findings in March 2015 – May 2015

Number of Impact Surveys Completed^	6
Survey Distance Travelled under Favourable On- Effort Condition	658.2km
Number of Sightings	15 sightings (7 sightings are ”on effort” (which are all under favourable condition), 3 “sightings are opportunistic”)
Number of dolphin individual sighted	31 individuals (the best estimated group size)
Dolphin Encounter Rate#	NEL: 0 NWL: 1.6
Dolphin Group Size	Average of NEL: 0 Average of NWL: 3.1 Varied from 1-5 individuals
Most Often frequent dolphin sighting area	Northern Sha Chau and Lung Kwu Chau Marine Park, the western limit of NWL and Tai O area.

Remarks:
^ Completion of line transect survey of NEL and NWL survey area once was counted as one complete survey.
# Dolphin Encounter Rate = (Sum of 1st 2nd, 3rd month’s total sighting/ Sum of 1st , 2nd, 3rd month’s total effort)*100km (encounter rates are calculated using on effort sightings made under favourable conditions only.)

3.4.5 One (1) Limit Level exceedance of dolphin monitoring was recorded in the reporting quarter. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. Event Action Plan for Impact Dolphin Monitoring was triggered. For detail of investigation, please refer to appendix L.

Table 3.7 Summary of STG and ANI encounter rates in March 2015 - May 2015

	NEL	NWL	Level Exceeded
STG*	0	1.6	Limit
ANI**	0	5.2	

*Quarterly Average Encounter Rate of Number of Dolphin Sightings (STG) presents averaged encounter rates of the three monitored months in terms of groups per 100km per survey event.
STG Encounter rate = (Average of (total number sighting/total effort) of 1st and 2nd completed survey# of 1st month+ Average of (total number sighting/total effort) of 1st and 2nd completed survey# of 2nd month + Average of (total number sighting/total effort) of 1st and 2nd completed survey# of 3rd month)/3*100km
**Quarterly Average Encounter Rate of Total Number of Dolphins (ANI) presents averaged encounter rates of the three monitored months in terms of individuals per 100km per survey event.
ANI Encounter rate = (Average of (total number of Individual/total effort) of 1st and 2nd completed survey# of 1st month+ Average of (total number of Individual/total effort) of 1st and 2nd completed survey# of 2nd month + Average of (total number of Individual/total effort) of 1st and 2nd completed survey# of 3rd month +)/3*100km

3.4.6 Details of the comparison and analysis methodology and their findings and discussions are annexed in Appendix H.

3.4.7 A review of survey conditions was conducted. The works at lines 1 and 2 are progressing and permanent in water structures are in place. Given that these lines are now truncated due to these structures, it is advised that the start/end points of these lines be revised to reflect the new navigation required. The proposal was under review and revision by the relevant parties in the reporting period.

3.5 Environmental Site Inspection and Audit

3.5.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. In the reporting quarter, 13 site inspections were carried out. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.

3.5.2 Particular observations during the site inspections are described below:

Air Quality

3.5.3 Fugitive dust was observed generated when spoil was excavated at east side of the reclamation works , unloading of rocks and at Portion E1. The Contractor was reminded to sprayed dusty materials with water or a dust suppression chemical immediately prior to loading or unloading or transfer operation and the Contractor was advised to provide dust control measures when material during excavated of the spoil. The Contractor applied water on exposed soil during excavation of spoil. (Closed)

3.5.4 Cement was observed on surface of grout production facility; the Contractor was reminded that to ensure generation of fugitive dust is prevented and the entire grouting process and materials unloading, loading and transfer shall be performed within an enclosed system. (Reminder)

3.5.5 Haul road at Portion B was observed dry during site walk, however, watering was subsequently observed provided by the Contractor. The Contractor was reminded to provide sufficient watering to haul roads. (Reminder)

3.5.6 Road was observed moistened. The Contractor was reminded to continue to provide control measures to prevent generation of fugitive dust. (Reminder)

3.5.7 Fugitive dust was observed at Portion E1. The Contractor was reminded to provide effective dust control measures such as sufficient watering on road. Photo record shows that watering was provided on site to prevent generation of fugitive dust. The Contractor was reminded to provide sufficient measures to prevent generation of fugitive dust. (Reminder)

3.5.8 Dark smoke was observed from an excavator at Portion C2c. The Contractor was reminded to maintain to equipment in good condition. Photo record shows that dark smoke was no longer observed from the excavator and barge near Portion C2c. The Contractor was reminded to check the dark smoke of machineries and ensure proper implementation of air quality mitigation measures. (Reminder)

Noise

3.5.9 The Contractor was reminded to provide the facilities with acoustic decoupling measures in accordance with the proposed mitigation measures for noise stated in the EP-353/2009/H. (Reminder)

Water Quality

3.5.10 Defects were observed on the secondary enclosure of grout delivery pipes. The Contractor was reminded to provide effective measure to contain any potential leakage of wastewater/grout and prevent them from releasing to the sea. The Contractor enhanced the measures to contain any potential leakage of wastewater/grout and prevent them from releasing to the sea. (Closed)

3.5.11 Soil was observed accumulated one side of the vessel, the Contractor was reminded to clear them regularly prevent runoff and keep the site clean and tidy. (Reminder)

3.5.12 Grout mixture was observed on land at the connection point of pipes. The Contractor was reminded to ensure no grout material is released to the sea. (Reminder)

3.5.13 Soil was observed at area near water outlet. The Contractor was reminded to provide measures such as sand bags to prevent silty water at water outlet. (Reminder)

3.5.14 Silt plume was observed at the northern part of the Portion C2b inside area enclosed by perimeter silt curtain. The Contractor was reminded to properly implement water quality mitigation measures. The Contractor provided measures such as rock bund the edge of Portion C2b. The contractor was reminded to ensure silt plume is prevented (Reminder)

3.5.15 Oil was observed in water adjacent to Portion C2c. The Contractor was reminded to clear the oil and take actions in accordance with the Spill Response Plan. The oil was cleared by the Contractor using oil spill kit and the used spill kit was disposed of by the Contractor as chemical waste. (Closed)

3.5.16 Turbid water was observed to flow from land area to seawall. The Contractor was advised to provide measures to prevent turbid water from going to the sea area. The Contractor provided measure to prevent the turbid water from going into the sea area from the land area. (Closed)

Chemical and Waste Management

3.5.17 Defective drip tray was observed on barge, the Contractor was advised to provide drip tray without defects on barges. The Contractor rectified the defect of the drip tray. (Closed)

3.5.18 Waste water generated from the grout mixing process was stored within soil bund; the Contractor was advised to provide sufficient enclosure and ensure the wastewater from the work process is not released to the sea. The Contractor provided sufficient enclosure to the waste water observed. (Closed)

3.5.19 General refuse was observed stored on site without proper covers and at portion at portion C2c and on site. The Contractor was reminded to provide rubbish bin with over to general refuse. General refuse was cleared by the Contractor. (Closed)

3.5.20 General refuse was observed on site and at area near the pier of southern part and south eastern part of the site; the Contractor was reminded to provide sufficient rubbish bin on site and regular properly collect and dispose of general refuse. General refuse was removed by the Contractor. (Closed)

3.5.21 Oil drums without drip trays were observed on deck surface of barge DL4. The Contractor was reminded to provide mitigation measures such as drip tray to oil drums. The Contractor removed the oil drum. (Closed)

3.5.22 Oil drums without drip trays were observed barge 利航 8, on deck surface of barge Evershine18 and barge 振明 and material supplying vessel and on deck surface of barge DL4; generator was observed without drip tray. The Contractor was reminded to provide mitigation measures such as drip tray to oil drums. The Contractor removed the oil drums on deck surface of barge Evershine18 and barge 振明. The contractor removed the generator or provided drip tray to the oil drum on ground. The material supplying vessel where the oil drums were observed left the site. (Closed)

3.5.23 Generator was observed without drip tray. The Contractor was reminded to provide mitigation measures such as drip tray to all generators. Contractor removed the generator from the area. (Closed)

3.5.24 It was observed that the pipes used for transferring grout between barge DL4 and 天駿 3 were not fully enclosed, the Contractor was advised to provide measures to ensure potential leakage of grout from the grouting production process to the sea can be effective prevented. The Contractor provided measures to prevent potential leakage of grout from the grouting production process to the sea. (Closed)

3.5.25 Solidified grout was observed on deck of barge DL4. The Contractor was reminded to keep the deck surface clean and tidy. The solidified grouts were cleared by the Contractor. (Closed)

3.5.26 Oil drums without drip trays were observed at portion C2a. The Contractor was reminded to provide mitigation measures such as drip tray to oil drums. The oil drums were removed by the Contractor. (Closed)

3.5.27 Stagnant water was observed accumulated inside a drip tray on Barge Luen Hing 368; Oil and water mixture was observed on barge 振明 18, s informed by the Contractor, the barge 振明 18 had left construction site of HKBCF reclamation works. The Contractor was reminded to clear the water/oil water mixture regularly to prevent potential runoff. (Reminder)

3.5.28 Hole was observed within bunding placed on Barge SHB 209, the Contractor was advised to provide effective mitigation measures by sealing the hole to prevent leakage and potential runoff. The Contractor rectified the deficiency by sealing the hole within the bunding on barge SHB 209. (Closed)

3.5.29 It was observed that waste water was generated from the jet grout process; the Contractor was advised to provide sufficient enclosure and ensure the wastewater from the work process is not released to the sea. Contractor enhanced the soil bund and ensures the wastewater from the work process is not released to the sea. (Closed)

3.5.30 Solidified grout was observed stored on deck of barge 天駿 3. The Contractor was reminded to sort and dispose them of properly (Reminder).

Landscape and Visual Impact

3.5.31 No relevant adverse impact was observed in the reporting month.

Others

3.5.32 Rectifications of remaining identified items are undergoing by the Contractor. Follow-up inspections on the status on provision of mitigation measures will be conducted to ensure all identified items are mitigated properly.

4 ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS

4.1 Summary of Solid and Liquid Waste Management

4.1.1 The Contractor registered as a chemical waste producer for this project. Sufficient numbers of receptacles were available for general refuse collection and sorting.

4.1.2 As advised by the Contractor, 1,421,176m^3 of fill were imported for the Project use in the reporting period. 4kg of metal, 670kg of paper/cardboard packaging, 2kg plastics and 104m^3 of general refuse were generated and disposed of in the reporting period. Monthly summary of waste flow table is detailed in Appendix I.

4.1.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

4.1.4 The Contractor is 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 Packaging, Labelling and Storage of Chemical Wastes.

5 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

5.1 Implementation Status of Environmental Mitigation Measures

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

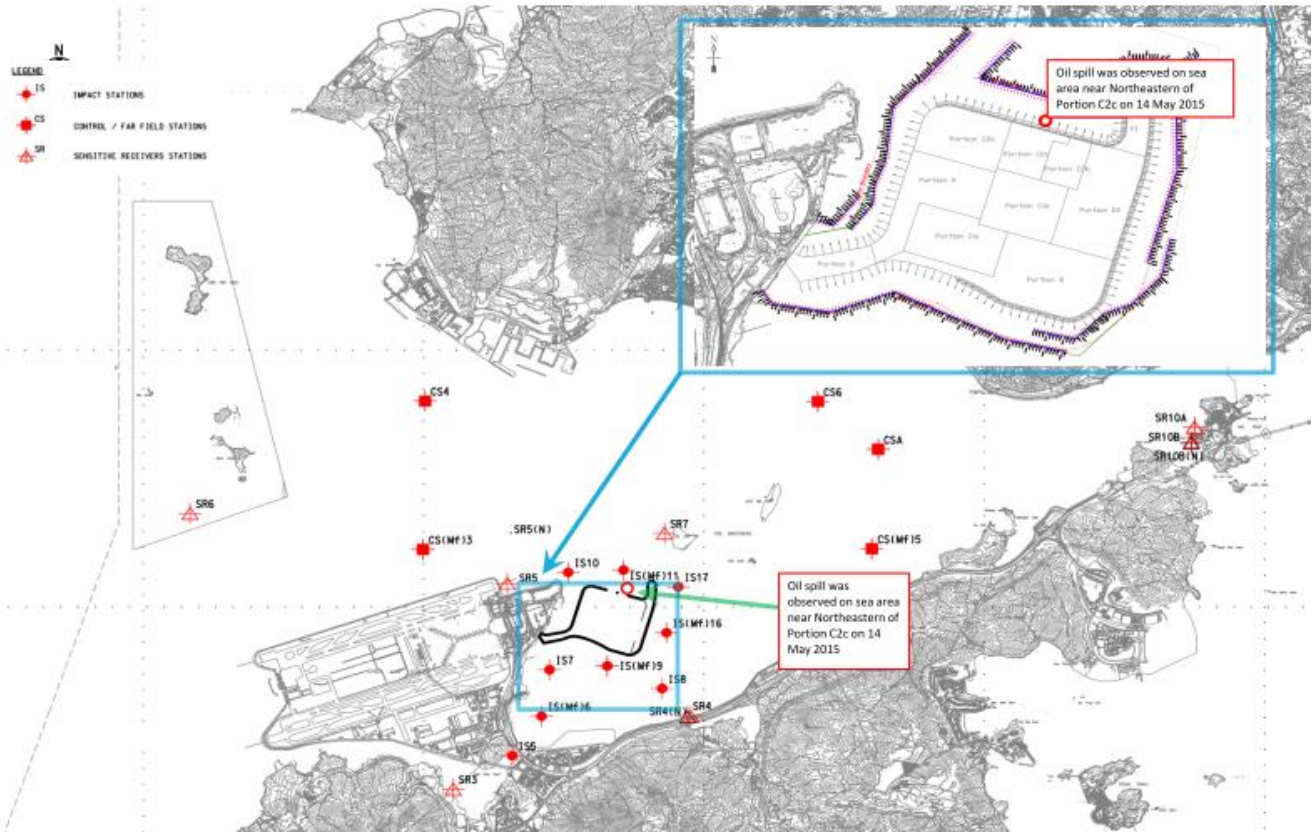
5.1.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C. Most of the recommended mitigation measures are being upheld. Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

5.1.3 Training of marine travel route for marine vessels operator was given to relevant staff and relevant records were kept properly.

5.1.4 Regarding the implementation of dolphin monitoring and protection measures (i.e. implementation of Dolphin Watching Plan, Dolphin Exclusion Zone and Silt Curtain integrity Check), regular checks were conducted by experienced MMOs within the works area to ensure that no dolphins were trapped by the silt curtain area. There were no dolphins spotted within the silt curtain during this quarter. The relevant procedures were followed and all measures were well implemented. The silt curtains were also inspected in accordance to the submitted plan.

5.1.5 Acoustic decoupling measures on noisy plants on construction vessels were checked regularly and the Contractor was reminded to ensure provision of ongoing maintenance to noisy plants and to carry out improvement work once insufficient acoustic decoupling measures were found.

5.1.6 Oil spillage was observed on 14 May 2015 on sea area near Northeastern of Portion C2c (also refer to layout map below). There oil spillage incident including size, location, time of the spillage and Contractor's actions taken in response to the spill incident have been reviewed and summarised as follow.



5.1.6.1 Investigation actions includes review of Contractor's actions taken in response to the spill incident and review of impact water quality monitoring records of 15 May 2015. Contractor's actions taken in response to the spill incident:

- The oil on sea was observed during inspection jointly conducted by Contractor, ET, ESS and the RSS on 14 March 2015.
- The Contractor organised manpower to identify the spill source, but the source of oil spill was not identified.
- The Contractor equipped people involved in the cleanup works with personal protective equipment such as gloves prior to the removal of any leaked chemical or chemical waste.

5.1.6.2 Investigation observations and results:

- Oil was observed on sea next to Northeastern of Portion C2c within silt curtain at 10:45 a.m. on 14 May 2015 during joint inspection conducted by Contractor, ET, ESS and the RSS. The following actions was taken by the Contractor:
- The Contractor organised manpower to identify the spill source, the vessel (Evershin no.8) located close to the oil spill was inspected but the source of oil spill was not identified.
- The oil spill was identified during join site inspection conducted by the Contractor, ET, ESS and RSS on 14 May 2015 as discrete, non-continuous source with approximately 10m^2 spread. Also refer to photo below:

- The Contractor deployed absorption booms to remove the floating oil from water and the used absorption booms were collected using disposal bags as part of the spill kits item. The used absorption booms were disposed of as chemical waste by the Contractor. (Also refer to photo record below).

- The oil stain observed was limited at nearby Northeastern sea area within the silt curtain.
- Photo record shows that oil on sea was no longer observed at sea area near Northeastern of Portion C2c. (Also refer to photo record below)

- Monitoring stations IS10, IS(Mf)11 and IS17 are the monitoring stations close to location of observed oil spill (also refer to above layout map). Impact water quality monitoring data record of IS10, IS(Mf)11 and IS17 have been reviewed. There is no water quality exceedance recorded at IS10, IS(Mf)11 and IS17 on 15 May 2015.

5.1.6.3 The contractor was reminded to continue to follow the spill response plan when oil is observed on sea.

5.1.6.4 Frequency of watering per day on exposed soil was checked; with reference to the record provided by the Contract, watering was conducted at least 8 times per day on reclaimed land. The frequency of watering is the mainly refer to water truck. Sprinklers are only served to strengthen dust control measure for busy traffic at the entrance of Portion D. As informed by the Contractor, during the mal-function period of sprinkler, water truck will enhance watering at such area. The Contractor was reminded to ensure provision of watering of at least 8 times per day on all exposed soil within the

6 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

6.1 Summary of Exceedances of the Environmental Quality Performance Limit

6.1.1 All 1-Hour TSP and 24-Hour TSP results were below the Action and Limit Level in the reporting month.

6.1.2 For construction noise, no exceedance was recorded at all monitoring stations in the reporting month.

6.1.3 For water quality, two (2) Action Level Exceedances of SS at IS10 and SR5 during Flood tide were recorded on 23 March 2015. No Action and Limit Level exceedances were recorded on other monitoring date in the reporting month. After investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract.

6.1.4 One (1) Limit Level exceedance of dolphin monitoring was recorded in the reporting quarter. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. Event Action Plan for Impact Dolphin Monitoring was triggered. For detail of investigation, please refer to appendix L.

6.1.5 Cumulative statistics on exceedances is provided in Appendix J.

7 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

7.1 Summary of Environmental Complaints, Notification of Summons and Successful Prosecutions

7.1.1 The Environmental Complaint Handling Procedure is annexed in Figure 5.

7.1.2 As informed by the Contractor on 09 March 2015, there is an air quality complaint received on 06 March 2015. The complainant Mr. Fung requested for follow-up actions to be taken by relevant departments in response to his Complaint about sand and dust emission from 4-5 uncovered sand barges parking near the coastline of Tuen Mun, the complainant concerns about the health problems to residents as the sand is blown to their apartments. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.

7.1.3 EPD referred a noise complaint to this project on 10 April 2015 and ENPO forwarded the noise complaint to Environmental Team on 15 April 2015. The complaint involves a complainant, who is resident of Caribbean Coast, Tung Chung and he was disturbed by noise from construction activities of the HZMB Project during weekends and holidays. After investigation, there is no adequate information to conclude the observed noise nuisance is related to this Contract.

7.1.4 A complainant contacted EPD through EPD's hotline on 21 May 2015 and complained that noise was generated from construction works when construction of artificial island at Lantau Island area was carried out overnight and dark smoke was emitted by construction plant. EPD's staff has contacted complainant and came to know that the dark smoke referring to could also be construction dust emitting from the filling work at the HKBCF. This complaint was subsequently referred by EPD to HZMB project team on 22 May 2015 to follow-up. With referred to the available information, it is unable to determine whether the night time noise and dark smoke complaint is related to this Contract.

7.1.5 No notification of summons or prosecution was received in the reporting quarter.

7.1.6 Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix N.

8 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

8.1 Comments on mitigation measures

8.1.1 According to the environmental site inspections performed in the reporting quarter, the following recommendations were provided:

Air Quality Impact

- All working plants and vessels on site should be regularly inspected and properly maintained to avoid dark smoke emission.
- All vehicles should be washed to remove any dusty materials before leaving the site.
- Haul roads should be sufficiently dampened to minimize fugitive dust generation.
- Wheel washing facilities should be properly maintained and reviewed to ensure properly functioning.
- Temporary exposed slopes and open stockpiles should be properly covered.
- Enclosure should be erected for cement debagging, batching and mixing operations.
- Water spraying should be provided to suppress fugitive dust for any dusty construction activity.
- Regular review and provide maintenance to dust control measures such as sprinkler system.

Construction Noise Impact

- Quieter powered mechanical equipment should be used as far as possible.
- Noisy operations should be oriented to a direction away from sensitive receivers as far as possible.
- Proper and effective noise control measures for operating equipment and machinery on-site should be provided, such as erection of movable noise barriers or enclosure for noisy plants. Closely check and replace the sound insulation materials regularly
- Vessels and equipment operating should be checked regularly and properly maintained.
- Noise Emission Label (NEL) shall be affixed to the air compressor and hand-held breaker operating within works area.
- Acoustic decoupling measures should be properly implemented for all existing and incoming construction vessels with continuous and regularly checking to ensure effective implementation of acoustic decoupling measures.

Water Quality Impact

- Regular review and maintenance of silt curtain systems, drainage systems and desilting facilities in order to make sure they are functioning effectively.
- Construction of seawall should be completed as early as possible.
- Regular inspect and review the loading process from barges to avoid splashing of material.
- Silt, debris and leaves accumulated at public drains, wheel washing bays and perimeter u-channels and desilting facilities should be cleaned up regularly.
- Silty effluent should be treated/ desilted before discharged. Untreated effluent should be prevented from entering public drain channel.

- Proper drainage channels/bunds should be provided at the site boundaries to collect/intercept the surface run-off from works areas.
- Exposed slopes and stockpiles should be covered up properly during rainstorm.

Chemical and Waste Management

- All types of wastes, both on land and floating in the sea, should be collected and sorted properly and disposed of timely and properly. They should be properly stored in designated areas within works areas temporarily.
- All chemical containers and oil drums should be properly stored and labelled.
- All plants and vehicles on site should be properly maintained to prevent oil leakage.
- All kinds of maintenance works should be carried out within roofed, paved and confined areas.
- All drain holes of the drip trays utilized within works areas should be properly plugged to avoid any oil and chemical waste leakage.
- Oil stains on soil surface and empty chemical containers should be cleared and disposed of as chemical waste.
- Regular review should be conducted for working barges and patrol boats to ensure sufficient measures and spill control kits were provided on working barges and patrol boats to avoid any spreading of leaked oil/chemicals.

Landscape and Visual Impact

- All existing, retained/transplanted trees at the works areas should be properly fenced off and regularly inspected.
- Control night-time lighting and glare by hooding all lights.

8.2 Recommendations on EM&A Programme

8.2.1 The impact monitoring programme for air quality, noise, water quality and dolphin ensured that any deterioration in environmental condition was readily detected and timely actions taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental impacts of the Project. With implementation of recommended effective environmental mitigation measures, the Project's environmental impacts were considered as environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.

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

8.2.3 There is a report of silt plume observed near the silt curtain for HZMB HKBCF Project maintained by Contract No. HY/2010/02 during site visit conducted by HyD on 15 April 2015. Silt plume was observed Near the eastern part of HKBCF reclamation works (portion B and E), near the silt curtain for HZMB HKBCF Project maintained by Contract No. HY/2010/02.

8.2.3.1 Photo record taken on 15 April 2015 shows that silt plume was observed near the silt curtain for HZMB HKBCF Project maintained by Contract No. HY/2010/02 during a site visit conducted by HyD on 15 April 2015:

8.2.3.2 Investigation actions:

- Site inspection was conducted jointly with the Contractor, RSS and ESS on 16 April 2015.
- Construction activities and implementation of mitigation measures were reviewed.
- Review of available impact water quality monitoring data of monitoring station IS17, IS(Mf)16 and IS(Mf)9 recorded on 15 April 2015.

8.2.3.3 Investigation results:

- No silt plume around the Portion B and Portion E2 of HKBCF reclamation works were observed during the joint site inspection conducted jointly with the Contractor, RSS and ESS on 16 April 2015. Photos were taken and please see attached photo record for reference

8.2.3.4 Photo record taken on 16 April 2015 shows that no silt plume around the Portion B and Portion E2 of HKBCF reclamation works were observed during the joint site inspection conducted jointly with the Contractor, RSS and ESS on 16 April 2015.

- No disconnection of silt curtain was observed during the joint site inspection conducted jointly with the Contractor, RSS and ESS on 16 April 2015.

- Works activity such as deep cement mixing on land was observed at the Portion B and Portion E2 of HKBCF reclamation works and relocating rock material of cellular structure was observed at the Portion B of HKBCF reclamation works during the joint site inspection conducted jointly with the Contractor, RSS and ESS on 16 April 2015, however, silt plume or discharge of silt plume was not observed.

- In addition, available impact water quality monitoring data of monitoring station IS17, IS(Mf)16 and IS(Mf)9 obtained on 15 April 2015 was reviewed and the turbidity and suspended solids levels of all monitoring stations were well below the action and limit level. Also refer to the attached water quality monitoring data of 15 April 2015 for reference.

8.2.3.5 Nevertheless, the Contractor was reminded to continue to properly and implement all water quality mitigation measures.

8.3 Conclusions

8.3.1 The construction phase and EM&A programme of the Project commenced on 12 March 2012.

8.3.2 All 1-Hour TSP and 24-Hour TSP results were below the Action and Limit Level in the reporting month.

8.3.3 For construction noise, no exceedance was recorded at all monitoring stations in the reporting period.

8.3.4 For water quality, two (2) Action Level Exceedances of SS at IS10 and SR5 during Flood tide were recorded on 23 March 2015. No Action and Limit Level exceedances were recorded on other monitoring date in the reporting month. After investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract.

8.3.5 One (1) Limit Level exceedance of dolphin monitoring was recorded in the reporting quarter. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. Event Action Plan for Impact Dolphin Monitoring was triggered. For detail of investigation, please refer to appendix L.

8.3.6 Environmental site inspection was carried out 13 times in the reporting quarter. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.

8.3.7 As informed by the Contractor on 09 March 2015, there is an air quality complaint received on 06 March 2015. The complainant Mr. Fung requested for follow-up actions to be taken by relevant departments in response to his Complaint about sand and dust emission from 4-5 uncovered sand barges parking near the coastline of Tuen Mun, the complainant concerns about the health problems to residents as the sand is blown to their apartments. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.

8.3.8 EPD referred a noise complaint to this project on 10 April 2015 and ENPO forwarded the noise complaint to Environmental Team on 15 April 2015. The complaint involves a complainant, who is resident of Caribbean Coast, Tung Chung and he was disturbed by noise from construction activities of the HZMB Project during weekends and holidays. After investigation, there is no adequate information to conclude the observed noise nuisance is related to this Contract.

8.3.9 A complainant contacted EPD through EPD's hotline on 21 May 2015 and complained that noise was generated from construction works when construction of artificial island at Lantau Island area was carried out overnight and dark smoke was emitted by construction plant. EPD's staff has contacted complainant and came to know that the dark smoke referring to could also be construction dust emitting from the filling work at the HKBCF. This complaint was subsequently referred by EPD to HZMB project team on 22 May 2015 to follow-up. With referred to the available information, it is unable to determine whether the night time noise and dark smoke complaint is related to this Contract.

8.3.10 No notification of summons or prosecution was received in the reporting quarter.

8.3.11 As informed by the Contractor, oil spillage was observed on 14 May 2015 on sea area near Northeastern of Portion C2c. Following the spill response plan ET, IEC and the RSS were informed of the incident by the Contractor.

8.3.12 Apart from the above mentioned monitoring, most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting quarter.

8.3.13 The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Project. The EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of

mitigation measures. No particular recommendation was advised for the improvement of the programme.

8.3.14 Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.