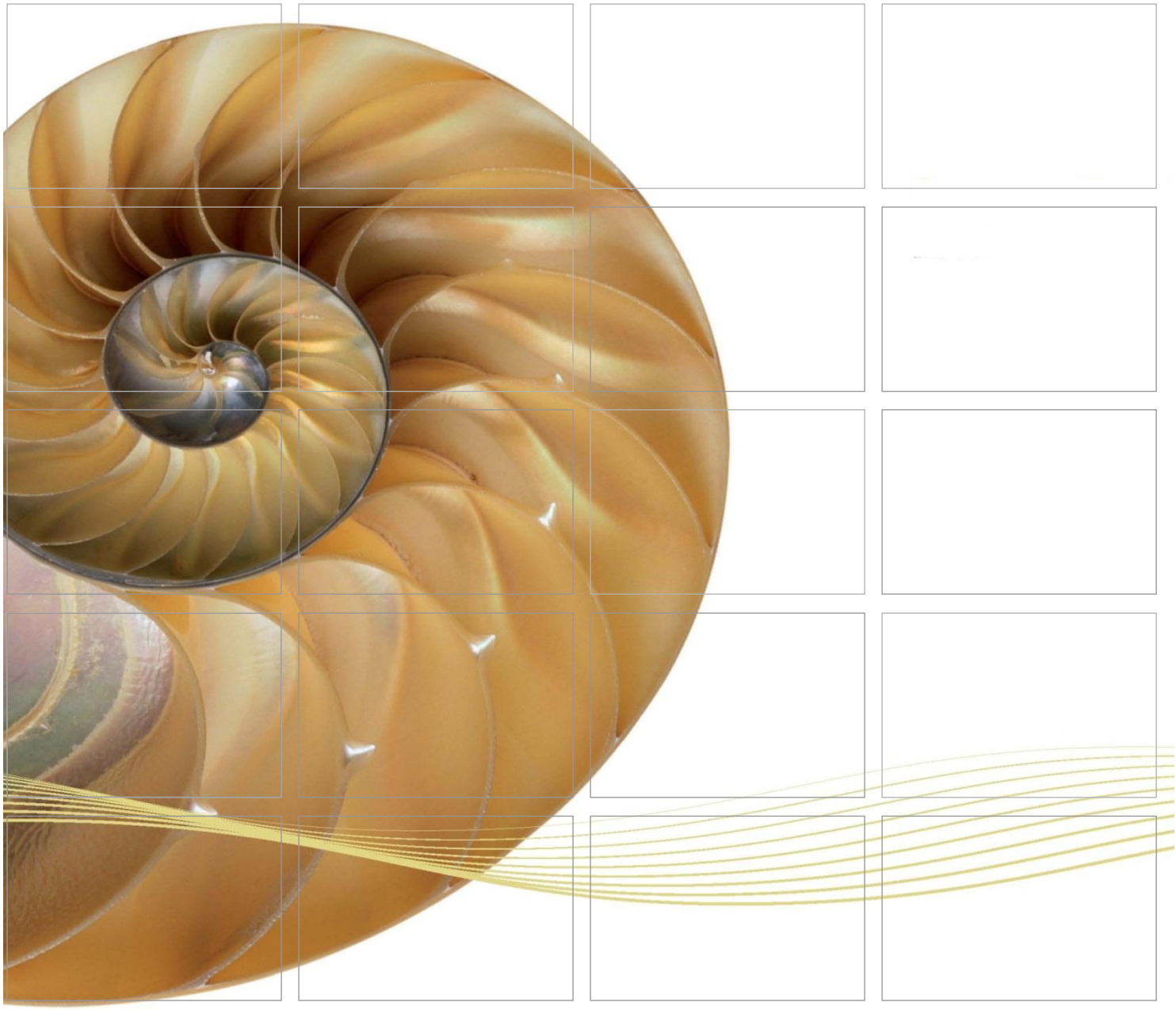
Report



Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section

First Quarterly Environmental Monitoring & Audit (EM&A) Report

05 May 2014

Environmental Resources Management
16/F, DCH Commercial Centre
25 Westlands Road
Quarry Bay, Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

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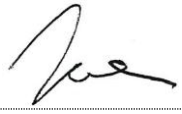
Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section

First Quarterly Environmental Monitoring & Audit (EM&A) Report

Document Code: 0212330_1st Quarterly EM&A_20140429.doc

Environmental Resources Management

16/F, DCH Commercial Centre
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
http://www.erm.com

Client: DBJV	Project No: 0212330
Summary: This document presents the First Quarterly EM&A Report for Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section.	Date: 05 May 2014 Approved by:  *Mr Craig Reid* *Partner* Certified by:  *Mr Jovy Tam* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	1st Quarterly EM&A Report	VAR	JT	CAR	05/05/14

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Ref.: HYDHZMBEEM00_0_1900L.14 9 May 2014

AECOM By Fax (2450 3099) and By Post
Supervising Officer Representative's Office
Room 201, 2nd Floor,
River Trade Terminal Office Building,
201 Lung Mun Road, Tuen Mun, Hong Kong

Attention: Messrs. Edwin Ching / Andy Westmorelan

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/2012/08 TM-CLKL Northern Connection Sub-sea Tunnel Section
Quarterly EM&A Report for November 2013 to February 2014 (EP-354/2009/B)

Reference is made to the Quarterly Environmental Monitoring and Audit (EM&A) Report (for November 2013 to February 2014) certified by the ET Leader (ET's ref.: "0212330_1st Quarterly EM&A_20140429.doc" dated 5 May 2014) and provided to us via email on 5 May 2014.

We are pleased to inform you that we have no adverse comments on the captioned quarterly EM&A Report.

Thank you for your kind attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y H Hui should you have any queries.

Yours sincerely,

F. C. Tsang
Independent Environmental Checker
Tuen Mun – Chek Lap Kok Link

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
HyD – Mr. Matthew Fung (By Fax: 3188 6614)
AECOM – Mr. Conrad Ng (By Fax: 3922 9797)
ERM – Mr. Jovy Tam (By Fax: 2723 5660)
Dragages – Mr. C.F. Kwong (By Fax: 2670 2798)

Internal: DY, YH, PL, ENPO Site

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ENVIRON Hong Kong Limited 英環香港有限公司
Room 2403 Jubilee Centre, 18 Fenwick Street, Wan Chai, Hong Kong. Tel: 852 3465 2888 Fax: 852 3465 2899
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TABLE OF CONTENTS

Under *Contract No. HY/2012/08*, Dragages – Bouygues Joint Venture (DBJV) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Northern Connection Sub-sea Tunnel Section of the Tuen Mun – Chek Lap Kok Link Project (TM-CLK Link Project) while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET) in accordance with *Environmental Permit No. EP-354/2009/A*. ENVIRON Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO). Another application for variation of environmental permit (VEP) (*EP-354/2009/B*) was granted on 28 January 2014.

The construction phase of the Project commenced on 1 November 2013 and will tentatively be completed by the end of 2018. The impact monitoring of the EM&A programme, including air quality, water quality, marine ecological monitoring and environmental site inspections, were commenced on 1 November 2013.

This is the First Quarterly EM&A report presenting the EM&A works carried out during the period from 1 November 2013 to 28 February 2014 for the *Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section* (the "Project") in accordance with the Updated EM&A Manual of the TM-CLK Link Project. As informed by the Contractor, the major activities in the reporting quarter included:

Marine-based Works

- Dredging
- Removal of existing seawall
- Placement of rock grade
- Delivery of 1,946 seawall blocks
- Vertical seawall construction
- Sloping seawall construction
- Marine sheet piling for box culvert extension
- Predrilling for box culvert foundation
- Temporary pontoon installation at River Trade Terminal (RTT)

Land-based Works

Site WA 23

- Sorting of rock material

Site WA 18

- Completion of chain-link fence, site hoarding works, site formation works
- Site office structural works
- Temporary outdoor substation civil works
- Site office construction

Portion N6

- CLP Substation Superstructure
- CLP Substation Footing & underground utilities works (Portion N6)
- CLP Substation structure works
- CLP Substation E&M works

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

24-hour TSP Monitoring	23 sessions
1-hour TSP Monitoring	23 sessions
Impact Water Quality Monitoring	51 sessions
Impact Dolphin Monitoring	8 sessions
Joint Environmental Site Inspection	17 sessions

Daily marine mammal exclusion zone monitoring was undertaken during the period of dredging works. One sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* was recorded on 20 February 2014 during the exclusion zone monitoring. The marine dredging work was subsequently suspended until the observer has confirmed that the area is continuously clear of dolphins for a period of 30 minutes.

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

Twenty-one Action Level and two Limit Level exceedances for 1-hr TSP; five Action Level and one Limit Level exceedances for 24-hr TSP were recorded from the air quality monitoring in this reporting period. The exceedances were considered to be due to the sporadic events from cumulative anthropogenic activities in this area of Hong Kong and the construction works under this Project were unlikely to be the major cause of the recorded exceedances upon further investigation.

Breaches of Action and Limit Levels for Water Quality

Five Action Level exceedances for depth-averaged suspended solids (SS) were recorded in this reporting period. The exceedances were well within the natural range and were unlikely to be due to the construction works of this Contract upon further investigation.

Dolphin Monitoring

Whilst one Action Level exceedance was observed for the quarterly dolphin monitoring data between December 2013 and February 2014, no unacceptable impact from the construction activities of the TM-CLKL Northern Connection Sub-sea Tunnel Section on Chinese White Dolphins was noticeable from general observations during the dolphin monitoring in this reporting quarter. The exceedance is considered to be the natural variation of Chinese White Dolphin ranging pattern upon further investigation.

Environmental Complaints, Non-compliance & Summons

No non-compliance with EIA recommendations, EP conditions and other requirements associated with the construction of this Contract was recorded in this reporting period.

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

Reporting Change

There was no reporting change required in the reporting period.

Upcoming Works for the Next Reporting Period

Works to be undertaken in the coming quarterly period include the following:

Marine-based works

- Dredging
- Reclamation at Portion N-A
- Vertical seawall construction
- Sloping seawall construction
- Marine sheet piling for box culvert extension
- Predrilling for box culvert foundation

Land-based works

Site WA 18

- Site office construction

Portion N6

- CLP substation footing & underground utilities works
- CLP substation superstructure

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the coming quarterly period are expected to be mainly associated with dust, marine water quality, marine ecology and waste management.

1 INTRODUCTION

1.1 BACKGROUND

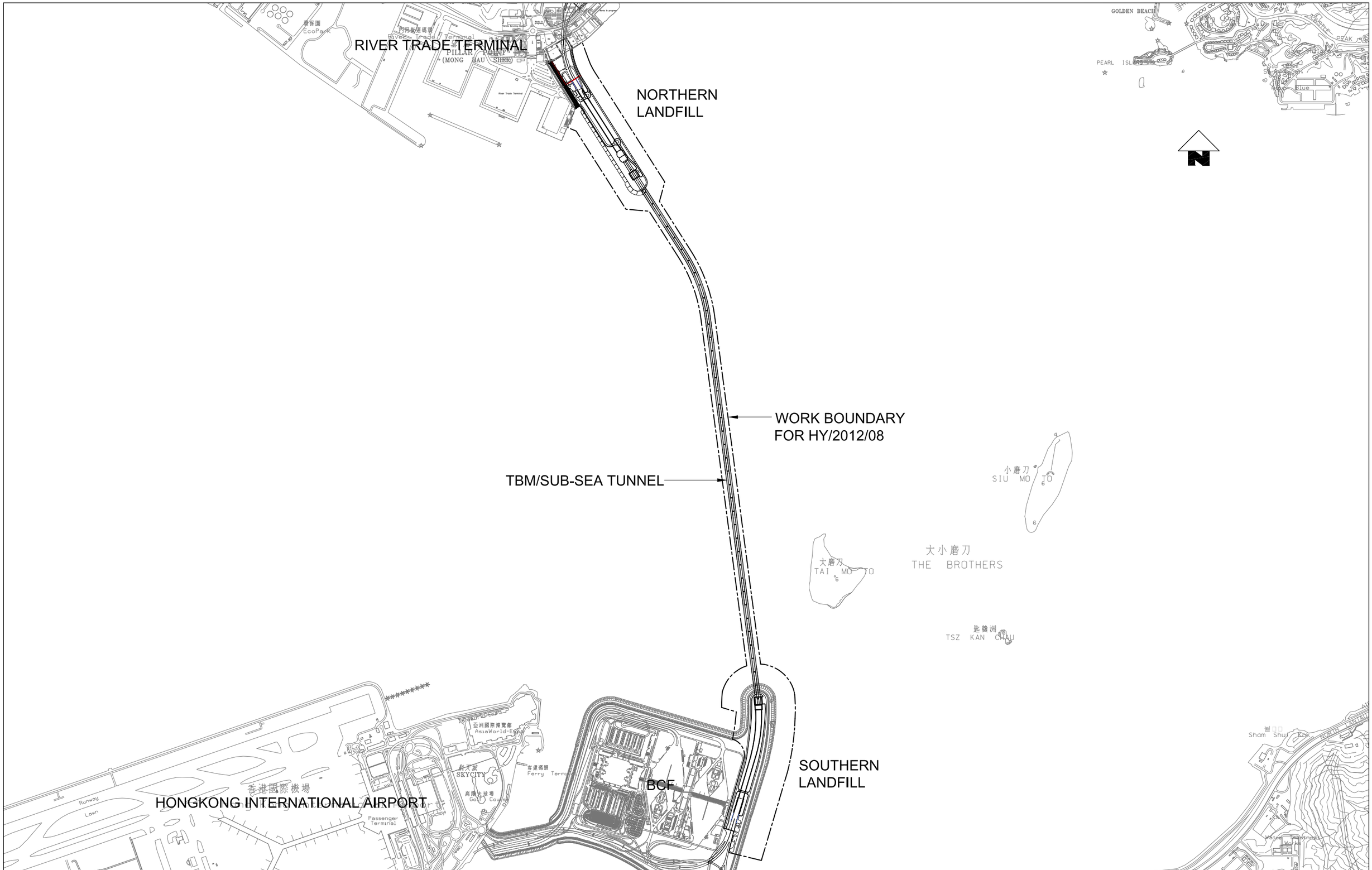
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated increase in cross boundary traffic, developments in the Northwest New Territories (NWNT), and possible developments in North Lantau, including the Airport developments, the Lantau Logistics Park (LLP) and the Hong Kong – Zhuhai – Macao Bridge (HZMB). In order to cope with the anticipated traffic demand, two new road sections between NWNT and North Lantau – Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) are proposed.

An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. ESB-175/2007) and the *Technical Memorandum of the Environmental Impact Assessment Process* (*EIAO-TM*). The EIA Report was submitted under the Environmental Impact Assessment Ordinance (EIAO) in August 2009. Subsequent to the approval of the EIA Report (EIAO Register Number AEIAR-145/2009), an Environmental Permit (EP-354/2009) for TM-CLKL was granted by the Director of Environmental Protection (DEP) on 4 November 2009, and EP variation (VEP) (EP-354/2009A) was issued on 8 December 2010. Another application for VEP (EP-354/2009/B) was granted on 28 January 2014.

Under *Contract No. HY/2012/08*, Dragages – Bouygues Joint Venture (DBJV) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Northern Connection Sub-sea Tunnel Section of TM-CLKL while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET) in accordance with Environmental Permit No. EP-354/2009/A. ENVIRON Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO).

Layout of the Contract components is presented in *Figure 1.1*.

The construction phase of the Contract commenced on 1 November 2013 and will tentatively be completed by 2018. The impact monitoring phase of the EM&A programme, including air quality, water quality, marine ecological monitoring and environmental site inspections, were commenced on 1 November 2013.



Rev.	Description	Date	Checked
A	FIRST ISSUE	11SEP13	PKV

Designed By: PKV
Drawn By: DAI
Approved By: SPo PP
Date: 11SEP2013

Main Contractor: Dragages - Bouygues Joint Venture 實嘉 - 布依格聯營

Client: 路政署 HIGHWAYS DEPARTMENT

Contractor's Designer: ARUP Ove Arup & Partners Hong Kong Limited

Project: Contract No. HY/2012/08
Tuen Mun - Chek Lap Kok Link -
Northern Connection Sub-Sea Tunnel Section

Drawing Title: **Figure 1.1**

Drawing no.: TMCLKL8-DBJ-GEN-DWG-00174
Scale: 1:25000 @ A3
CADD Ref.: TMCLKL8-DBJ-GEN-DWG-00174-DFT-A
Issue Status: DFT (DRAFT)
Revision: A

1.2 SCOPE OF REPORT

This is the First Quarterly EM&A Report under the *Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section*. This report presents a summary of the environmental monitoring and audit works from 1 November 2013 to 28 February 2014.

1.3 ORGANIZATION STRUCTURE

The organization structure of the Contract is shown in *Appendix A*. The key personnel contact names and contact details are summarized in *Table 1.1* below.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Highways Department	Engr 16/HZMB	Kenneth Lee	2762 4996	3188 6614
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Edwin Ching	2450 3111	2450 3099
		Andrew Westmoreland	2450 3511	2450 3099
ENPO / IEC (ENVIRON Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2888	3465 2899
	IEC	F. C. Tsang	3465 2828	3465 2899
Contractor (Dragages – Bouygues Joint Venture)	Environmental Manager	C.F. Kwong	2293 7322	2670 2798
	Environmental Officer	Bryan Lee	2293 7323	2670 2798
	24-hour complaint hotline	Rachel Lam	2293 7342	
ET (ERM-HK)	ET Leader	Jovy Tam	2271 3113	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of this Contract was commenced on 1 November 2013. The three-month rolling construction programme is shown in *Appendix B*.

With reference to DBJV's information, details of major construction works carried out in this reporting period are summarized in *Table 1.2*.

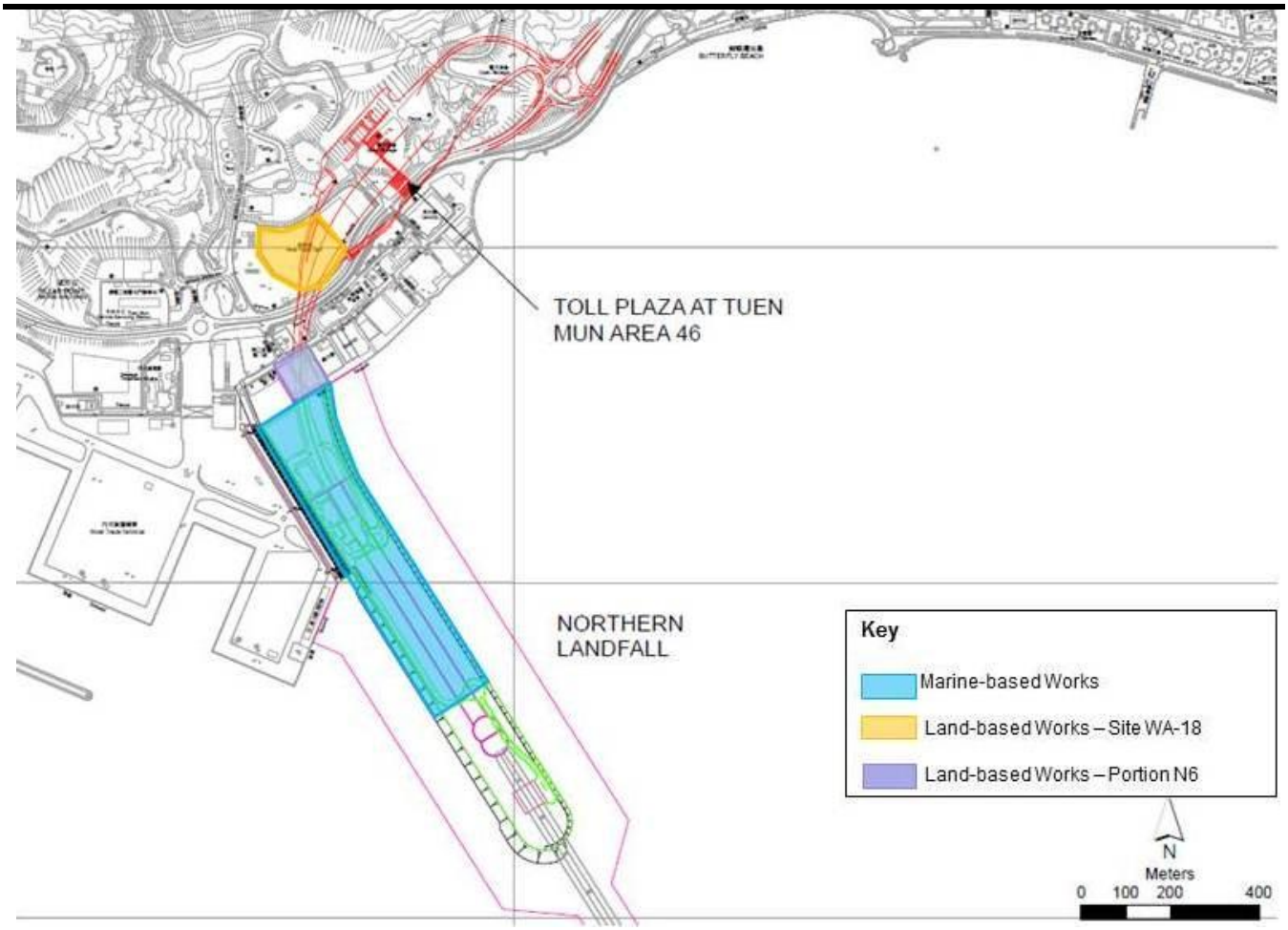
The general layout plan of the site showing the detailed works areas is shown in *Figure 1.2*. The Environmental Sensitive Receivers in the vicinity of the Project are shown in *Figure 1.3*.

The implementation schedule of environmental mitigation measures is presented in *Appendix C*.

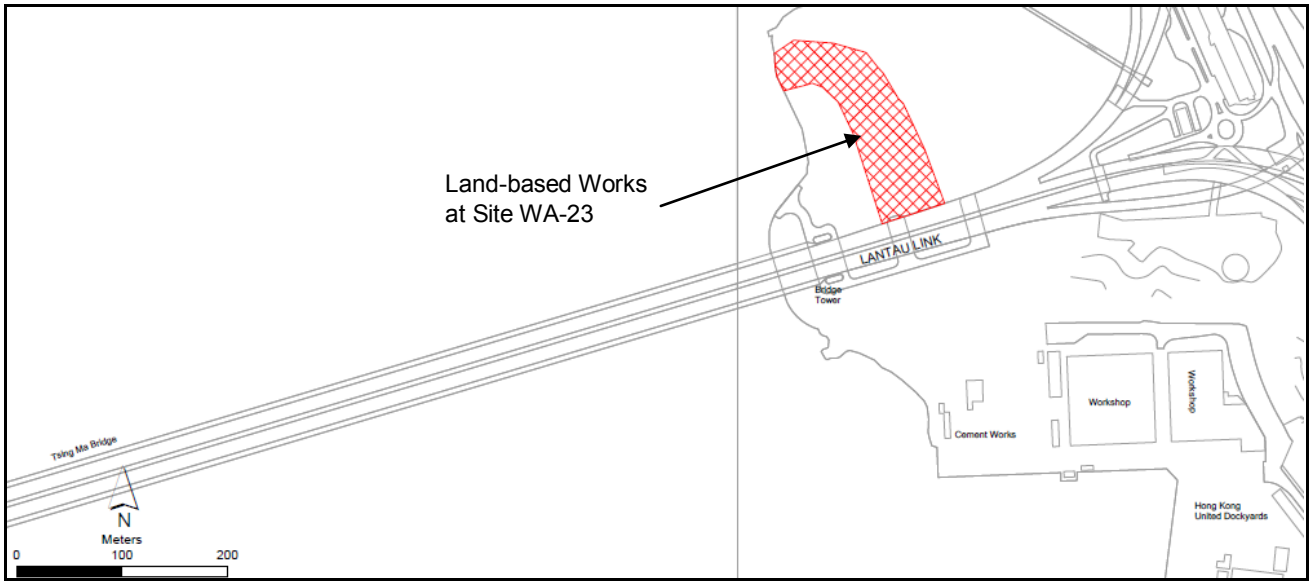
Table 1.2 Summary of Construction Activities Undertaken during the Reporting Period

Construction Activities Undertaken
Marine-based Works
• Dredging • Removal of existing seawall • Placement of rock grade 400 • Delivery of 1,946 seawall blocks • Vertical seawall construction • Sloping seawall construction • Marine sheet piling for box culvert extension • Predrilling for box culvert foundation • Temporary pontoon installation at River Trade Terminal (RTT)
Land-based Works
Site WA 23 • Sorting of rock material Site WA 18 • Completion of chain-link fence, site hoarding works, site formation works • Site office structural works • Temporary outdoor substation civil works • Site office construction Portion N6 • CLP Substation Superstructure • CLP Substation Footing & underground utilities works • CLP Substation structure works • CLP Substation E&M works

Figure 1.2 Locations of Construction Activities – November 2013 to February 2014



a. Tuen Mun – Land-based and Marine-based Works Area



b. Tsing Yi – Site WA-23

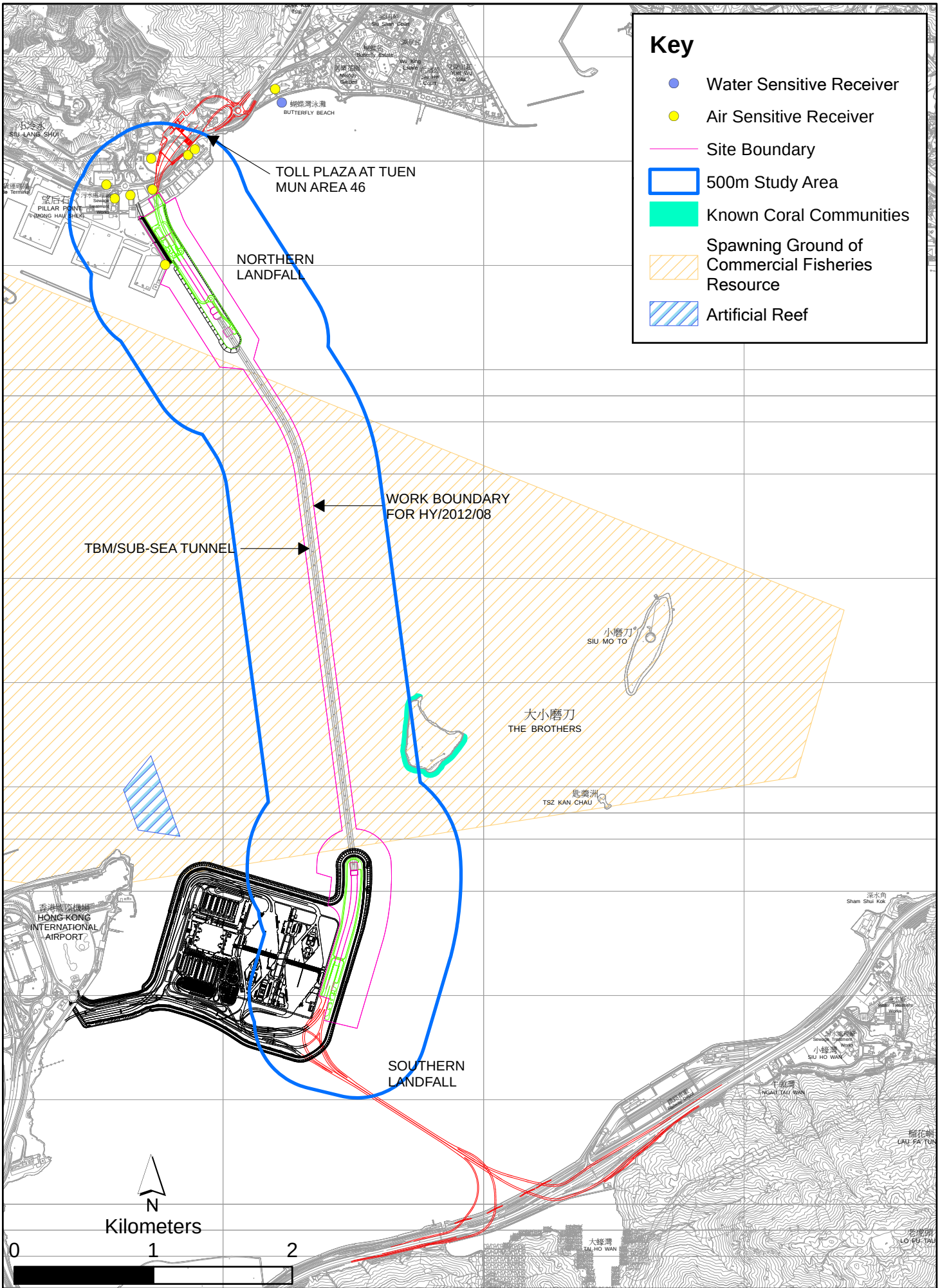


Figure 1.3 Environmental Sensitive Receivers in the vicinity of Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-Sea Tunnel Section

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Environmental Resources Management

2 EM&A RESULTS

The EM&A programme required environmental monitoring for air quality, water quality and marine ecology as well as environmental site inspections for air quality, noise, water quality, waste management, marine ecology and landscape and visual impacts. The EM&A requirements and related findings for each component are summarized in the following sections

2.1 AIR QUALITY

As per the requirements under *Condition 2.4* of *EP-354/2009/A* and *EP-354/2009/B*, the Enhanced TSP Monitoring Plan has been prepared under *Contract No. HY/2012/08*. Details of the monitoring plan are presented in the *Enhanced TSP Monitoring Plan* [1].

2.1.1 Monitoring Requirements and Equipment

In accordance with the Updated EM&A Manual and the *Enhanced TSP Monitoring Plan*, impact 1-hour TSP monitoring was conducted three (3) times every six (6) days and impact 24-hour TSP monitoring was carried out once every six (6) days when the highest dust impact was expected.

High volume samplers (HVSs) were used to carry out the 1-hour and 24-hour TSP monitoring in the reporting quarter at the five (5) air quality monitoring stations in accordance with the requirements stipulated in the Updated EM&A Manual (*Figure 2.1*; *Table 2.1*). Wind anemometer was installed at the rooftop of ASR5 for logging wind speed and wind direction. Details of the equipment deployed are provided in *Table 2.2*.

[1] ERM (2013) Enhanced TSP Monitoring Plan. Submitted on 28 October 2013 and subsequently approved by EPD on 1 November 2013.

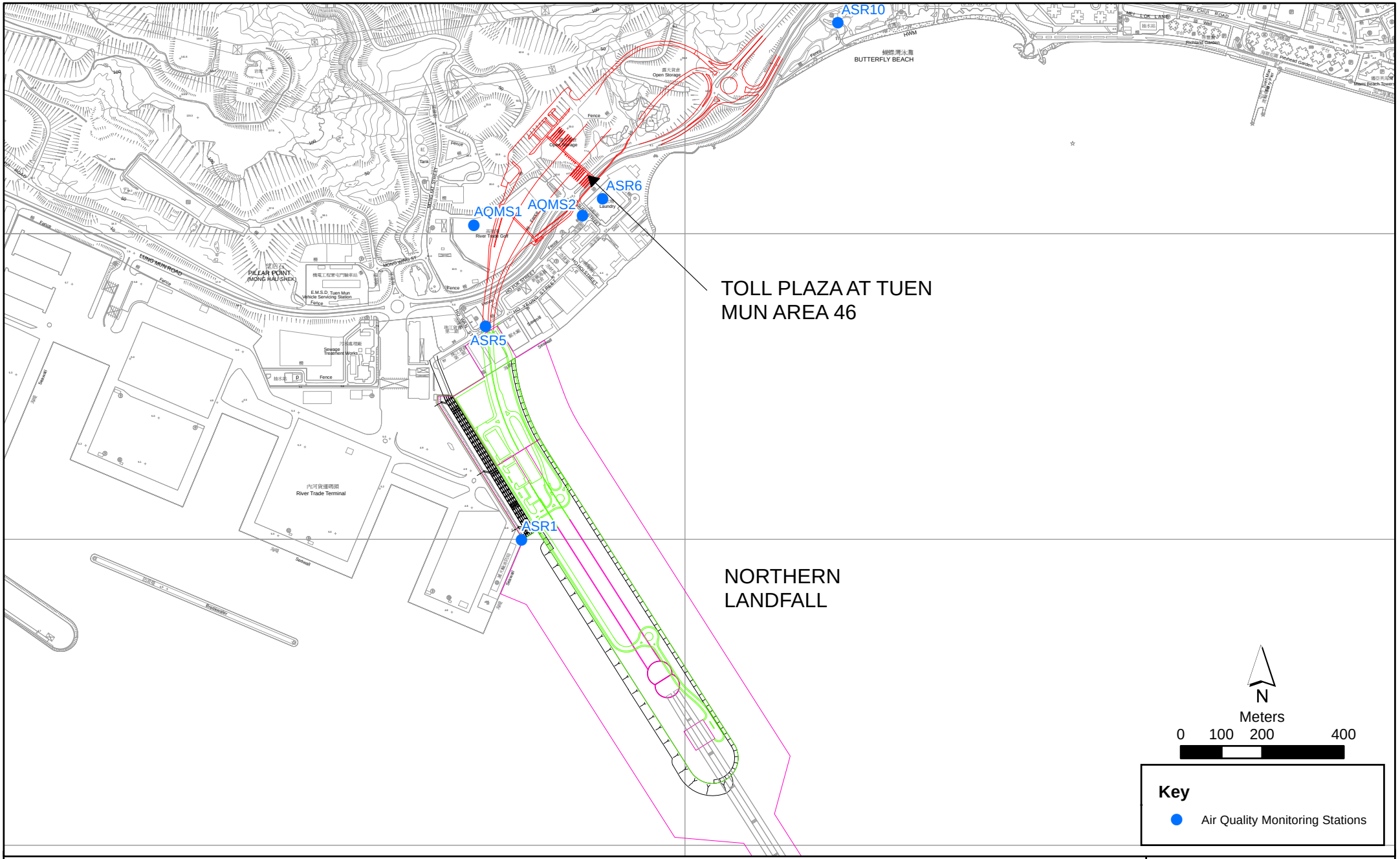

Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

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Date: 4/2/2014

Environmental Resources Management

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Table 2.1 ***Locations of Impact Air Quality Monitoring Stations and Monitoring Dates in this Reporting Period***

Monitoring Station	Location	Description	Parameters & Frequency	Monitoring Dates
ASR1	Tuen Mun Fireboat Station	Office	• 1-hour Total Suspended Particulates (1-hour TSP, μg/m³), 3 times per day every 6 days • 24-hour Total Suspended Particulates (24-hour TSP, μg/m³), daily for 24-hour every 6 days	2, 7, 13, 19, 25 and 29 November 2013; 5, 11, 17, 23 and 28 December 2013; 3, 9, 15, 21, 27 and 30 January 2014; 5, 8, 12, 18, 24, and 28 February 2014
ASR5	Pillar Point Fire Station	Office		
AQMS1	Previous River Trade Golf	Bare ground		
AQMS2/ASR6*	Bare ground at Ho Suen Street/ Butterfly Beach Laundry*	Bare ground/ Office		
ASR10	Butterfly Beach Park	Recreational uses		

*** Notes:**
AQMS2 was relocated and HVS was re-installed at ASR6 (Butterfly Beach Laundry) on 17 January 2014. AQMS2 was then superseded by ASR6 for the impact air quality monitoring. Impact air quality monitoring at ASR6 commenced on 21 January 2014.

Table 2.2 ***Air Quality Monitoring Equipment***

Equipment	Brand and Model
High Volume Sampler (1-hour TSP and 24-hour TSP)	Tisch Environmental Mass Flow Controlled Total Suspended Particulate (TSP) High Volume Sampler (Model No. TE-5170)
Wind Anemometer	MetPak, WindSonic (Wind Direction: WE570; Wind Speed Sensor: WE550)

2.1.2 Action & Limit Levels

The Action and Limit Levels of the air quality monitoring is provided in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

2.1.3 Monitoring Schedule for the Reporting Quarter

The schedules for air quality monitoring in the reporting quarter are provided in *Appendix E*.

2.1.4 Results and Observations

Impact air quality monitoring was conducted at all designated monitoring stations in the reporting period under favourable weather conditions. The major dust sources in the reporting period include construction activities under the Contract as well as nearby traffic emissions.

The monitoring results for 1-hour TSP and 24-hour TSP are summarized in *Tables 2.3* and *2.4,* respectively. Monitoring results are presented graphically

in *Appendix F* and detailed impact air quality monitoring data were reported in the *First* to *Fourth Monthly EM&A Report*.

Table 2.3 Summary of 1-hour TSP Monitoring Results in this Reporting Period

Month/Year	Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
November 2013 to February 2014	ASR 1	202	56 - 474	331	500
	ASR 5	224	43 - 559	340	500
	AQMS1	173	48 - 431	335	500
	AQMS2/ASR6	201	56 - 425	338	500
	ASR10	154	46 - 645	337	500

Table 2.4 Summary of 24-hour TSP Monitoring Results in this Reporting Period

Month/Year	Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
November 2013 to February 2014	ASR 1	124	32 - 249	213	260
	ASR 5	142	39 - 258	238	260
	AQMS1	124	40 - 228	213	260
	AQMS2/ASR6	134	38 - 269	238	260
	ASR10	90	34 - 166	214	260

In this reporting period, a total of twenty-three monitoring events were undertaken in which twenty-one Action Level exceedances and two Limit Level exceedances for 1-hr TSP; five Action Level exceedances and one Limit Level exceedance for 24-hr TSP were recorded in ten air quality monitoring events.

Meteorological information collected at the ASR5, including wind speed and wind direction, is provided in *Appendix G*. Meteorological data between 4 and 14 February 2014 is not available due to power failure.

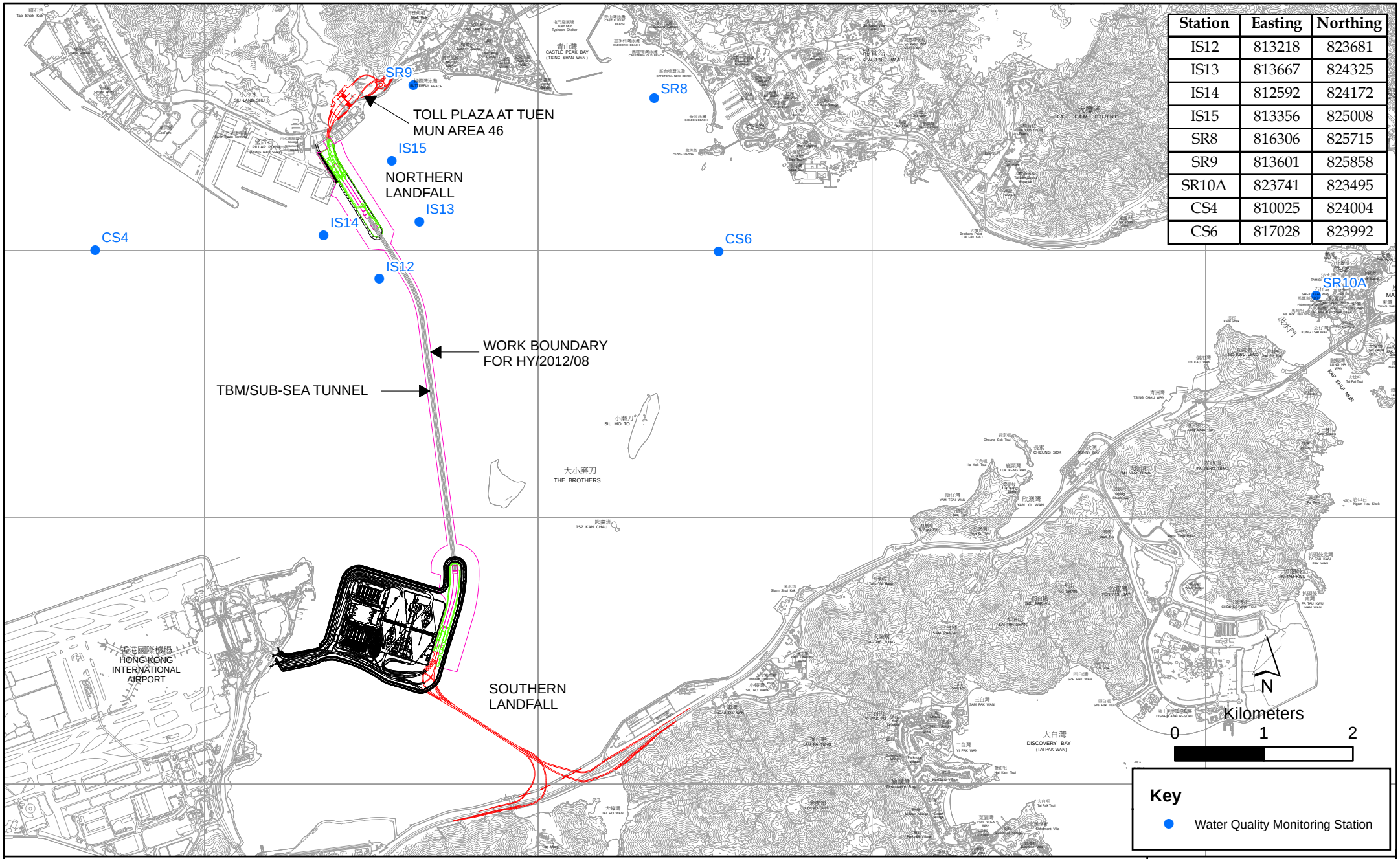
2.2 WATER QUALITY MONITORING

The baseline water quality monitoring undertaken by the Hong Kong – Zhuhai – Macao Bridge Hong Kong Projects (HKZMB) between 6 and 31 October 2011 has included all monitoring stations for the Project. Thus, the baseline monitoring results and Action/Limit Level presented in HKZMB Baseline Monitoring Report [1] are adopted for this Project.

2.2.1 *Monitoring Requirements & Equipment*

In accordance with the Updated EM&A Manual, impact water quality monitoring was carried out three days per week during the construction period at nine (9) water quality monitoring stations (*Figure 2.2*; *Table 2.5*).

[1] *Agreement No. CE 35/2011 (EP) Baseline Environmental Monitoring for Hong Kong - Zhuhai - Macao Bridge Hong Kong Projects - Investigation*. Baseline Environmental Monitoring Report (Version C). Submitted on 8 March 2012 and subsequently approved by EPD.



Station	Easting	Northing
IS12	813218	823681
IS13	813667	824325
IS14	812592	824172
IS15	813356	825008
SR8	816306	825715
SR9	813601	825858
SR10A	823741	823495
CS4	810025	824004
CS6	817028	823992

Figure 2.2

Water Quality Monitoring Station

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Date: 15/11/2013

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Table 2.5 Locations of Water Quality Monitoring Stations and the Corresponding Monitoring Requirements

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
IS12	Impact Station	813218	823681	• Temperature(°C)	3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted.	Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides during the construction period of the Contract.
IS13	Impact Station	813667	824325	• pH(pH unit)		
IS14	Impact Station	812592	824172	• Turbidity (NTU)		
IS15	Impact Station	813356	825008	• Water depth (m)		
CS4	Control / Far Field Station	810025	824004	• Salinity (ppt)		
				• DO (mg/L and % of saturation)		
CS6	Control / Far Field Station	817028	823992			
SR8	Sensitive receiver (Gazettal beaches in Tuen Mun)	816306	825715	• SS (mg/L)		
SR9	Sensitive receiver (Butterfly Beach)	813601	825858			
SR10A	Sensitive receiver (Ma Wan FCZ)	823741	823495			

*Notes:
In addition to the parameters presented monitoring location/position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or works underway nearby were also recorded.

Table 2.6 summarizes the equipment used in the impact water quality monitoring programme.

Table 2.6 Water Quality Monitoring Equipment

Equipment	Model	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Dissolved Oxygen Meter	YSI Pro 2030	1
pH Meter	HANNA HI 8314	1
Turbidity Meter	HACH 2100Q	1
Monitoring Position Equipment	"Magellan" Handheld GPS Model eXplorist GC	4
	DGPS Koden KGP913MK2 (1)	1

2.2.2 Action & Limit Levels

The Action and Limit Levels of the water quality monitoring is provided in *Appendix D*. The Event and Action plan is presented in *Appendix J.*

2.2.3 Monitoring Schedule for the Reporting Period

The schedules for water quality monitoring in the reporting period are provided in *Appendix E.*

2.2.4 *Results and Observations*

During this reporting period, marine dredging activities were undertaken at Portions N-A and N-B, but no dredging was undertaken on 31 January 2014. A closed grab dredger was used and silt curtains (cage-type and single floating type) were deployed during dredging works in accordance with the EP. The level of dredging activities was within the working rate described in the EP and the approved EIA Report. It is useful to note that heavy marine traffic (not associated with the Project) was commonly observed nearby the Project site and its vicinity.

Impact water quality monitoring was conducted at all designated monitoring stations in the reporting period under favourable weather conditions. Monitoring results are presented graphically in *Appendix H* and detailed impact water quality monitoring data were reported in the *First* to *Fourth Monthly EM&A Report*.

In this reporting period, a total of fifty-one monitoring events were undertaken in which five Action Level exceedances for depth-averaged SS were recorded in two monitoring events.

2.3 *DOLPHIN MONITORING*

2.3.1 *Monitoring Requirements*

Impact dolphin monitoring is required to be conducted by a qualified dolphin specialist team to evaluate whether there have been any effects on the dolphins. In order to fulfil the EM&A requirements and make good use of available resources, the on-going impact line transect dolphin monitoring data collected by HyD's *Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge. Hong Kong Link Road - Section between Scenic Hill and Hong Kong Boundary Crossing Facilities* on the monthly basis is adopted to avoid duplicates of survey effort.

2.3.2 *Monitoring Equipment*

Table 2.7 summarises the equipment used for the impact dolphin monitoring.

Table 2.7 Dolphin Monitoring Equipment

Equipment	Model
Global Positioning System (GPS)	Garmin 18X-PC Geo One Phottix
Camera	Nikon D90 300m 2.8D fixed focus Nikon D90 20-300m zoom lens
Laser Binoculars	Infinitor LRF 1000
Marine Binocular	Bushell 7 x 50 marine binocular with compass and reticules
Vessel for Monitoring	65 foot single engine motor vessel with viewing platform 4.5m above water level

2.3.3 Monitoring Parameter, Frequencies & Duration

Dolphin monitoring should cover all transect lines in Northeast Lantau (NEL) and the Northwest Lantau (NWL) survey areas twice per month throughout the entire construction period. The monitoring data should be compatible with, and should be made available for, long-term studies of small cetacean ecology in Hong Kong. In order to provide a suitable long-term dataset for comparison, identical methodology and line transects employed in baseline dolphin monitoring was followed in the impact dolphin monitoring.

2.3.4 Monitoring Location

The impact dolphin monitoring was carried out in the NEL and NWL along the line transect as depicted in *Figure 2.3*. The co-ordinates of all transect lines are shown in *Table 2.8* below.

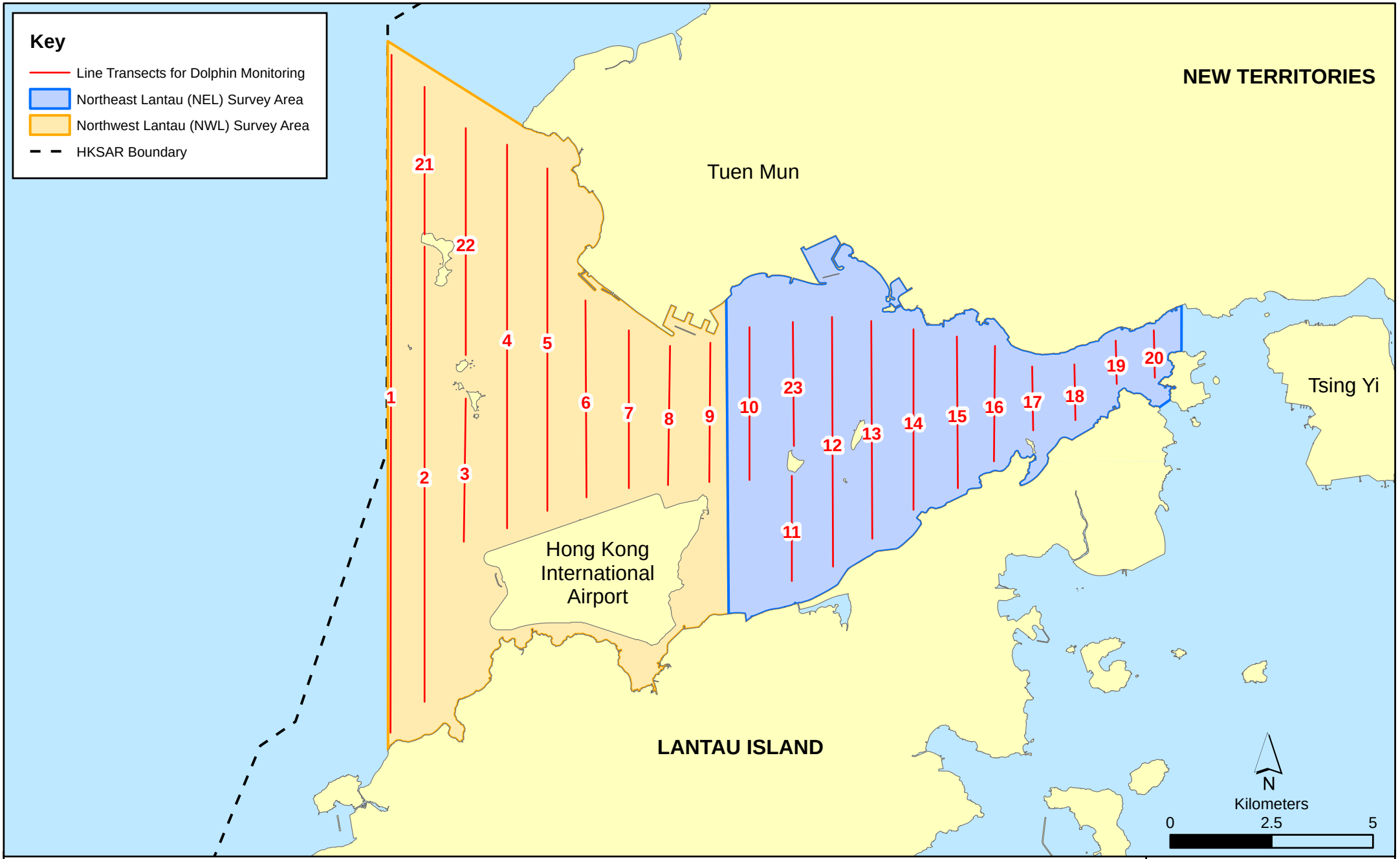

Figure 2.3

Layout of Transect Lines of Dolphin Monitoring in Northwest and Northeast Lantau Areas

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Date: 29/11/2013

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Table 2.8 Impact Dolphin Monitoring Line Transect Co-ordinates

Line No.		Easting	Northing	Line No.		Easting	Northing
1	Start Point	804671	814577	13	Start Point	816506	819480
1	End Point	804671	831404	13	End Point	816506	824859
2	Start Point	805475	815457	14	Start Point	817537	820220
2	End Point	805477	826654	14	End Point	817537	824613
3	Start Point	806464	819435	15	Start Point	818568	820735
3	End Point	806464	822911	15	End Point	818568	824433
4	Start Point	807518	819771	16	Start Point	819532	821420
4	End Point	807518	829230	16	End Point	819532	824209
5	Start Point	808504	820220	17	Start Point	820451	822125
5	End Point	808504	828602	17	End Point	820451	823671
6	Start Point	809490	820466	18	Start Point	821504	822371
6	End Point	809490	825352	18	End Point	821504	823761
7	Start Point	810499	820690	19	Start Point	822513	823268
7	End Point	810499	824613	19	End Point	822513	824321
8	Start Point	811508	820847	20	Start Point	823477	823402
8	End Point	811508	824254	20	End Point	823477	824613
9	Start Point	812516	820892	21	Start Point	805476	827081
9	End Point	812516	824254	21	End Point	805476	830562
10	Start Point	813525	820872	22	Start Point	806464	824033
10	End Point	813525	824657	22	End Point	806464	829598
11	Start Point	814556	818449	23	Start Point	814559	821739
11	End Point	814556	820992	23	End Point	814559	824768
12	Start Point	815542	818807				
12	End Point	815542	824882				

2.3.5 Action & Limit Levels

The action and limit levels of dolphin impact monitoring are shown in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

2.3.6 *Monitoring Schedule for the Reporting Period*

The dolphin monitoring schedules for the reporting period are shown in *Appendix E*.

2.3.7 *Results & Observations*

A total of 1137.92 km of survey effort was collected, with 95.0% of the total survey effort being conducted under favourable weather conditions (ie Beaufort Sea State 3 or below with good visibility) in this reporting quarter. Amongst the two areas, 428.91 km and 709.01 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 852.63 km and 285.29 km, respectively. The survey efforts are summarized in *Appendix I*.

A total of 59 groups of 249 Chinese White Dolphin sightings were recorded during the two sets of surveys in this reporting quarter. All except four sightings were made during on-effort search. Fifty on-effort sightings were made on primary lines, while five other on-effort sightings were made on secondary lines. During this reporting quarter, only three groups of 16 dolphins were sighted in NEL, while the other 56 groups of 233 dolphins were sighted NWL.

For the detailed comparison of dolphin occurrence and usage of NEL and NWL survey area between the impact phase and baseline phase monitoring, only the quarterly data of December 2013 – February 2014 from the impact phase monitoring was used in the present report to tally with the three-month period of baseline monitoring (September – November 2011).

Encounter rates of Chinese White Dolphins are deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below with good visibility) in the reporting quarter with the results present in *Tables 2.9* and *2.10*.

Table 2.9 Individual Survey Event Encounter Rates

		Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	**Primary Lines Only**
NEL	Set 1: Dec 5th/9th	2.68	8.05
	Set 2: Dec 13th/19th	0.0	0.0
	Set 3: Jan 7th/9th	0.0	0.0
	Set 4: Jan 21st/23rd	0.0	0.0
	Set 5: Feb 6th/12th	0.0	0.0
	Set 6: Feb 14th/20th	0.0	0.0
NWL	Set 1: Dec 5th/9th	6.95	30.57
	Set 2: Dec 13th/19th	6.82	27.27
	Set 3: Jan 7th/9th	10.00	39.99
	Set 4: Jan 21st/23rd	11.84	50.33
	Set 5: Feb 6th/12th	7.44	17.86
	Set 6: Feb 14th/20th	6.20	29.47

Note: Dolphin Encounter Rates are deduced from the Two Sets of Surveys (Two Surveys in Each Set) in the reporting quarter in Northeast (NEL) and Northwest Lantau (NWL)

Table 2.10 Monthly Average Encounter Rates

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		**Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)**	
	December 2013 – February 2014	**September 2011 – November 2011**	**December 2013 – February 2014**	**September 2011 – November 2011**
Northeast Lantau	0.45 ± 1.10	6.00 ± 5.05	1.34 ± 3.29	22.19 ± 26.81
Northwest Lantau	8.21 ± 2.21	9.85 ± 5.85	32.58 ± 11.21	44.66 ± 29.85

Note: Encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions.

Group size of Chinese White Dolphins ranged from 1 - 12 individuals per group in North Lantau region during December 2013 to February 2014. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in *Table 2.11*.

Table 2.11 Average Dolphin Group Size

	Average Dolphin Group Size	
	December 2013 – February 2014	**September 2011 – November 2011**
Overall	0.45 ± 1.10	6.00 ± 5.05
Northeast Lantau	8.21 ± 2.21	9.85 ± 5.85
Northwest Lantau	0.45 ± 1.10	6.00 ± 5.05

During this month of dolphin monitoring, no unacceptable impact from the construction activities of this Contract was recorded from the general observations.

Although the dolphins infrequently occurred along the alignment of TM-CLKL Northern Connection Sub-Sea Tunnel Section in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL.

It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

2.3.8 Marine Mammal Exclusion Zone Monitoring

Daily 250 m marine mammal exclusion zone monitoring was undertaken during the period of dredging activities under this Contract. One sighting of the Indo-Pacific humpback dolphin (i.e. Chinese White Dolphin) *Sousa chinensis* was recorded on 20 February 2014 during the exclusion zone monitoring. The dolphin group of three was sighted within the 250 m marine mammal exclusion zone from a dredging barge sighting platform by the marine mammal observer. The marine dredging work was subsequently suspended until the observer has confirmed that the area is continuously clear of dolphin for a period of 30 minutes. The *Dolphin Intrusion Report* is presented in *Appendix J* of the *Forth Monthly EM&A Report*.

2.4 CORAL MONITORING

The first quarterly Coral Post-Translocation Monitoring was conducted on 17 January 2014 and the results were provided in the *First Quarterly Post-Translocation Coral Monitoring Report*.

2.5 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation

measures under the Contract. Seventeen (17) site inspections were carried out in the reporting quarter on 5, 12, 20, 27 November 2013; 4, 10, 18, 24 and 31 December 2013; 7, 14, 22 and 29 January 2014; 5, 11, 19 and 26 February 2014.

Key observations during the site inspections in this reporting period are summarized in *Table 2.12*.

Table 2.12 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Period

Inspection Date	Environmental Observations	Recommendations/ Remarks
5 November 2013	Portion N-A • Floating Type Silt Curtain was not deployed properly Dredging barge • Oily floor on dredging barge • Label on chemical container was missing and they were placed at secured area. • Black smoke was observed when dredger was under operation	Portion N-A • The Contractor secured the floating type silt curtain as recommended. Dredging barge • The Contractor cleaned the oily floor by appropriate chemical absorbance • The Contractor placed the chemical containers at the secured area with proper label. • The Contractor was reminded to maintain the plants regularly.
12 November 2014	Site WA-23 • Residual sandy materials were found leaving at the edge of loading area • The Contract was reminded to cover the temporary stockpiles at site WA 23 properly when piling is completed. Site WA-18 • Drip tray stopper was found missing and stagnant of water was found in the drip tray.	Site WA-23 • The Contractor was reminded to clean up the residual sandy material nearby at the loading area at site WA 23 upon completion of sandy materials transfer. • The Contract covered the temporary stockpiles at site WA 23. Site WA-18 • The Contractor was reminded to ensure the trip tray is sealed and clean up the stagnant water.
20 November 2013	Barge - GD1 • Sediment flow was observed outside the cage-type silt curtain in the dredging site Site WA-18 • Several oil drums was observed without chemical labels • Sandy materials were observed near the drainage area.	Barge - GD1 • The Contractor was reminded to regularly check the silt curtain to prevent sediment outflow into the sea. Site WA-18 • The contractor was reminded to provide chemical labels for the oil drums • Bunds should be provided to avoid sediment runoff
27 November 2013	Barge - GD1 • Oil stain was observed on the barge • Drip tray should be provided for the chemical containers. Site WA-23 • EP should be displayed conspicuously in the site entrance.	Barge - GD1 • The Contractor was reminded to regularly check for oil leakage and proper maintenance. • The Contractor was reminded to provide drip tray for the chemical containers. Site WA-23 • The Contractor was reminded to display EP conspicuously in the site entrance.
4 December 2013	Barge - Crown Asia 1 • A proper chemical waste container with good conditions and capacity should be provided.	Barge - Crown Asia 1 • The contractor was reminded to provide a proper chemical waste container with adequate capacity and to maintain in good conditions.

Inspection Date	Environmental Observations	Recommendations/ Remarks
10 December 2013	Barge – Wing Ko • Oil stain was observed, drip tray should be provided for the chemical containers Portion N-A • Silt curtain was found damaged.	Barge – Wing Ko • The contractor was reminded to clean up the oil stain as chemical waste and provide drip tray for the chemical containers. Portion N-A • The contractor was reminded to repair the damaged silt curtain to maintain efficiency.
18 December 2013	Barge – Crown Asia 1 • Drip tray should be maintained with adequate capacity to avoid oil spillage. Any oil spill observed should be cleaned up probably as chemical waste.	Barge – Crown Asia 1 • The contractor was reminded to regularly check the efficiency of drip tray and clean up the oil stain.
24 December 2013	Barge - Crown Asia 1 • Cage-type silt curtain was nor deployed properly and found broken. • Dredging grab was found leaking remarkable. Site WA-18 • Sandy materials were exposed over the ground without proper cleanup.	Barge - Crown Asia 1 • The Contractor was required to conduct immediate maintenance of the silt curtain and deploy it properly. • The Contractor was reminded to conduct regular check and maintenance on the dredging grab. • The Contractor was reminded to drip off the excessive muddy water within the cage-type silt curtain before loading the marine sediments to the hover barge. Site WA-18 • The Contractor was reminded to clean up the area of dust nuisance regularly and frequent watering on exposed ground.
31 December 2013	Site WA-23 • A proper tree protection zone should be set up to avoid disturbance to the remaining natural habitat. • Oil stain was observed near the drip tray for the chemical containers. The chemical container was observed without drip tray and labels. Site WA-18 • The Contractor was reminded to provide the drip tray plug and maintain the capacity of drip trays for the chemical containers	Site WA-23 • The Contractor was reminded to maintain the tree protection zone properly. • The Contractor was reminded to clean up stained soil as chemical waste • The Contractor was reminded to provide drip tray and label for the chemical container. Site WA-18 • The Contractor was reminded to regularly check and maintain the capacity of drip trays to avoid spillage.
7 January 2014	Portion N-A • The Contractor was reminded to tie the silt curtain to the existing sloping seawall. Portion N6 • Water spraying should be applied with breaking works to avoid dust generation. • The idle exposed stockpile should be fully covered by tarpaulin. • Cut-off drain should be provided at the site entrance to avoid silty water runoff.	Portion N-A • The Contractor was reminded to regularly check for maintenance of the silt curtain. Portion N6 • The Contractor was reminded to implement watering regularly throughout the site area. • The Contractor was reminded to cover the stockpile while not in use. • The Contractor was reminded to provide measures for silty water runoff.

Inspection Date	Environmental Observations	Recommendations/ Remarks
14 January 2014	Barge - Crown Asia 1 • Materials other than chemical containers should be removed from the drip tray and chemical labels should be provided. • Dark smoke was observed at the dredger. Portion N6 • The Contractor was reminded to regularly check and maintain the cut-off drain to avoid water runoff. Site WA-18 • Dusty materials on the paved road should be cleared to avoid dust generation.	Barge - Crown Asia 1 • The Contractor was reminded to tidy up the drip tray area and provide chemical labels for the chemical containers. • The Contractor was reminded to regularly maintain the dredger to control dark smoke emission. Portion N6 • The Contractor was reminded to clear the sandy materials in the cut-off drain. Site WA-18 • The Contractor was reminded to clear the dusty materials on the ground.
22 January 2014	Portion N6 • Exposed slopes should be fully covered by tarpaulin. • Chemical labels should be provided to the chemical containers. Site WA-18 • Waste materials should be cleared regularly and to maintain site tidiness.	Portion N6 • The Contractor was reminded to cover the exposed slopes with tarpaulin. • The Contractor was reminded to provide chemical labels to the chemical containers. Site WA-18 • The Contractor was reminded to regularly clear the waste materials and provision of site cleanliness.
29 January 2014	Site WA-18 • C&D waste materials should be properly sorted out for recycling.	Site WA-18 • The Contractor was reminded to regularly sort out C&D waste materials before disposal.
5 February 2014	Barge - Tai Hip 2 • Drip tray should be provided to the oil drum to avoid chemical spillage.	Barge - Tap Hip 2 • The Contractor was reminded to provide drip tray for the oil drum and regular maintenance for the drip tray.
11 February 2014	Barge - Tai Hip 2 • Chemical labels should be provided to the oil drum and the drip tray for the winch should be maintained regularly to avoid oil spillage Barge - Crown Asia 1 • Excess sandy materials should be cleared from the decks and exposed fittings of the barge.	Barge - Tap Hip 2 • The Contractor was reminded to regularly clear the oily liquid from the drip tray and provide labels for all chemical containers. Barge - Crown Asia 1 • The Contractor was reminded to regularly clean the decks to avoid sediment runoff.
19 February 2014	Barge – Crown Asia 1 • Drip tray for the oil gun should be maintained and the oil gun should be properly stored while not in use. • Chemical containers should be properly stored in the drip tray Portion N6 • Stockpile not in use should be fully covered • Chemical labels should be provided to the oil drum.	Barge – Crown Asia 1 • The Contractor was reminded to maintain the capacity of drip trays regularly and store the oil gun properly while not in use. • The Contractor was reminded to provide drip trays for the chemical containers Portion N6 • The Contractor was reminded to fully cover the exposed stockpile. • The Contractor was reminded to provide chemical labels for the oil drum.
26 February 2014	Barge - Sun Leung Kee 13 • Sheet piling driving machine should be maintained regularly and the oil stain should be cleared as chemical waste.	Barge - Sun Leung Kee 13 • The Contractor was reminded to check the sheet piling driving machine to prevent oil spill and clean up the oil stain as chemical waste.

The Contractor has rectified all of the observations as identified during environmental site inspections in the reporting quarter.

2.6 WASTE MANAGEMENT STATUS

The Contractor had submitted application form for registration as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

Wastes generated during this reporting period include mainly construction wastes (inert and non-inert), imported fill, recyclable materials, chemical wastes and marine sediments. Reference has been made to the waste flow table prepared by the Contractor (*Appendix L*). The quantities of different types of wastes are summarized in *Table 2.13*.

Table 2.13 Quantities of Different Waste Generated in the Reporting Period

Month/Year	Inert Construction Waste [a] (tonnes)	Imported Fill (tonnes)	Inert Construction Waste Re-used (tonnes)	Non-inert Construction Waste [b] (tonnes)	Recyclable Materials [c] (kg)	Chemical Wastes (kg)	Marine Sediment (m^3)	
							Category L	Category M
November 2013	2,835	47,449	0	152	130	0	21,100	13,200
December 2013	883	204,421	0	12	130	0	40,500	5,000
January 2014	9,012	310,256	0	45	130	0	34,000	12,500
February 2014	0	219,319	0	28	0	20	18,500	24,500
Total	12,730	781,445	0	237	390	20	114,100	55,200

Notes:

(a) Inert construction wastes include hard rock and large broken concrete, and materials disposed as public fill.

(b) Non-inert construction wastes include general refuse disposed at landfill.

(c) Recyclable materials include metals, paper, cardboard, plastics, timber and others.

The Contractor was advised to properly maintain on site C&D materials and waste 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 was also reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

For chemical waste containers, the Contractor was reminded to treat properly and store 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.

2.7 ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.14* below.

Table 2.14 Summary of Environmental Licensing and Permit Status

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Environmental Permit	EP-354/2009/A	8 December 2010	Throughout the Contract	HyD	Tuen Mun-Chek Lap Kok Link
Environmental Permit	EP-354/2009/B	28 January 2014	Throughout the Contract	HyD	Application for VEP on 20 January 2014 to replace EP-354/2009/A
Construction Dust Notification	363510	19 August 2013	Throughout the Contract	DBJV	-
Chemical Waste Registration	5213-422-D2516-01	10 September 2013	Throughout the Contract	DBJV	-
Construction Waste Disposal Account	7018108	19 August 2013	Throughout the Contract	DBJV	Waste disposal in Contract HY/2012/08
Waste Water Discharge License	WT00017707-2013	18 November 2013	30 November 2018	DBJV	Discharge of Construction Runoff
Construction Noise Permit	GW-RW0691-13	15 October 2013	14 April 2014	DBJV	For Dredging and Reclamation Works
Construction Noise Permit	GW-RW0035-13	27 January 2014	26 July 2014	DBJV	For Dredging and Reclamation Works, superseded by GW-RW0095-14 on 10 Feb 2014
Construction Noise Permit	GW-RW0095-14	10 February 2014	9 August 2014	DBJV	For Dredging and Reclamation Works
Construction Noise Permit	GW-RW0822-13	14 November 2013	10 May 2014	DBJV	For works in site WA18
Construction Noise Permit	GW-RS0814-13	15 November 2013	10 May 2014	DBJV	For works in site WA23
Construction Noise Permit	GW-RW0029-14	27 January 2014	26 July 2014	DBJV	For Portion N6, superseded by GW-RW0077-14 on 17 Feb 2014
Construction Noise Permit	GW-RW0077-14	17 February 2014	16 August 2014	DBJV	For Portion N6
Marine Dumping Permit	EP/MD/14-072	1 November 2013	30 April 2014	DBJV	For Type 1
Marine Dumping Permit	EP/MD/14-071	1 December 2013	31 December 2013	DBJV	For Type 1 (dedicated site) and Type 2
Marine Dumping Permit	EP/MD/14-108	1 January 2014	31 January 2014	DBJV	For Type 1 (dedicated site) and Type 2
Marine Dumping Permit	EP/MD/14-124	1 February 2014	28 February 2014	DBJV	For Type 1 (Dedicated site) and Type 2

Notes:
HyD = Highways Department
DBJV = Dragages – Bouygues Joint Venture
VEP = Variation of Environmental Permit

2.8 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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

A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in *Appendix C*. The necessary mitigation measures relevant to this Contract were implemented properly.

2.9 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

For air quality impact monitoring, a total of twenty-three monitoring events were undertaken and exceedances were recorded in ten monitoring events (*Table 2.15*). Upon further investigation, the recorded exceedances in air quality monitoring were considered to be sporadic events of cumulative anthropogenic activities in this area of Hong Kong and the construction works under this Contract were unlikely the major cause of the recorded exceedances. Detailed investigation findings were presented in *Appendix L* of the *First* to *Fourth Monthly EM&A Report*.

Table 2.15 Summary of Exceedances for Air Quality Impact Monitoring

Station	Exceedance Level	1-hr TSP	24-hr TSP	Number of Exceedances	
				1-hr TSP	24-hr TSP
AQMS1	Action Level	2013-11-07 2014-01-03 2014-02-28	2014-01-03	3	1
	Limit Level	-	-	0	0
ASR1	Action Level	2013-11-19 2013-12-11 2014-01-03 2014-01-15 2014-01-27	2013-12-11 2013-12-28	5	2
	Limit Level	-	-	0	0
ASR5	Action Level	2013-11-07 2013-11-19 2013-12-11 2013-12-23 2013-12-28 2014-01-03 2014-01-27	2013-12-11 2013-12-28	7	2
	Limit Level	2013-12-11	-	1	0
AQMS2/ASR6	Action Level	2013-12-11 2013-12-23 2013-12-28 2014-01-27 2014-02-12	-	5	0
	Limit Level	-	2013-12-23	0	1

Station	Exceedance Level	1-hr TSP	24-hr TSP	Number of Exceedances	
				1-hr TSP	24-hr TSP
ASR10	Action Level	2013-12-28	-	1	0
	Limit Level	2013-11-07	-	1	0
	Total number of Action level Exceedances:			21	5
	Total number of Limit level Exceedances:			2	1

For marine water quality impact monitoring, a total of fifty-one monitoring events were undertaken and exceedances were recorded in two monitoring events (*Table 2.17*). The exceedances were well within the natural range and were unlikely to be due to the marine works of this Contract upon further investigation. Detailed investigation findings are presented in *Appendix L* of the *First* to *Fourth Monthly EM&A Report*. In addition, the construction impact on depth-averaged SS was assessed to compare the quarterly mean values of depth-averaged SS with the relevant ambient mean values. Results showed that the quarterly mean values of depth-averaged SS at all monitoring stations are well below the ambient mean values (*Table 2.16*), thus no further action is required in accordance with the Updated EM&A Manual.

Table 2.16 Comparison between Quarterly Mean and Ambient Mean Values of Depth-averaged Suspended Solids

Station	Baseline Mean		Ambient Mean [(a)]		Quarterly Mean (November 2013 to February 2014)	
	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
CS4	10.2	9.0	13.3	11.7	5.2	5.0
CS6	10.9	11.7	14.1	15.2	5.2	5.2
IS12	9.2	9.5	12.0	12.3	5.2	5.3
IS13	10.0	10.5	13.0	13.7	5.2	5.3
IS14	10.4	9.7	13.5	12.6	5.3	5.4
IS15	9.6	11.0	12.5	14.2	5.7	5.6
SR10A	10.3	10.2	13.3	13.3	5.4	5.1
SR8	10.1	11.3	13.1	14.7	5.5	5.4
SR9	8.8	9.9	11.4	12.8	5.4	5.6
Grand Total	**10.0**	**10.3**	**13.0**	**13.4**	**5.4**	**5.3**

Notes:
(a) Ambient mean value is defined as a 30% increase of the baseline mean value

Table 2.17 Summary of Exceedances for Marine Water Quality Impact Monitoring

Station	Exceedance Level [(a)]	DO (Surface and Middle)		DO (Bottom)		Turbidity (depth-averaged)		SS (depth-averaged)	
		Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
CS4	AL	-	-	-	-	-	-	-	-
	LL	-	-	-	-	-	-	-	-
CS6	AL	-	-	-	-	-	-	-	-
	LL	-	-	-	-	-	-	-	-
IS12	AL	-	-	-	-	-	-	-	-
	LL	-	-	-	-	-	-	-	-
IS13	AL	-	-	-	-	-	-	-	-
	LL	-	-	-	-	-	-	-	-
IS14	AL	-	-	-	-	-	-	-	-
	LL	-	-	-	-	-	-	-	-
IS15	AL	-	-	-	-	-	-	2013-12-06	2013-12-04
	LL	-	-	-	-	-	-	-	-
SR8	AL	-	-	-	-	-	-	-	2013-12-06
	LL	-	-	-	-	-	-	-	-
SR9	AL	-	-	-	-	-	-	2013-12-06	2013-12-06
	LL	-	-	-	-	-	-	-	-
SR10	AL	-	-	-	-	-	-	-	-
	LL	-	-	-	-	-	-	-	-
	Total AL Exceedances:	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**
	Total LL Exceedances:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Notes:
(a) AL = Action Level; LL = Limit Level

One Action Level exccedance of impact dolphin monitoring was recorded in this reporting quarter. Following the review of monitoring data and marine works details in accordance with the procedures stipulated in the Event and Action Plan of Updated EM&A Manual, the recorded exceedance was considered to be due to natural seasonal variation of dolphin ranging pattern. Detailed investigation findings are presented in *Appendix K*.

Cumulative statistics are provided in *Appendix K*.

2.10 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

The Environmental Complaint Handling Procedure is provided in *Figure 2.4*.

No complaints, notification of summons and prosecution were received in the reporting period.

Statistics on complaints, notifications of summons and successful prosecutions are summarized in *Appendix K*.

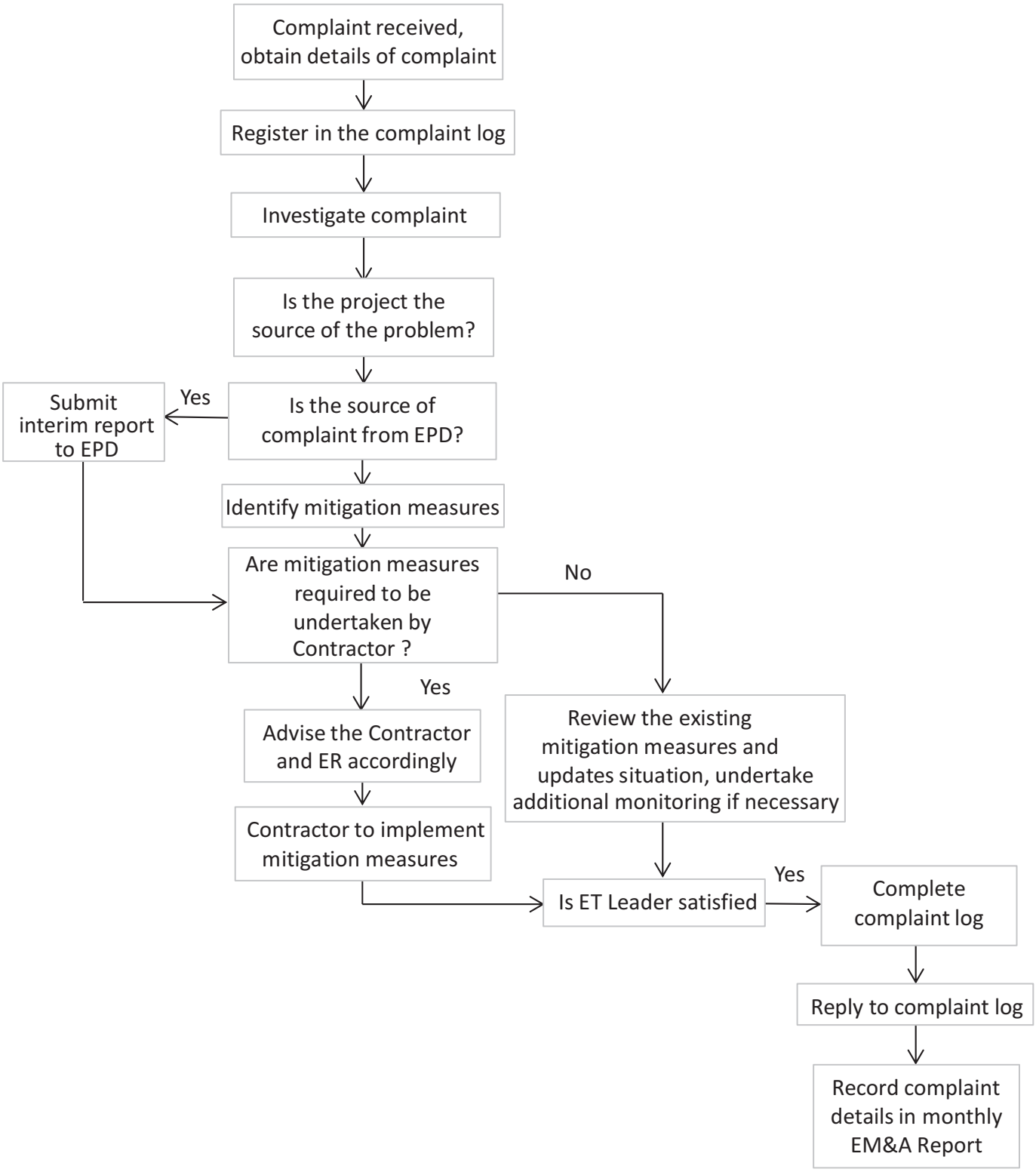

Figure 2.4 Environmental Complaint Handling Procedure

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DATE: 06/12/2013

Environmental Resources Management

ERM

3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING QUARTER

As informed by the Contractor, the major works for the Project in the coming quarter are summarized in *Table 3.1*.

Table 3.1 Construction Works to Be Undertaken in the Coming Quarter

Works to be undertaken
Marine-based Works
• Dredging
• Reclamation at Portion N-A
• Vertical Seawall construction
• Sloping Seawall construction
• Marine Sheet Piling for Box Culvert extension
• Predrilling for Box culvert Foundation
Land-based Works
Site WA-18
• Site office construction
Portion N6
• CLP Substation Footing & underground utilities works
• CLP Substation Superstructure

3.2 KEY ISSUES FOR THE COMING QUARTER

Potential environmental impacts arising from the above upcoming construction activities are mainly associated with dust, marine water quality, marine ecology and waste management issues.

3.3 MONITORING SCHEDULE FOR THE COMING QUARTER

Impact monitoring for air quality, marine water quality and marine ecology (include dolphin monitoring and post-translocation coral monitoring) are scheduled to continue for the next reporting period.

The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress. Change to the monitoring programme was thus not considered to be necessary at this stage. The monitoring programme will be evaluated as appropriate in the next reporting period.

This First Quarterly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 November 2013 to 28 February 2014, in accordance with the Updated EM&A Manual and the requirements of *EP-354/2009/B*.

Air quality (including 1-hour TSP and 24-hour TSP), marine water quality and dolphin monitoring were carried out in the reporting period. Twenty-one Action Level and two Limit Level exceedances for 1-hr TSP, and five Action Level and one Limit Level exceedances for 24-hr TSP were recorded during the reporting period. Five Action Level exceedances for depth-averaged SS were recorded in marine water quality impact monitoring during the reporting period. Investigation findings showed that the Project works were unlikely to be the major cause of the recorded exceedances in air quality and water quality monitoring. Nevertheless, the Contractor was reminded to ensure that all dust mitigation measures are provided at the construction sites and the proper deployment of cage-type silt curtains at the dredging site.

A total of 59 groups of 249 Chinese White Dolphin sightings were recorded during the two sets of surveys from November 2013 to February 2014. During this month of dolphin monitoring, no unacceptable impact from the construction activities of the TM-CLKL Northern Connection Sub-sea Tunnel Section on Chinese White Dolphins was noticeable from general observations. Although the dolphins infrequently occurred along the alignment of TM-CLKL Northern Connection Sub-Sea Tunnel Section in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL. It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the construction works of the Contract, and whether suitable mitigation measure can be applied to revert the situation.

Seventeen weekly environmental site inspections were carried the reporting period. Recommendations on remedial actions provided for the deficiencies identified during the site audits were properly implemented by the Contractor.

No non-compliance event was recorded during the reporting period.

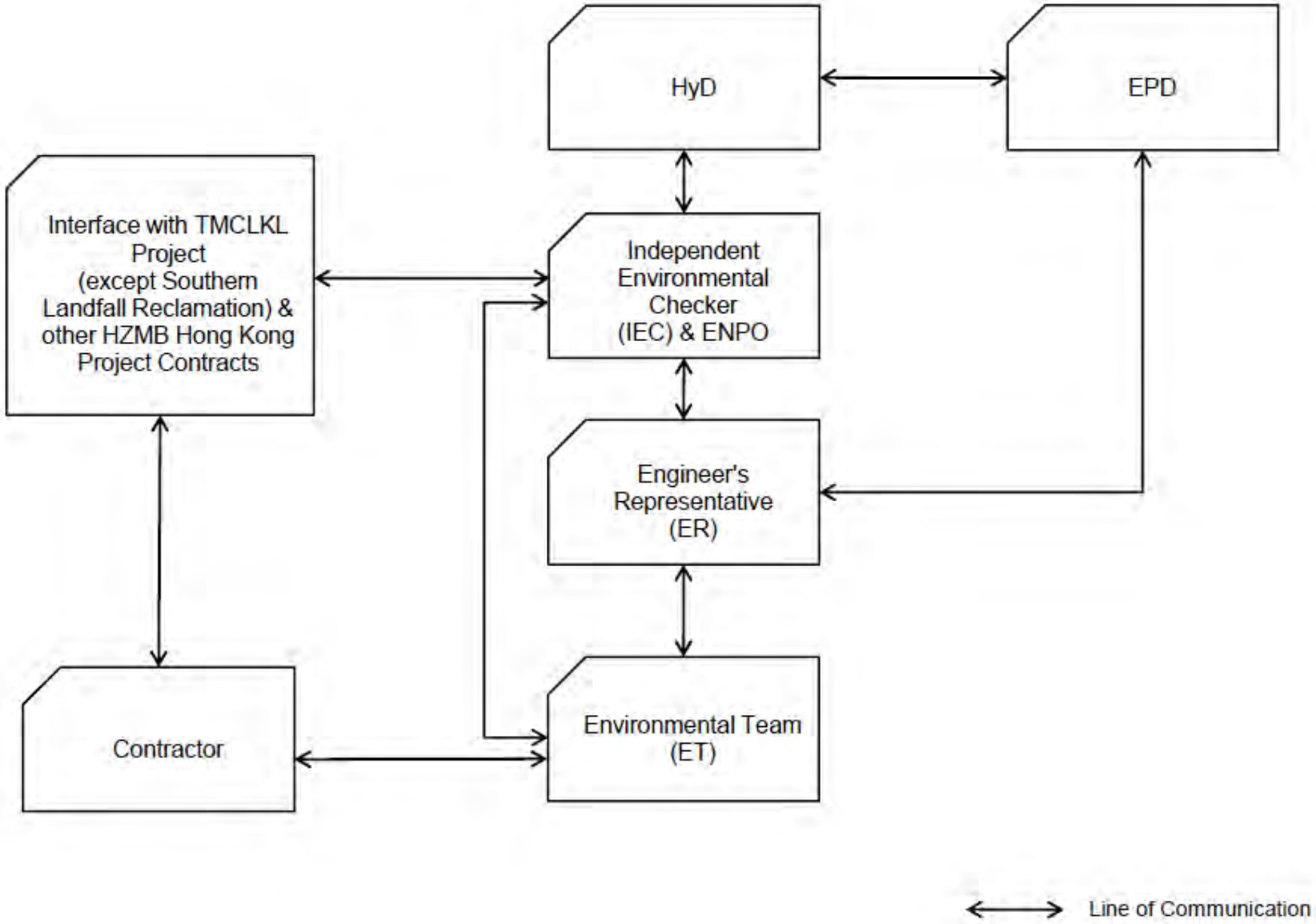
No complaint and summons/ prosecution was received during the reporting period.

The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress. Change to the monitoring programme was thus not recommended at this stage. The monitoring programme will be evaluated as appropriate in the next reporting period. The ET will keep track on the construction works to confirm

compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Project Organization for Environmental Works



Appendix A1

Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section
Project Organization

DATE: 06/03/2013

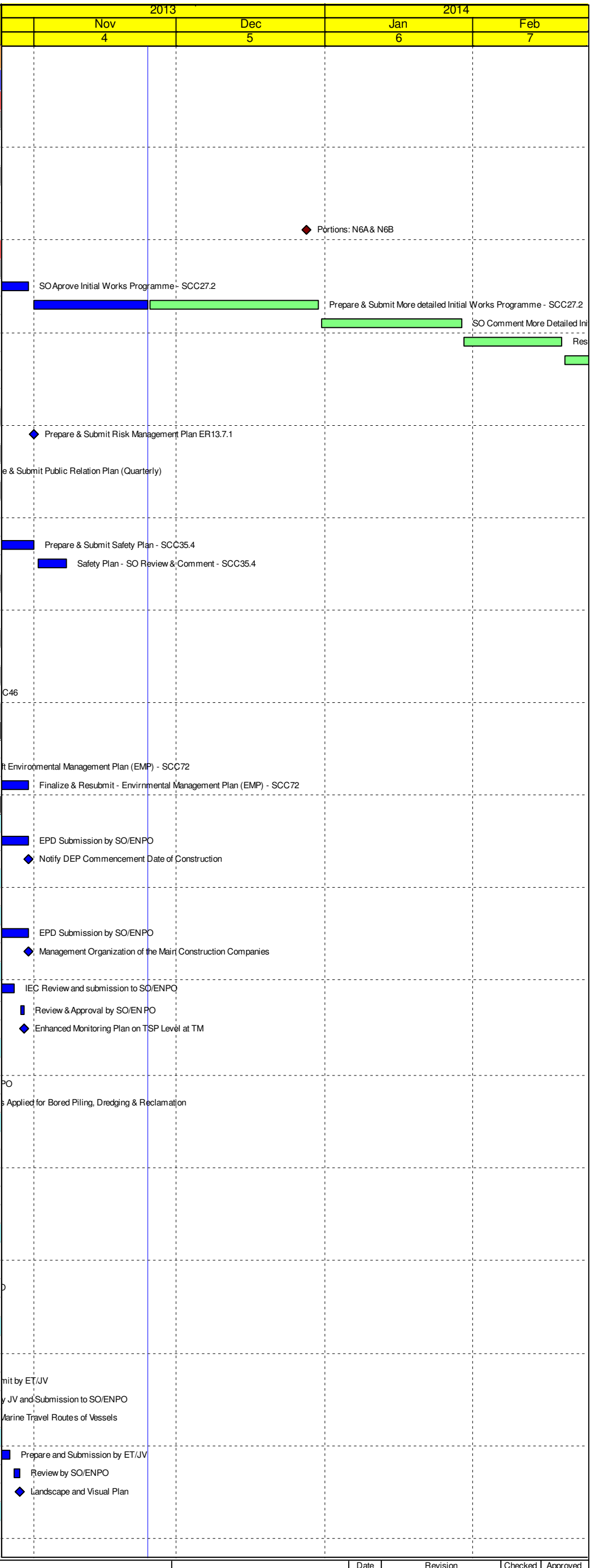
Environmental Resources Management

ERM

Appendix B

Three-Month Rolling Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish
TMCLK - Northern Connection Sub-Sea Tunnel Section				
Preliminaries				
Contract Dates				
Commencement and Completion Dates				
KD001	Letter of Acceptance Received	0d		26-Jul-13A
KD005	Date for Commencement	0d	05-Aug-13A	
Site Possession Date				
AD010	Portions: X, N5, N7,(N8A,B&C), N9,(N12-seabed level & below) & WA23	0d	05-Aug-13A	
AD020	Portions: WA18 - Zone 18A(SO Office), Zone 18B & 18C	0d	05-Aug-13A	
AD030	Portions: N6A& N6B	0d	28-Dec-13*	
General Submissions				
Programme				
SCC0273	SO Aprove Initial Works Programme - SCC27.2	30d	11-Oct-13 A	31-Oct-13A
SCC0274	Prepare & Submit More detailed Initial Works Programme - SCC27.2	60d	01-Nov-13A	30-Dec-13
SCC0275	SO Comment More Detailed Initial Works Programme - SCC27.2	30d	31-Dec-13	29-Jan-14
SCC0276	Resubmit Detailed Works Programme - SCC27.2	21d	30-Jan-14	19-Feb-14
SCC0277	Detailed Works Programme - SCC27.2 - Approval by SO	30d	20-Feb-14	21-Mar-14
SCC0278	Prepare & Submit 1st 3 Months Rolling Programme - SCC27.2	14d	27-Jul-13A	09-Aug-13A
SCC0288	Prepare & Submit 1st Monthly Progress Report	0d		13-Sep-13A
Risk Management				
A65030	Prepare & Submit Risk Management Plan ER13.7.1	0d		01-Nov-13A
Public Relations				
A64950	Prepare & Submit Public Relation Plan (Quarterly)	56d	26-Jul-13A	18-Oct-13A
Safety				
SCC035	Prepare & Submit Draft Safety Plan - SCC35.2	14d	27-Jul-13A	09-Aug-13A
SCC0351	Arrange Adhoc Safety Meeting - SCC35.3	7d	10-Aug-13A	16-Aug-13A
SCC0352	Prepare & Submit Safety Plan - SCC35.4	35d	27-Jul-13A	01-Nov-13A
SCC0353	Safety Plan - SO Review & Comment - SCC35.4	28d	02-Nov-13A	08-Nov-13A
Quality				
A65000	Prepare for Project Management Plan	28d	27-Jul-13A	23-Aug-13A
A65010	Submit to SO - Project Management Plan	0d	24-Aug-13A	
Contractor Organization				
SCC82	Prepare & Submit Details of Contractor's Management Team - SCC82	14d	05-Aug-13A	18-Aug-13A
Subcontractor Management				
SCC046	Prepare & Submit Sub-contractor Management Plan (SMP) - SCC46	30d	27-Jul-13A	04-Sep-13A
Environmental				
Submission Required under SCC				
SCC072	Prepare & Submit draft Environmental Management Plan (EMP) - SCC72	21d	27-Jul-13A	16-Aug-13A
SCC0721	SO Review & Comment - Draft Environmental Management Plan (EMP) - SCC72	15d	17-Aug-13A	30-Sep-13A
SCC0722	Finalize & Resubmit - Envirnmental Management Plan (EMP) - SCC72	7d	01-Oct-13A	31-Oct-13A
Environmental Permit Submissions				
Notify DEP Commencement Date of Constuction - EP1.11				
EP0020	EPD Submission by SO/ENPO	7d	04-Sep-13A	31-Oct-13A
EP1010	Notify DEP Commencement Date of Construction	0d		31-Oct-13A
Establish ET - EP2.1				
EP1110	Establish Environmental Team (ET)	0d		05-Aug-13A
Management Organization of the MC - EP2.3				
EP1220	EPD Submission by SO/ENPO	14d	06-Sep-13A	31-Oct-13A
EP1310	Management Organization of the Main Construction Companies	0d		31-Oct-13A
Enhanced Monitoring Plan on TSP Level at TM - EP2.4				
EP1359	IEC Review and submission to SO/ENPO	3d	25-Sep-13A	28-Oct-13A
EP1360	Review & Approval by SO/EN PO	14d	29-Oct-13A	30-Oct-13A
EP1410	Enhanced Monitoring Plan on TSP Level at TM	0d		30-Oct-13A
Acoustic Decoupling Measures Applied for Bored Piling, Dredging & Reclamation - EP2.5				
EP1460	Prepare Submission by JV	6d	30-Aug-13A	21-Sep-13A
EP1470	Review & Approval by SO/EN PO	14d	22-Sep-13A	30-Sep-13A
EP1510	Acoustic Decoupling Measures Applied for Bored Piling, Dredging & Reclamation	0d		30-Sep-13A
Detailed Coral Translocation Methodology - EP2.6				
EP1630	Review by JV and Submission to IEC	12d	23-Aug-13A	29-Aug-13A
EP1632	Comment by IEC	7d	30-Aug-13A	30-Aug-13A
EP1634	Resubmit by JV/ET	6d	31-Aug-13A	26-Sep-13A
EP1636	Review & Approval by SO/EN PO	7d	27-Sep-13A	27-Sep-13A
EP1640	Coral Translocation Methodol ogy	0d		27-Sep-13A
Spill Response Plan - EP2.7				
EP1722	Comment by IEC	6d	03-Sep-13A	04-Sep-13A
EP1724	Prepare and Resubmit by ET/JV	6d	05-Sep-13A	24-Sep-13A
EP1730	Review and Approval by SO/ENPO	12d	25-Sep-13A	27-Sep-13A
EP1740	Spill Response Plan	0d		27-Sep-13A
Regular Marine Travel Routes of Vessels - EP2.8				
EP1830	Prepare for Submission by Marine Traffic Consultant	12d	05-Aug-13A	17-Aug-13A
EP1832	Comment by IEC	7d	18-Aug-13A	30-Aug-13A
EP1834	Prepare and Resubmit by ET/JV	6d	31-Aug-13A	08-Oct-13A
EP1840	Review by JV and Submission to SO/ENPO	12d	09-Oct-13A	16-Oct-13A
EP1850	Regular Marine Travel Routes of Vessels	0d		16-Oct-13A
Landscape and Visual Plan - EP2.9				
EP1860	Prepare and Submission by ET/JV	24d	05-Aug-13A	27-Oct-13A
EP1870	Review by SO/ENPO	14d	28-Oct-13A	29-Oct-13A
EP1880	Landscape and Visual Plan	0d		29-Oct-13A
Waste Management Plan - EP2.10				
EP2020	Prepare and Submission by JV/ET	24d	05-Aug-13A	29-Aug-13A
EP2022	Comment from IEC	7d	30-Aug-13A	30-Aug-13A



Actual Work
Progress
Planned Bar
Planned Bar - ...
Milestone
Progress Milest...

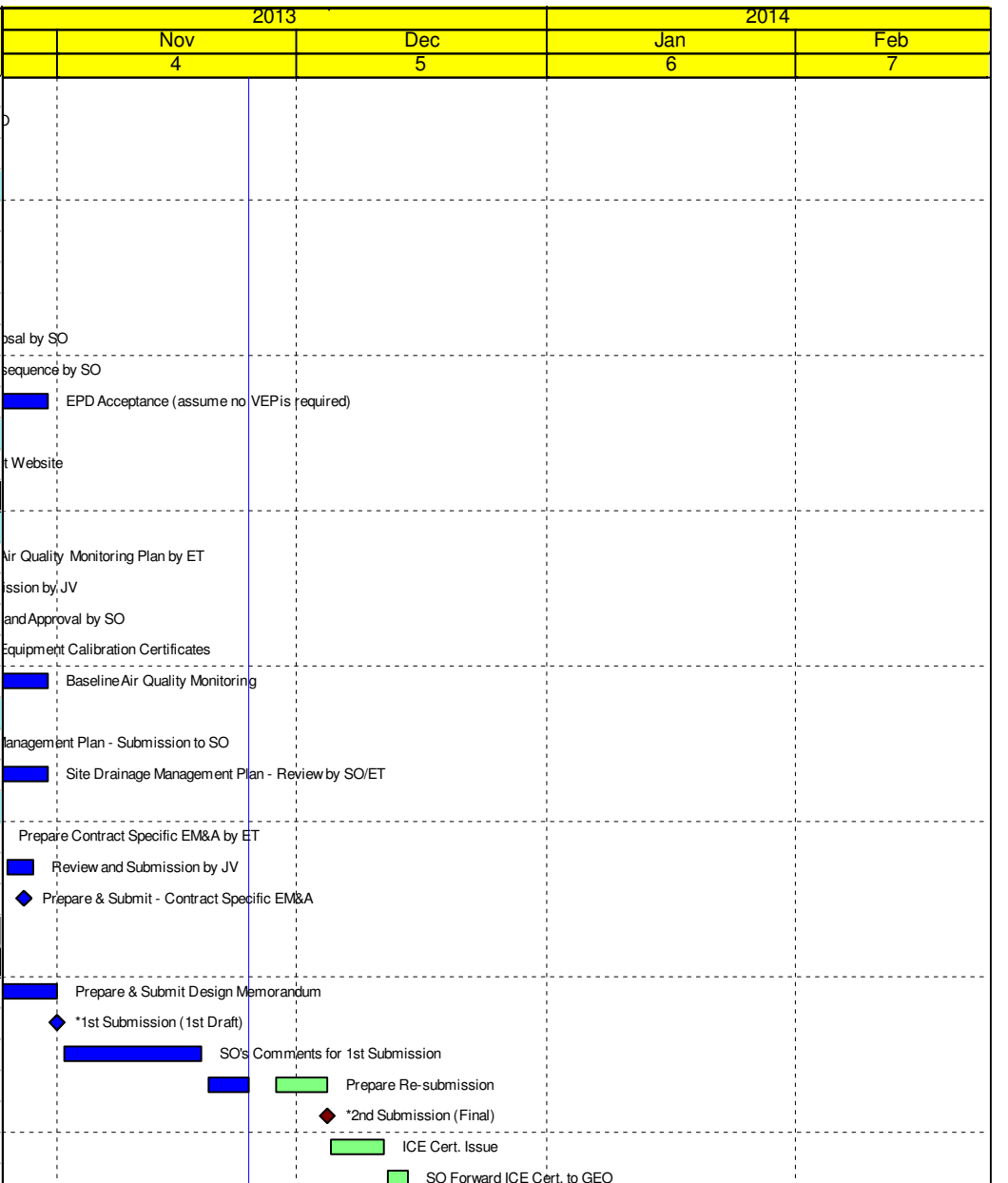
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
EP2024	Prepare and Resubmit by ET/JV	6d	31-Aug-13A	21-Sep-13A
EP2030	Review and Approval by SO/ENPO	14d	22-Sep-13A	27-Sep-13A
EP2040	Waste Management Plan	0d		27-Sep-13A
Clarification/Notification for Resequenced Nth Reclamation				
A64900	Prepare Resequence MS and dwgs for ET Study	24d	05-Aug-13A	26-Aug-13A
A64910	Prepare Notification / Presentation by ET	14d	27-Aug-13A	30-Aug-13A
A64915	Comment by IEC	7d	31-Aug-13A	04-Sep-13A
A64917	Prepare and resubmit by ET/JV	6d	05-Sep-13A	25-Sep-13A
A64920	Review Resequence Proposal by SO	14d	26-Sep-13A	03-Oct-13A
A64930	Notification to EPD for Resequence by SO	0d	03-Oct-13A	
A64940	EPD Acceptance (assume no VEP is required)	14d	04-Oct-13A	31-Oct-13A
Internet Website				
EP2610	Internet Website	0d		18-Oct-13A
EM&A Submissions				
Baseline Air Quality Monitoring - EM&A 3.5.1.1				
EP1125	Prepare Baseline Air Quality Monitoring Plan by ET	18d	05-Aug-13A	09-Oct-13A
EP1135	Review and Submission by JV	12d	09-Oct-13A	09-Oct-13A
EP1145	Review and Approval by SO	14d	10-Oct-13A	17-Oct-13A
EP1155	Valid Equipment Calibration Certificates	0d	18-Oct-13A	
EP1160	Baseline Air Quality Monitoring	14d	18-Oct-13A	31-Oct-13A
Site Drainage Management Plan - EM&A 5.2.1.2				
EP1420	Site Drainage Management Plan - Submission to SO	0d		11-Oct-13 A
EP1430	Site Drainage Management Plan - Review by SO/ET	10d	12-Oct-13A	31-Oct-13A
Updated Environmental Management and Audit Plan (EM&A)				
EP2760	Prepare Contract Specific EM&A by ET	12d	05-Aug-13A	25-Oct-13A
EP2810	Review and Submission by JV	15d	26-Oct-13A	29-Oct-13A
EP2820	Prepare & Submit - Contract Specific EM&A	0d		28-Oct-13A
Design Submission Required under ER				
Design Memorandum (A3)				
GS00100	Prepare & Submit Design Memorandum	44d	08-Aug-13A	01-Nov-13A
GS00110	*1st Submission (1st Draft)	0d		01-Nov-13A
GS00120	SO's Comments for 1st Submission	35d	02-Nov-13A	19-Nov-13A
GS00130	Prepare Re-submission	10d	20-Nov-13A	04-Dec-13
GS00140	*2nd Submission (Final)	0d		04-Dec-13
GS00150	ICE Cert. Issue	6d	05-Dec-13	11-Dec-13
GS00160	SO Forward ICE Cert. to GEO	3d	12-Dec-13	14-Dec-13
GS00170	SO Forward Submission to GEO	3d	05-Dec-13	07-Dec-13
GS00180	GEO Review (4 weeks)	28d	08-Dec-13	04-Jan-14
GS00190	GEO Comment Received	0d		04-Jan-14
GS00195	SO's Condition Approval	35d	05-Dec-13	08-Jan-14
Workshop for Tunnelling works (B1, B2)				
GS01000	1st Risk Management Workshop for TBM Tunnelling	0d		28-Aug-13A
GS01010	Value Management Workshop for Tunneling Works	0d		25-Nov-13
GS01020	2nd Risk Management Workshop for Tunneling Works	0d		08-Jan-14
Risk Assessment of Submarine Cable-- Tunnelling Works (B6)				
GS01300	Propose Independant Submarine Cable Expert	6d	24-Jan-14	07-Feb-14
GS01305	SO's Approval	14d	03-Feb-14	17-Feb-14
GS01310	Appoint Independant Submarine Cable Expert	6d	17-Feb-14	24-Feb-14
GS01400	Preparation of Risk Assessm ent of Submarine cables - Tunnelling Works	24d	24-Feb-14	22-Mar-14
Durability Assessment Report (A9)				
GS01500	Preparation of Durability Ass essment Report	36d	18-Sep-13A	29-Nov-13
GS01505	1st Submission (1st Draft)	0d		29-Nov-13
GS01510	SO's Comments for 1st Submission	35d	30-Nov-13	03-Jan-14
GS01515	Prepare Re-submission	10d	04-Jan-14	15-Jan-14
GS01520	2nd Submission (Final)	0d		15-Jan-14
GS01525	ICE Cert. Issue	6d	16-Jan-14	22-Jan-14
GS01550	SO's Condition Approval	35d	16-Jan-14	19-Feb-14
ACABAS Submissions (A10)				
GS01600	Preparation of ACABAS submissions	30d	16-Oct-13A	07-Dec-13
GS01610	*1st Submission (1st Draft)	0d		07-Dec-13
GS01620	ACABAS Comment	14d	08-Dec-13	21-Dec-13
GS01630	Prepare Re-submission	12d	23-Dec-13	08-Jan-14
GS01640	*Re-submission	0d		08-Jan-14
GS01650	ACABAS Approval	14d	09-Jan-14	22-Jan-14
Submissons to Design Advisory Panel of ArchSD (A11)				
GS01700	Preparation of Submissions to Design Advisory Panel of ArchSD	30d	25-Nov-13	31-Dec-13
GS01710	1st Submission	0d		31-Dec-13
GS01720	ArchSD's comment	30d	01-Jan-14	30-Jan-14
GS01730	Prepare Re-submission	18d	07-Feb-14	27-Feb-14
Works Area				
Northern Landfall				
Submission under ER				
Additional Ground Investigation Plan - CPT				
GS00600	Preparation of Additional Ground Investigation - CPT	11d	08-Aug-13A	24-Aug-13A
GS00610	1st Submission	0d		24-Aug-13A
GS00650	SO's Comments for 1st Submission	35d	25-Aug-13A	16-Sep-13A
GS00660	SO's Condition Approval	0d		16-Sep-13A
Additional Ground Investigation Plan - Nth Landfall & Tunnel				
GS00620	Preparation of Additional Ground Investigation - Nth Landfall & Tunnel	11d	18-Sep-13A	24-Oct-13A
GS00690	1st Submission	0d		24-Oct-13A
GS01282	SO's Comments for 1st Submission	35d	25-Oct-13A	01-Dec-13



Actual Work
Progress
Planned Bar
Planned Bar - ...
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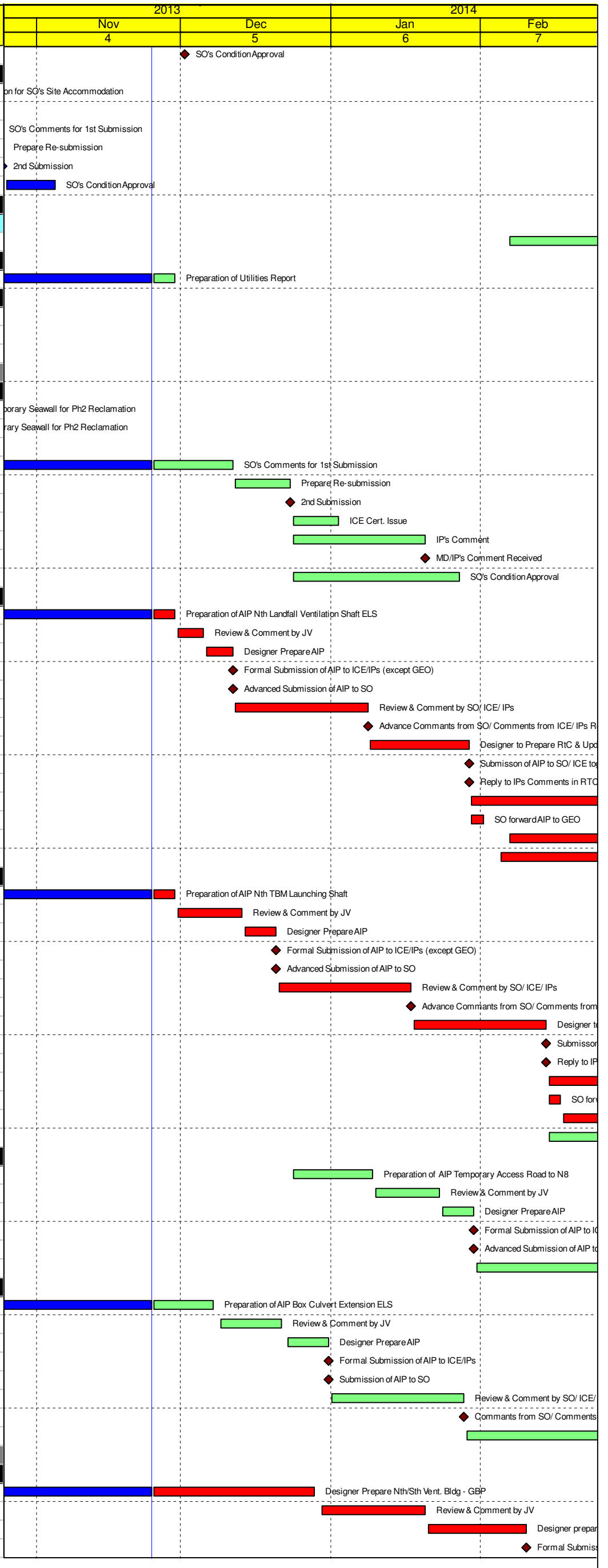
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 實嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
GS01284	SO's Condition Approval	0d		01-Dec-13
SO's Site Accommodation				
GS02490	Preparation of Submission for SO's Site Accommodation	36d	31-Aug-13 A	04-Oct-13 A
GS02500	1st Submission	0d		04-Oct-13 A
GS02510	SO's Comments for 1st Submission	35d	05-Oct-13 A	24-Oct-13 A
GS02520	Prepare Re-submission	12d	25-Oct-13 A	25-Oct-13 A
GS02540	2nd Submission	0d		25-Oct-13 A
GS02550	SO's Condition Approval	35d	26-Oct-13 A	05-Nov-13 A
Construciton TIA Report (incl.TTMS) (A8)				
TIA Report				
GS001050	Preparation of Construction Traffic Impact Assessment Report	48d	07-Feb-14	03-Apr-14
Utilities Report (A7)				
GS00800	Preparation of Utilities Report	24d	05-Aug-13 A	29-Nov-13
Temp. Pontoon (A16)				
GS01800	Preparation of Temporary pontoon	18d	27-Jul-13 A	05-Sep-13 A
GS01810	1st Submission	0d		05-Sep-13 A
GS01820	MD's approval	28d	06-Sep-13 A	26-Sep-13 A
Temporary Design Submission				
Temporay Seawall for Ph.2 Reclamation				
GS02555	Designer Prepare - Temporary Seawall for Ph2 Reclamation	7d	05-Aug-13 A	04-Oct-13 A
GS02560	JV Review - Temporary Seawall for Ph2 Reclamation	6d	05-Oct-13 A	08-Oct-13 A
GS02570	1st Submission	0d		08-Oct-13 A
GS02580	SO's Comments for 1st Submission	35d	09-Oct-13 A	11-Dec-13
GS02590	Prepare Re-submission	10d	12-Dec-13	23-Dec-13
GS02592	2nd Submission	0d		23-Dec-13
GS02600	ICE Cert. Issue	6d	24-Dec-13	02-Jan-14
GS02602	IP's Comment	28d	24-Dec-13	20-Jan-14
GS02604	MD/IP's Comment Received	0d		20-Jan-14
GS02610	SO's Condition Approval	35d	24-Dec-13	27-Jan-14
AIP Temp.works - North Ventilation Shaft ELS				
AP01100	Preparation of AIP Nth Landfall Ventilation Shaft ELS	9d	05-Aug-13 A	29-Nov-13
AP01105	Review & Comment by JV	5d	30-Nov-13	05-Dec-13
AP01110	Designer Prepare AIP	5d	06-Dec-13	11-Dec-13
AP01115	Formal Submission of AIP to ICE/IPs (except GEO)	0d		11-Dec-13
AP01120	Advanced Submission of AIP to SO	0d		11-Dec-13
AP01125	Review & Comment by SO/ ICE/ IPs	28d	12-Dec-13	08-Jan-14
AP01130	Advance Commants from SO/ Comments from ICE/ IPs Received	0d		08-Jan-14
AP01135	Designer to Prepare RtC & Updated AIP	18d	09-Jan-14	29-Jan-14
AP01140	Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0d		29-Jan-14
AP01145	Reply to IPs Comments in RTC	0d		29-Jan-14
AP01150	ICE Approval & Issue of Design Check Cert.	18d	30-Jan-14	26-Feb-14
AP01165	SO forward AIP to GEO	3d	30-Jan-14	01-Feb-14
AP01170	GEO Review (4 weeks)	28d	07-Feb-14	06-Mar-14
AP01180	SO Review (35 Days)	35d	05-Feb-14	11-Mar-14
AIP Temp.works - North TBM Launching Shaft ELS				
AP01200	Preparation of AIP Nth TBM Launching Shaft	12d	12-Oct-13 A	29-Nov-13
AP01205	Review & Comment by JV	12d	30-Nov-13	13-Dec-13
AP01210	Designer Prepare AIP	6d	14-Dec-13	20-Dec-13
AP01215	Formal Submission of AIP to ICE/IPs (except GEO)	0d		20-Dec-13
AP01220	Advanced Submission of AIP to SO	0d		20-Dec-13
AP01225	Review & Comment by SO/ ICE/ IPs	28d	21-Dec-13	17-Jan-14
AP01230	Advance Commants from SO/ Comments from ICE/ IPs Received	0d		17-Jan-14
AP01235	Designer to Prepare RtC & Updated AIP	18d	18-Jan-14	14-Feb-14
AP01240	Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0d		14-Feb-14
AP01245	Reply to IPs Comments in RTC	0d		14-Feb-14
AP01250	ICE Approval & Issue of Design Check Cert.	18d	15-Feb-14	07-Mar-14
AP01265	SO forward AIP to GEO	3d	15-Feb-14	17-Feb-14
AP01270	GEO Review (4 weeks)	28d	18-Feb-14	17-Mar-14
AP01280	SO Review (35 Days)	35d	15-Feb-14	21-Mar-14
AIP Temp.works - Temporary access to Portion N8A-C incl. Temp. Lighting (D1)				
AP01500	Preparation of AIP Temporary Access Road to N8	12d	24-Dec-13	09-Jan-14
AP01505	Review & Comment by JV	12d	10-Jan-14	23-Jan-14
AP01510	Designer Prepare AIP	6d	24-Jan-14	30-Jan-14
AP01515	Formal Submission of AIP to ICE/IPs (except GEO)	0d		30-Jan-14
AP01520	Advanced Submission of AIP to SO	0d		30-Jan-14
AP01525	Review & Comment by SO/ ICE/ IPs	28d	31-Jan-14	27-Feb-14
AIP Temp.works - Extension of Existing Culvert adjacent to RTT (D4)				
AP01700	Preparation of AIP Box Culvert Extension ELS	12d	24-Sep-13 A	07-Dec-13
AP01705	Review & Comment by JV	12d	09-Dec-13	21-Dec-13
AP01710	Designer Prepare AIP	6d	23-Dec-13	31-Dec-13
AP01715	Formal Submission of AIP to ICE/IPs	0d		31-Dec-13
AP01720	Submission of AIP to SO	0d		31-Dec-13
AP01725	Review & Comment by SO/ ICE/ IPs	28d	01-Jan-14	28-Jan-14
AP01730	Commants from SO/ Comments from ICE/ IPs Received	0d		28-Jan-14
AP01735	Designer to Prepare RtC & Updated AIP	18d	29-Jan-14	25-Feb-14
Permanent Design Submission				
AIP - North & South Ventilation Buildings - GBP (I1)				
AP00500	Designer Prepare Nth/Sth Vent. Bldg - GBP	36d	08-Aug-13 A	28-Dec-13
AP00505	Review & Comment by JV	18d	30-Dec-13	20-Jan-14
AP00510	Designer prepare AIP	12d	21-Jan-14	10-Feb-14
AP00515	Formal Submission of AIP to ICE/IPs	0d		10-Feb-14



Actual Work
Progress
Planned Bar
Planned Bar - ...
Milestone
Progress Milest...

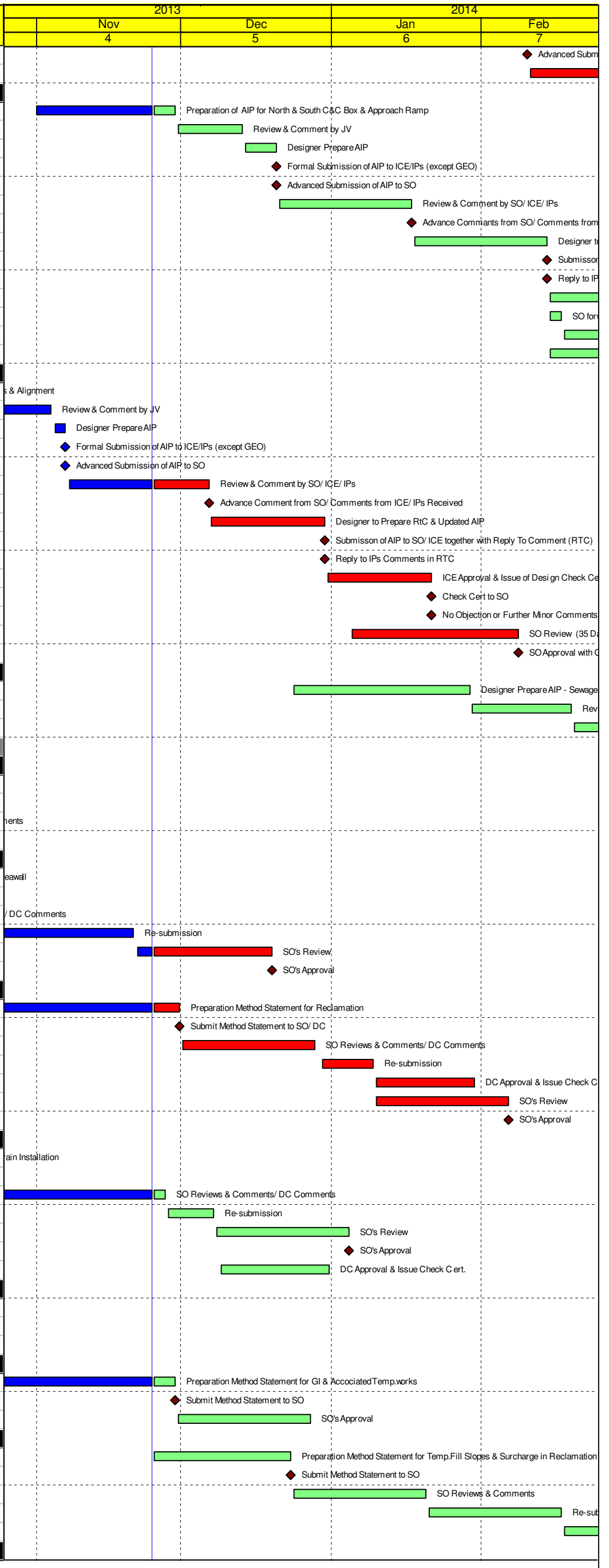
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
AP00520	Advanced Submission of AIP to SO	0d		10-Feb-14
AP00525	Review & Comment by SO/ ICE/ IPs	28d	11-Feb-14	10-Mar-14
AIP - North & South C&C Box & Approach Ramp (C1 & E2)				
AP00200	Preparation of AIP for North & South C&C Box & Approach Ramp	12d	01-Nov-13 A	29-Nov-13
AP00205	Review & Comment by JV	12d	30-Nov-13	13-Dec-13
AP00210	Designer Prepare AIP	6d	14-Dec-13	20-Dec-13
AP00215	Formal Submission of AIP to ICE/IPs (except GEO)	0d		20-Dec-13
AP00220	Advanced Submission of AIP to SO	0d		20-Dec-13
AP00225	Review & Comment by SO/ ICE/ IPs	28d	21-Dec-13	17-Jan-14
AP00230	Advance Commants from SO/ Comments from ICE/ IPs Received	0d		17-Jan-14
AP00235	Designer to Prepare RtC & Updated AIP	18d	18-Jan-14	14-Feb-14
AP00240	Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0d		14-Feb-14
AP00245	Reply to IPs Comments in RTC	0d		14-Feb-14
AP00250	ICE Approval & Issue of Design Check Cert.	18d	15-Feb-14	07-Mar-14
AP00265	SO forward AIP to GEO	3d	15-Feb-14	17-Feb-14
AP00270	GEO Review (4 weeks)	28d	18-Feb-14	17-Mar-14
AP00280	SO Review (35 Days)	35d	15-Feb-14	21-Mar-14
AIP - Roadoworks & Project Alignment (A19)				
AP00100	Designer prepare AIP - Roadworks & Alignment	9d	05-Aug-13 A	27-Sep-13 A
AP00105	Review & Comment by JV	6d	28-Sep-13 A	04-Nov-13 A
AP00110	Designer Prepare AIP	6d	05-Nov-13 A	07-Nov-13 A
AP00115	Formal Submission of AIP to ICE/IPs (except GEO)	0d		07-Nov-13 A
AP00120	Advanced Submission of AIP to SO	0d		07-Nov-13 A
AP00125	Review & Comment by SO/ ICE/ IPs	28d	08-Nov-13 A	06-Dec-13
AP00130	Advance Comment from SO/ Comments from ICE/ IPs Received	0d		06-Dec-13
AP00135	Designer to Prepare RtC & Updated AIP	18d	07-Dec-13	30-Dec-13
AP00140	Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0d		30-Dec-13
AP00145	Reply to IPs Comments in RTC	0d		30-Dec-13
AP00150	ICE Approval & Issue of Design Check Cert.	18d	31-Dec-13	21-Jan-14
AP00155	Check Cert to SO	0d		21-Jan-14
AP00160	No Objection or Further Minor Comments from IPs Received	0d		21-Jan-14
AP00180	SO Review (35 Days)	35d	05-Jan-14	08-Feb-14
AP00185	SO Approval with Condition Received	0d		08-Feb-14
AIP - Sewage, Drainage, Waterworks & UU (C2 & E3)				
AP01010	Designer Prepare AIP - Sewage, Drainage, Waterworks & UU	29d	24-Dec-13	29-Jan-14
AP01015	Review & Comment by JV	12d	30-Jan-14	19-Feb-14
AP01020	Designer Prepare AIP	6d	20-Feb-14	26-Feb-14
Method Statement Submission				
Method Statement of Construction Methodology of Dredging & Disposal				
MS1010	Preparation Method Statement for Dredging & Disposal	19d	27-Jul-13 A	26-Aug-13 A
MS1020	Submit Method Statement to SO/ DC	0d		26-Aug-13 A
MS1030	SO Reviews & Comments/ DC Comments	28d	27-Aug-13 A	24-Sep-13 A
MS1070	SO's Approval	0d		24-Sep-13 A
Method Statement of Construction Methodology of Sloping & Vertical Seawall				
MS1190	Preparation Method Statement for Sloping & Vertical Seawall	19d	27-Jul-13 A	12-Sep-13 A
MS1280	Submit Method Statement to SO/ DC	0d		12-Sep-13 A
MS1290	SO Reviews & Comments/ DC Comments	28d	13-Sep-13 A	03-Oct-13 A
MS1390	Re-submission	9d	04-Oct-13 A	21-Nov-13 A
MS1470	SO's Review	28d	22-Nov-13 A	19-Dec-13
MS1480	SO's Approval	0d		19-Dec-13
Method Statement of Reclamation Sequence & Methods				
MS1100	Preparation Method Statement for Reclamation	19d	27-Jul-13 A	30-Nov-13
MS1110	Submit Method Statement to SO/ DC	0d		30-Nov-13
MS1120	SO Reviews & Comments/ DC Comments	28d	01-Dec-13	28-Dec-13
MS1130	Re-submission	9d	30-Dec-13	09-Jan-14
MS1140	DC Approval & Issue Check Cert.	18d	10-Jan-14	30-Jan-14
MS1150	SO's Review	28d	10-Jan-14	06-Feb-14
MS1160	SO's Approval	0d		06-Feb-14
Method Statement of Construction Methodology of Band Drain Installation				
MS1680	Preparation Method Statement for Band Drain Installation	19d	27-Jul-13 A	21-Sep-13 A
MS1690	Submit Method Statement to SO/ DC	0d		21-Sep-13 A
MS1780	SO Reviews & Comments/ DC Comments	28d	22-Sep-13 A	27-Nov-13
MS1790	Re-submission	9d	28-Nov-13	07-Dec-13
MS1880	SO's Review	28d	08-Dec-13	04-Jan-14
MS1890	SO's Approval	0d		04-Jan-14
MS1980	DC Approval & Issue Check Cert.	18d	09-Dec-13	31-Dec-13
Method Statement of Ground Investigation - CPT				
MS2800	Preparation Method Statement for GI & AccociatedTemp.works	18d	05-Aug-13 A	29-Aug-13 A
MS2810	Submit Method Statement to SO	0d		29-Aug-13 A
MS2820	SO's Approval	28d	30-Aug-13 A	10-Sep-13 A
Method Statement of Ground Investigation - Northern Landfall & Tunnel				
MS2850	Preparation Method Statement for GI & AccociatedTemp.works	18d	21-Oct-13 A	29-Nov-13
MS2860	Submit Method Statement to SO	0d		29-Nov-13
MS2870	SO's Approval	28d	30-Nov-13	27-Dec-13
Method Statement of Temp.Fill Slopes & Surcharge in Reclamation				
MS3100	Preparation Method Statement for Temp.Fill Slopes & Surcharge in Reclamation	25d	25-Nov-13	23-Dec-13
MS3110	Submit Method Statement to SO	0d		23-Dec-13
MS3120	SO Reviews & Comments	28d	24-Dec-13	20-Jan-14
MS3130	Re-submission	18d	21-Jan-14	17-Feb-14
MS3140	SO's Review	28d	18-Feb-14	17-Mar-14
Method Statement of Full Details of Materials,Plant & Operations involved in Diaphragm Wall				



Actual Work
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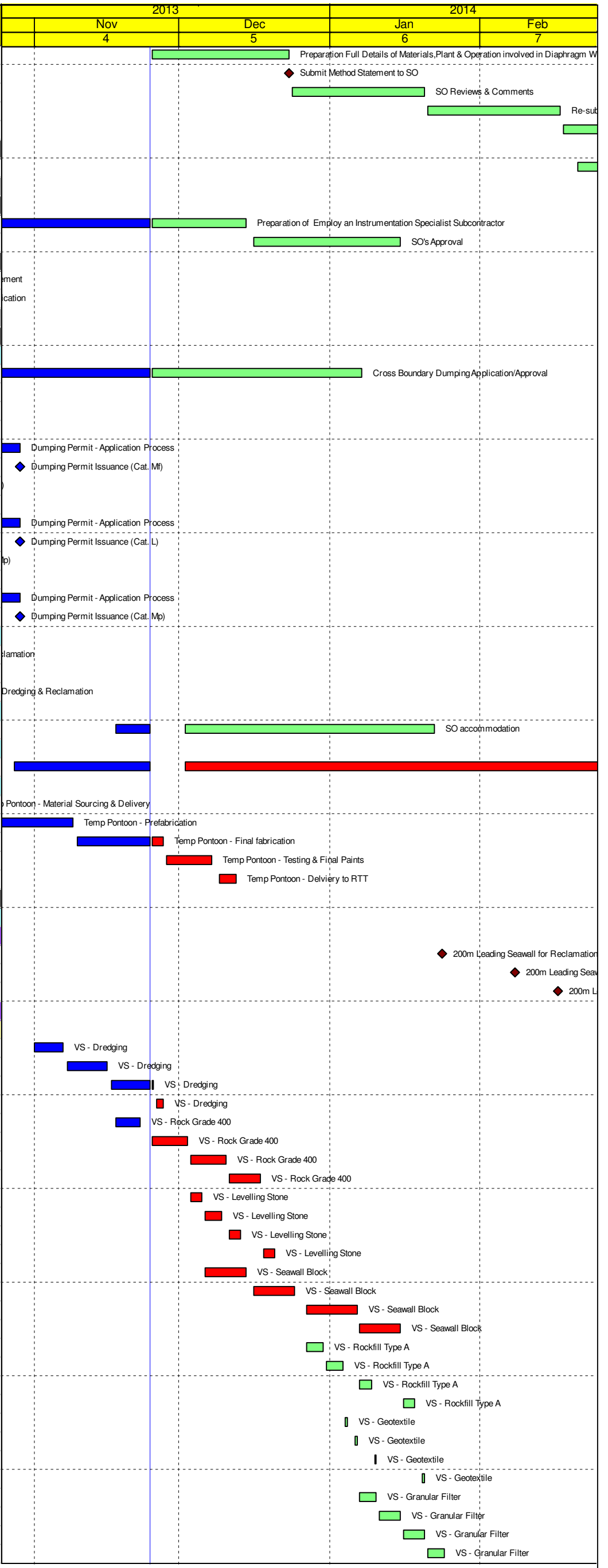
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
MS3300	Preparation Full Details of Materials,Plant & Operation involved in Diaphragm Wall	25d	25-Nov-13	23-Dec-13
MS3310	Submit Method Statement to SO	0d		23-Dec-13
MS3320	SO Reviews & Comments	28d	24-Dec-13	20-Jan-14
MS3330	Re-submission	18d	21-Jan-14	17-Feb-14
MS3340	SO's Review	28d	18-Feb-14	17-Mar-14
Method Statement of Providing the Groundwater Cut-offs & Pumping Test				
MS1900	Preparation Method Statement for Groundwater Cut-off & Pumping Test	25d	21-Feb-14	21-Mar-14
Sub-contracting & Procurment				
Employ an Instrumentation Specialist Subcontractor				
A3710	Preparation of Employ an Instrumentation Specialist Subcontractor	36d	05-Aug-13 A	14-Dec-13
A63780	SO's Approval	24d	16-Dec-13	15-Jan-14
Seawall Block				
PR060	Seawall Block - Procurement	21d	26-Jul-13 A	05-Oct-13 A
PR070	Seawall Block - Fabrication	0d	07-Oct-13 A	
Construction				
Establishment				
Sediment Quality Report/Dumping Permit				
DS100	Cross Boundary Dumping Application/Approval	58d	24-Aug-13 A	07-Jan-14
DS110	Letter to CEDD for AMFC	0d		30-Aug-13 A
DS145	Application Process for AMFC by CEDD (Cat. Mf)	21d	30-Aug-13 A	30-Aug-13 A
DS150	Prepare and Submission by JV	6d	31-Aug-13 A	09-Sep-13 A
DS160	Dumping Permit - Application Process	21d	09-Sep-13 A	29-Oct-13 A
DS170	Dumping Permit Issuance (Cat. Mf)	0d		29-Oct-13 A
DS175	Application Process for AMFC by CEDD (Cat. L)	21d	30-Aug-13 A	16-Sep-13 A
DS180	Prepare and Submission by JV	6d	17-Sep-13 A	17-Sep-13 A
DS190	Dumping Permit - Application Process	21d	18-Sep-13 A	29-Oct-13 A
DS200	Dumping Permit Issuance (Cat. L)	0d		29-Oct-13 A
DS205	Application Process for AMFC by CEDD (Cat. Mp)	21d	30-Aug-13 A	16-Sep-13 A
DS210	Prepare and Submission by JV	6d	17-Sep-13 A	17-Sep-13 A
DS220	Dumping Permit - Application Process	21d	18-Sep-13 A	29-Oct-13 A
DS230	Dumping Permit Issuance (Cat. Mp)	0d		29-Oct-13 A
Apply for Mairne Department Notice				
CGI0260	Prepare & Submit MDN Application for Dredging & Reclamation	20d	27-Jul-13 A	11-Sep-13 A
CGI0265	1st MMWG Meeting	0d		19-Aug-13 A
CGI0270	MDN Process for Dredging & Reclamation	21d	12-Sep-13 A	09-Oct-13 A
SO accommodation				
CTW0000	SO accommodation	42d	18-Nov-13 A	22-Jan-14
Additional GI				
CGI0300	Additonal GI for Northern Landfall	60d	28-Oct-13 A	31-May-14
Pontoon Temporary Reprovisioning				
CTW0020	Temp Pontoon - Material Sourcing & Delivery	9d	09-Sep-13 A	19-Oct-13 A
CTW0025	Temp Pontoon - Prefabrication	9d	21-Oct-13 A	09-Nov-13 A
CTW0030	Temp Pontoon - Final fabrication	18d	10-Nov-13 A	27-Nov-13
CTW0040	Temp Pontoon - Testing & Final Paints	9d	28-Nov-13	07-Dec-13
CTW0050	Temp Pontoon - Delviery to RTT	4d	09-Dec-13	12-Dec-13
Seawall, Reclamation & Surcharge, Ph.1				
Seawall and Reclamation (50m interval)				
200m Leading Seawall Achievement				
NR10000	200m Leading Seawall for Reclamation: 0-50	0d	24-Jan-14	
NR10010	200m Leading Seawall for Reclamation: 50-100	0d	08-Feb-14	
NR10020	200m Leading Seawall for Reclamation: 100-150	0d	17-Feb-14	
Zone E				
Vertical Seawall				
NR10150	VS - Dredging	2d	01-Nov-13 A	07-Nov-13 A
NR10160	VS - Dredging	2d	08-Nov-13 A	16-Nov-13 A
NR10170	VS - Dredging	2d	17-Nov-13 A	25-Nov-13
NR10180	VS - Dredging	2d	26-Nov-13	27-Nov-13
NR10190	VS - Rock Grade 400	7d	18-Nov-13 A	23-Nov-13 A
NR10200	VS - Rock Grade 400	7d	25-Nov-13	02-Dec-13
NR10210	VS - Rock Grade 400	7d	03-Dec-13	10-Dec-13
NR10220	VS - Rock Grade 400	6d	11-Dec-13	17-Dec-13
NR10230	VS - Levelling Stone	3d	03-Dec-13	05-Dec-13
NR10240	VS - Levelling Stone	3d	06-Dec-13	09-Dec-13
NR10250	VS - Levelling Stone	3d	11-Dec-13	13-Dec-13
NR10260	VS - Levelling Stone	3d	18-Dec-13	20-Dec-13
NR10270	VS - Seawall Block	8d	06-Dec-13	14-Dec-13
NR10280	VS - Seawall Block	8d	16-Dec-13	24-Dec-13
NR10290	VS - Seawall Block	8d	27-Dec-13	06-Jan-14
NR10300	VS - Seawall Block	8d	07-Jan-14	15-Jan-14
NR10310	VS - Rockfill Type A	3d	27-Dec-13	30-Dec-13
NR10320	VS - Rockfill Type A	3d	31-Dec-13	03-Jan-14
NR10330	VS - Rockfill Type A	3d	07-Jan-14	09-Jan-14
NR10340	VS - Rockfill Type A	3d	16-Jan-14	18-Jan-14
NR10350	VS - Geotextile	1d	04-Jan-14	04-Jan-14
NR10360	VS - Geotextile	1d	06-Jan-14	06-Jan-14
NR10370	VS - Geotextile	1d	10-Jan-14	10-Jan-14
NR10380	VS - Geotextile	1d	20-Jan-14	20-Jan-14
NR10390	VS - Granular Filter	4d	07-Jan-14	10-Jan-14
NR10400	VS - Granular Filter	4d	11-Jan-14	15-Jan-14
NR10410	VS - Granular Filter	4d	16-Jan-14	20-Jan-14
NR10420	VS - Granular Filter	4d	21-Jan-14	24-Jan-14



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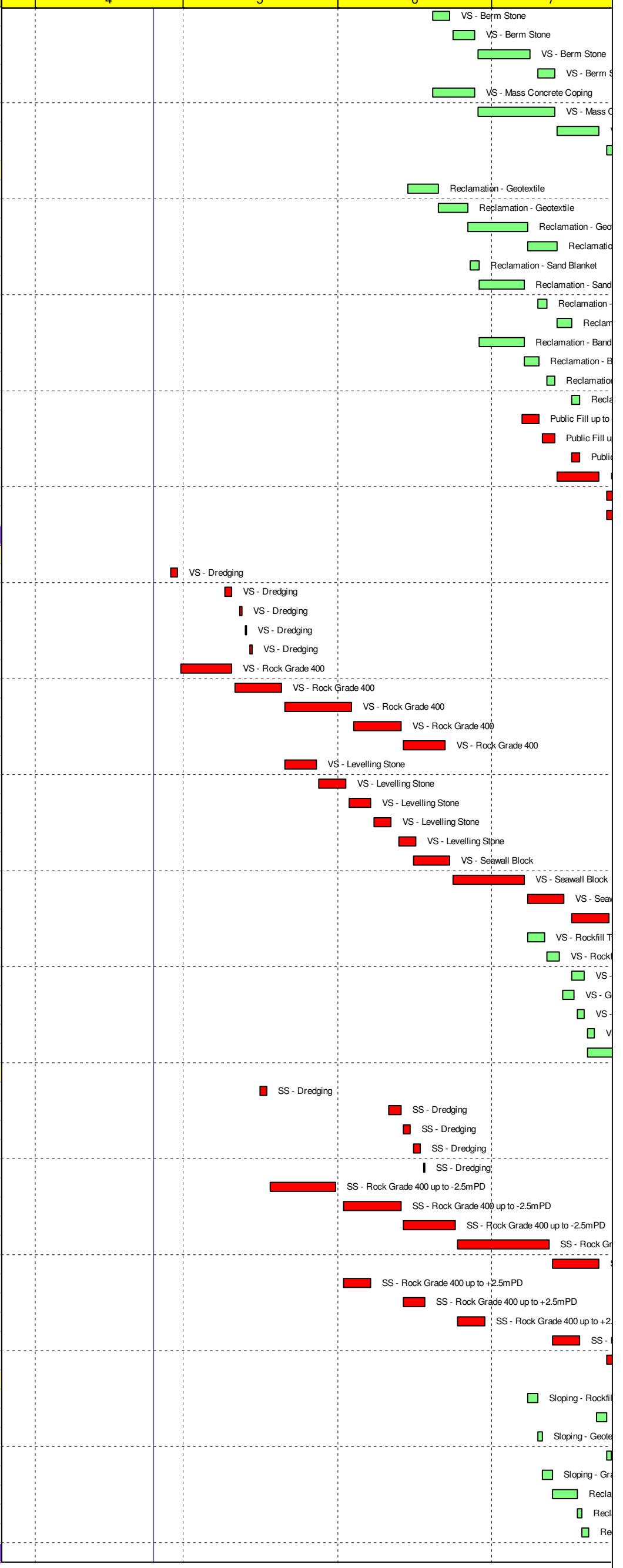
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
NR10430	VS - Berm Stone	4d	20-Jan-14	23-Jan-14
NR10440	VS - Berm Stone	4d	24-Jan-14	28-Jan-14
NR10450	VS - Berm Stone	4d	29-Jan-14	08-Feb-14
NR10460	VS - Berm Stone	4d	10-Feb-14	13-Feb-14
NR10470	VS - Mass Concrete Coping	8d	20-Jan-14	28-Jan-14
NR10480	VS - Mass Concrete Coping	8d	29-Jan-14	13-Feb-14
NR10490	VS - Mass Concrete Coping	8d	14-Feb-14	22-Feb-14
NR10500	VS - Mass Concrete Coping	8d	24-Feb-14	04-Mar-14
Reclamation				
NR10510	Reclamation - Geotextile	5d	15-Jan-14	21-Jan-14
NR10520	Reclamation - Geotextile	5d	21-Jan-14	27-Jan-14
NR10530	Reclamation - Geotextile	5d	27-Jan-14	08-Feb-14
NR10540	Reclamation - Geotextile	5d	08-Feb-14	14-Feb-14
NR10550	Reclamation - Sand Blanket	2d	27-Jan-14	29-Jan-14
NR10560	Reclamation - Sand Blanket	2d	29-Jan-14	07-Feb-14
NR10570	Reclamation - Sand Blanket	2d	10-Feb-14	12-Feb-14
NR10580	Reclamation - Sand Blanket	2d	14-Feb-14	17-Feb-14
NR10590	Reclamation - Band Drain	2d	29-Jan-14	07-Feb-14
NR10600	Reclamation - Band Drain	2d	07-Feb-14	10-Feb-14
NR10610	Reclamation - Band Drain	2d	12-Feb-14	13-Feb-14
NR10620	Reclamation - Band Drain	2d	17-Feb-14	18-Feb-14
NR10630	Public Fill up to -2.5mPD	3d	07-Feb-14*	10-Feb-14
NR10640	Public Fill up to -2.5mPD	3d	11-Feb-14	13-Feb-14
NR10650	Public Fill up to -2.5mPD	2d	17-Feb-14	18-Feb-14
NR10670	Public Fill up to +2.5mPD	8d	14-Feb-14	22-Feb-14
NR10680	Public Fill up to +2.5mPD	7d	24-Feb-14	03-Mar-14
NR10710	Public Fill up to +6.0mPD	8d	24-Feb-14	04-Mar-14
Zone D				
Vertical Seawall				
NR10790	VS - Dredging	2d	28-Nov-13	29-Nov-13
NR10800	VS - Dredging	2d	09-Dec-13	10-Dec-13
NR10810	VS - Dredging	1d	12-Dec-13	12-Dec-13
NR10820	VS - Dredging	1d	13-Dec-13	13-Dec-13
NR10830	VS - Dredging	1d	14-Dec-13	14-Dec-13
NR10840	VS - Rock Grade 400	9d	30-Nov-13	10-Dec-13
NR10850	VS - Rock Grade 400	9d	11-Dec-13	20-Dec-13
NR10860	VS - Rock Grade 400	9d	21-Dec-13	03-Jan-14
NR10870	VS - Rock Grade 400	8d	04-Jan-14	13-Jan-14
NR10880	VS - Rock Grade 400	8d	14-Jan-14	22-Jan-14
NR10890	VS - Levelling Stone	4d	21-Dec-13	27-Dec-13
NR10900	VS - Levelling Stone	4d	28-Dec-13	02-Jan-14
NR10910	VS - Levelling Stone	4d	03-Jan-14	07-Jan-14
NR10920	VS - Levelling Stone	4d	08-Jan-14	11-Jan-14
NR10930	VS - Levelling Stone	4d	13-Jan-14	16-Jan-14
NR10940	VS - Seawall Block	7d	16-Jan-14	23-Jan-14
NR10950	VS - Seawall Block	7d	24-Jan-14	07-Feb-14
NR10960	VS - Seawall Block	7d	08-Feb-14	15-Feb-14
NR10970	VS - Seawall Block	7d	17-Feb-14	24-Feb-14
NR10990	VS - Rockfill Type A	3d	08-Feb-14	11-Feb-14
NR11000	VS - Rockfill Type A	3d	12-Feb-14	14-Feb-14
NR11010	VS - Rockfill Type A	3d	17-Feb-14	19-Feb-14
NR11040	VS - Geotextile	2d	15-Feb-14	17-Feb-14
NR11050	VS - Geotextile	2d	18-Feb-14	19-Feb-14
NR11060	VS - Geotextile	2d	20-Feb-14	21-Feb-14
NR11120	VS - Granular Filter	5d	20-Feb-14	25-Feb-14
Sloping Seawall				
NR12000	SS - Dredging	2d	16-Dec-13	17-Dec-13
NR12040	SS - Dredging	2d	11-Jan-14	13-Jan-14
NR12080	SS - Dredging	2d	14-Jan-14	15-Jan-14
NR12130	SS - Dredging	2d	16-Jan-14	17-Jan-14
NR12170	SS - Dredging	1d	18-Jan-14	18-Jan-14
NR12210	SS - Rock Grade 400 up to -2.5mPD	10d	18-Dec-13	31-Dec-13
NR12260	SS - Rock Grade 400 up to -2.5mPD	10d	02-Jan-14	13-Jan-14
NR12300	SS - Rock Grade 400 up to -2.5mPD	10d	14-Jan-14	24-Jan-14
NR12400	SS - Rock Grade 400 up to -2.5mPD	10d	25-Jan-14	12-Feb-14
NR12810	SS - Rock Grade 400 up to -2.5mPD	9d	13-Feb-14	22-Feb-14
NR12920	SS - Rock Grade 400 up to +2.5mPD	5d	02-Jan-14	07-Jan-14
NR13030	SS - Rock Grade 400 up to +2.5mPD	5d	14-Jan-14	18-Jan-14
NR13140	SS - Rock Grade 400 up to +2.5mPD	5d	25-Jan-14	30-Jan-14
NR13200	SS - Rock Grade 400 up to +2.5mPD	5d	13-Feb-14	18-Feb-14
NR13210	SS - Rock Grade 400 up to +2.5mPD	4d	24-Feb-14	27-Feb-14
Reclamation				
NR13370	Sloping - Rockfill Type A	1d	08-Feb-14	10-Feb-14
NR13380	Sloping - Rockfill Type A	1d	22-Feb-14	24-Feb-14
NR13420	Sloping - Geotextile	1d	10-Feb-14	11-Feb-14
NR13430	Sloping - Geotextile	1d	24-Feb-14	25-Feb-14
NR13470	Sloping - Granular Filter	2d	11-Feb-14	13-Feb-14
NR13520	Reclamation - Geotextile	4d	13-Feb-14	18-Feb-14
NR13570	Reclamation - Sand Blanket	1d	18-Feb-14	19-Feb-14
NR13620	Reclamation - Band Drain	2d	19-Feb-14	20-Feb-14
Zone C				



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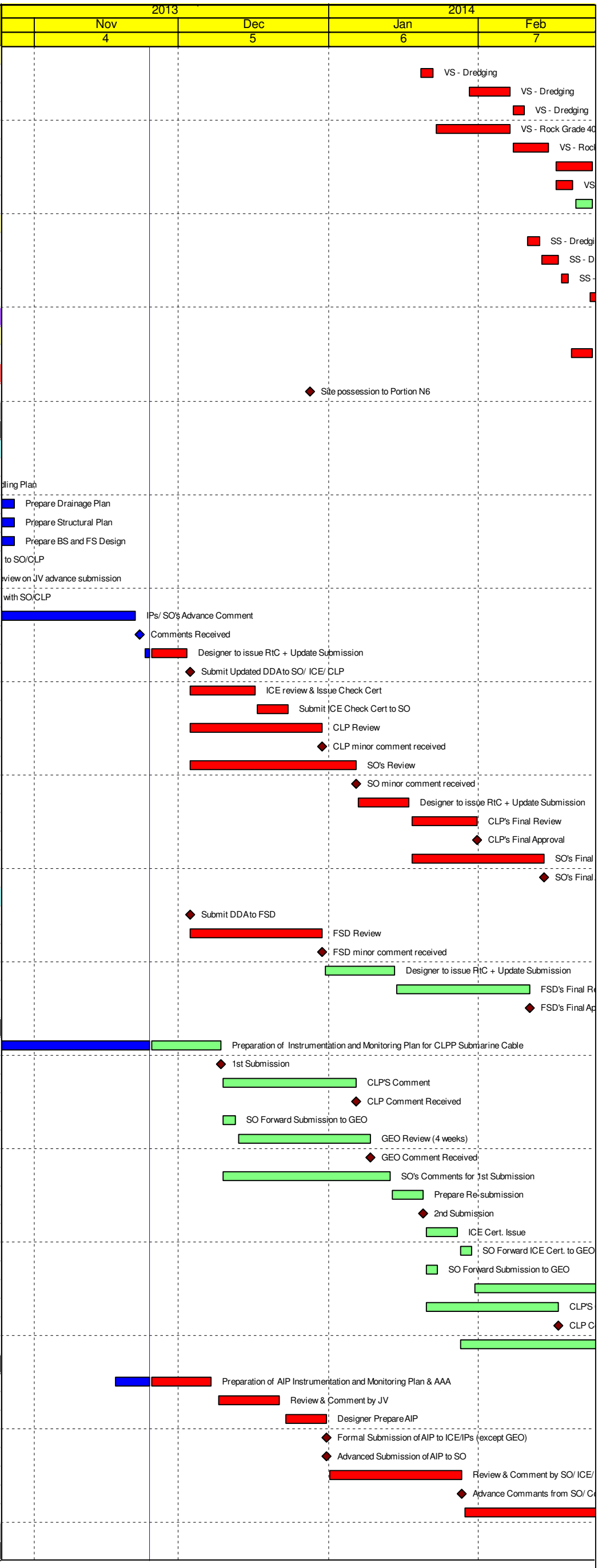
Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
Vertical Seawall				
NR13870	VS - Dredging	3d	20-Jan-14	22-Jan-14
NR13880	VS - Dredging	2d	30-Jan-14	07-Feb-14
NR13890	VS - Dredging	2d	08-Feb-14	10-Feb-14
NR13900	VS - Rock Grade 400	8d	23-Jan-14	07-Feb-14
NR13910	VS - Rock Grade 400	7d	08-Feb-14	15-Feb-14
NR13920	VS - Rock Grade 400	7d	17-Feb-14	24-Feb-14
NR13930	VS - Levelling Stone	4d	17-Feb-14	20-Feb-14
NR13940	VS - Levelling Stone	3d	21-Feb-14	24-Feb-14
Sloping Seawall				
NR14140	SS - Dredging	3d	11-Feb-14	13-Feb-14
NR14150	SS - Dredging	3d	14-Feb-14	17-Feb-14
NR14160	SS - Dredging	2d	18-Feb-14	19-Feb-14
NR14170	SS - Rock Grade 400 up to -2.5mPD	13d	24-Feb-14	10-Mar-14
Zone B				
Vertical Seawall				
NR11090	VS - Dredging	4d	20-Feb-14	24-Feb-14
TBM Tunnel & Cross Passages				
A65215	Site possession to Portion N6	0d	28-Dec-13*	
Temporary Design Submission				
DDA Temp.CLP Power Substation				
CLP Submission				
DD05351	Prepare Design Layout Plan with CLPP	7d	10-Sep-13A	17-Sep-13A
DD05353	Prepare General Buidling Plan	14d	18-Sep-13A	07-Oct-13A
DD05354	Prepare Drainage Plan	17d	08-Oct-13A	28-Oct-13A
DD05355	Prepare Structural Plan	28d	18-Sep-13A	28-Oct-13A
DD05359	Prepare BS and FS Design	32d	18-Sep-13A	28-Oct-13A
DD05400	Advance Submission to SO/CLP	0d		07-Oct-13A
DD05405	SO/CLP review on JV advance submission	6d	08-Oct-13A	15-Oct-13A
DD05407	Workshop with SO/CLP	0d	15-Oct-13A	
DD05410	IPs/ SO's Advance Comment	7d	16-Oct-13A	22-Nov-13A
DD05420	Comments Received	0d		23-Nov-13A
DD05430	Designer to issue RtC + Update Submission	6d	24-Nov-13A	02-Dec-13
DD05440	Submit Updated DDA to SO/ ICE/ CLP	0d	03-Dec-13	
DD05450	ICE review & Issue Check Cert	12d	03-Dec-13	16-Dec-13
DD05460	Submit ICE Check Cert to SO	6d	17-Dec-13	23-Dec-13
DD05470	CLP Review	28d	03-Dec-13	30-Dec-13
DD05480	CLP minor comment received	0d		30-Dec-13
DD05520	SO's Review	35d	03-Dec-13	06-Jan-14
DD05530	SO minor comment received	0d		06-Jan-14
DD05560	Designer to issue RtC + Update Submission	10d	07-Jan-14	17-Jan-14
DD6270	CLP's Final Review	14d	18-Jan-14	31-Jan-14
DD6280	CLP's Final Approval	0d		31-Jan-14
DD6290	SO's Final Review	28d	18-Jan-14	14-Feb-14
DD6300	SO's Final Approval	0d		14-Feb-14
FSD Submission				
DD6305	Submit DDA to FSD	0d	03-Dec-13	
DD6310	FSD Review	28d	03-Dec-13	30-Dec-13
DD6320	FSD minor comment received	0d		30-Dec-13
DD6350	Designer to issue RtC + Update Submission	12d	31-Dec-13	14-Jan-14
DD6360	FSD's Final Review	28d	15-Jan-14	11-Feb-14
DD6370	FSD's Final Approval	0d		11-Feb-14
Insturmentation & Monitoring Plan for CLPP Submarine Cable (A17)				
GS01900	Preparation of Instrumentation and Monitoring Plan for CLPP Submarine Cable	20d	10-Aug-13A	09-Dec-13
GS01905	1st Submission	0d		09-Dec-13
GS01910	CLP'S Comment	28d	10-Dec-13	06-Jan-14
GS01915	CLP Comment Received	0d		06-Jan-14
GS01916	SO Forward Submission to GEO	3d	10-Dec-13	12-Dec-13
GS01917	GEO Review (4 weeks)	28d	13-Dec-13	09-Jan-14
GS01918	GEO Comment Received	0d		09-Jan-14
GS01920	SO's Comments for 1st Submission	35d	10-Dec-13	13-Jan-14
GS01925	Prepare Re-submission	6d	14-Jan-14	20-Jan-14
GS01930	2nd Submission	0d		20-Jan-14
GS01935	ICE Cert. Issue	6d	21-Jan-14	27-Jan-14
GS01940	SO Forward ICE Cert. to GEO	3d	28-Jan-14	30-Jan-14
GS01945	SO Forward Submission to GEO	3d	21-Jan-14	23-Jan-14
GS01950	GEO Review (4 weeks)	28d	31-Jan-14	27-Feb-14
GS01957	CLP'S Comment	28d	21-Jan-14	17-Feb-14
GS01958	CLP Comment Received	0d		17-Feb-14
GS01960	SO's Condition Approval	35d	28-Jan-14	03-Mar-14
AIP Temp.works - Instrumentation and Monitoring Plan & AAA (A18)				
AP01300	Preparation of AIP Instrumentation and Monitoring Plan & AAA	12d	18-Nov-13A	07-Dec-13
AP01305	Review & Comment by JV	12d	09-Dec-13	21-Dec-13
AP01310	Designer Prepare AIP	6d	23-Dec-13	31-Dec-13
AP01315	Formal Submission of AIP to ICE/IPs (except GEO)	0d		31-Dec-13
AP01320	Advanced Submission of AIP to SO	0d		31-Dec-13
AP01325	Review & Comment by SO/ ICE/ IPs	28d	01-Jan-14	28-Jan-14
AP01330	Advance Commants from SO/ Comments from ICE/ IPs Received	0d		28-Jan-14
AP01335	Designer to Prepare RtC & Updated AIP	18d	29-Jan-14	25-Feb-14
Permanent Design Submission				
AIP - TBM Tunnel Lining & Internal Structures (G1)				



Actual Work
Progress
Planned Bar
Planned Bar - ...
Milestone
Progress Milest...

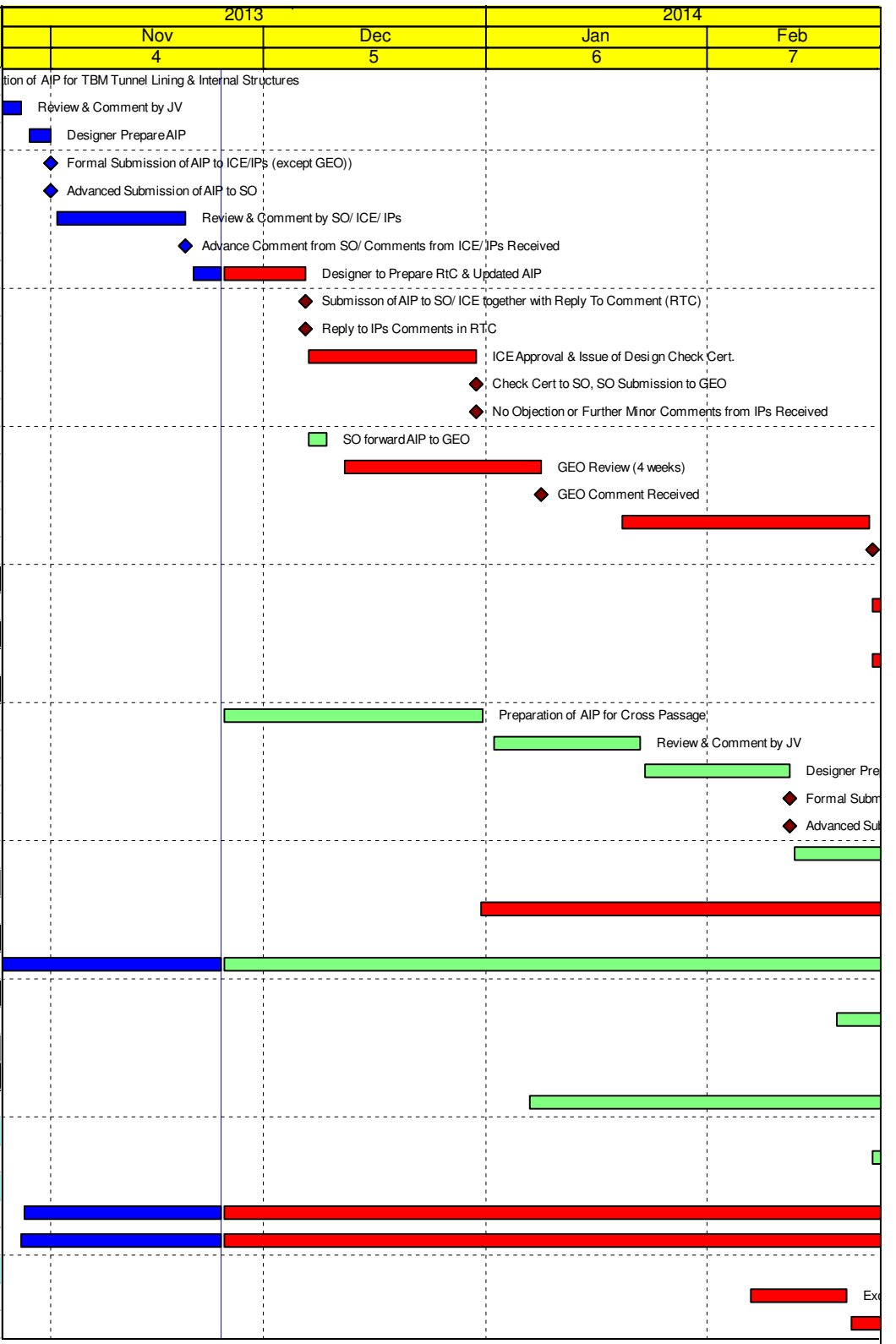
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish
AP00300	Preparation of AIP for TBM Tunnel Lining & Internal Structures	18d	27-Jul-13 A	17-Oct-13 A
AP00305	Review & Comment by JV	12d	19-Oct-13 A	28-Oct-13 A
AP00310	Designer Prepare AIP	12d	29-Oct-13 A	01-Nov-13 A
AP00315	Formal Submission of AIP to ICE/IPs (except GEO))	0d		01-Nov-13 A
AP00320	Advanced Submission of AIP to SO	0d		01-Nov-13 A
AP00325	Review & Comment by SO/ ICE/ IPs	28d	02-Nov-13 A	20-Nov-13 A
AP00330	Advance Comment from SO/ Comments from ICE/ IPs Received	0d		20-Nov-13 A
AP00335	Designer to Prepare RtC & Updated AIP	18d	21-Nov-13 A	06-Dec-13
AP00340	Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0d		06-Dec-13
AP00345	Reply to IPs Comments in RTC	0d		06-Dec-13
AP00350	ICE Approval & Issue of Design Check Cert.	18d	07-Dec-13	30-Dec-13
AP00355	Check Cert to SO, SO Submission to GEO	0d		30-Dec-13
AP00360	No Objection or Further Minor Comments from IPs Received	0d		30-Dec-13
AP00365	SO forward AIP to GEO	3d	07-Dec-13	09-Dec-13
AP00370	GEO Review (4 weeks)	28d	12-Dec-13	08-Jan-14
AP00375	GEO Comment Received	0d		08-Jan-14
AP00380	SO Review (35 Days)	35d	20-Jan-14	23-Feb-14
AP00385	SO Approval with Condition Received	0d		24-Feb-14
DDA for TBM Tunnel Lining Settlement Anlysis & Confinement Pressure (G1)				
DD00800	Preparation of DDA Permanent Works	18d	24-Feb-14	15-Mar-14
DDA for TBM Tunnel Lining Structural Design (G1)				
DD00700	Preparation of DDA	18d	24-Feb-14	15-Mar-14
AIP - Cross Passage (G2)				
AP00400	Preparation of AIP for Cross Passage	30d	25-Nov-13	31-Dec-13
AP00405	Review & Comment by JV	18d	02-Jan-14	22-Jan-14
AP00410	Designer Prepare AIP	12d	23-Jan-14	12-Feb-14
AP00415	Formal Submission of AIP to ICE/IPs (except GEO)	0d		12-Feb-14
AP00420	Advanced Submission of AIP to SO	0d		12-Feb-14
AP00425	Review & Comment by SO/ ICE/ IPs	28d	13-Feb-14	12-Mar-14
Sub-contracting & Procurment				
A66390	Electrical Pump - Procurement, Supply & Delivery	140d	31-Dec-13	27-Jun-14
TBM				
PR020	Fabricate TBM & Deliver to Site	330d	16-Oct-13 A	08-Dec-14
Slurry Treatment Plant				
PR090	Slurry Treatment Plant - Fabrication & On-site Installation	330d	19-Feb-14	02-Apr-15
Construction				
Temporary Substation				
CTS0010	Temporary Substation construction	250d	07-Jan-14	13-Nov-14
TTMS for Utilities				
A65210	Trench Excavation & Service Connection	48d	24-Feb-14	24-Apr-14
CLP Coordination				
A65260	1st Batch - Order , Manfacturing & Delivery	206d	28-Oct-13 A	28-Jun-14
A65270	2nd Batch - Order Manfacturing & Delivery	292d	28-Oct-13 A	14-Oct-14
Temporary Substation				
CTS0099	Excavation & Earth Mat Installation	12d	07-Feb-14	20-Feb-14
CTS0100	Temporary Substation Construction - Foundation	9d	21-Feb-14	03-Mar-14



Actual Work
Progress
Planned Bar
Planned Bar - ...
Milestone
Progress Milest...

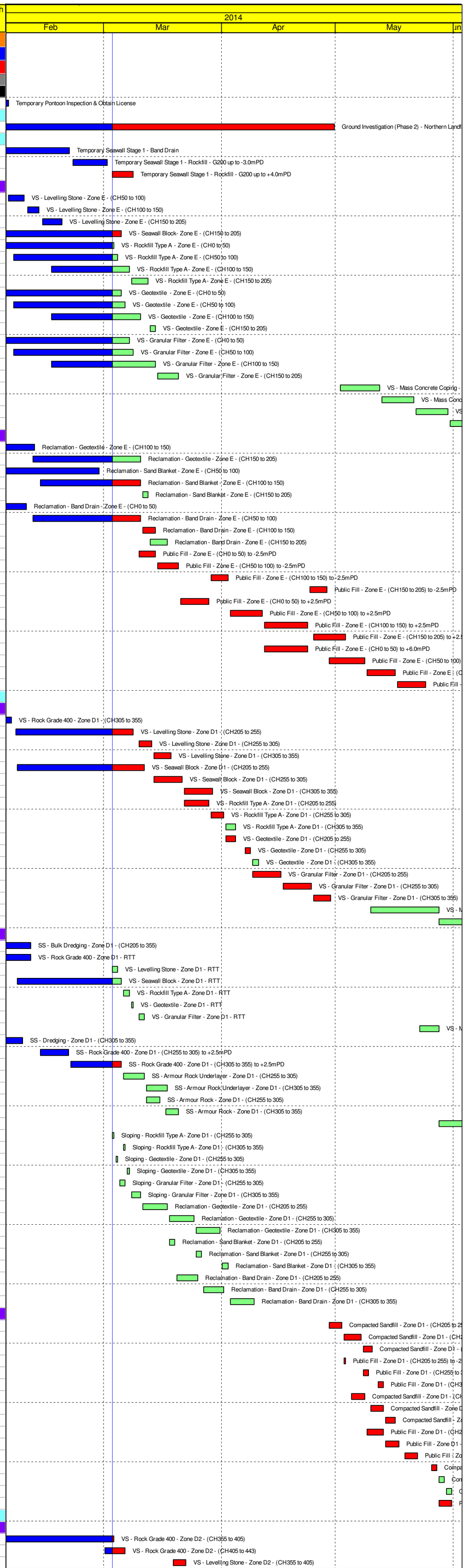
TMCLK - Northern Connection Sub-Sea Tunnel Section

Three-months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Current Start	Current Finish
TMCLK - Northern Connection Sub-Sea Tunnel Section		311	25-Oct-13	30-Sep-14	25-Oct-13 A	14-Nov-14
Construction		311	25-Oct-13	30-Sep-14	25-Oct-13 A	14-Nov-14
Northern Landfall		311	25-Oct-13	30-Sep-14	25-Oct-13 A	14-Nov-14
North Reclamation (Phase 1)		183	25-Oct-13	13-Jun-14	25-Oct-13 A	13-Jun-14
Construction		183	25-Oct-13	13-Jun-14	25-Oct-13 A	13-Jun-14
DDP10000	Temporary Pontoon Inspection & Obtain License	8	23-Nov-13	02-Dec-13	01-Feb-14 A	04-Feb-14 A
Ground Investigation		100	25-Oct-13	30-Apr-14	25-Oct-13 A	30-Apr-14
DDP09010	Ground Investigation (Phase 2) - Northern Landfall & Sub-sea Tunnel	100	25-Oct-13	30-Apr-14	25-Oct-13 A	30-Apr-14
Zone E		156	26-Nov-13	13-Jun-14	08-Jan-14 A	13-Jun-14
NRC13810	Temporary Seawall Stage 1 - Band Drain	6	30-Dec-13	06-Jan-14	20-Jan-14 A	20-Feb-14 A
NRC13820	Temporary Seawall Stage 1 - Rockfill - G200 up to -3.0mPD	9	07-Jan-14	16-Jan-14	21-Feb-14 A	02-Mar-14 A
NRC13830	Temporary Seawall Stage 1 - Rockfill - G200 up to +4.0mPD	6	17-Jan-14	23-Jan-14	03-Mar-14	08-Mar-14
Vertical Seawall		156	26-Nov-13	13-Jun-14	22-Jan-14 A	13-Jun-14
NRC10250	VS - Levelling Stone - Zone E - (CH50 to 100)	4	26-Nov-13	29-Nov-13	04-Feb-14 A	08-Feb-14 A
NRC10260	VS - Levelling Stone - Zone E - (CH100 to 150)	4	30-Nov-13	04-Dec-13	09-Feb-14 A	12-Feb-14 A
NRC10270	VS - Levelling Stone - Zone E - (CH150 to 205)	5	11-Dec-13	16-Dec-13	13-Feb-14 A	18-Feb-14 A
NRC10310	VS - Seawall Block- Zone E - (CH150 to 205)	6	20-Dec-13	02-Jan-14	22-Jan-14 A	05-Mar-14
NRC10320	VS - Rockfill Type A - Zone E - (CH0 to 50)	2	12-Dec-13	14-Dec-13	25-Jan-14 A	03-Mar-14
NRC10330	VS - Rockfill Type A- Zone E - (CH50 to 100)	2	16-Dec-13	18-Dec-13	05-Feb-14 A	04-Mar-14
NRC10340	VS - Rockfill Type A- Zone E - (CH100 to 150)	1	20-Dec-13	23-Dec-13	15-Feb-14 A	07-Mar-14
NRC10350	VS - Rockfill Type A- Zone E - (CH150 to 205)	4	03-Jan-14	07-Jan-14	08-Mar-14	12-Mar-14
NRC10360	VS - Geotextile - Zone E - (CH0 to 50)	1	19-Dec-13	20-Dec-13	25-Jan-14 A	05-Mar-14
NRC10370	VS - Geotextile - Zone E - (CH50 to 100)	1	21-Dec-13	23-Dec-13	05-Feb-14 A	06-Mar-14
NRC10380	VS - Geotextile - Zone E - (CH100 to 150)	1	24-Dec-13	27-Dec-13	15-Feb-14 A	10-Mar-14
NRC10390	VS - Geotextile - Zone E - (CH150 to 205)	2	08-Jan-14	09-Jan-14	13-Mar-14	14-Mar-14
NRC10400	VS - Granular Filter - Zone E - (CH0 to 50)	3	24-Dec-13	30-Dec-13	25-Jan-14 A	07-Mar-14
NRC10410	VS - Granular Filter - Zone E - (CH50 to 100)	3	31-Dec-13	04-Jan-14	05-Feb-14 A	08-Mar-14
NRC10420	VS - Granular Filter - Zone E - (CH100 to 150)	1	06-Jan-14	09-Jan-14	15-Feb-14 A	14-Mar-14
NRC10430	VS - Granular Filter - Zone E - (CH150 to 205)	5	10-Jan-14	15-Jan-14	15-Mar-14	20-Mar-14
NRC10480	VS - Mass Concrete Coping - Zone E - (CH0 to 50)	8	02-May-14	12-May-14	02-May-14*	12-May-14
NRC10490	VS - Mass Concrete Coping - Zone E - (CH50 to 100)	8	13-May-14	21-May-14	13-May-14	21-May-14
NRC10500	VS - Mass Concrete Coping - Zone E - (CH100 to 150)	8	22-May-14	30-May-14	22-May-14	30-May-14
NRC10510	VS - Mass Concrete Coping - Zone E - (CH150 to 205)	11	31-May-14	13-Jun-14	31-May-14	13-Jun-14
Reclamation		84	10-Feb-14	30-Apr-14	08-Jan-14 A	24-May-14
NRC10540	Reclamation - Geotextile - Zone E - (CH100 to 150)	6	14-Feb-14	20-Feb-14	22-Jan-14 A	10-Feb-14 A
NRC10550	Reclamation - Geotextile - Zone E - (CH150 to 205)	5	21-Feb-14	27-Feb-14	10-Feb-14 A	10-Mar-14
NRC10570	Reclamation - Sand Blanket - Zone E - (CH50 to 100)	2	14-Feb-14	15-Feb-14	08-Jan-14 A	27-Feb-14 A
NRC10580	Reclamation - Sand Blanket - Zone E - (CH100 to 150)	1	21-Feb-14	22-Feb-14	12-Feb-14 A	10-Mar-14
NRC10590	Reclamation - Sand Blanket - Zone E - (CH150 to 205)	2	28-Feb-14	01-Mar-14	11-Mar-14	12-Mar-14
NRC10600	Reclamation - Band Drain - Zone E - (CH0 to 50)	4	10-Feb-14	13-Feb-14	20-Jan-14 A	08-Feb-14 A
NRC10610	Reclamation - Band Drain - Zone E - (CH50 to 100)	3	17-Feb-14	20-Feb-14	10-Feb-14 A	10-Mar-14
NRC10620	Reclamation - Band Drain - Zone E - (CH100 to 150)	4	24-Feb-14	27-Feb-14	11-Mar-14	14-Mar-14
NRC10630	Reclamation - Band Drain - Zone E - (CH150 to 205)	4	03-Mar-14	06-Mar-14	13-Mar-14	17-Mar-14
NRC10640	Public Fill - Zone E - (CH0 to 50) to -2.5mPD	5	15-Feb-14	20-Feb-14	10-Mar-14	14-Mar-14
NRC10650	Public Fill - Zone E - (CH50 to 100) to -2.5mPD	5	21-Feb-14	26-Feb-14	15-Mar-14	20-Mar-14
NRC10660	Public Fill - Zone E - (CH100 to 150) to -2.5mPD	4	07-Mar-14	11-Mar-14	29-Mar-14	02-Apr-14
NRC10670	Public Fill - Zone E - (CH150 to 205) to -2.5mPD	4	28-Mar-14	01-Apr-14	24-Apr-14	28-Apr-14
NRC10680	Public Fill - Zone E - (CH0 to 50) to +2.5mPD	7	27-Feb-14	06-Mar-14	21-Mar-14	28-Mar-14
NRC10690	Public Fill - Zone E - (CH50 to 100) to +2.5mPD	7	12-Mar-14	19-Mar-14	03-Apr-14	11-Apr-14
NRC10700	Public Fill - Zone E - (CH100 to 150) to +2.5mPD	7	20-Mar-14	27-Mar-14	12-Apr-14	23-Apr-14
NRC10710	Public Fill - Zone E - (CH150 to 205) to +2.5mPD	7	29-Mar-14	07-Apr-14	25-Apr-14	03-May-14
NRC10720	Public Fill - Zone E - (CH0 to 50) to +6.0mPD	7	20-Mar-14	27-Mar-14	12-Apr-14	23-Apr-14
NRC10730	Public Fill - Zone E - (CH50 to 100) to +6.0mPD	7	02-Apr-14	10-Apr-14	29-Apr-14	08-May-14
NRC10740	Public Fill - Zone E - (CH100 to 150) to +6.0mPD	7	11-Apr-14	22-Apr-14	09-May-14	16-May-14
NRC10750	Public Fill - Zone E - (CH150 to 205) to +6.0mPD	7	23-Apr-14	30-Apr-14	17-May-14	24-May-14
Zone D1		141	06-Dec-13	29-May-14	16-Jan-14 A	06-Jun-14
Vertical Seawall		111	14-Jan-14	29-May-14	20-Jan-14 A	06-Jun-14
NRC10880	VS - Rock Grade 400 - Zone D1 - (CH305 to 355)	10	14-Jan-14	24-Jan-14	20-Jan-14 A	04-Feb-14 A
NRC10910	VS - Levelling Stone - Zone D1 - (CH205 to 255)	2	14-Jan-14	21-Jan-14	06-Feb-14 A	08-Mar-14
NRC10920	VS - Levelling Stone - Zone D1 - (CH255 to 305)	4	22-Jan-14	25-Jan-14	10-Mar-14	13-Mar-14
NRC10930	VS - Levelling Stone - Zone D1 - (CH305 to 355)	4	27-Jan-14	30-Jan-14	14-Mar-14	18-Mar-14
NRC10960	VS - Seawall Block - Zone D1 - (CH205 to 255)	9	22-Jan-14	10-Feb-14	06-Feb-14 A	11-Mar-14
NRC10970	VS - Seawall Block - Zone D1 - (CH255 to 305)	7	11-Feb-14	18-Feb-14	14-Mar-14	21-Mar-14
NRC10980	VS - Seawall Block - Zone D1 - (CH305 to 355)	7	19-Feb-14	26-Feb-14	22-Mar-14	29-Mar-14
NRC11010	VS - Rockfill Type A- Zone D1 - (CH205 to 255)	6	19-Feb-14	25-Feb-14	22-Mar-14	28-Mar-14
NRC11020	VS - Rockfill Type A- Zone D1 - (CH255 to 305)	3	26-Feb-14	28-Feb-14	29-Mar-14	01-Apr-14
NRC11030	VS - Rockfill Type A- Zone D1 - (CH305 to 355)	3	01-Mar-14	04-Mar-14	02-Apr-14	04-Apr-14
NRC11060	VS - Geotextile - Zone D1 - (CH205 to 255)	3	01-Mar-14	04-Mar-14	02-Apr-14	04-Apr-14
NRC11070	VS - Geotextile - Zone D1 - (CH255 to 305)	2	05-Mar-14	06-Mar-14	07-Apr-14	08-Apr-14
NRC11080	VS - Geotextile - Zone D1 - (CH305 to 355)	2	07-Mar-14	08-Mar-14	09-Apr-14	10-Apr-14
NRC11140	VS - Granular Filter - Zone D1 - (CH205 to 255)	7	07-Mar-14	14-Mar-14	09-Apr-14	16-Apr-14
NRC11210	VS - Granular Filter - Zone D1 - (CH255 to 305)	4	15-Mar-14	19-Mar-14	17-Apr-14	24-Apr-14
NRC11280	VS - Granular Filter - Zone D1 - (CH305 to 355)	4	20-Mar-14	24-Mar-14	25-Apr-14	29-Apr-14
NRC11720	VS - Mass Concrete Coping - Zone D1 - (CH205 to 255)	15	02-May-14	20-May-14	10-May-14*	28-May-14
NRC11790	VS - Mass Concrete Coping - Zone D1 - (CH255 to 305)	8	21-May-14	29-May-14	28-May-14	06-Jun-14
Sloping Seawall		140	06-Dec-13	13-May-14	16-Jan-14 A	05-Jun-14
NRC11940	SS - Bulk Dredging - Zone D1 - (CH205 to 355)	3	06-Dec-13	09-Dec-13	16-Jan-14 A	09-Feb-14 A
NRC1202020	VS - Rock Grade 400 - Zone D1 - RTT	4	11-Dec-13	14-Dec-13	29-Jan-14 A	09-Feb-14 A
NRC1202030	VS - Levelling Stone - Zone D1 - RTT	2	16-Dec-13	17-Dec-13	03-Mar-14	04-Mar-14
NRC1202040	VS - Seawall Block - Zone D1 - RTT	5	18-Dec-13	24-Dec-13	06-Feb-14 A	05-Mar-14
NRC1202050	VS - Rockfill Type A- Zone D1 - RTT	2	27-Dec-13	28-Dec-13	06-Mar-14	07-Mar-14
NRC1202060	VS - Geotextile - Zone D1 - RTT	1	30-Dec-13	30-Dec-13	08-Mar-14	08-Mar-14
NRC1202070	VS - Granular Filter - Zone D1 - RTT	2	31-Dec-13	02-Jan-14	10-Mar-14	11-Mar-14
NRC1202090	VS - Mass Concrete Coping - Zone D1 - RTT	4	29-Apr-14	03-May-14	23-May-14	28-May-14
NRC12110	SS - Dredging - Zone D1 - (CH305 to 355)	2	03-Jan-14	04-Jan-14	27-Jan-14 A	07-Feb-14 A
NRC12290	SS - Rock Grade 400 - Zone D1 - (CH255 to 305) to +2.5mPD	15	16-Dec-13	04-Jan-14	12-Feb-14 A	19-Feb-14 A
NRC12330	SS - Rock Grade 400 - Zone D1 - (CH305 to 355) to +2.5mPD	11	06-Jan-14	22-Jan-14	20-Feb-14 A	05-Mar-14
NRC13610	SS - Armour Rock Underlayer - Zone D1 - (CH255 to 305)	5	23-Jan-14	28-Jan-14	06-Mar-14	11-Mar-14
NRC13690	SS - Armour Rock Underlayer - Zone D1 - (CH305 to 355)	5	29-Jan-14	10-Feb-14	12-Mar-14	17-Mar-14
NRC14070	SS - Armour Rock - Zone D1 - (CH255 to 305)	4	29-Jan-14	08-Feb-14	12-Mar-14	15-Mar-14
NRC14080	SS - Armour Rock - Zone D1 - (CH305 to 355)	4	10-Feb-14	13-Feb-14	17-Mar-14	20-Mar-14
NRC14120	SS - Mass Concrete Coping - Zone D1 - (CH255 to 305)	7	05-May-14	13-May-14	28-May-14	05-Jun-14
NRC14170	Sloping - Rockfill Type A- Zone D1 - (CH255 to 305)	1	06-Jan-14	06-Jan-14	03-Mar-14	03-Mar-14
NRC14180	Sloping - Rockfill Type A- Zone D1 - (CH305 to 355)	1	23-Jan-14	23-Jan-14	06-Mar-14	06-Mar-14
NRC14220	Sloping - Geotextile - Zone D1 - (CH255 to 305)	1	07-Jan-14	07-Jan-14	04-Mar-14	04-Mar-14
NRC14230	Sloping - Geotextile - Zone D1 - (CH305 to 355)	1	24-Jan-14	24-Jan-14	07-Mar-14	07-Mar-14
NRC14270	Sloping - Granular Filter - Zone D1 - (CH255 to 305)	2	08-Jan-14	09-Jan-14	05-Mar-14	06-Mar-14
NRC14280	Sloping - Granular Filter - Zone D1 - (CH305 to 355)	2	25-Jan-14	27-Jan-14	08-Mar-14	10-Mar-14
NRC14310	Reclamation - Geotextile - Zone D1 - (CH205 to 255)	6	28-Feb-14	06-Mar-14	11-Mar-14	17-Mar-14
NRC14320	Reclamation - Geotextile - Zone D1 - (CH255 to 305)	6	07-Mar-14	13-Mar-14	18-Mar-14	24-Mar-14
NRC14330	Reclamation - Geotextile - Zone D1 - (CH305 to 355)	6	14-Mar-14	20-Mar-14	25-Mar-14	31-Mar-14
NRC14360	Reclamation - Sand Blanket - Zone D1 - (CH205 to 255)	2	07-Mar-14	08-Mar-14	18-Mar-14	19-Mar-14
NRC14370	Reclamation - Sand Blanket - Zone D1 - (CH255 to 305)	2	14-Mar-14	15-Mar-14	25-Mar-14	26-Mar-14
NRC14380	Reclamation - Sand Blanket - Zone D1 - (CH305 to 355)	2	21-Mar-14	22-Mar-14	01-Apr-14	02-Apr-14
NRC14410	Reclamation - Band Drain - Zone D1 - (CH205 to 255)	5	10-Mar-14	14-Mar-14	20-Mar-14	25-Mar-14
NRC14420	Reclamation - Band Drain - Zone D1 - (CH255 to 305)	5	17-Mar-14	21-Mar-14	27-Mar-14	01-Apr-14
NRC14430	Reclamation - Band Drain - Zone D1 - (CH305 to 355)	5	24-Mar-14	28-Mar-14	03-Apr-14	09-Apr-14
Reclamation		27	02-Apr-14	09-May-14	29-Apr-14	31-May-14
NRC13260	Compacted Sandfill - Zone D1 - (CH205 to 255) to -2.5mPD	3	02-Apr-14	04-Apr-14	29-Apr-14	02-May-14
NRC13270	Compacted Sandfill - Zone D1 - (CH255 to 305) to -2.5mPD	3	07-Apr-14	09-Apr-14	03-May-14	07-May-14
NRC13280	Compacted Sandfill - Zone D1 - (CH305 to 355) to -2.5mPD	3	10-Apr-14	12-Apr-14	08-May-14	10-May-14
NRC13290	Public Fill - Zone D1 - (CH205 to 255) to -2.5mPD	1	07-Apr-14	07-Apr-14	03-May-14	03-May-14
NRC13300	Public Fill - Zone D1 - (CH255 to 305) to -2.5mPD	2	10-Apr-14	11-Apr-14	08-May-14	09-May-14
NRC13310	Public Fill - Zone D1 - (CH305 to 355) to -2.5mPD	2	14-Apr-14	15-Apr-14	12-May-14	13-May-14
NRC13320	Compacted Sandfill - Zone D1 - (CH205 to 255) to +2.5mPD	3	08-Apr-14	10-Apr-14	05-May-14	08-May-14
NRC13340	Compacted Sandfill - Zone D1 - (CH255 to 305) to +2.5mPD	3	12-Apr-14	15-Apr-14	10-May-14	13-May-14
NRC13350	Compacted Sandfill - Zone D1 - (CH305 to 355) to +2.5mPD	3	16-Apr-14	22-Apr-14	14-May-14	16-May-14
NRC13360	Public Fill - Zone D1 - (CH205 to 255) to +2.5mPD	4	11-Apr-14	15-Apr-14	09-May-14	13-May-14
NRC13370	Public Fill - Zone D1 - (CH255 to 305) to +2.5mPD	4	16-Apr-14	23-Apr-14	14-May-14	17-May-14
NRC13380	Public Fill - Zone D1 - (CH305 to 355) to +2.5mPD	4	24-Apr-14	28-Apr-14	19-May-14	22-May-14
NRC13390	Compacted Sandfill - Zone D1 - (CH205 to 255)to +5.0mPD	2	02-May-14	03-May-14	26-May-14	27-May-14
NRC13400	Compacted Sandfill - Zone D1 - (CH255 to 305) to +5.0mPD	2	05-May-14	07-May-14	28-May-14	29-May-14
NRC13410	Compacted Sandfill - Zone D1 - (CH305 to 355) to +5.0mPD	2	08-May-14	09-May-14	30-May-14	31-May-14
NRC13420	Public Fill - Zone D1 - (CH205 to 255) to +5.0mPD	4	05-May-14	09-May-14	28-May-14	31-May-14
Zone D2		103	20-Jan-14	14-May-14	27-Jan-14 A	03-Jun-14
Vertical Seawall		79	25-Jan-14	02-Apr-14	27-Jan-14 A	10-May-14
NRC10890	VS - Rock Grade 400 - Zone D2 - (CH355 to 405)	6	25-Jan-14	07-Feb-14	27-Jan-14 A	03-Mar-14
NRC10900	VS - Rock Grade 400 - Zone D2 - (CH405 to 443)	3	08-Feb-14	14-Feb-14	01-Mar-14 A	06-Mar-14
NRC10940	VS - Levelling Stone - Zone D2 - (CH355 to 405)	4	07-Feb-14	11-Feb-14	19-Mar-14	22-Mar-14



Current Bar
Current Bar - Critical
Planned Milestone
Current Milestone
Progress Bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

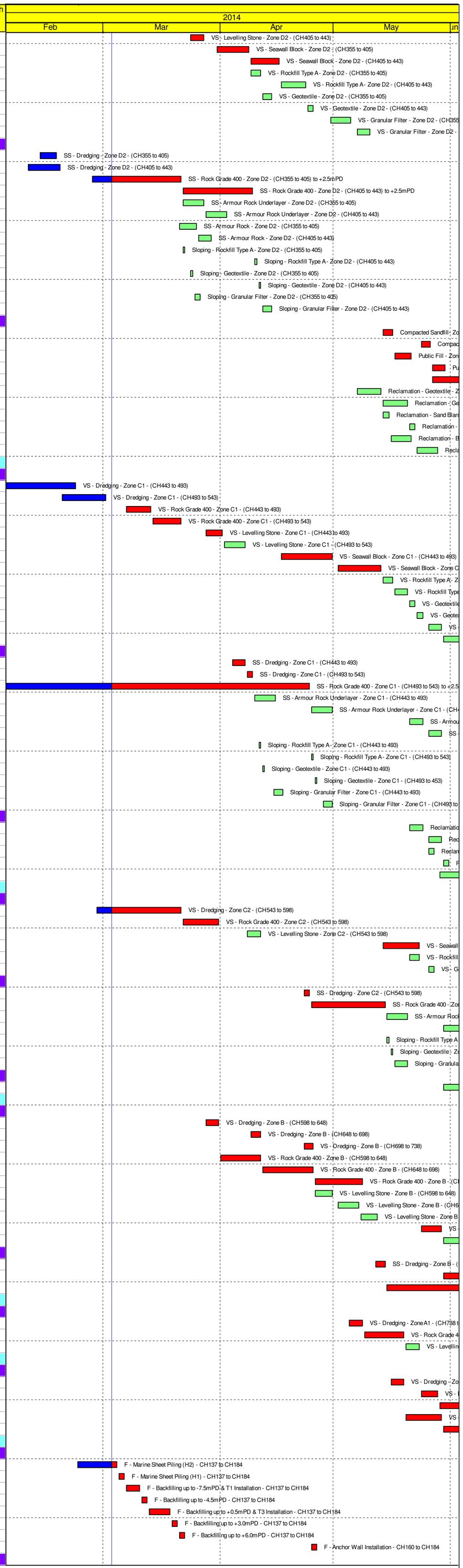
3-Months Rolling Programme - Construction

As of 03-Mar-14 Progress

香寶嘉港 Dragages HongKong
A member of the Bouygues Construction group
BOUYGUES TRAVAUX PUBLICS
Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
21-Feb-14	TMCLK/DBJ/GEN/PRG/98505	SPa	WYu

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Current Start	Current Finish
NRC10950	VS - Levelling Stone - Zone D2 - (CH405 to 443)	4	12-Feb-14	15-Feb-14	24-Mar-14	27-Mar-14
NRC10990	VS - Seawall Block - Zone D2 - (CH355 to 405)	7	27-Feb-14	06-Mar-14	31-Mar-14	08-Apr-14
NRC11000	VS - Seawall Block - Zone D2 - (CH405 to 443)	7	07-Mar-14	14-Mar-14	09-Apr-14	16-Apr-14
NRC11040	VS - Rockfill Type A- Zone D2 - (CH355 to 405)	3	07-Mar-14	10-Mar-14	09-Apr-14	11-Apr-14
NRC11050	VS - Rockfill Type A- Zone D2 - (CH405 to 443)	3	15-Mar-14	18-Mar-14	17-Apr-14	23-Apr-14
NRC11090	VS - Geotextile - Zone D2 - (CH355 to 405)	2	11-Mar-14	12-Mar-14	12-Apr-14	14-Apr-14
NRC11100	VS - Geotextile - Zone D2 - (CH405 to 443)	2	19-Mar-14	20-Mar-14	24-Apr-14	25-Apr-14
NRC11350	VS - Granular Filter - Zone D2 - (CH355 to 405)	4	25-Mar-14	28-Mar-14	30-Apr-14	05-May-14
NRC11390	VS - Granular Filter - Zone D2 - (CH405 to 443)	4	29-Mar-14	02-Apr-14	07-May-14	10-May-14
Sloping Seawall		66	20-Jan-14	11-Mar-14	09-Feb-14 A	14-Apr-14
NRC12160	SS - Dredging - Zone D2 - (CH355 to 405)	3	20-Jan-14	22-Jan-14	12-Feb-14 A	16-Feb-14 A
NRC12200	SS - Dredging - Zone D2 - (CH405 to 443)	2	15-Feb-14	17-Feb-14	09-Feb-14 A	17-Feb-14 A
NRC12430	SS - Rock Grade 400 - Zone D2 - (CH355 to 405) to +2.5mPD	2	23-Jan-14	17-Feb-14	26-Feb-14 A	21-Mar-14
NRC12840	SS - Rock Grade 400 - Zone D2 - (CH405 to 443) to +2.5mPD	15	18-Feb-14	06-Mar-14	22-Mar-14	09-Apr-14
NRC13770	SS - Armour Rock Underlayer - Zone D2 - (CH355 to 405)	5	18-Feb-14	22-Feb-14	22-Mar-14	27-Mar-14
NRC13880	SS - Armour Rock Underlayer - Zone D2 - (CH405 to 443)	5	24-Feb-14	28-Feb-14	28-Mar-14	02-Apr-14
NRC14090	SS - Armour Rock - Zone D2 - (CH355 to 405)	4	14-Feb-14	18-Feb-14	21-Mar-14	25-Mar-14
NRC14100	SS - Armour Rock - Zone D2 - (CH405 to 443)	4	19-Feb-14	22-Feb-14	26-Mar-14	29-Mar-14
NRC14190	Sloping - Rockfill Type A- Zone D2 - (CH355 to 405)	1	18-Feb-14	18-Feb-14	22-Mar-14	22-Mar-14
NRC14200	Sloping - Rockfill Type A- Zone D2 - (CH405 to 443)	1	07-Mar-14	07-Mar-14	10-Apr-14	10-Apr-14
NRC14240	Sloping - Geotextile - Zone D2 - (CH355 to 405)	1	19-Feb-14	19-Feb-14	24-Mar-14	24-Mar-14
NRC14250	Sloping - Geotextile - Zone D2 - (CH405 to 443)	1	08-Mar-14	08-Mar-14	11-Apr-14	11-Apr-14
NRC14290	Sloping - Granular Filter - Zone D2 - (CH355 to 405)	2	20-Feb-14	21-Feb-14	25-Mar-14	26-Mar-14
NRC14300	Sloping - Granular Filter - Zone D2 - (CH405 to 443)	2	10-Mar-14	11-Mar-14	12-Apr-14	14-Apr-14
Reclamation		23	29-Mar-14	14-May-14	07-May-14	03-Jun-14
NRC13490	Compacted Sandfill- Zone D2 - (CH355 to 405) to -2.5mPD	3	16-Apr-14	22-Apr-14	14-May-14	16-May-14
NRC13500	Compacted Sandfill - Zone D2 - (CH405 to 443) to -2.5mPD	2	05-May-14	07-May-14	24-May-14	26-May-14
NRC13510	Public Fill - Zone D2 - (CH355 to 405) to -2.5mPD	4	23-Apr-14	26-Apr-14	17-May-14	21-May-14
NRC13520	Public Fill - Zone D2 - (CH405 to 443) to -2.5mPD	4	08-May-14	12-May-14	27-May-14	30-May-14
NRC13540	Compacted Sandfill - Zone D2 - (CH355 to 405) to +2.5mPD	6	08-May-14	14-May-14	27-May-14	03-Jun-14
NRC14340	Reclamation - Geotextile - Zone D2 - (CH355 to 405)	6	29-Mar-14	04-Apr-14	07-May-14	13-May-14
NRC14350	Reclamation - Geotextile - Zone D2 - (CH405 to 443)	6	07-Apr-14	12-Apr-14	14-May-14	20-May-14
NRC14390	Reclamation - Sand Blanket - Zone D2 - (CH355 to 405)	2	07-Apr-14	08-Apr-14	14-May-14	15-May-14
NRC14400	Reclamation - Sand Blanket - Zone D2 - (CH405 to 443)	2	14-Apr-14	15-Apr-14	21-May-14	22-May-14
NRC14440	Reclamation - Band Drain - Zone D2 - (CH355 to 405)	5	09-Apr-14	14-Apr-14	16-May-14	21-May-14
NRC14450	Reclamation - Band Drain - Zone D2 - (CH405 to 443)	5	16-Apr-14	24-Apr-14	23-May-14	28-May-14
Zone C1		89	13-Feb-14	20-May-14	10-Jan-14 A	04-Jun-14
Vertical Seawall		89	13-Feb-14	30-Apr-14	15-Jan-14 A	04-Jun-14
NRC14460	VS - Dredging - Zone C1 - (CH443 to 493)	2	13-Feb-14	14-Feb-14	15-Jan-14 A	21-Feb-14 A
NRC14470	VS - Dredging - Zone C1 - (CH493 to 543)	2	20-Feb-14	21-Feb-14	18-Feb-14 A	01-Mar-14 A
NRC14490	VS - Rock Grade 400 - Zone C1 - (CH443 to 493)	6	15-Feb-14	21-Feb-14	07-Mar-14	13-Mar-14
NRC14500	VS - Rock Grade 400 - Zone C1 - (CH493 to 543)	7	22-Feb-14	01-Mar-14	14-Mar-14	21-Mar-14
NRC14520	VS - Levelling Stone - Zone C1 - (CH443 to 493)	4	03-Mar-14	06-Mar-14	28-Mar-14	01-Apr-14
NRC14530	VS - Levelling Stone - Zone C1 - (CH493 to 543)	4	07-Mar-14	11-Mar-14	02-Apr-14	07-Apr-14
NRC14550	VS - Seawall Block - Zone C1 - (CH443 to 493)	9	15-Mar-14	25-Mar-14	17-Apr-14	30-Apr-14
NRC14560	VS - Seawall Block - Zone C1 - (CH493 to 543)	9	26-Mar-14	04-Apr-14	02-May-14	13-May-14
NRC14580	VS - Rockfill Type A- Zone C1 - (CH443 to 493)	3	07-Apr-14	09-Apr-14	14-May-14	16-May-14
NRC14590	VS - Rockfill Type A- Zone C1 - (CH493 to 543)	3	10-Apr-14	12-Apr-14	17-May-14	20-May-14
NRC14610	VS - Geotextile - Zone C1 - (CH443 to 493)	2	14-Apr-14	15-Apr-14	21-May-14	22-May-14
NRC14620	VS - Geotextile - Zone C1 - (CH493 to 543)	2	16-Apr-14	17-Apr-14	23-May-14	24-May-14
NRC14640	VS - Granular Filter - Zone C1 - (CH443 to 493)	4	22-Apr-14	25-Apr-14	26-May-14	29-May-14
NRC14650	VS - Granular Filter - Zone C1 - (CH493 to 543)	4	26-Apr-14	30-Apr-14	30-May-14	04-Jun-14
Sloping Seawall		51	05-Mar-14	20-May-14	10-Jan-14 A	29-May-14
NRC14730	SS - Dredging - Zone C1 - (CH443 to 493)	2	05-Mar-14	06-Mar-14	04-Apr-14	07-Apr-14
NRC14740	SS - Dredging - Zone C1 - (CH493 to 543)	2	22-Mar-14	24-Mar-14	08-Apr-14	09-Apr-14
NRC14770	SS - Rock Grade 400 - Zone C1 - (CH493 to 543) to +2.5mPD	6	25-Mar-14	11-Apr-14	10-Jan-14 A	24-Apr-14
NRC14820	SS - Armour Rock Underlayer - Zone C1 - (CH443 to 493)	5	25-Mar-14	29-Mar-14	10-Apr-14	15-Apr-14
NRC14830	SS - Armour Rock Underlayer - Zone C1 - (CH493 to 543)	5	12-Apr-14	17-Apr-14	25-Apr-14	30-Apr-14
NRC14850	SS - Armour Rock - Zone C1 - (CH443 to 493)	4	12-May-14	15-May-14	21-May-14	24-May-14
NRC14860	SS - Armour Rock - Zone C1 - (CH493 to 543)	4	16-May-14	20-May-14	26-May-14	29-May-14
NRC14910	Sloping - Rockfill Type A- Zone C1 - (CH443 to 493)	1	25-Mar-14	25-Mar-14	11-Apr-14	11-Apr-14
NRC14920	Sloping - Rockfill Type A- Zone C1 - (CH493 to 543)	1	12-Apr-14	12-Apr-14	25-Apr-14	25-Apr-14
NRC14940	Sloping - Geotextile - Zone C1 - (CH443 to 493)	1	26-Mar-14	26-Mar-14	12-Apr-14	12-Apr-14
NRC14950	Sloping - Geotextile - Zone C1 - (CH493 to 453)	1	14-Apr-14	14-Apr-14	26-Apr-14	26-Apr-14
NRC14970	Sloping - Granular Filter - Zone C1 - (CH443 to 493)	3	27-Mar-14	29-Mar-14	15-Apr-14	17-Apr-14
NRC14980	Sloping - Granular Filter - Zone C1 - (CH493 to 543)	3	15-Apr-14	17-Apr-14	28-Apr-14	30-Apr-14
Reclamation		11	14-Apr-14	29-Apr-14	21-May-14	03-Jun-14
NRC15000	Reclamation - Geotextile - Zone C1 - (CH443 to 493)	4	14-Apr-14	17-Apr-14	21-May-14	24-May-14
NRC15010	Reclamation - Geotextile - Zone C1 - (CH493 to 543)	4	22-Apr-14	25-Apr-14	26-May-14	29-May-14
NRC15030	Reclamation - Sand Blanket - Zone C1 - (CH443 to 493)	2	22-Apr-14	23-Apr-14	26-May-14	27-May-14
NRC15040	Reclamation - Sand Blanket - Zone C1 - (CH493 to 543)	2	26-Apr-14	28-Apr-14	30-May-14	31-May-14
NRC15060	Reclamation - Band Drain - Zone C1 - (CH443 to 493)	4	25-Apr-14	29-Apr-14	29-May-14	03-Jun-14
Zone C2		76	28-Feb-14	24-May-14	27-Feb-14 A	04-Jun-14
Vertical Seawall		70	28-Feb-14	23-Apr-14	27-Feb-14 A	27-May-14
NRC14480	VS - Dredging - Zone C2 - (CH543 to 598)	1	28-Feb-14	01-Mar-14	27-Feb-14 A	21-Mar-14
NRC14510	VS - Rock Grade 400 - Zone C2 - (CH543 to 598)	8	03-Mar-14	11-Mar-14	22-Mar-14	31-Mar-14
NRC14540	VS - Levelling Stone - Zone C2 - (CH543 to 598)	4	12-Mar-14	15-Mar-14	08-Apr-14	11-Apr-14
NRC14570	VS - Seawall Block - Zone C2 - (CH543 to 598)	9	07-Apr-14	16-Apr-14	14-May-14	23-May-14
NRC14600	VS - Rockfill Type A- Zone C2 - (CH543 to 598)	3	14-Apr-14	16-Apr-14	21-May-14	23-May-14
NRC14630	VS - Geotextile - Zone C2 - (CH543 to 598)	2	22-Apr-14	23-Apr-14	26-May-14	27-May-14
Sloping Seawall		34	10-Apr-14	24-May-14	23-Apr-14	04-Jun-14
NRC14750	SS - Dredging - Zone C2 - (CH543 to 598)	2	10-Apr-14	11-Apr-14	23-Apr-14	24-Apr-14
NRC14780	SS - Rock Grade 400 - Zone C2 - (CH543 to 598) to +2.5mPD	15	12-Apr-14	03-May-14	25-Apr-14	14-May-14
NRC14840	SS - Armour Rock Underlayer - Zone C2 - (CH543 to 598)	5	05-May-14	10-May-14	15-May-14	20-May-14
NRC14870	SS - Armour Rock - Zone C2 - (CH543 to 598)	4	21-May-14	24-May-14	30-May-14	04-Jun-14
NRC14930	Sloping - Rockfill Type A- Zone C2 - (CH543 to 598)	1	05-May-14	05-May-14	15-May-14	15-May-14
NRC14960	Sloping - Geotextile - Zone C2 - (CH543 to 598)	1	07-May-14	07-May-14	16-May-14	16-May-14
NRC14990	Sloping - Granular Filter - Zone C2 - (CH543 to 598)	3	08-May-14	10-May-14	17-May-14	20-May-14
Reclamation		4	12-May-14	15-May-14	30-May-14	04-Jun-14
NRC15020	Reclamation - Geotextile - Zone C2 - (CH543 to 598)	4	12-May-14	15-May-14	30-May-14	04-Jun-14
Zone B		53	08-Mar-14	23-May-14	28-Mar-14	05-Jun-14
Vertical Seawall		53	08-Mar-14	02-May-14	28-Mar-14	05-Jun-14
NRC11110	VS - Dredging - Zone B - (CH598 to 648)	3	08-Mar-14	11-Mar-14	28-Mar-14	31-Mar-14
NRC11120	VS - Dredging - Zone B - (CH648 to 698)	3	19-Mar-14	21-Mar-14	09-Apr-14	11-Apr-14
NRC11130	VS - Dredging - Zone B - (CH698 to 738)	3	29-Mar-14	01-Apr-14	23-Apr-14	25-Apr-14
NRC11150	VS - Rock Grade 400 - Zone B - (CH598 to 648)	9	12-Mar-14	21-Mar-14	01-Apr-14	11-Apr-14
NRC11160	VS - Rock Grade 400 - Zone B - (CH648 to 698)	9	22-Mar-14	01-Apr-14	12-Apr-14	25-Apr-14
NRC11170	VS - Rock Grade 400 - Zone B - (CH698 to 738)	9	02-Apr-14	12-Apr-14	26-Apr-14	08-May-14
NRC11180	VS - Levelling Stone - Zone B - (CH598 to 648)	4	02-Apr-14	07-Apr-14	26-Apr-14	30-Apr-14
NRC11190	VS - Levelling Stone - Zone B - (CH648 to 698)	4	08-Apr-14	11-Apr-14	02-May-14	07-May-14
NRC11200	VS - Levelling Stone - Zone B - (CH698 to 738)	4	12-Apr-14	16-Apr-14	08-May-14	12-May-14
NRC11220	VS - Seawall Block - Zone B - (CH598 to 648)	5	17-Apr-14	25-Apr-14	24-May-14	29-May-14
NRC11230	VS - Seawall Block - Zone B - (CH648 to 698)	5	26-Apr-14	02-May-14	30-May-14	05-Jun-14
Sloping Seawall		19	30-Apr-14	23-May-14	12-May-14	03-Jun-14
NRC11440	SS - Dredging - Zone B - (CH598 to 648)	3	30-Apr-14	03-May-14	12-May-14	14-May-14
NRC11450	SS - Dredging - Zone B - (CH648 to 698)	3	21-May-14	23-May-14	30-May-14	03-Jun-14
NRC11470	SS - Rock Grade 400 - Zone B - (CH598 to 648) to +2.5mPD	16	05-May-14	23-May-14	15-May-14	03-Jun-14
Zone A1		16	10-Apr-14	02-May-14	05-May-14	23-May-14
Vertical Seawall		16	10-Apr-14	02-May-14	05-May-14	23-May-14
NRC12020	VS - Dredging - Zone A1 - (CH738 to 793)	3	10-Apr-14	12-Apr-14	05-May-14	08-May-14
NRC12040	VS - Rock Grade 400 - Zone A1 - (CH738 to 793)	9	14-Apr-14	26-Apr-14	09-May-14	19-May-14
NRC12050	VS - Levelling Stone - Zone A1 - (CH738 to 793)	4	28-Apr-14	02-May-14	20-May-14	23-May-14
Zone A2		22	24-Apr-14	21-May-14	16-May-14	11-Jun-14
Vertical Seawall		22	24-Apr-14	21-May-14	16-May-14	11-Jun-14
NRC12350	VS - Dredging - Zone A2 - (CH793 to 843)	3	24-Apr-14	26-Apr-14	16-May-14	19-May-14
NRC12360	VS - Dredging - Zone A2 - (CH843 to 893)	4	03-May-14	08-May-14	24-May-14	28-May-14
NRC12370	VS - Dredging - Zone A2 - (CH893 to 956)	11	09-May-14	21-May-14	29-May-14	11-Jun-14
NRC12380	VS - Rock Grade 400 - Zone A2 - (CH793 to 843)	9	28-Apr-14	09-May-14	20-May-14	29-May-14
NRC12390	VS - Rock Grade 400 - Zone A2 - (CH843 to 893)	10	10-May-14	21-May-14	30-May-14	11-Jun-14
Zone F		113	10-Jan-14	15-Apr-14	22-Feb-14 A	05-Jun-14
CH137 to CH184		82	10-Jan-14	08-Mar-14	22-Feb-14 A	26-Apr-14
A6416030	F - Marine Sheet Piling (H2) - CH137 to CH184	2	10-Jan-14	13-Jan-14	22-Feb-14 A	04-Mar-14
A6416035	F - Marine Sheet Piling (H1) - CH137 to CH184	2	14-Jan-14	15-Jan-14	05-Mar-14	06-Mar-14
A6416100	F - Backfilling up to -7.5mPD & T1 Installation - CH137 to CH184	4	16-Jan-14	19-Jan-14	07-Mar-14	10-Mar-14
A6416110	F - Backfilling up to -4.5mPD - CH137 to CH184	2	20-Jan-14	21-Jan-14	11-Mar-14	12-Mar-14
A6416115	F - Backfilling up to +0.5mPD & T3 Installation - CH137 to CH184	6	22-Jan-14	27-Jan-14	13-Mar-14	18-Mar-14
A6416118	F - Backfilling up to +3.0mPD - CH137 to CH184	2	28-Jan-14	29-Jan-14	19-Mar-14	20-Mar-14
A6416120	F - Backfilling up to +6.0mPD - CH137 to CH184	2	30-Jan-14	31-Jan-14	21-Mar-14	22-Mar-14
A6416320	F - Anchor Wall Installation - CH160 to CH184	2	07-Mar-14	08-Mar-14	25-Apr-14	26-Apr-14
CH184 to CH231		50	16-Jan-14	21-Mar-14	07-Mar-14	10-May-14



Current Bar
Current Bar - Critical
Planned Milestone
Current Milestone
Progress Bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

3-Months Rolling Programme - Construction

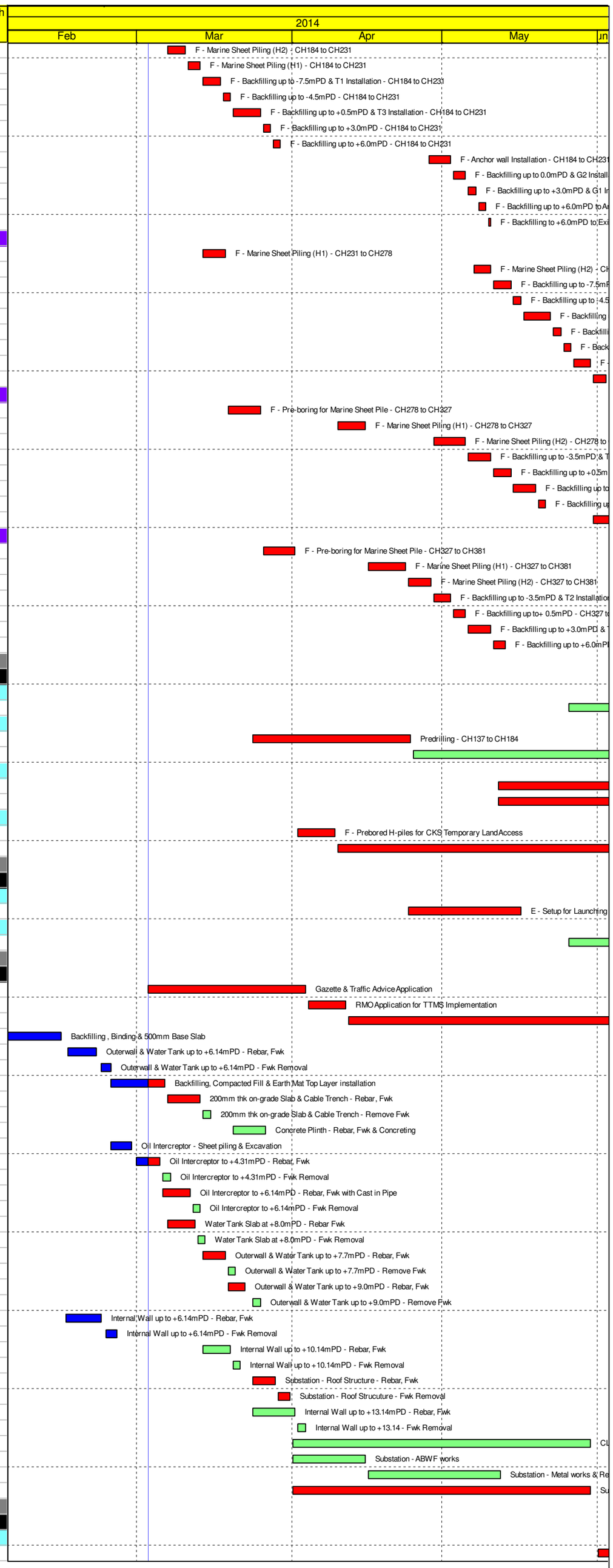
As of 03-Mar-14 Progress

香港寶嘉 Dragages HongKong
A member of the Bouygues Construction group
Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

BOUYGUES TRAVAUX PUBLICS

Date	Revision	Checked	Approved
21-Feb-14	TMCLK/DBJ/GEN/PRG/98505	SPa	WYu

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Current Start	Current Finish
A6416040	F - Marine Sheet Piling (H2) - CH184 to CH231	3	16-Jan-14	18-Jan-14	07-Mar-14	10-Mar-14
A6416050	F - Marine Sheet Piling (H1) - CH184 to CH231	3	20-Jan-14	22-Jan-14	11-Mar-14	13-Mar-14
A6416060	F - Backfilling up to -7.5mPD & T1 Installation - CH184 to CH231	4	23-Jan-14	26-Jan-14	14-Mar-14	17-Mar-14
A6416070	F - Backfilling up to -4.5mPD - CH184 to CH231	2	27-Jan-14	28-Jan-14	18-Mar-14	19-Mar-14
A6416080	F - Backfilling up to +0.5mPD & T3 Installation - CH184 to CH231	6	29-Jan-14	03-Feb-14	20-Mar-14	25-Mar-14
A6416085	F - Backfilling up to +3.0mPD - CH184 to CH231	2	04-Feb-14	05-Feb-14	26-Mar-14	27-Mar-14
A6416090	F - Backfilling up to +6.0mPD - CH184 to CH231	2	06-Feb-14	07-Feb-14	28-Mar-14	29-Mar-14
A6416230	F - Anchor wall Installation - CH184 to CH231	4	10-Mar-14	13-Mar-14	28-Apr-14	02-May-14
A6416290	F - Backfilling up to 0.0mPD & G2 Installation to Anchor Wall- CH184 to CH231	3	14-Mar-14	16-Mar-14	03-May-14	05-May-14
A6416295	F - Backfilling up to +3.0mPD & G1 Installation to Anchor Wall- CH184 to CH231	2	17-Mar-14	18-Mar-14	06-May-14	07-May-14
A6416300	F - Backfilling up to +6.0mPD to Anchor Wall - CH184 to CH231	2	19-Mar-14	20-Mar-14	08-May-14	09-May-14
A6416400	F - Backfilling to +6.0mPD to Existing Seawall - CH184 to CH231	1	21-Mar-14	21-Mar-14	10-May-14	10-May-14
CH231 to CH278		62	23-Jan-14	13-Apr-14	14-Mar-14	02-Jun-14
A6416240	F - Marine Sheet Piling (H1) - CH231 to CH278	4	23-Jan-14	27-Jan-14	14-Mar-14	18-Mar-14
A6416250	F - Marine Sheet Piling (H2) - CH231 to CH278	4	18-Mar-14	21-Mar-14	07-May-14	10-May-14
A6416260	F - Backfilling up to -7.5mPD & T1 Installation - CH231 to CH278	4	22-Mar-14	25-Mar-14	11-May-14	14-May-14
A6416270	F - Backfilling up to -4.5mPD - CH231 to CH278	2	26-Mar-14	27-Mar-14	15-May-14	16-May-14
A6416273	F - Backfilling up to +0.5mPD & T3 Installation - CH231 to CH278	6	28-Mar-14	02-Apr-14	17-May-14	22-May-14
A6416278	F - Backfilling up to +3.0mPD - CH231 to CH278	2	03-Apr-14	04-Apr-14	23-May-14	24-May-14
A6416280	F - Backfilling up to +6.0mPD - CH231 to CH278	2	05-Apr-14	06-Apr-14	25-May-14	26-May-14
A6416310	F - Anchor wall Installation - CH231 to CH278	4	07-Apr-14	10-Apr-14	27-May-14	30-May-14
A6416480	F - Backfilling up to 0.0mPD & G2 Installation to Anchor Wall- CH231 to CH278	3	11-Apr-14	13-Apr-14	31-May-14	02-Jun-14
CH278 to CH327		61	28-Jan-14	15-Apr-14	19-Mar-14	05-Jun-14
A6416180	F - Pre-boring for Marine Sheet Pile - CH278 to CH327	6	28-Jan-14	10-Feb-14	19-Mar-14	25-Mar-14
A6416190	F - Marine Sheet Piling (H1) - CH278 to CH327	5	25-Feb-14	01-Mar-14	10-Apr-14	15-Apr-14
A6416195	F - Marine Sheet Piling (H2) - CH278 to CH327	5	12-Mar-14	17-Mar-14	29-Apr-14	05-May-14
A6416200	F - Backfilling up to -3.5mPD & T2 Installation - CH278 to CH327	5	18-Mar-14	22-Mar-14	06-May-14	10-May-14
A6416210	F - Backfilling up to +0.5mPD - CH278 to CH327	4	23-Mar-14	26-Mar-14	11-May-14	14-May-14
A6416215	F - Backfilling up to +3.0mPD & T4 Installation - CH278 to CH327	5	27-Mar-14	31-Mar-14	15-May-14	19-May-14
A6416220	F - Backfilling up to +6.0mPD - CH278 to CH327	2	01-Apr-14	02-Apr-14	20-May-14	21-May-14
A6416340	F - Anchor wall Installation - CH278 to CH327	4	11-Apr-14	15-Apr-14	31-May-14	05-Jun-14
CH327 to CH381		36	11-Feb-14	26-Mar-14	26-Mar-14	13-May-14
A6416130	F - Pre-boring for Marine Sheet Pile - CH327 to CH381	6	11-Feb-14	17-Feb-14	26-Mar-14	01-Apr-14
A6416140	F - Marine Sheet Piling (H1) - CH327 to CH381	4	03-Mar-14	06-Mar-14	16-Apr-14	23-Apr-14
A6416145	F - Marine Sheet Piling (H2) - CH327 to CH381	4	07-Mar-14	11-Mar-14	24-Apr-14	28-Apr-14
A6416150	F - Backfilling up to -3.5mPD & T2 Installation - CH327 to CH381	4	12-Mar-14	15-Mar-14	29-Apr-14	02-May-14
A6416155	F - Backfilling up to+ 0.5mPD - CH327 to CH381	3	16-Mar-14	18-Mar-14	03-May-14	05-May-14
A6416160	F - Backfilling up to +3.0mPD & T4 Installation - CH327 to CH381	5	19-Mar-14	23-Mar-14	06-May-14	10-May-14
A6416170	F - Backfilling up to +6.0mPD - CH327 to CH381	3	24-Mar-14	26-Mar-14	11-May-14	13-May-14
Box Culvert Extension		192	07-Feb-14	30-Sep-14	24-Mar-14	14-Nov-14
Construction		192	07-Feb-14	30-Sep-14	24-Mar-14	14-Nov-14
CH000 to CH137		24	02-May-14	30-May-14	26-May-14	23-Jun-14
A6416600	Predrilling - CH27 to CH137	24	02-May-14	30-May-14	26-May-14	23-Jun-14
CH137 to CH184		184	07-Feb-14	19-Sep-14	24-Mar-14	05-Nov-14
A6416610	Predrilling - CH137 to CH184	24	07-Feb-14	06-Mar-14	24-Mar-14	24-Apr-14
A6416720	Bored Pile Construction - A42 to A35	160	07-Mar-14	19-Sep-14	25-Apr-14	05-Nov-14
CH184 to CH231		156	22-Mar-14	30-Sep-14	12-May-14	14-Nov-14
A6416620	Predrilling - CH184 to CH231	24	22-Mar-14	23-Apr-14	12-May-14	09-Jun-14
A6416730	Bored Pile Construction - A34 to A27	156	22-Mar-14	30-Sep-14	12-May-14	14-Nov-14
CH381 to CH399 (Box Culvert Connection)		58	18-Feb-14	30-Apr-14	02-Apr-14	16-Jun-14
A6416660	F - Prebored H-piles for CKS Temporary Land Access	6	18-Feb-14	24-Feb-14	02-Apr-14	09-Apr-14
A6417000	F - Steel Bridge Installation for Land Access to Zone E	52	25-Feb-14	30-Apr-14	10-Apr-14	16-Jun-14
North Shafts Construction & Tunnel Structure		46	28-Mar-14	27-May-14	24-Apr-14	19-Jun-14
Construction		46	28-Mar-14	27-May-14	24-Apr-14	19-Jun-14
North Launching Shaft ELS Foundation & Capping Beam (Cell 1 to 3)		18	28-Mar-14	22-Apr-14	24-Apr-14	16-May-14
NSH1180	E - Setup for Launching Shaft ELS	18	28-Mar-14	22-Apr-14	24-Apr-14	16-May-14
North Launching Shaft ELS Foundation & Capping Beam		21	02-May-14	27-May-14	26-May-14	19-Jun-14
NSH1210	E - Cell 4 to 6 - Prebored H-piles - Perm	21	02-May-14	27-May-14	26-May-14	19-Jun-14
CLP Temporary Substation		124	31-Dec-13	31-May-14	27-Jan-14 A	27-Jun-14
Construction		124	31-Dec-13	31-May-14	27-Jan-14 A	27-Jun-14
DDP12540	Gazette & Traffic Advice Application	28	31-Dec-13	08-Feb-14	03-Mar-14	03-Apr-14
DDP12550	RMO Application for TTMS Implementation	6	10-Feb-14	15-Feb-14	04-Apr-14	11-Apr-14
DDP12720	Trench Excavation & Service Connection	60	17-Feb-14	17-May-14	12-Apr-14	27-Jun-14
DDP1274010	Backfilling , Binding & 500mm Base Slab	16	20-Jan-14	13-Feb-14	27-Jan-14 A	14-Feb-14 A
DDP1274020	Outerwall & Water Tank up to +6.14mPD - Rebar, Fwk	7	14-Feb-14	21-Feb-14	15-Feb-14 A	21-Feb-14 A
DDP127402020	Outerwall & Water Tank up to +6.14mPD - Fwk Removal	2	22-Feb-14	24-Feb-14	22-Feb-14 A	24-Feb-14 A
DDP1274030	Backfilling, Compacted Fill & Earth Mat Top Layer installation	7	24-Feb-14	07-Mar-14	24-Feb-14 A	06-Mar-14
DDP1274040	200mm thk on-grade Slab & Cable Trench - Rebar, Fwk	6	08-Mar-14	14-Mar-14	07-Mar-14	13-Mar-14
DDP1274047	200mm thk on-grade Slab & Cable Trench - Remove Fwk	2	15-Mar-14	17-Mar-14	14-Mar-14	15-Mar-14
DDP1274050	Concrete Plinth - Rebar, Fwk & Concreting	6	21-Mar-14	27-Mar-14	20-Mar-14	26-Mar-14
DDP1275010	Oil Intercreptor - Sheet piling & Excavation	7	24-Feb-14	03-Mar-14	24-Feb-14 A	28-Feb-14 A
DDP1275020	Oil Intercreptor to +4.31mPD - Rebar, Fwk	0	04-Mar-14	06-Mar-14	01-Mar-14 A	05-Mar-14
DDP1275027	Oil Intercreptor to +4.31mPD - Fwk Removal	2	07-Mar-14	08-Mar-14	06-Mar-14	07-Mar-14
DDP1275030	Oil Intercreptor to +6.14mPD - Rebar, Fwk with Cast in Pipe	5	07-Mar-14	12-Mar-14	06-Mar-14	11-Mar-14
DDP1275037	Oil Intercreptor to +6.14mPD - Fwk Removal	2	13-Mar-14	14-Mar-14	12-Mar-14	13-Mar-14
DDP127503710	Water Tank Slab at +8.0mPD - Rebar Fwk	5	08-Mar-14	13-Mar-14	07-Mar-14	12-Mar-14
DDP127503730	Water Tank Slab at +8.0mPD - Fwk Removal	2	14-Mar-14	15-Mar-14	13-Mar-14	14-Mar-14
DDP1275040	Outerwall & Water Tank up to +7.7mPD - Rebar, Fwk	4	15-Mar-14	19-Mar-14	14-Mar-14	18-Mar-14
DDP1275055	Outerwall & Water Tank up to +7.7mPD - Remove Fwk	2	20-Mar-14	21-Mar-14	19-Mar-14	20-Mar-14
DDP1275060	Outerwall & Water Tank up to +9.0mPD - Rebar, Fwk	4	20-Mar-14	24-Mar-14	19-Mar-14	22-Mar-14
DDP1275075	Outerwall & Water Tank up to +9.0mPD - Remove Fwk	2	25-Mar-14	26-Mar-14	24-Mar-14	25-Mar-14
DDP127507510	Internal Wall up to +6.14mPD - Rebar, Fwk	7	15-Feb-14	22-Feb-14	15-Feb-14 A	22-Feb-14 A
DDP127507530	Internal Wall up to +6.14mPD - Fwk Removal	2	24-Feb-14	25-Feb-14	23-Feb-14 A	25-Feb-14 A
DDP127507540	Internal Wall up to +10.14mPD - Rebar, Fwk	5	15-Mar-14	20-Mar-14	14-Mar-14	19-Mar-14
DDP127507560	Internal Wall up to +10.14mPD - Fwk Removal	2	21-Mar-14	22-Mar-14	20-Mar-14	21-Mar-14
DDP1275080	Substation - Roof Structure - Rebar, Fwk	5	25-Mar-14	29-Mar-14	24-Mar-14	28-Mar-14
DDP1275095	Substation - Roof Strucuture - Fwk Removal	2	31-Mar-14	01-Apr-14	29-Mar-14	31-Mar-14
DDP1275100	Internal Wall up to +13.14mPD - Rebar, Fwk	8	25-Mar-14	02-Apr-14	24-Mar-14	01-Apr-14
DDP1275120	Internal Wall up to +13.14 - Fwk Removal	2	03-Apr-14	04-Apr-14	02-Apr-14	03-Apr-14
DDP1275140	CLP Substation - E&M, BS Installation	46	02-Apr-14	31-May-14	01-Apr-14	30-May-14
DDP1276010	Substation - ABWF works	12	02-Apr-14	16-Apr-14	01-Apr-14	15-Apr-14
DDP1276020	Substation - Metal works & Remaining civil works	18	17-Apr-14	13-May-14	16-Apr-14	12-May-14
DDP1276030	Substation - E&M works	46	02-Apr-14	31-May-14	01-Apr-14	30-May-14
North Surface works for TBM Tunnelling		60	10-May-14	08-Jul-14	01-Jun-14	30-Jul-14
Construction		60	10-May-14	08-Jul-14	01-Jun-14	30-Jul-14
Zone D1		60	10-May-14	08-Jul-14	01-Jun-14	30-Jul-14
NRC13940	Zone D1 - Vibro-compaction (CH205 to 255)	60	10-May-14	08-Jul-14	01-Jun-14	30-Jul-14



Current Bar
Current Bar - Critical
Planned Milestone
Current Milestone
Progress Bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

3-Months Rolling Programme - Construction

As of 03-Mar-14 Progress

香寶嘉 Dragages HongKong

A member of the Bouygues Construction group

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Date	Revision	Checked	Approved
21-Feb-14	TMCLK/DBJ/GEN/PRG/98505	SPa	WYu

Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

Contract No. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK
Northern Connection Sub-sea Tunnel Section

ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Air Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
4.8.1	3.8	An effective watering programme of twice daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<>
4.8.1	3.8	Watering of the construction sites in Lantau for 8 times/day and in Tuen Mun for 12 times/day to reduce dust emissions by 87.5% and 91.7% respectively and shall be undertaken.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8. 1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<>

Legend: D=Design, C=Construction, O=Operation
Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

Contract No. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK
Northern Connection Sub-sea Tunnel Section

ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Air Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.8. 1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Air Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		any earthworks excavation activity on the site.							
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit	All representative existing ASRs / throughout construction period	Contractor	EM&A Manual		Y		✓

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Contract No. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK
Northern Connection Sub-sea Tunnel Section

ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
Marine Works (Sequence A)									
6.10 Figure 6.2a Appendix D6a	Annex A	Construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. The protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2a and detailed in Appendix D6a. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: - TM-CLKL northern reclamation;	All areas/ prior to dredging and backfilling works	Contractor	TM-EIAO		Y		N/A

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Contract No. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK
Northern Connection Sub-sea Tunnel Section

ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	a maximum of 50% public fill to be used for all seawall filling below +2.5mPD for TM-CLKL southern and northern landfalls.	TM-CLKL seawall filling	Contractor	TM-EIAO		Y		N/A
6.10	-	a maximum of 30% public fill to be used for reclamation filling below +2.5mPD for TM-CLKL southern landfall	TM-CLKL southern landfall reclamation filling	Contractor	TM-EIAO		Y		N/A
6.10	-	a maximum of 100% public fill to be used for reclamation filling below +2.5mPD for TM-CLKL northern landfall	TM-CLKL northern landfall reclamation filling	Contractor	TM-EIAO		Y		N.A
6.10	-	Use of cage type silt curtains round all	All areas dredging works	Contractor	TM-EIAO		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		grab dredgers during the HKBCF, HKLR and TM-CLKL southern reclamation works.							
	Figure 1.1 of Annex C	A layer of floating type silt curtain will be applied when dredging and reclamation works are being undertaken at Portion N-a as shown in Figure 1.1 of Annex C of the EM&A Manual.	All areas/ through out marine works	Contractor	TM-EIAO		Y		✓
6.10	-	Trailer suction hopper dredgers shall not allow mud to overflow.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	The use of Lean Material Overboard (LMOB) systems shall be prohibited.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10 Figure 6.2b Appendix D6b	Annex A	For other parts of the reclamation works construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2b and detailed in Appendices D6b. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: - TM-CLKL northern reclamation; - Reclamation filling for Portion D of HKBCF; Reclamation filling for FSD berth of HKBCF; and - Reclamation dredging and filling for Portion 1 of HKLR;	TM-CLKL northern landfall, Portion D of HKBCF and HKLR	Contractor	TM-EIAO		Y		N/A

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	The filling material for the other parts of the works are the same as Sequence A;	All other areas/backfilling works	Contractor	TM-EIAO		Y		N/A
6.10	5.7	Cage type silt curtain (with steel enclosure) shall be used for grab dredgers working in the site of HKBCF and TM- CLKL southern reclamation. Cage type silt curtains will be applied round all grab dredgers at other works area	HKBCF, HKLR and TM-CLKL grab dredging	Contractor	TM-EIAO		Y		✓
6.10	Annex A	A layer of floating type silt curtain will be applied around all works as defined in Appendix D6b	All areas/ through out marine works	Contractor	TM-EIAO		Y		✓
6.10	-	TM-CLKL northern landfall: - Reclamation filling shall not proceed until at least 200m section of leading seawall at both the east and west sides	All areas/ through out marine works	Contractor	TM-EIAO		Y		N/A

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		of the reclamation are formed above +2.5 mPD, except for 100m gaps for marine access;							
General Marine Works									
6.10	-	Use of TMB for the construction of the submarine tunnel.	Tunnel works / Construction phase	Contractor	TM-EIAO		Y		N/A
6.10	-	Export dredged spoils from NWWCZ.	All areas as much as possible / dredging activities	Contractor	DASO Permit conditions		Y		N/A
6.10	-	Where public fill is proposed for filling below +2.5mPD, the fine content in the public fill will be controlled to 25%	All areas/ backfilling works	Contractor	TM-EIAO		Y		N/A
6.10	-	Where sand fill is proposed for filling	All areas/ backfilling works	Contractor	TM-EIAO		Y		N.A

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		below +2.5mPD, the fine content in the sand fill will be controlled to 5%.							
6.10	-	Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
6.10	-	Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
6.10	-	Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
6.10	-	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.10	-	All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.10	-	The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	5.2	Silt curtain shall have proved effectiveness from the producer and shall be fully maintained throughout the works by the	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		contractor.							
6.10	-	The daily maximum production rates shall not exceed those assumed in the water quality assessment.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	The dredging and filling works shall be scheduled to spread the works evenly over a working day.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
Land Works									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm	All areas/ throughout	Contractor	TM-EIAO		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		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.	construction period						
6.10	-	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.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		or debris into any drainage system.							
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	5.8	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.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	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.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		N/A
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		cleaned up immediately.							
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		<>
6.10	-	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.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		N/A
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Y	✓
6.10	Section 5	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Water Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		working practice.							
Water Quality Monitoring									
6.10	Section 5	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen. Nutrients and metal parameters shall also be measured for Mf sediment operations (only HKBCF and HKLR required handling of Mf sediment) during baseline, backfilling and post construction period. One year operation phase water quality monitoring at designated stations	Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality monitoring for a year.	Contractor	EM&A Manual		Y	Y	✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Ecology

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
8.14	6.3	Specification for and implement pre, during and post construction dolphin abundance monitoring.	All Areas/Detailed Design/ during construction works/post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓
8.14	6.3,6.5	Specification and implementation of 250m dolphin exclusion zone.	All dredging and reclamation areas/Detailed Design/during all reclamation and dredging works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.3, 6.5	Specification and deployment of an artificial reef of an area of 3,600m^2 in an area where fishing activities are prohibited.	Area of prohibited fishing activities/Detailed Design/towards end of construction period	TM-CLKL/ HKBCF Design Consultant/ TM-CLKL/ HKBCF Contractor	TMEIA	Y		Y	✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Ecology

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
8.14	6.3, 6.5	Specification and implementation of marine vessel control specifications	All areas/Detailed Design/during construction works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.14	6.3, 6.5	Design and implementation of acoustic decoupling methods for dredging and reclamation works	All areas/ Detailed Design/during dredging and reclamation works	Design Consultant/ Contractor	TMEIA	Y	Y		<>
8.15	6.3, 6.4	Pre-construction phase survey and coral translocation	Detailed Design/Prior to construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.5	Audit coral translocation success	Post translocation	Contractor	TMEIA		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Ecology

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
7.13	6.5	The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.	All areas / As soon as accessible	Contractor	TMEIA		Y		✓
7.13	6.5	Spoil heaps shall be covered at all times.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Avoid damage and disturbance to the remaining and surrounding natural habitat	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Placement of equipment in designated areas within the existing disturbed land	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Disturbed areas to be reinstated immediately after completion of the works.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Construction activities should be restricted to the proposed works boundary	All areas / Throughout construction period	Contractor	TMEIA		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Landscape and Visual

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	The colour and shape of the toll control buildings, ventilation building and administration building shall adopt a design which could blend it into the vicinity elements, and the details will be developed in detailed design stage (DM2)	All areas/detailed design	Design Consultant	TMEIA	Y			N/A
10.9	7.6	Aesthetic design of the viaduct, retaining wall and other structures will be developed under ACABAS submission (DM5)	All areas/detailed design	Design Consultant	TMEIA	Y			N/A

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Landscape and Visual

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/detailed design/ during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		<>
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Landscape and Visual

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities (OM5)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (OM6)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures	Contract Mobilisation	Contractor	TMEIA		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		including waste reduction, reuse and recycling							
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The surplus surcharge should be transferred to a fill bank	Reclamation areas / after surcharge works	Contractor	TMEIA		Y		N/A
12.6	8.1	Rock armour from the existing seawall should be reused on the new sloping seawall as far as possible	All areas / throughout construction period	Contractor	TMEIA		Y		N/A

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Provisions to be made in contract documents to allow and promote the use of recycled aggregates where appropriate.	Detailed Design	Design Consultant	TMEIA	Y			✓
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
12.6	8.1	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.	Reclamation areas / throughout dredging works	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should	All areas / throughout construction period	Contractor	TMEIA		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		be considered for segregation and storage activities.							
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: ƒ suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; ƒ Having a capacity of <450L unless the specifications have been approved by the EPD; and ƒ Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. ƒ Clearly labelled and used solely for the storage of chemical wastes; ƒ Enclosed with at least 3 sides; ƒ Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20%	All areas / throughout construction period	Contractor	TMEIA		Y		<>

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		by volume of the chemical waste stored in the area, whichever is greatest; ƒ Adequate ventilation; ƒ Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and ƒ Incompatible materials are adequately separated.							
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.							
12.6	8.1	All waste containers shall be in a secure area on hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		✓
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All areas / throughout construction period	Contractor	EM&A Manual		Y		✓

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Contract No. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK
Northern Connection Sub-sea Tunnel

ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Cultural Heritage

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
11.8	Section 9	EM&A in the form of audit of the mitigation measures	All areas / throughout construction period	Highways Department	EIAO-TM		Y		✓

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Remark:

✓ Compliance of Mitigation Measures

<> Compliance of Mitigation but need improvement

x Non-compliance of Mitigation Measures

▲ Non-compliance of Mitigation Measures but rectified by Contractor

Δ Deficiency of Mitigation Measures but rectified by Contractor

N/A Not Applicable in Reporting Period

Appendix D

Summary of Action and Limit Levels

Table D1 Action and Limit Levels for 1-hour and 24-hour TSP

Parameters	Action	Limit
24 Hour TSP Level in μg/m³	ASR1 = 213 ASR5 = 238 AQMS1 = 213 AQMS2 / ASR6 = 238 ASR10 = 214	260
1 Hour TSP Level in μg /m³	ASR1 = 331 ASR5 = 340 AQMS1 = 335 AQMS2 / ASR6 = 338 ASR10 = 337	500

Table D2 Action and Limit Levels for Water Quality

Parameter	Action Level#	Limit Level#
DO in mg/L [(a)]	Surface and Middle **5.0 mg/L** Bottom **4.7 mg/L**	Surface and Middle **4.2 mg/L** Bottom **3.6 mg/L**
Turbidity in NTU (Depth-averaged [(b), (c)])	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e., **27.5 NTU**	130% of upstream control station at the same tide of the same day and 99%-ile of baseline data, i.e., **47.0 NTU**
SS in mg/L (Depth-averaged [(b), (c)])	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e., **23.5 mg/L**	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun and 99%-ile of baseline data, i.e., **34.4 mg/L**

Notes:

Baseline data: data from HKZMB Baseline Water Quality Monitoring between 6 and 31 October 2011.

(a) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

(b) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths

(c) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

(d) All figures given in the table are used for reference only, and EPD may amend the figures whenever it is considered as necessary

(e) The 1%-ile of baseline data for surface and middle DO is 4.2 mg/L, whilst for bottom DO is 3.6 mg/L.

Table D3 Action and Limit Levels for Impact Dolphin Monitoring

	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	

Notes:

1. STG means quarterly encounter rate of number of dolphin sightings, which is **6.00 in NEL** and **9.85 in NWL** during the baseline monitoring period
2. ANI means quarterly encounter rate of total number of dolphins, which is **22.19 in NEL** and **44.66 in NWL** during the baseline monitoring period
3. For North Lantau Social Cluster, AL will be trigger if NEL or NWL fall below the criteria; LL will be triggered if both NEL and NWL fall below the criteria.

Table D4 Derived Value of Action Level (AL) and Limit Level (LL)

	North Lantau Social Cluster	
	NEL	**NWL**
Action Level	STG < 4.2 & ANI< 15.5	STG < 6.9 & ANI < 31.3
Limit Level	NEL = [STG < 2.4 & ANI <8.9] and NWL = [STG < 3.9 & ANI <17.9]	

Appendix E

EM&A Monitoring Schedules

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Air Quality Impact Monitoring Schedule - November 2013

Air quality monitoring stations: ASR1, ASR5, ASR10, AQMS1, AQMS2

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
						1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*	

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Air Quality Impact Monitoring Schedule - December 2013

Air quality monitoring stations: ASR1, ASR5, ASR10, AQMS1, AQMS2

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*		
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
		1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				
22-Dec	23-Dec	24-Dec	Public Holiday 25-Dec	Public Holiday 26-Dec	27-Dec	28-Dec
	1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*					1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*
29-Dec	30-Dec	31-Dec				

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Air Quality Impact Monitoring Schedule - Janurary 2014

Air quality monitoring stations: ASR1, ASR5, ASR10, AQMS1, AQMS2/ASR6*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			public holiday 01-Jan	02-Jan	03-Jan	04-Jan
					1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*	
05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jan	11-Jan
				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*		
12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan
			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			
19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
		1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				
26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	public holiday 31-Jan	public holiday 01-Feb
	1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*		

*Note: monitoring station AQMS2 was relocated to Butterfly Beach Laundry on 17-Jan and re-named as ASR6. 1-hr & 24-hr TSP monitoring at ASR6 started on 21-Jan.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Air Quality Impact Monitoring Schedule - February 2014

Air quality monitoring stations: ASR1, ASR5, ASR6, ASR10, AQMS1

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					public holiday 31-Jan	public holiday 01-Feb
public holiday 02-Feb	public holiday 03-Feb	04-Feb	05-Feb	06-Feb	07-Feb	08-Feb
			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*
09-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			
16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb
		1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				
23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	
	1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*	

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-sea Tunnel Section
Impact Marine Water Quality Monitoring (WQM) Schedule (November 2013)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27-Oct	28-Oct	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov
					WQM Mid-Ebb 11:15 (09:30 - 13:00) Mid-Flood 17:17 (15:32 - 19:02)	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
	WQM Mid-Ebb 13:22 (11:37 - 15:07) Mid-Flood 18:53 (17:08 - 20:38)		**WQM** Mid-Flood 9:21 (07:36 - 11:06) Mid-Ebb 14:54 (13:09 - 16:39)		**WQM** Mid-Flood 11:17 (09:32 - 13:02) Mid-Ebb 16:37 (14:52 - 18:22)	
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
	WQM Mid-Flood 14:39 (12:54 - 16:24) Mid-Ebb 20:46 (19:01 - 22:31)		**WQM** Mid-Ebb 9:27 (07:42 - 11:12) Mid-Flood 16:08 (14:23 - 17:53)		**WQM** Mid-Ebb 11:13 (09:28 - 12:58) Mid-Flood 17:14 (15:29 - 18:59)	
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
	WQM Mid-Ebb 13:16 (11:31 - 15:01) Mid-Flood 18:40 (16:55 - 20:25)		**WQM** Mid-Flood 9:12 (07:27 - 10:57) Mid-Ebb 14:25 (12:40 - 16:10)		**WQM** Mid-Flood 10:31 (08:46 - 12:16) Mid-Ebb 15:34 (13:49 - 17:19)	
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	WQM Mid-Flood 12:59 (11:14 - 14:44) Mid-Ebb 18:15 (16:38 - 19:51)		**WQM** Mid-Flood 14:36 (12:51 - 16:21) Mid-Ebb 21:04 (19:19 - 22:49)		**WQM** Mid-Ebb 9:39 (07:54 - 11:24) Mid-Flood 15:50 (14:05 - 17:35)	

HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-sea Tunnel Section
Impact Marine Water Quality Monitoring (WQM) Schedule (December 2013)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Dec	02-Dec	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec
	WQM Mid-Ebb 12:20 (10:35 - 14:05) Mid-Flood 17:44 (15:59 - 19:30)		**WQM** Mid-Ebb 13:55 (12:10 - 15:40) Mid-Flood 19:07 (17:22 - 20:52)		**WQM** Mid-Flood 10:09 (08:24 - 11:54) Mid-Ebb 15:32 (13:47 - 17:17)	
08-Dec	09-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
	WQM Mid-Flood 12:48 (11:03 - 14:33) Mid-Ebb 18:48 (17:03 - 20:33)		**WQM** Mid-Flood 14:35 (12:50 - 16:20) Mid-Ebb 21:17 (19:32 - 23:02)		**WQM** Mid-Ebb 9:55 (08:10 - 11:40) Mid-Flood 15:59 (14:14 - 17:44)	
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
	WQM Mid-Ebb 12:21 (10:36 - 14:06) Mid-Flood 17:38 (15:53 - 19:23)		**WQM** Mid-Ebb 13:30 (11:45 - 15:15) Mid-Flood 18:42 (16:57 - 20:27)		**WQM** Mid-Flood 9:27 (07:42 - 11:12) Mid-Ebb 14:36 (12:51 - 16:21)	
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
	WQM Mid-Flood 11:06 (09:21 - 12:51) Mid-Ebb 16:32 (14:47 - 18:17)		**WQM** Mid-Flood 12:31 (10:46 - 14:16) Mid-Ebb 18:39 (16:54 - 20:24)		**WQM** Mid-Flood 14:05 (12:20 - 15:50) Mid-Ebb 21:04 (19:19 - 22:49)	
29-Dec	30-Dec	31-Dec				
	WQM Mid-Ebb 11:13 (09:28 - 12:58) Mid-Flood 16:30 (14:45 - 18:15)					

HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-sea Tunnel Section
Impact Marine Water Quality Monitoring (WQM) Schedule (Jan 14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Jan	02-Jan	03-Jan	04-Jan
			WQM Mid-Ebb 12:56 (11:11 - 14:41) Mid-Flood 18:07 (16:22 - 19:52)		**WQM** Mid-Flood 9:04 (07:34 - 10:49) Mid-Ebb 14:29 (12:44 - 16:14)	
05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jan	11-Jan
	WQM Mid-Flood 11:13 (09:28 - 12:58) Mid-Ebb 17:00 (15:15 - 18:45)		**WQM** Mid-Flood 12:42 (10:57 - 14:27) Mid-Ebb 19:20 (17:35 - 21:05)		**WQM** Mid-Ebb 7:54 (06:09 - 09:39) Mid-Flood 14:13 (12:28 - 15:58)	
12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan
	WQM Mid-Ebb 11:25 (09:40 - 13:10) Mid-Flood 16:35 (14:50 - 18:20)		**WQM** Mid-Ebb 12:38 (10:53 - 14:23) Mid-Flood 17:53 (16:08 - 19:38)		**WQM** Mid-Ebb 13:41 (11:56 - 15:26) Mid-Flood 19:06 (17:21 - 20:51)	
19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
	WQM Mid-Flood 9:42 (07:57 - 11:27) Mid-Ebb 15:17 (13:32 - 17:02)		**WQM** Mid-Flood 10:43 (08:58 - 12:28) Mid-Ebb 16:41 (14:56 - 18:26)		**WQM** Mid-Flood 12:04 (10:19 - 13:49) Mid-Ebb 18:53 (17:08 - 20:38)	
26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan	01-Feb
	WQM Mid-Ebb 9:54 (08:09 - 11:39) Mid-Flood 15:04 (13:19 - 16:49)		**WQM** Mid-Ebb 11:56 (10:11 - 13:41) Mid-Flood 17:07 (15:22 - 18:52)		**WQM *** ~~Mid-Ebb~~ ~~13:28~~ ~~(11:43 - 15:13)~~ ~~Mid-Flood~~ ~~18:53~~ ~~(17:08 - 20:38)~~	

* Remark: No marine dredging on 31 Janaurary 2014, thus WQM was cancelled

HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-sea Tunnel Section
Impact Marine Water Quality Monitoring (WQM) Schedule (Feb 14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Feb
02-Feb	03-Feb	04-Feb	05-Feb	06-Feb	07-Feb	08-Feb
	WQM Mid-Flood 9:47 (08:02 - 11:32) Mid-Ebb 15:38 (13:53 - 17:23)		**WQM** Mid-Flood 10:52 (09:07 - 12:37) Mid-Ebb 17:19 (15:34 - 19:04)		**WQM** Mid-Flood 12:09 (10:24 - 13:54) Mid-Ebb 19:40 (17:55 - 21:25)	
09-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
	WQM Mid-Flood 10:36 (08:51 - 12:21) Mid-Ebb 22:57 (21:12 - 24:12)		**WQM** Mid-Ebb 11:48 (10:03 - 13:33) Mid-Flood 17:06 (15:21 - 18:51)		**WQM** Mid-Ebb 12:50 (11:05 - 14:35) Mid-Flood 18:25 (17:21 - 20:51)	
16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb
	WQM Mid-Flood 8:33 (07:18 - 10:18) Mid-Ebb 14:17 (12:32 - 16:02)		**WQM** Mid-Flood 9:25 (07:40 - 11:10) Mid-Ebb 15:28 (13:43 - 17:13)		**WQM** Mid-Flood 10:27 (08:42 - 12:12) Mid-Ebb 16:58 (15:13 - 18:43)	
23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	01-Mar
	WQM Mid-Ebb 8:13 (06:58 - 09:28) Mid-Flood 13:09 (11:24 - 14:54)		**WQM** Mid-Ebb 10:56 (09:11 - 12:41) Mid-Flood 16:01 (14:16 - 17:46)		**WQM** Mid-Ebb 12:28 (10:43 - 14:13) Mid-Flood 18:00 (16:15 - 19:45)	

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - November 2013

Dolphin Monitoring Survey Locations: North West Lantau and North East Lantau

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					Impact Dolphin Monitoring	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
		Impact Dolphin Monitoring			**Impact Dolphin Monitoring**	
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			Impact Dolphin Monitoring			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - December 2013

Air quality monitoring stations: ASR1, ASR5, ASR10, AQMS1, AQMS2

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
				Impact Dolphin Monitoring		
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
	Impact Dolphin Monitoring		**Impact Dolphin Monitoring**			
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
				Impact Dolphin Monitoring		
22-Dec	23-Dec	24-Dec	Public Holiday 25-Dec	Public Holiday 26-Dec	27-Dec	28-Dec
29-Dec	30-Dec	31-Dec				

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - January 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			public holiday 01-Jan	02-Jan	03-Jan	04-Jan
05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jan	11-Jan
		Impact Dolphin Monitoring		**Impact Dolphin Monitoring**		
12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan
19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
		Impact Dolphin Monitoring		**Impact Dolphin Monitoring**		
26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	public holiday 31-Jan	public holiday 01-Feb

The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - February 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
public holiday 2-Feb	public holiday 3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb
				Impact Dolphin Monitoring		
9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
			Impact Dolphin Monitoring		**Impact Dolphin Monitoring**	
16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb
				Impact Dolphin Monitoring		
23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar
2-Mar	3-Mar	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

Appendix F

Impact Air Quality Monitoring Results

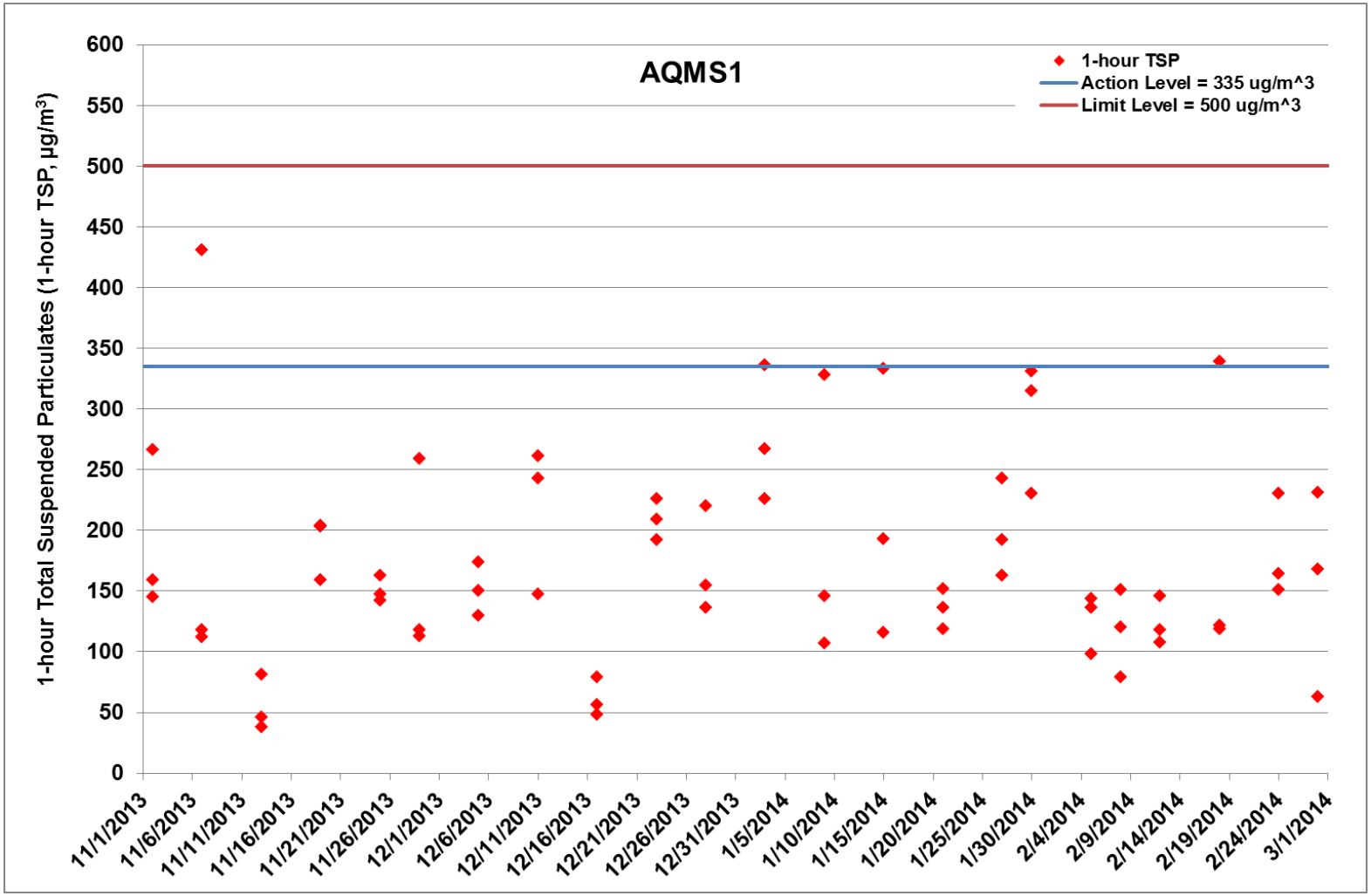


Figure F.1 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

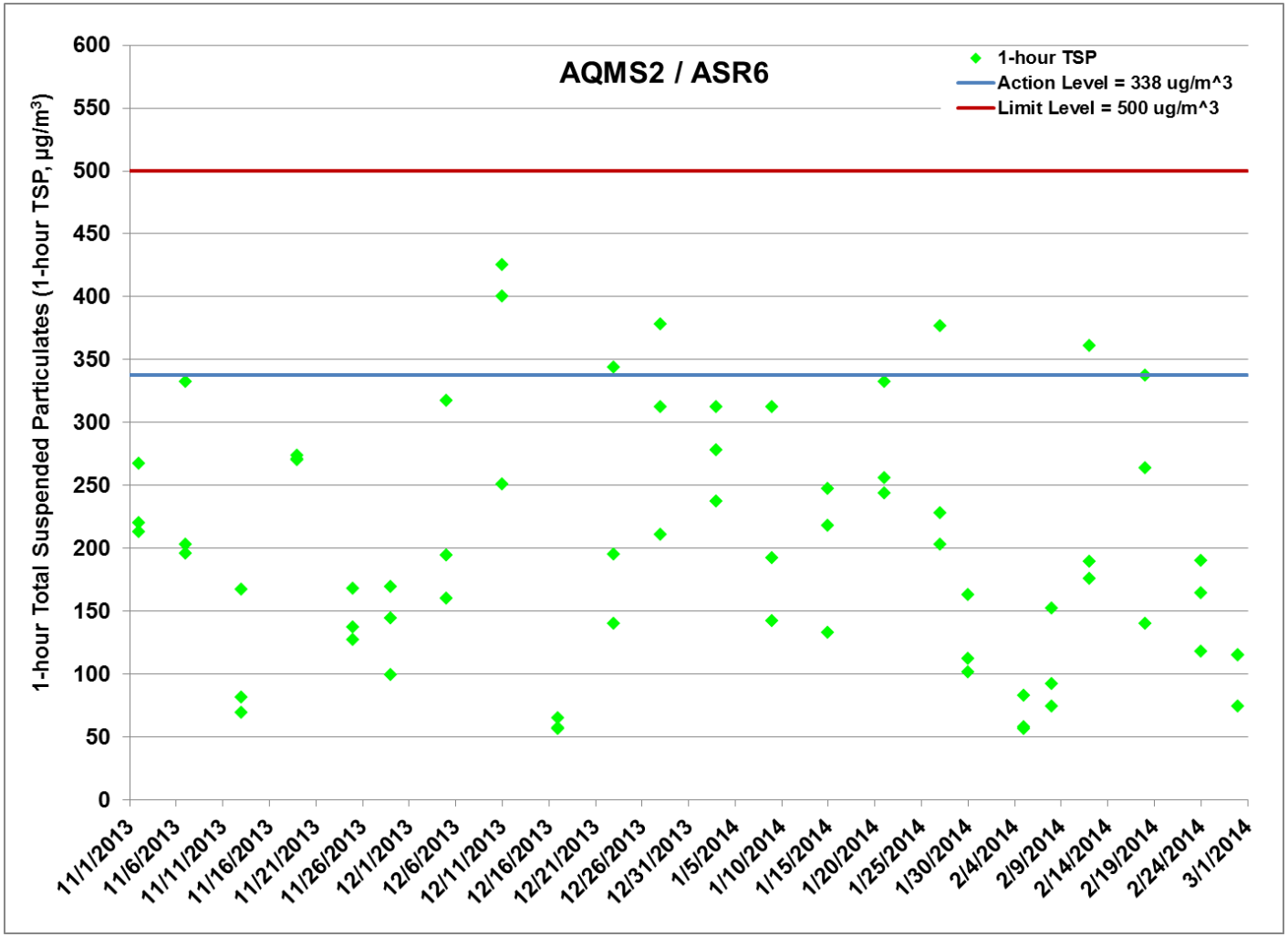


Figure F.2 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at AQMS2/ASR6 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

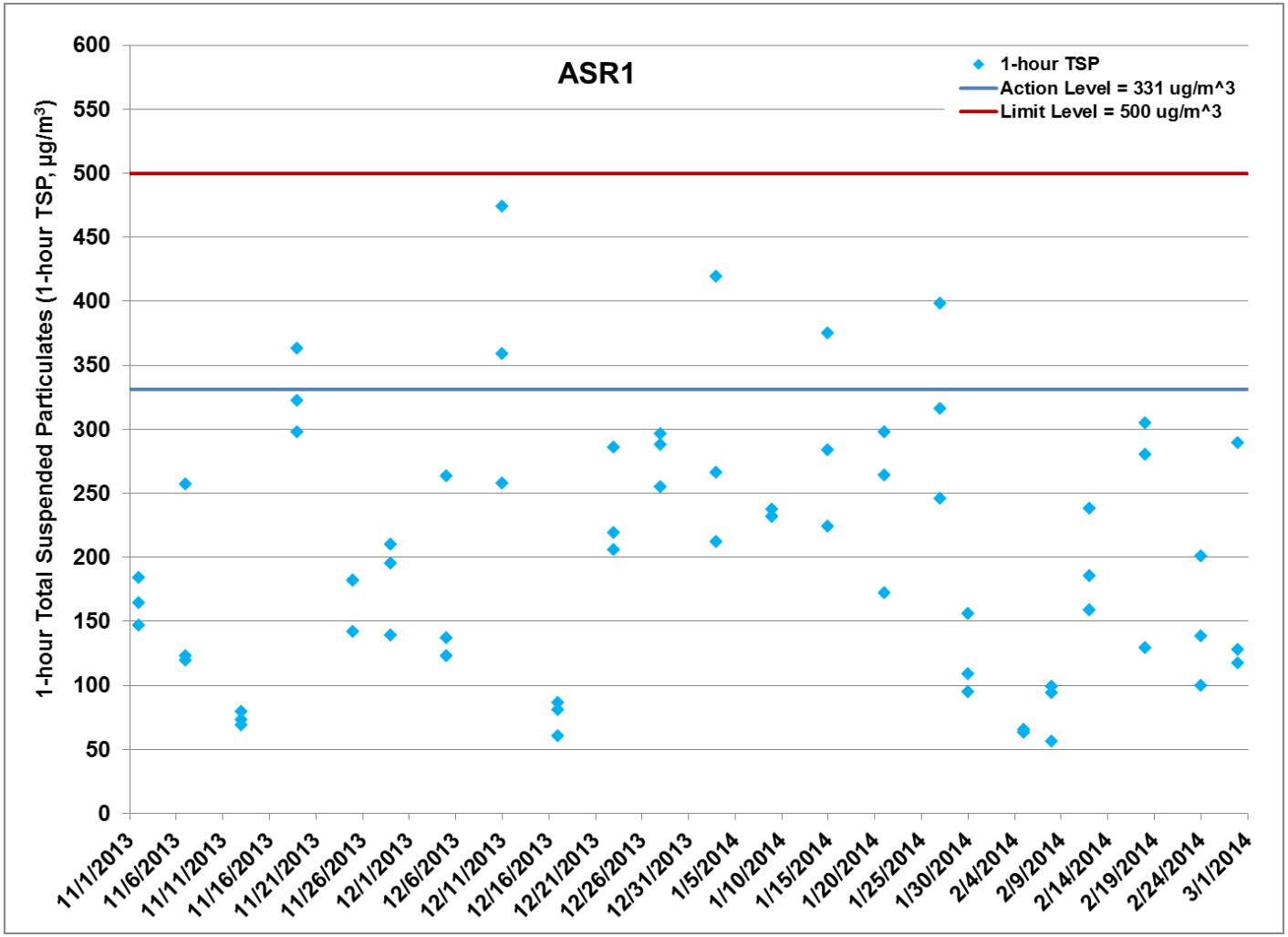


Figure F.3 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

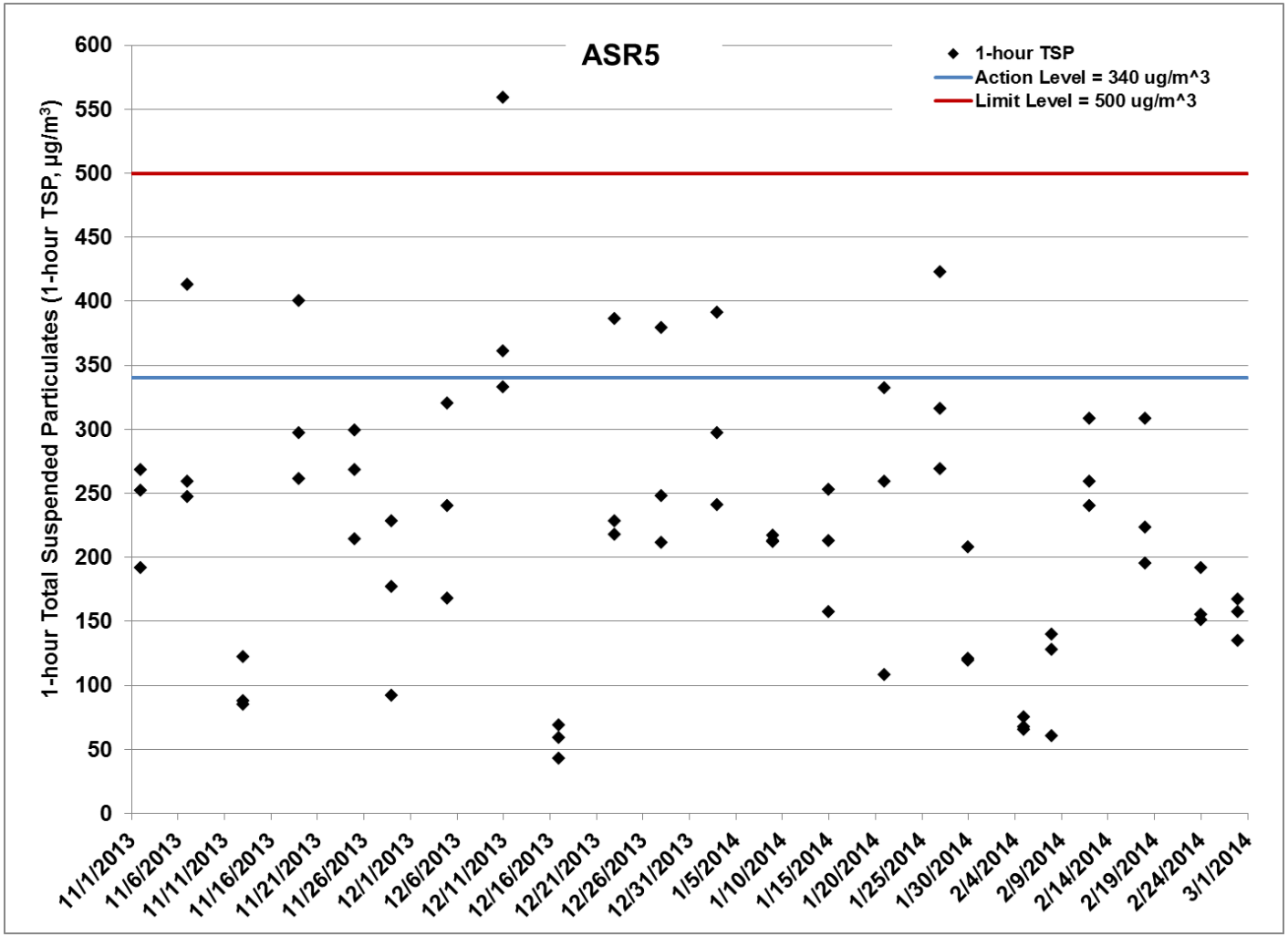


Figure F.4 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

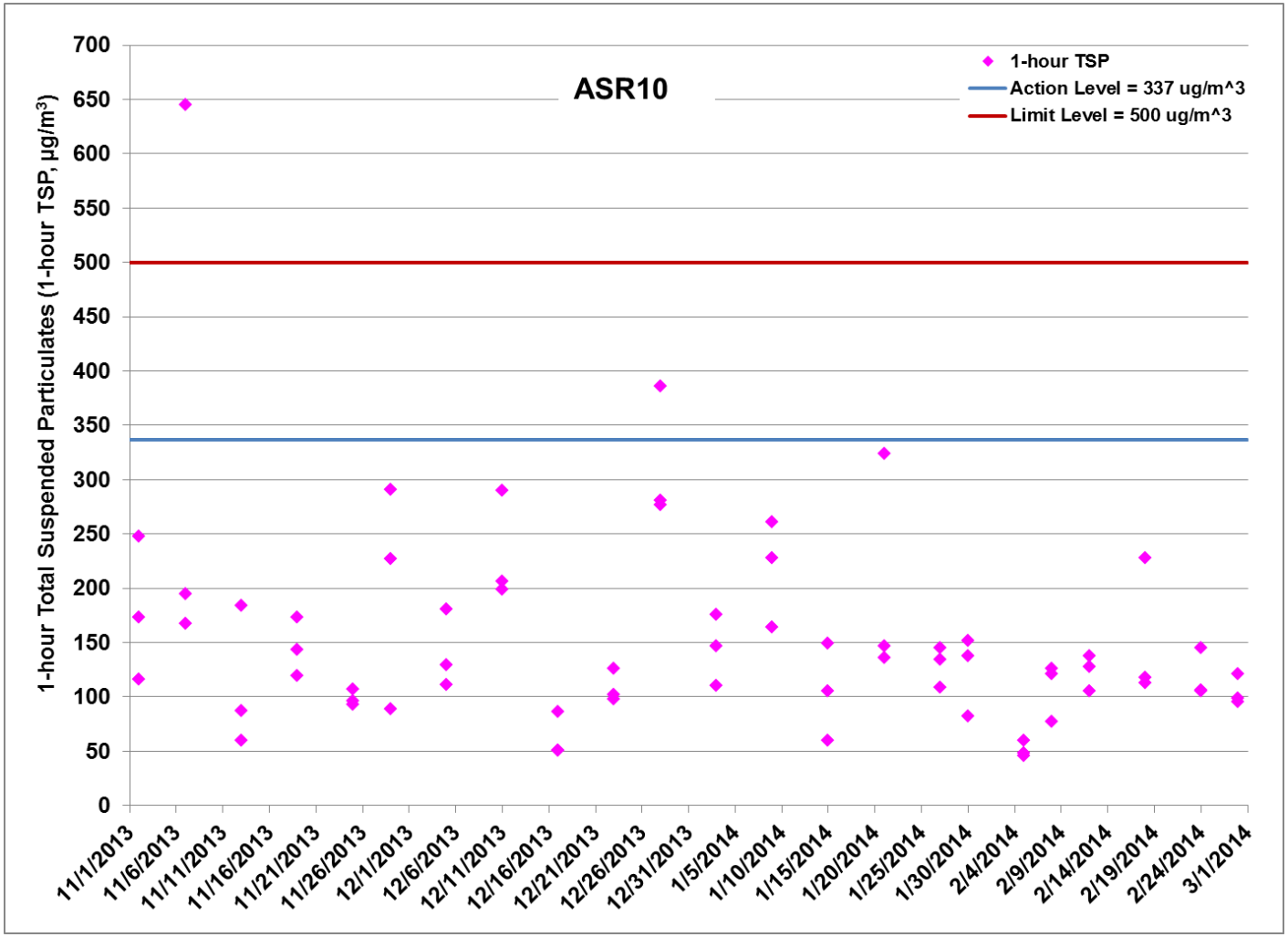


Figure F.5 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

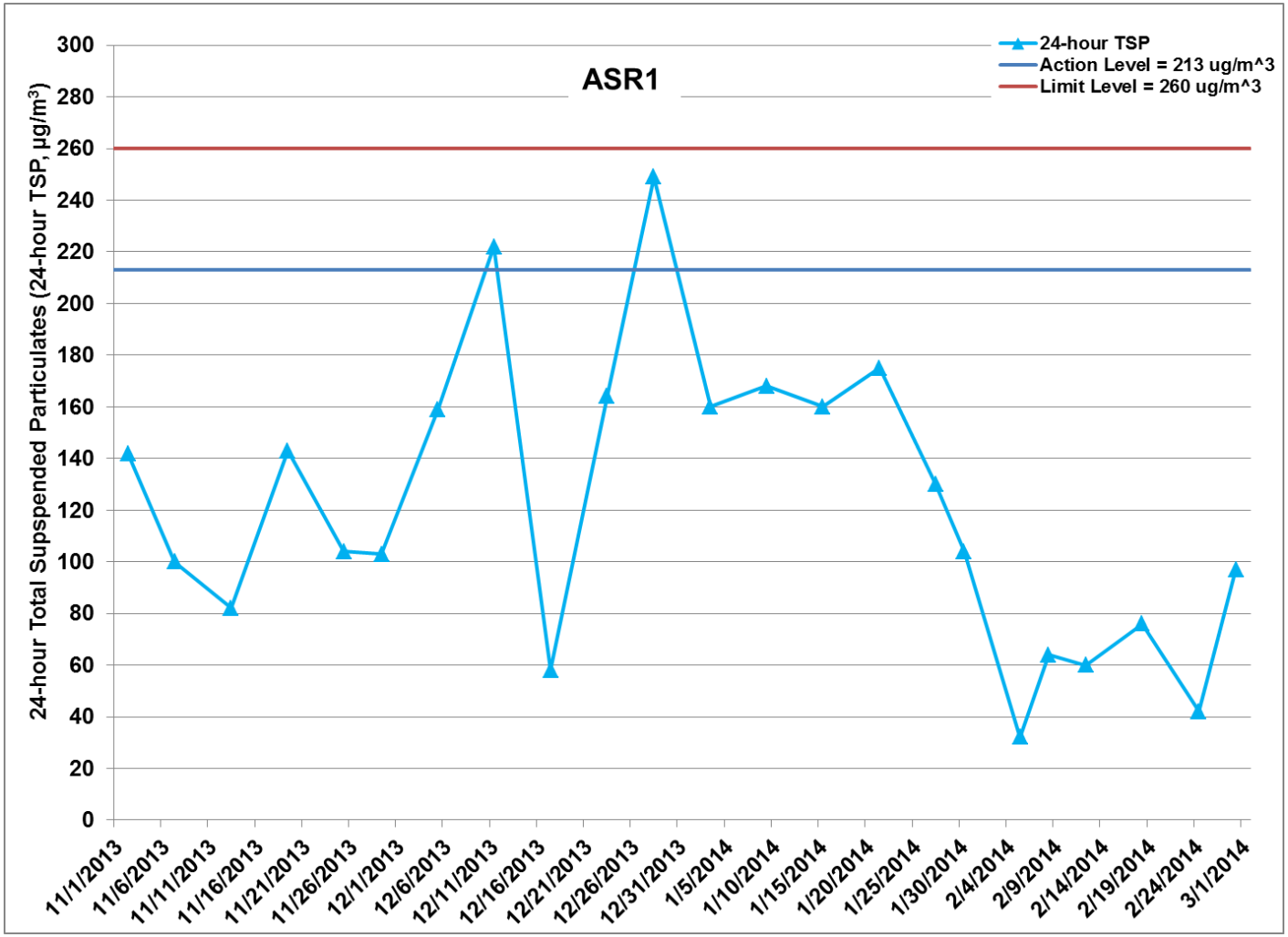


Figure F.6 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

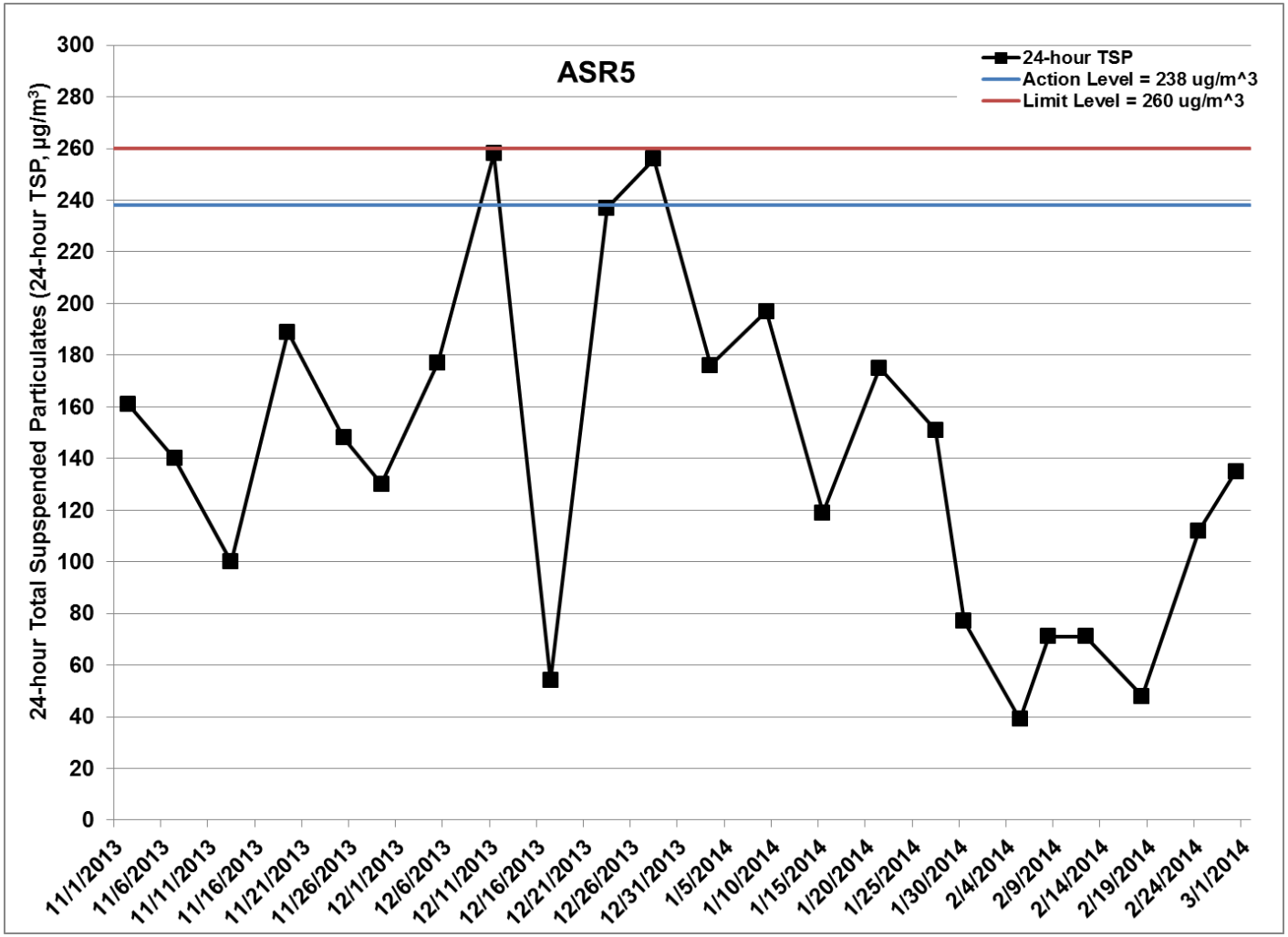


Figure F.7 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

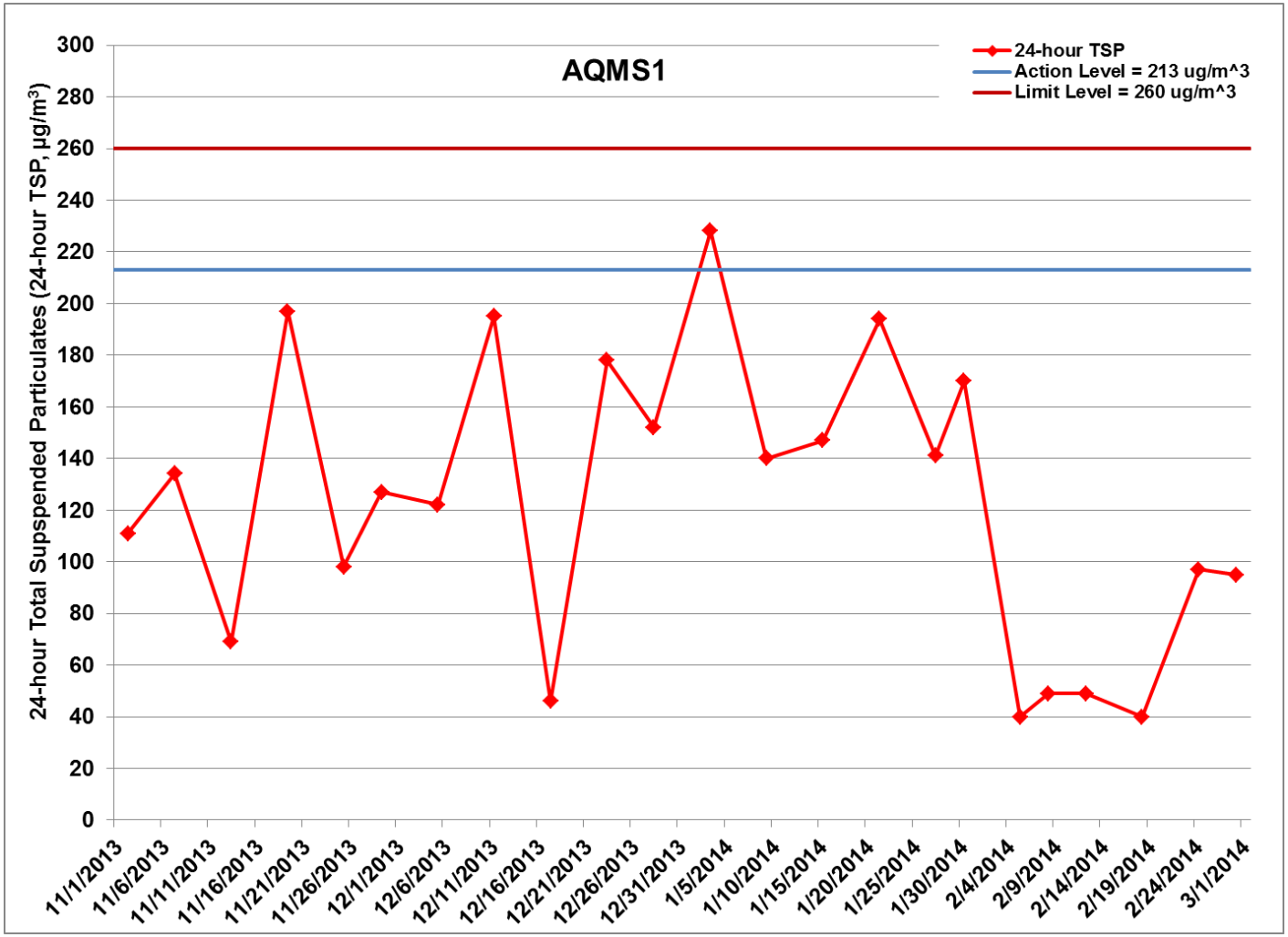


Figure F.8 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

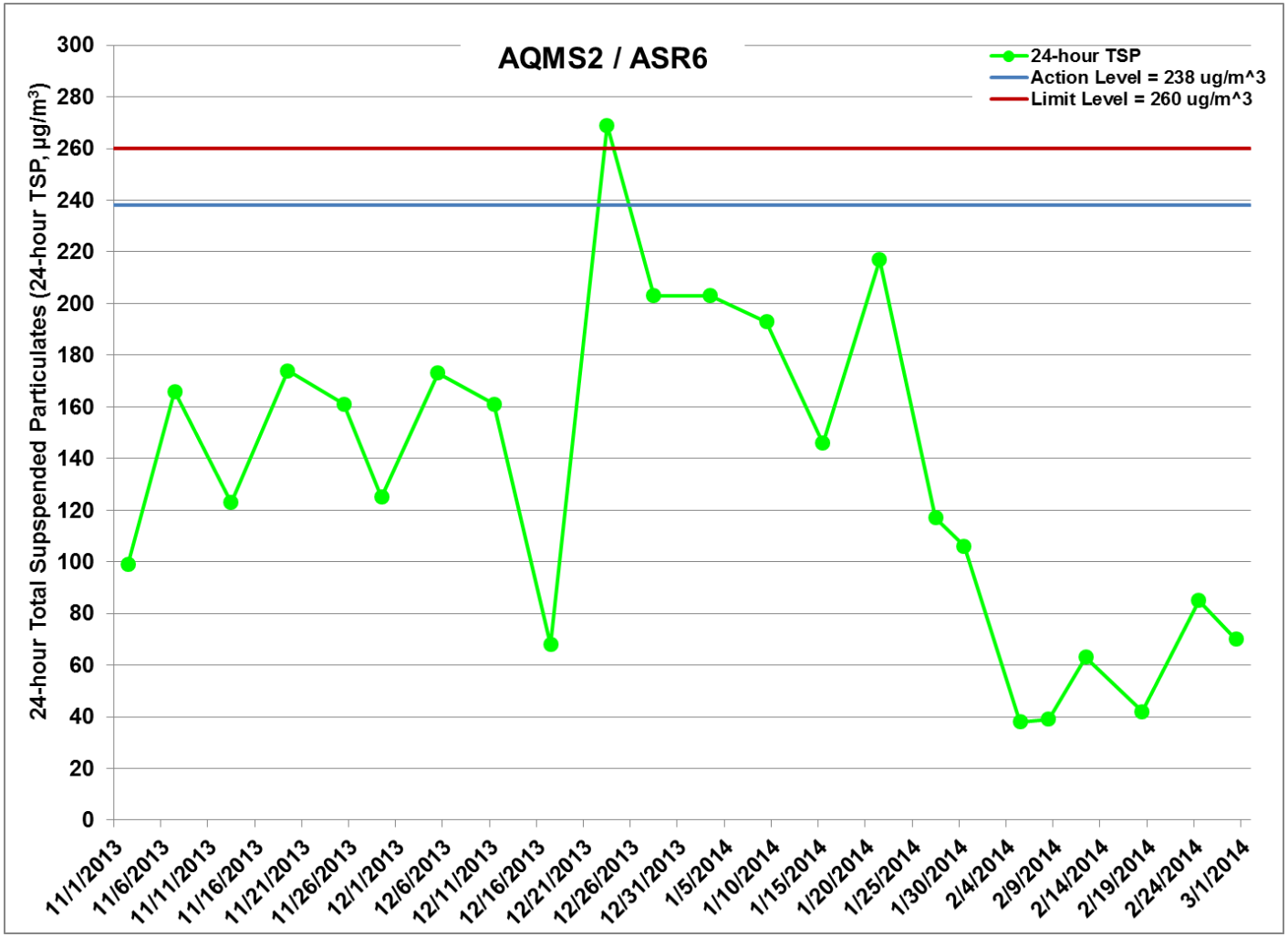


Figure F.9 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at AQMS2/ASR6 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

ERM

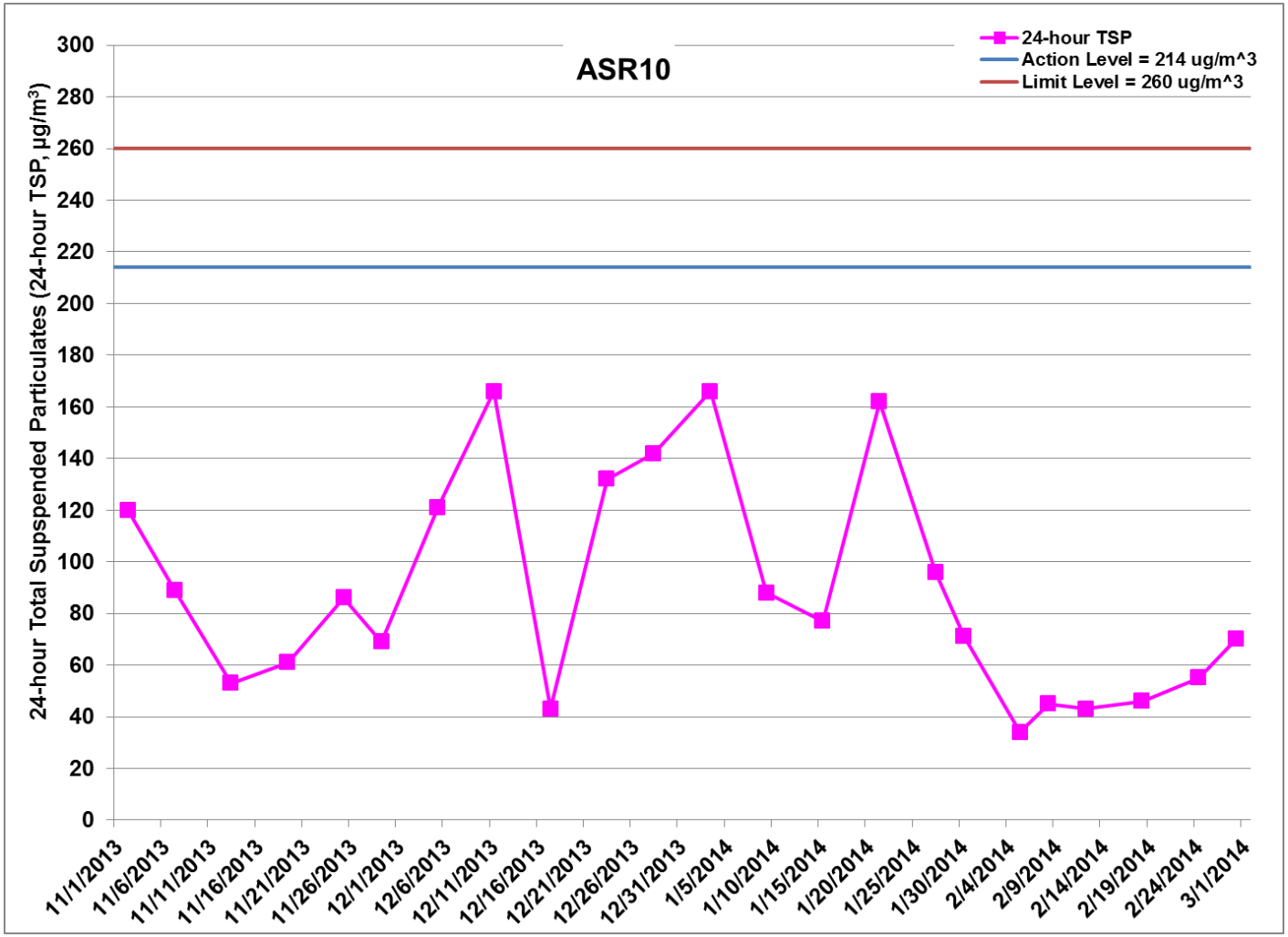


Figure F.10 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 November 2013 and 28 February 2014 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities: Construction of Site Office at WA 18 (11/1/2013 – 2/28/2014); Construction of CLP Temporary Substation at N6 (11/1/2014 – 2/28/2014).

Ref: ***0212330_impact AQM_Graphs_rev a.xlsx***

Appendix G

Meteorological Data

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
02-11-2013	0:00	157	0.58
02-11-2013	1:00	189	0.96
02-11-2013	2:00	256	0.79
02-11-2013	3:00	181	0.70
02-11-2013	4:00	167	1.71
02-11-2013	5:00	166	1.95
02-11-2013	6:00	200	1.16
02-11-2013	7:00	197	1.58
02-11-2013	8:00	154	3.05
02-11-2013	9:00	136	3.09
02-11-2013	10:00	135	2.65
02-11-2013	11:00	129	2.54
02-11-2013	12:00	167	3.25
02-11-2013	13:00	134	2.88
02-11-2013	14:00	157	2.39
07-11-2013	0:00	179	0.38
07-11-2013	1:00	231	0.35
07-11-2013	2:00	161	0.44
07-11-2013	3:00	198	0.51
07-11-2013	4:00	271	0.49
07-11-2013	5:00	176	0.37
07-11-2013	6:00	110	0.95
07-11-2013	7:00	104	1.60
07-11-2013	8:00	124	1.60
07-11-2013	9:00	130	1.83
07-11-2013	10:00	162	1.07
07-11-2013	11:00	167	1.22
07-11-2013	12:00	142	1.48
07-11-2013	13:00	158	1.43
07-11-2013	14:00	166	1.38
07-11-2013	15:00	161	1.38
13-11-2013	0:00	172	0.57
13-11-2013	1:00	200	0.49
13-11-2013	2:00	181	0.75
13-11-2013	3:00	148	1.40
13-11-2013	4:00	101	2.42
13-11-2013	5:00	105	3.22
13-11-2013	6:00	104	3.14
13-11-2013	7:00	96	3.08
13-11-2013	8:00	98	3.49
13-11-2013	9:00	100	3.23
13-11-2013	10:00	128	2.37
13-11-2013	11:00	145	1.48
13-11-2013	12:00	126	2.13
13-11-2013	13:00	139	1.72
13-11-2013	14:00	141	1.61
13-11-2013	15:00	133	1.55
13-11-2013	16:00	177	1.44

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
13-11-2013	17:00	230	1.07
13-11-2013	18:00	181	1.22
13-11-2013	19:00	168	1.30
13-11-2013	20:00	173	1.37
13-11-2013	21:00	214	0.94
13-11-2013	22:00	186	0.56
13-11-2013	23:00	191	0.51
19-11-2013	0:00	227	0.47
19-11-2013	1:00	174	0.83
19-11-2013	2:00	226	0.83
19-11-2013	3:00	152	1.41
19-11-2013	4:00	129	1.67
19-11-2013	5:00	131	1.68
19-11-2013	6:00	94	1.62
19-11-2013	7:00	109	1.90
19-11-2013	8:00	106	1.68
19-11-2013	9:00	133	1.25
19-11-2013	10:00	104	1.24
19-11-2013	11:00	134	1.18
19-11-2013	12:00	150	1.22
19-11-2013	13:00	97	1.47
19-11-2013	14:00	99	1.52
19-11-2013	15:00	107	1.84
19-11-2013	16:00	104	1.98
19-11-2013	17:00	95	1.59
19-11-2013	18:00	86	1.94
19-11-2013	19:00	97	1.42
19-11-2013	20:00	108	0.98
19-11-2013	21:00	100	1.62
19-11-2013	22:00	132	1.17
19-11-2013	23:00	88	1.45
25-11-2013	0:00	1	255.41
25-11-2013	1:00	1	273.68
25-11-2013	2:00	1	268.94
25-11-2013	3:00	1	284.78
25-11-2013	4:00	1	252.23
25-11-2013	5:00	2	134.73
25-11-2013	6:00	2	146.85
25-11-2013	7:00	2	144.40
25-11-2013	8:00	2	118.66
25-11-2013	9:00	2	143.84
25-11-2013	10:00	2	164.97
25-11-2013	11:00	2	139.09
25-11-2013	12:00	2	113.97
25-11-2013	13:00	2	138.68
25-11-2013	14:00	2	157.53
25-11-2013	15:00	2	149.93
25-11-2013	16:00	2	199.38

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
25-11-2013	17:00	1	264.57
25-11-2013	18:00	1	271.31
25-11-2013	19:00	2	158.95
25-11-2013	20:00	2	137.42
25-11-2013	21:00	2	165.13
25-11-2013	22:00	3	103.60
25-11-2013	23:00	3	101.37
29-11-2013	0:00	2	156.99
29-11-2013	1:00	2	135.45
29-11-2013	2:00	2	137.86
29-11-2013	3:00	3	115.73
29-11-2013	4:00	3	129.05
29-11-2013	5:00	3	128.93
29-11-2013	6:00	2	160.10
29-11-2013	7:00	2	135.76
29-11-2013	8:00	3	137.70
29-11-2013	9:00	3	114.50
29-11-2013	10:00	4	139.18
29-11-2013	11:00	3	112.70
29-11-2013	12:00	2	106.78
29-11-2013	13:00	2	109.41
29-11-2013	14:00	1	171.41
29-11-2013	15:00	2	141.41
29-11-2013	16:00	2	169.73
29-11-2013	17:00	1	267.27
29-11-2013	18:00	2	192.94
29-11-2013	19:00	1	177.77
29-11-2013	20:00	2	181.53
29-11-2013	21:00	2	138.63
29-11-2013	22:00	2	162.69
29-11-2013	23:00	1	102.01
05-12-2013	0:00	113	2.88
05-12-2013	1:00	102	3.13
05-12-2013	2:00	130	3.10
05-12-2013	3:00	125	3.34
05-12-2013	4:00	110	2.82
05-12-2013	5:00	99	2.78
05-12-2013	6:00	88	3.10
05-12-2013	7:00	81	3.00
05-12-2013	8:00	99	2.07
05-12-2013	9:00	108	1.50
05-12-2013	10:00	100	1.58
05-12-2013	11:00	147	1.11
05-12-2013	12:00	192	0.87
05-12-2013	13:00	212	1.00
05-12-2013	14:00	248	1.11
05-12-2013	15:00	236	1.05
05-12-2013	16:00	228	0.76

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
05-12-2013	17:00	273	0.79
05-12-2013	18:00	291	1.19
05-12-2013	19:00	250	0.96
05-12-2013	20:00	213	0.66
05-12-2013	21:00	240	0.89
05-12-2013	22:00	266	0.79
05-12-2013	23:00	187	1.01
11-12-2013	0:00	129	1.27
11-12-2013	1:00	117	1.11
11-12-2013	2:00	117	1.20
11-12-2013	3:00	107	1.89
11-12-2013	4:00	107	2.13
11-12-2013	5:00	114	1.70
11-12-2013	6:00	104	2.07
11-12-2013	7:00	118	2.66
11-12-2013	8:00	119	4.25
11-12-2013	9:00	116	4.67
11-12-2013	10:00	108	2.79
11-12-2013	11:00	134	2.41
11-12-2013	12:00	137	2.43
11-12-2013	13:00	120	2.44
11-12-2013	14:00	113	2.31
11-12-2013	15:00	165	2.28
11-12-2013	16:00	156	2.14
11-12-2013	17:00	149	2.14
11-12-2013	18:00	155	2.23
11-12-2013	19:00	120	2.41
11-12-2013	20:00	126	1.66
11-12-2013	21:00	135	1.73
11-12-2013	22:00	85	2.63
11-12-2013	23:00	102	1.82
17-12-2013	0:00	107	3.19
17-12-2013	1:00	102	2.64
17-12-2013	2:00	176	1.73
17-12-2013	3:00	244	0.91
17-12-2013	4:00	283	1.45
17-12-2013	5:00	269	1.26
17-12-2013	6:00	240	0.94
17-12-2013	7:00	248	0.75
17-12-2013	8:00	277	1.33
17-12-2013	9:00	277	1.05
17-12-2013	10:00	248	0.98
17-12-2013	11:00	277	1.32
17-12-2013	12:00	281	1.87
17-12-2013	13:00	287	1.33
17-12-2013	14:00	281	1.31
17-12-2013	15:00	285	1.33
17-12-2013	16:00	243	1.38

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
17-12-2013	17:00	263	1.60
17-12-2013	18:00	295	1.91
17-12-2013	19:00	286	1.62
17-12-2013	20:00	253	1.35
17-12-2013	21:00	249	1.42
17-12-2013	22:00	264	1.77
17-12-2013	23:00	234	1.55
23-12-2013	0:00	238	0.51
23-12-2013	1:00	220	0.53
23-12-2013	2:00	192	1.53
23-12-2013	3:00	103	2.97
23-12-2013	4:00	111	3.59
23-12-2013	5:00	111	3.60
23-12-2013	6:00	103	3.20
23-12-2013	7:00	114	1.88
23-12-2013	8:00	113	2.65
23-12-2013	9:00	168	1.47
23-12-2013	10:00	118	1.82
23-12-2013	11:00	123	1.96
23-12-2013	12:00	139	1.72
23-12-2013	13:00	200	1.36
23-12-2013	14:00	250	1.83
23-12-2013	15:00	267	1.98
23-12-2013	16:00	296	2.07
23-12-2013	17:00	300	1.45
23-12-2013	18:00	302	1.44
23-12-2013	19:00	272	0.78
23-12-2013	20:00	293	0.96
23-12-2013	21:00	271	0.68
23-12-2013	22:00	217	0.64
23-12-2013	23:00	165	1.64
28-12-2013	0:00	93	3.78
28-12-2013	1:00	109	4.12
28-12-2013	2:00	97	3.88
28-12-2013	3:00	96	3.84
28-12-2013	4:00	101	3.58
28-12-2013	5:00	123	2.90
28-12-2013	6:00	115	3.53
28-12-2013	7:00	112	3.46
28-12-2013	8:00	112	3.69
28-12-2013	9:00	105	3.52
28-12-2013	10:00	116	2.95
28-12-2013	11:00	107	2.90
28-12-2013	12:00	161	1.94
28-12-2013	13:00	261	1.78
28-12-2013	14:00	275	1.93
28-12-2013	15:00	275	1.71
28-12-2013	16:00	265	1.27

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
28-12-2013	17:00	290	1.03
28-12-2013	18:00	269	2.44
28-12-2013	19:00	269	2.05
28-12-2013	20:00	217	0.92
28-12-2013	21:00	198	0.93
28-12-2013	22:00	174	2.68
28-12-2013	23:00	163	3.19
03-01-2014	0:00	147	0.68
03-01-2014	1:00	193	0.40
03-01-2014	2:00	220	0.37
03-01-2014	3:00	214	0.33
03-01-2014	4:00	274	0.56
03-01-2014	5:00	267	0.57
03-01-2014	6:00	273	0.53
03-01-2014	7:00	270	0.64
03-01-2014	8:00	225	0.64
03-01-2014	9:00	216	0.54
03-01-2014	10:00	240	0.92
03-01-2014	11:00	241	1.53
03-01-2014	12:00	242	1.29
03-01-2014	13:00	226	1.06
03-01-2014	14:00	267	1.61
03-01-2014	15:00	294	2.20
03-01-2014	16:00	295	1.79
03-01-2014	17:00	299	1.60
03-01-2014	18:00	298	1.52
03-01-2014	19:00	308	1.37
03-01-2014	20:00	280	0.92
03-01-2014	21:00	282	0.67
03-01-2014	22:00	261	0.70
03-01-2014	23:00	252	0.52
09-01-2014	0:00	286	1.21
09-01-2014	1:00	196	1.41
09-01-2014	2:00	149	1.39
09-01-2014	3:00	224	0.96
09-01-2014	4:00	183	1.94
09-01-2014	5:00	131	3.31
09-01-2014	6:00	124	3.28
09-01-2014	7:00	119	2.92
09-01-2014	8:00	126	2.73
09-01-2014	9:00	123	2.55
09-01-2014	10:00	122	2.22
09-01-2014	11:00	107	2.14
09-01-2014	12:00	128	1.66
09-01-2014	13:00	142	1.92
09-01-2014	14:00	159	2.14
09-01-2014	15:00	185	1.73
09-01-2014	16:00	172	1.65

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
09-01-2014	17:00	235	1.29
09-01-2014	18:00	216	1.78
09-01-2014	19:00	164	1.63
09-01-2014	20:00	104	2.01
09-01-2014	21:00	99	1.47
09-01-2014	22:00	112	1.36
09-01-2014	23:00	95	1.94
15-01-2014	0:00	155	3.62
15-01-2014	1:00	138	3.21
15-01-2014	2:00	134	3.13
15-01-2014	3:00	99	3.33
15-01-2014	4:00	95	3.12
15-01-2014	5:00	95	4.10
15-01-2014	6:00	82	4.28
15-01-2014	7:00	83	4.62
15-01-2014	8:00	100	4.48
15-01-2014	9:00	105	3.94
15-01-2014	10:00	109	2.72
15-01-2014	11:00	126	1.70
15-01-2014	12:00	145	1.29
15-01-2014	13:00	163	1.08
15-01-2014	14:00	148	1.49
15-01-2014	15:00	151	1.48
15-01-2014	16:00	130	1.77
15-01-2014	17:00	138	1.68
15-01-2014	18:00	117	2.65
15-01-2014	19:00	98	1.96
15-01-2014	20:00	96	1.63
15-01-2014	21:00	125	1.32
15-01-2014	22:00	179	0.99
15-01-2014	23:00	153	1.03
21-01-2014	0:00	247	0.92
21-01-2014	1:00	199	0.93
21-01-2014	2:00	217	0.75
21-01-2014	3:00	230	0.74
21-01-2014	4:00	223	0.95
21-01-2014	5:00	203	3.28
21-01-2014	6:00	183	3.53
21-01-2014	7:00	177	4.23
21-01-2014	8:00	129	4.11
21-01-2014	9:00	120	4.20
21-01-2014	10:00	133	4.23
21-01-2014	11:00	116	3.50
21-01-2014	12:00	119	2.63
21-01-2014	13:00	117	2.28
21-01-2014	14:00	139	1.73
21-01-2014	15:00	233	1.95
21-01-2014	16:00	231	1.58

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
21-01-2014	17:00	207	1.56
21-01-2014	18:00	273	1.18
21-01-2014	19:00	236	0.58
21-01-2014	20:00	233	0.88
21-01-2014	21:00	180	0.99
21-01-2014	22:00	163	1.27
21-01-2014	23:00	175	2.00
27-01-2014	0:00	114	3.27
27-01-2014	1:00	115	3.61
27-01-2014	2:00	110	4.24
27-01-2014	3:00	107	3.90
27-01-2014	4:00	100	2.68
27-01-2014	5:00	104	3.72
27-01-2014	6:00	106	4.16
27-01-2014	7:00	105	3.10
27-01-2014	8:00	103	2.59
27-01-2014	9:00	109	2.31
27-01-2014	10:00	108	2.63
27-01-2014	11:00	109	3.14
27-01-2014	12:00	115	2.81
27-01-2014	13:00	121	2.53
27-01-2014	14:00	116	2.02
27-01-2014	15:00	105	2.00
27-01-2014	16:00	101	2.14
27-01-2014	17:00	90	2.02
27-01-2014	18:00	93	1.99
27-01-2014	19:00	103	2.11
27-01-2014	20:00	89	1.54
27-01-2014	21:00	91	1.34
27-01-2014	22:00	86	1.67
27-01-2014	23:00	93	1.60
30-01-2014	0:00	290	0.53
30-01-2014	1:00	228	0.58
30-01-2014	2:00	187	0.71
30-01-2014	3:00	292	0.79
30-01-2014	4:00	285	0.67
30-01-2014	5:00	292	0.72
30-01-2014	6:00	287	0.62
30-01-2014	7:00	251	0.52
30-01-2014	8:00	114	0.78
30-01-2014	9:00	104	1.08
30-01-2014	10:00	99	1.14
30-01-2014	11:00	193	0.97
30-01-2014	12:00	239	1.25
30-01-2014	13:00	247	1.26
30-01-2014	14:00	244	1.12
30-01-2014	15:00	236	1.10
30-01-2014	16:00	234	1.35

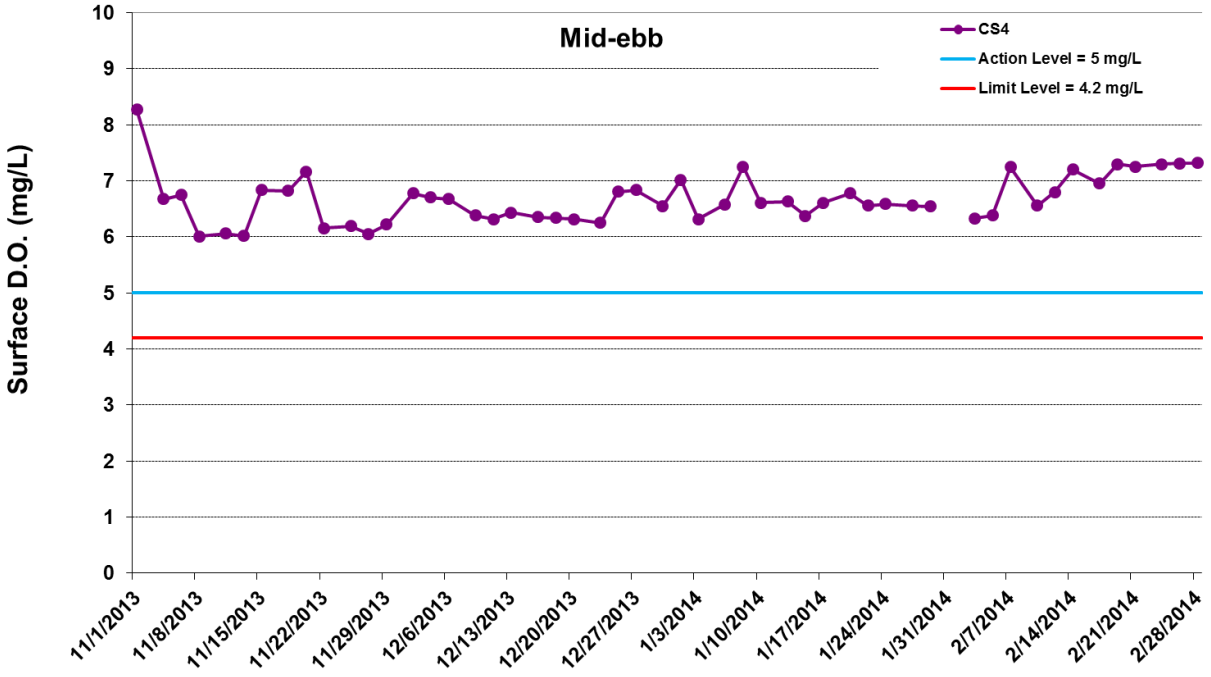
Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
30-01-2014	17:00	239	0.67
30-01-2014	18:00	255	0.50
30-01-2014	19:00	281	0.56
30-01-2014	20:00	279	0.62
30-01-2014	21:00	295	0.95
30-01-2014	22:00	275	0.72
30-01-2014	23:00	287	0.57
18-02-2014	0:00	88	0.79
18-02-2014	1:00	81	1.06
18-02-2014	2:00	81	1.03
18-02-2014	3:00	94	0.72
18-02-2014	4:00	139	0.60
18-02-2014	5:00	247	0.38
18-02-2014	6:00	159	0.45
18-02-2014	7:00	220	0.48
18-02-2014	8:00	94	1.01
18-02-2014	9:00	127	0.74
18-02-2014	10:00	102	1.02
18-02-2014	11:00	100	0.88
18-02-2014	12:00	134	0.84
18-02-2014	13:00	242	2.50
18-02-2014	14:00	305	4.33
18-02-2014	15:00	301	3.35
18-02-2014	16:00	289	2.56
18-02-2014	17:00	290	2.55
18-02-2014	18:00	255	1.55
18-02-2014	19:00	253	1.48
18-02-2014	20:00	244	1.30
18-02-2014	21:00	251	1.65
18-02-2014	22:00	254	1.59
18-02-2014	23:00	236	1.21
24-02-2014	0:00	89	1.74
24-02-2014	1:00	139	1.22
24-02-2014	2:00	95	1.53
24-02-2014	3:00	89	1.32
24-02-2014	4:00	104	2.13
24-02-2014	5:00	124	1.21
24-02-2014	6:00	116	1.86
24-02-2014	7:00	108	2.95
24-02-2014	8:00	116	2.15
24-02-2014	9:00	125	2.19
24-02-2014	10:00	120	2.79
24-02-2014	11:00	117	3.63
24-02-2014	12:00	113	3.47
24-02-2014	13:00	113	3.51
24-02-2014	14:00	109	2.62
24-02-2014	15:00	110	2.63
24-02-2014	16:00	108	2.81
24-02-2014	17:00	105	2.65

Meteorological Data for Impact Monitoring in the reporting period			
Date	**Time (24hrs)**	**Average of Wind Direction (degree)**	**Average of Wind Speed (m/s)**
24-02-2014	18:00	109	2.35
24-02-2014	19:00	93	2.24
24-02-2014	20:00	95	2.29
24-02-2014	21:00	102	2.88
24-02-2014	22:00	108	1.63
24-02-2014	23:00	102	2.16
28-02-2014	0:00	102	2.33
28-02-2014	1:00	105	3.32
28-02-2014	2:00	100	3.14
28-02-2014	3:00	109	2.81
28-02-2014	4:00	110	3.30
28-02-2014	5:00	114	3.14
28-02-2014	6:00	108	3.33
28-02-2014	7:00	106	3.90
28-02-2014	8:00	104	3.72
28-02-2014	9:00	100	2.82
28-02-2014	10:00	96	2.84
28-02-2014	11:00	100	2.81
28-02-2014	12:00	103	3.48
28-02-2014	13:00	104	3.38
28-02-2014	14:00	108	3.41
28-02-2014	15:00	112	2.46
28-02-2014	16:00	108	2.85
28-02-2014	17:00	106	2.92
28-02-2014	18:00	105	2.99
28-02-2014	19:00	106	3.33
28-02-2014	20:00	105	2.29
28-02-2014	21:00	104	2.89
28-02-2014	22:00	101	2.44
28-02-2014	23:00	96	2.32

Note: Meteorological information recorded by the wind anemometer between 4 and 14 February 2014 is not available due to power failure.

Appendix H

Impact Water Quality Monitoring Results



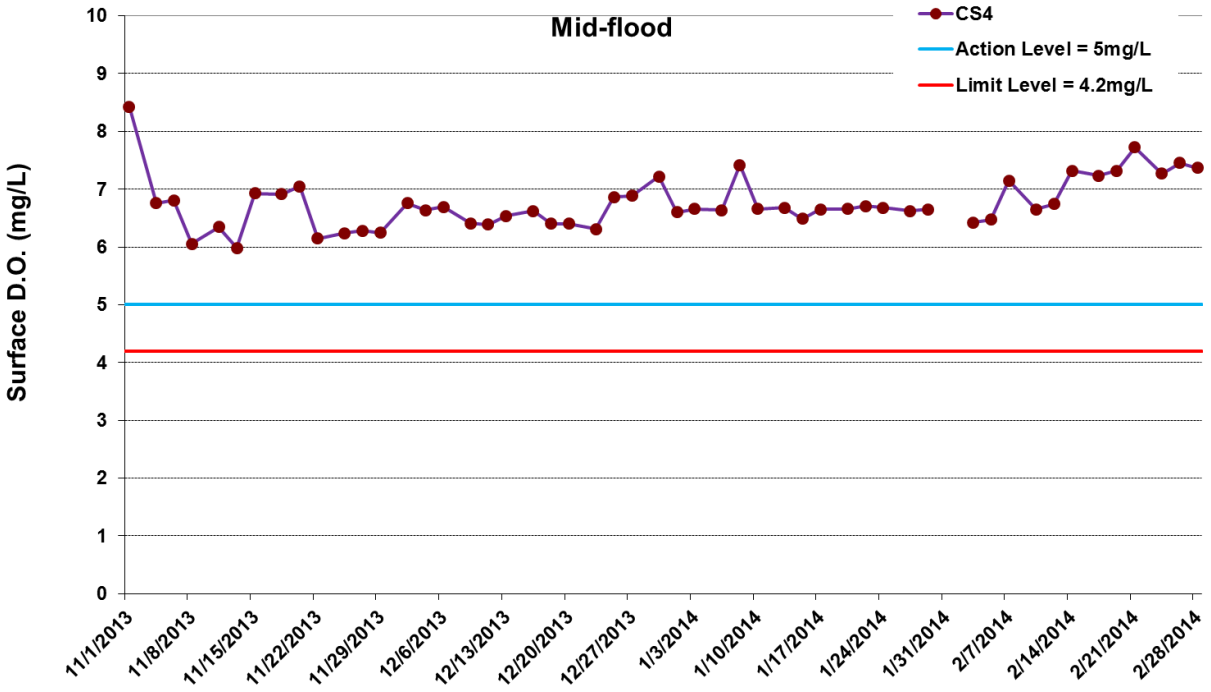


Figure H1 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at CS4. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

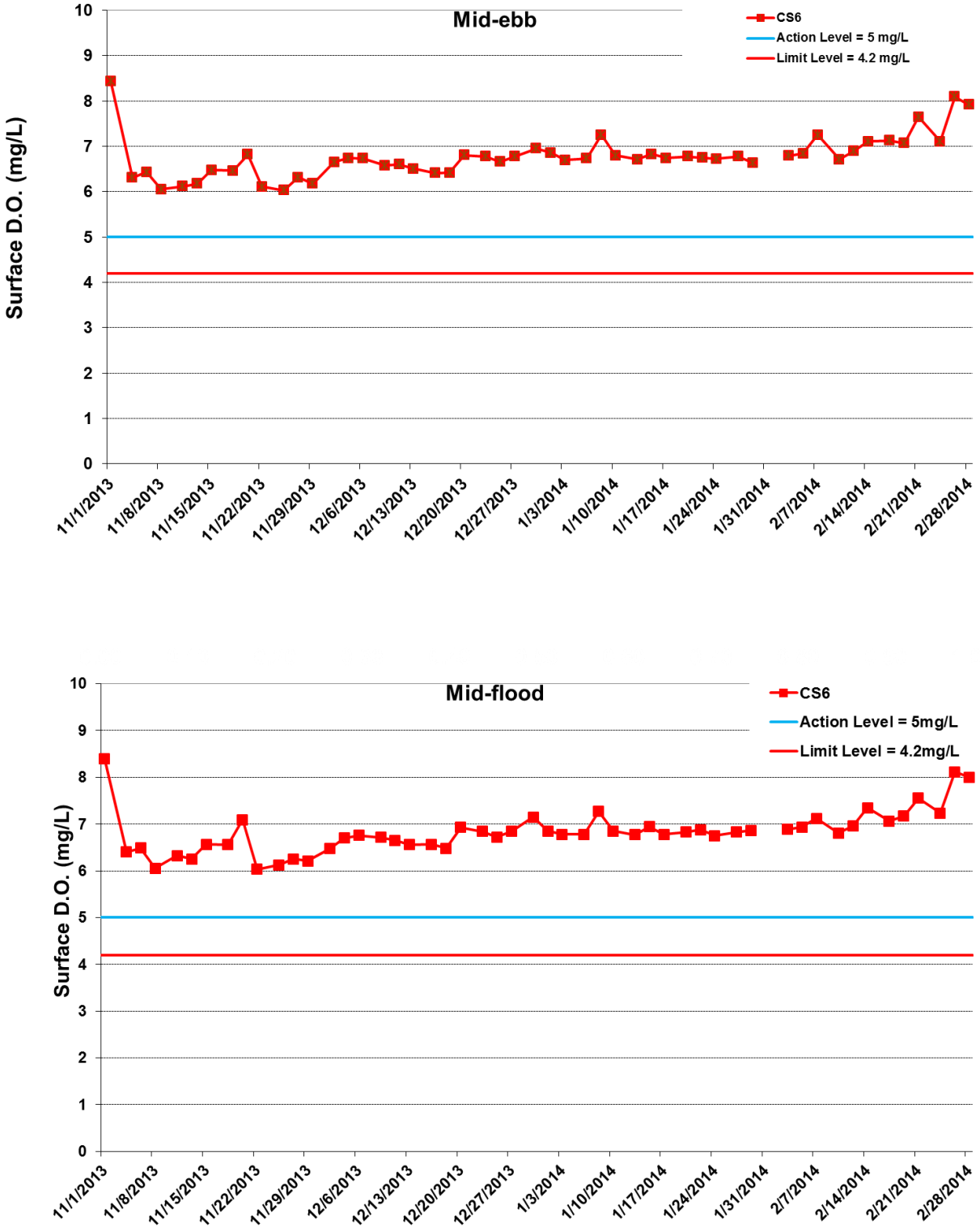
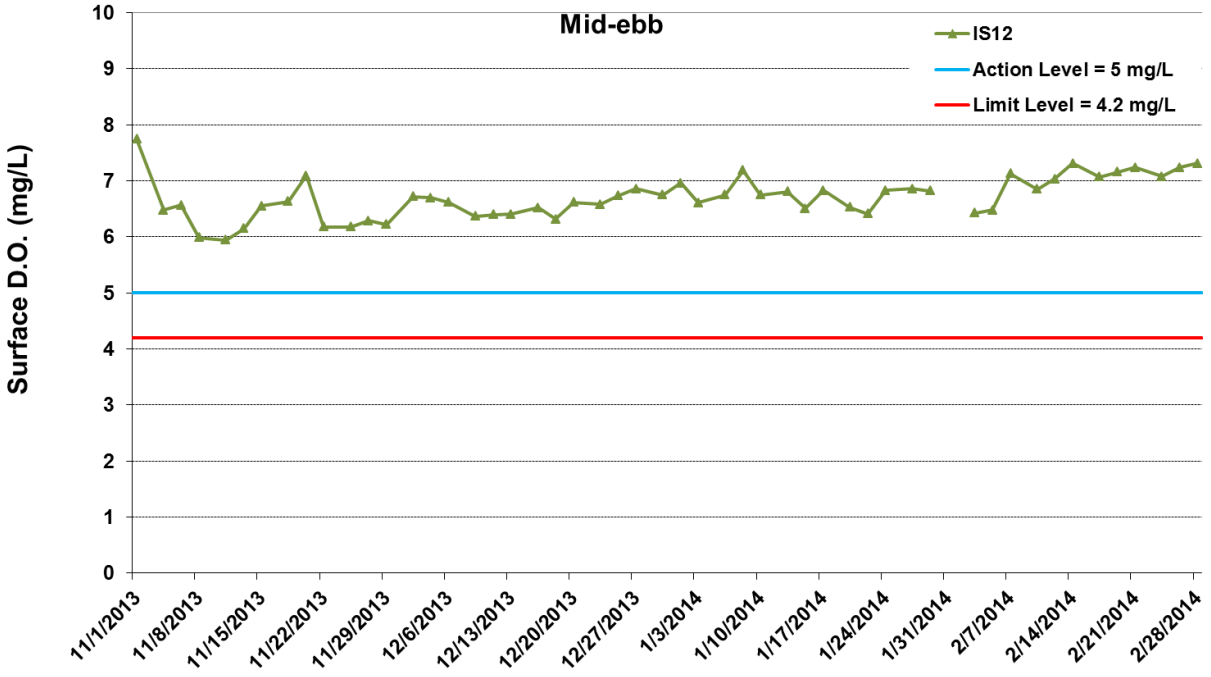


Figure H2 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at CS6. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



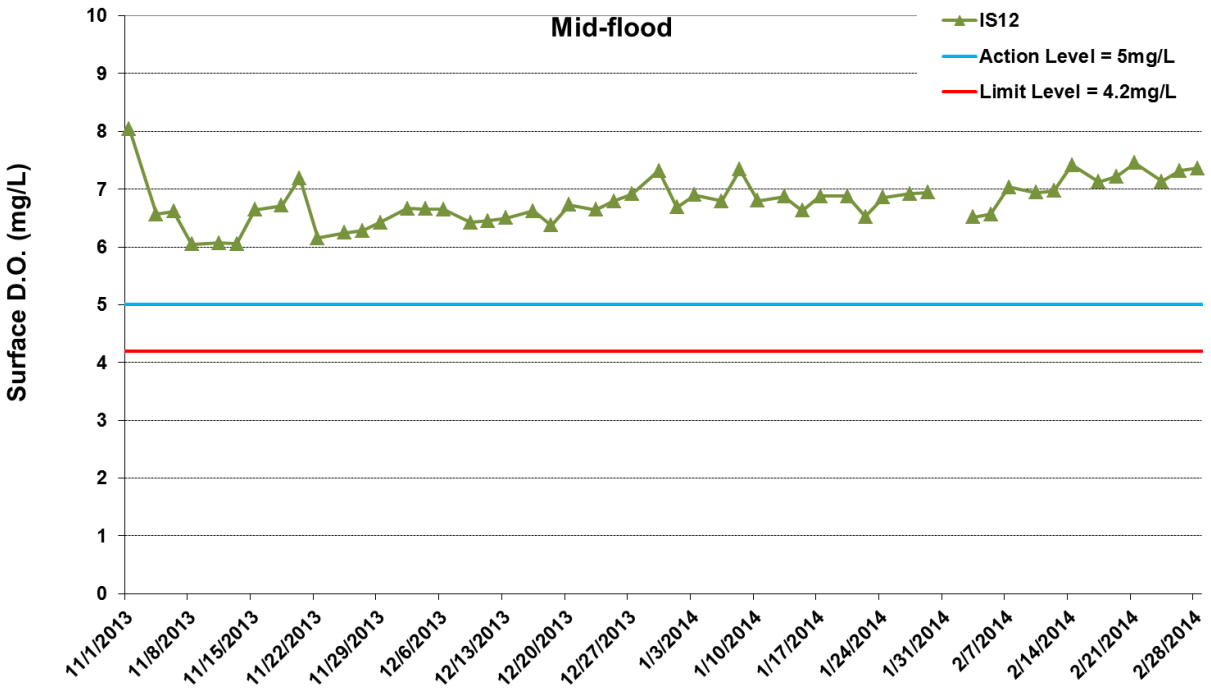
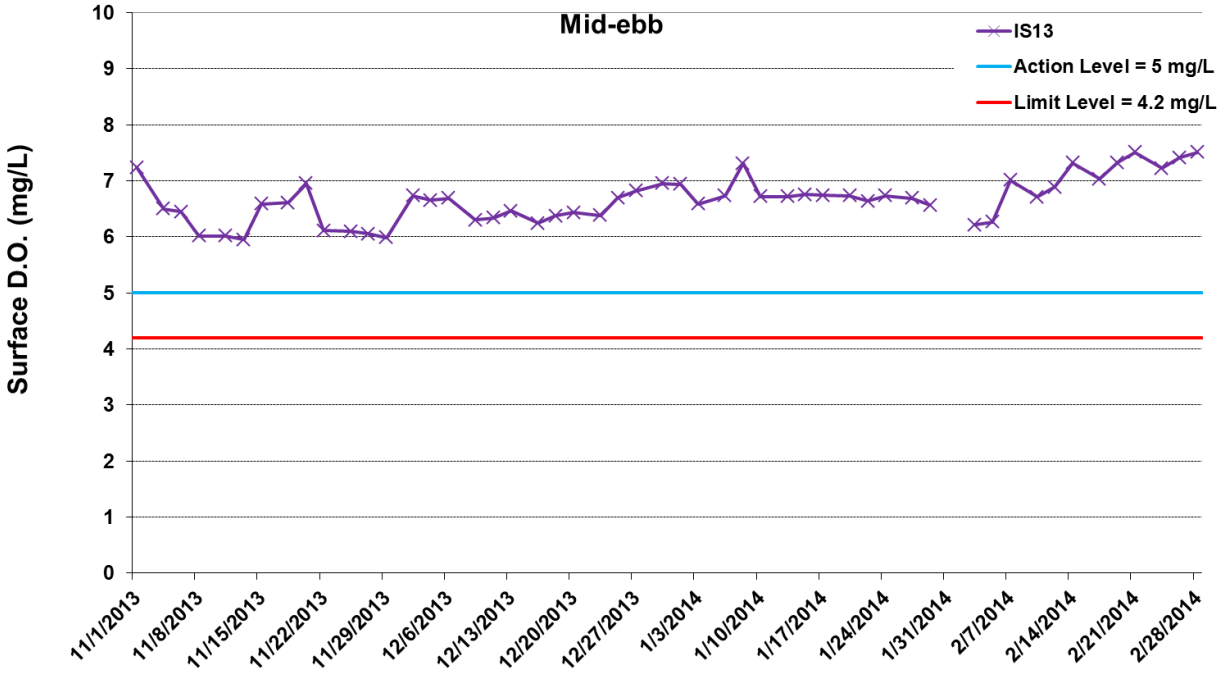


Figure H3 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at IS12. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



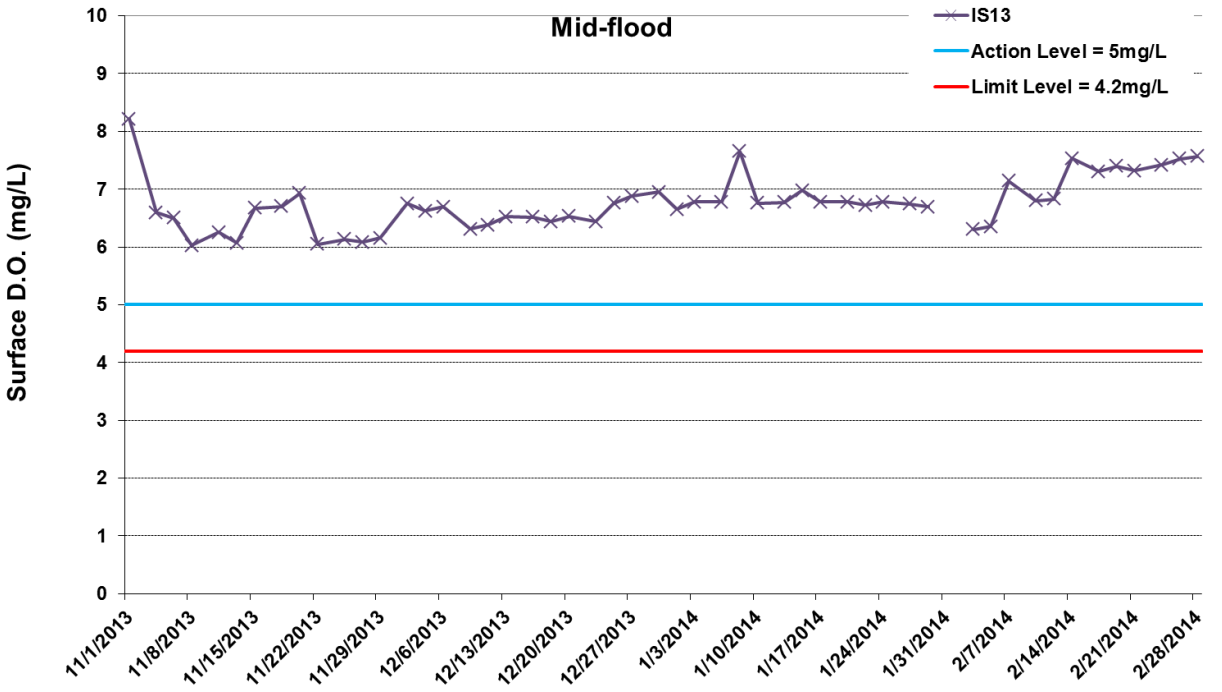
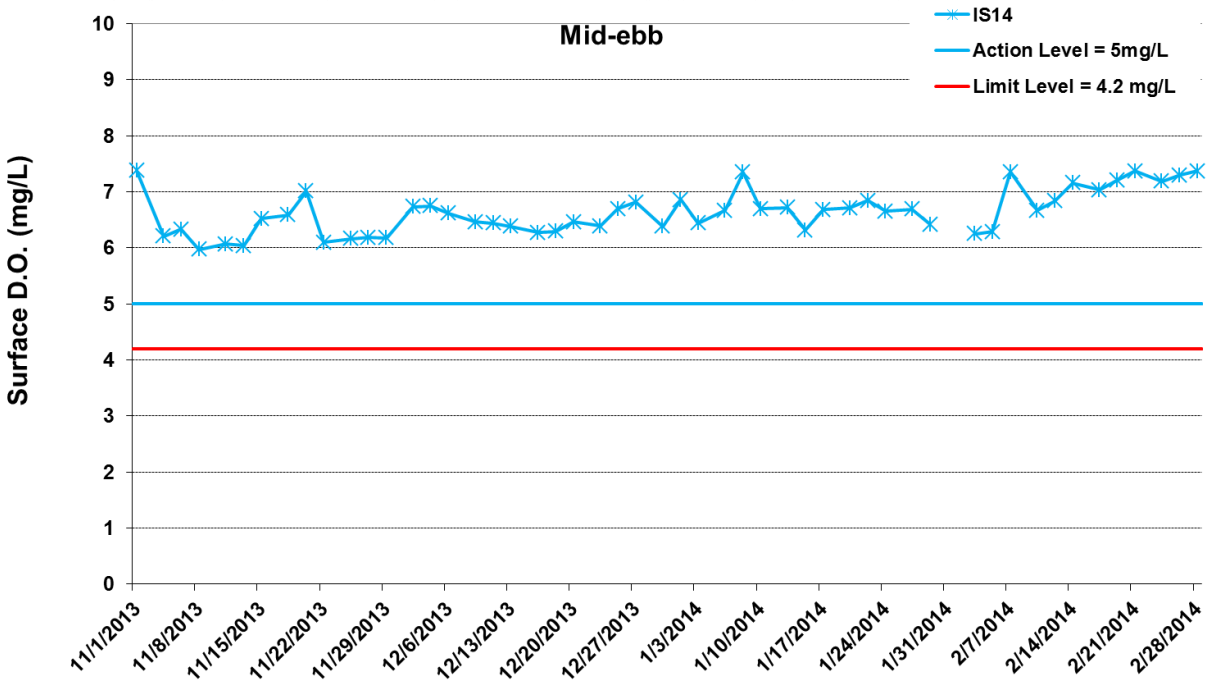


Figure H4 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at IS13. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



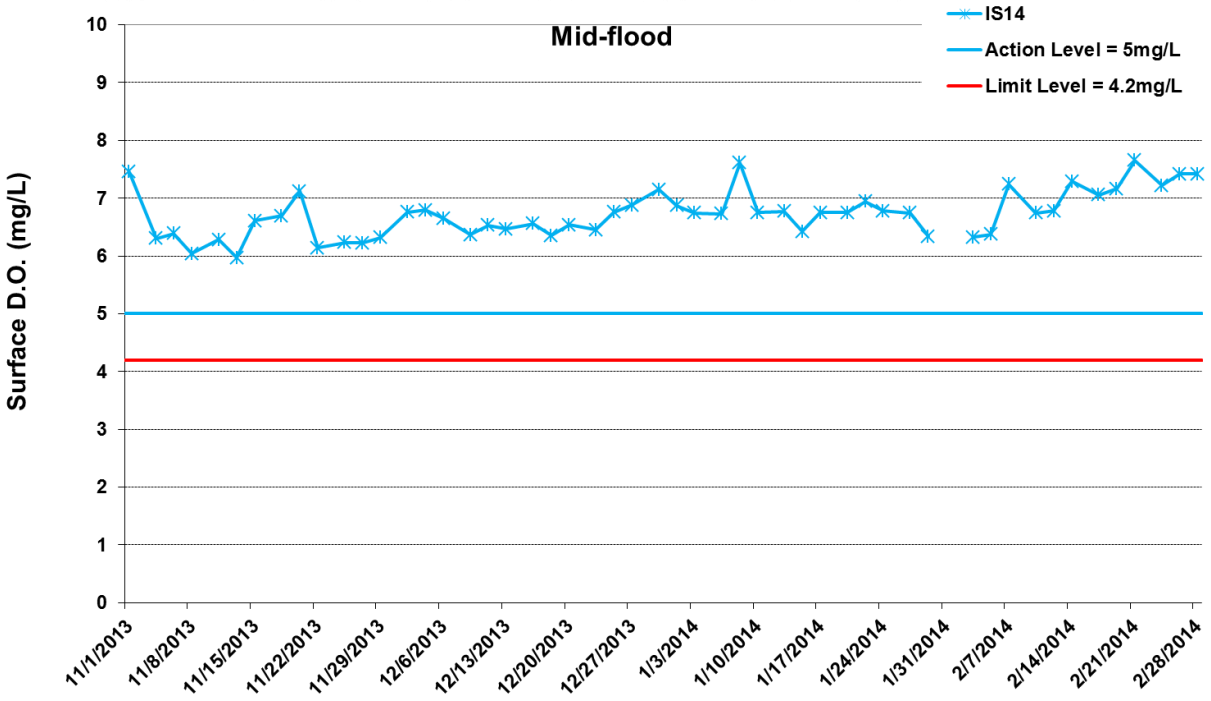


Figure H5 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at IS14. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

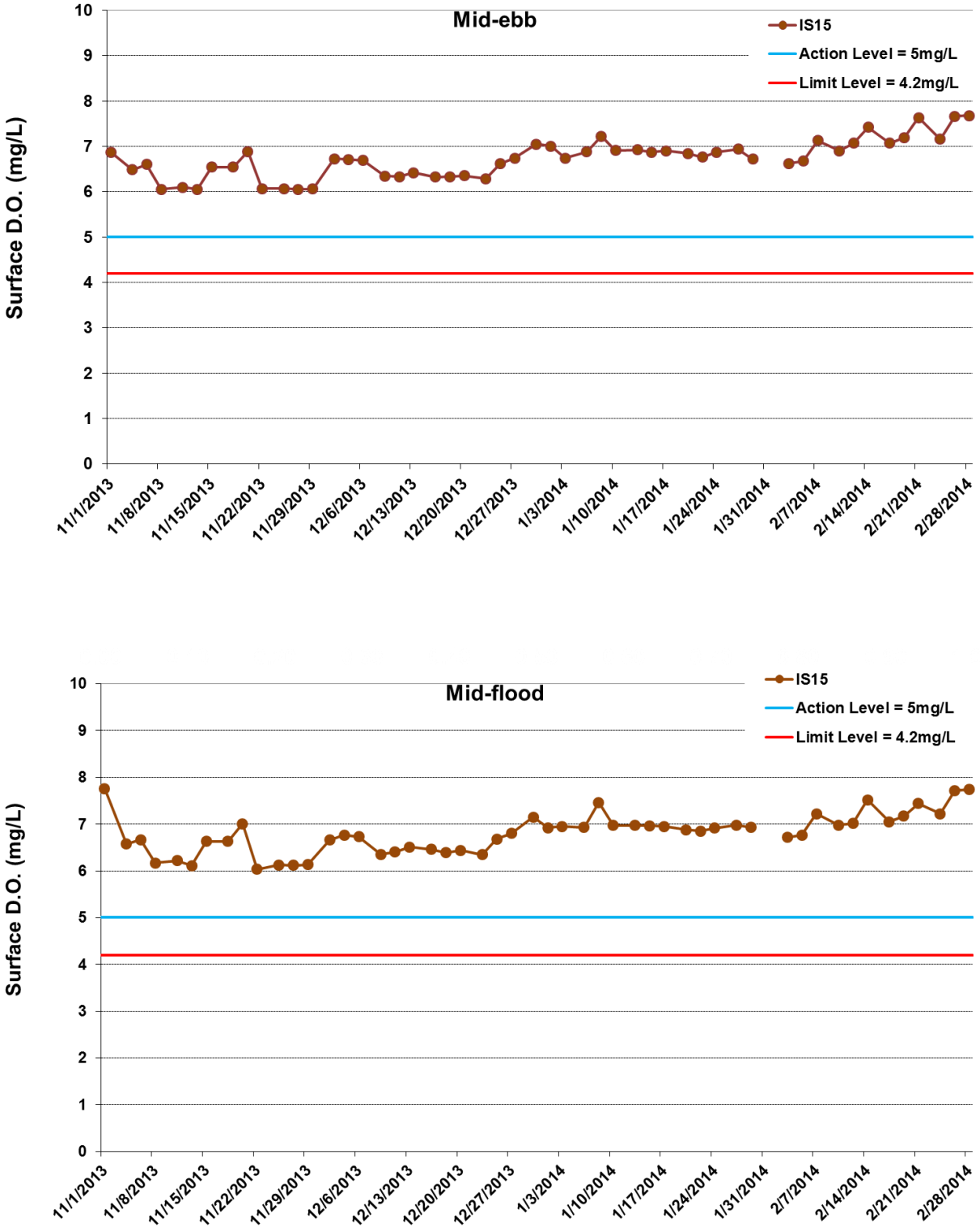
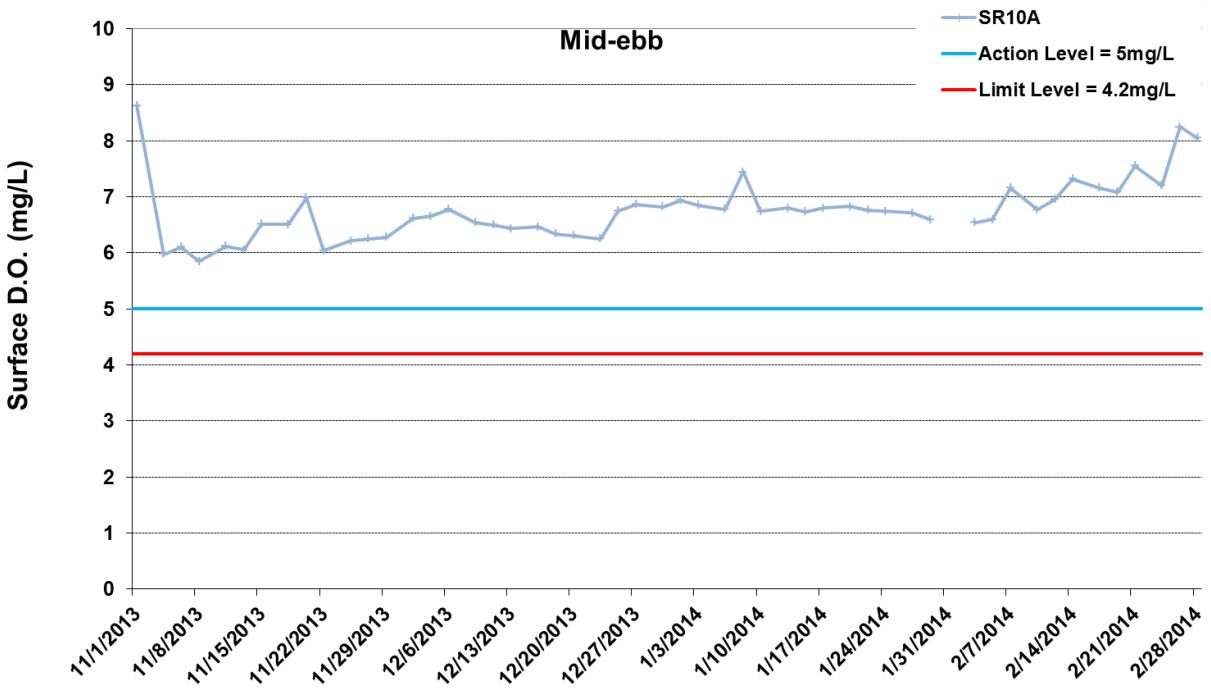


Figure H6 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at IS15. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



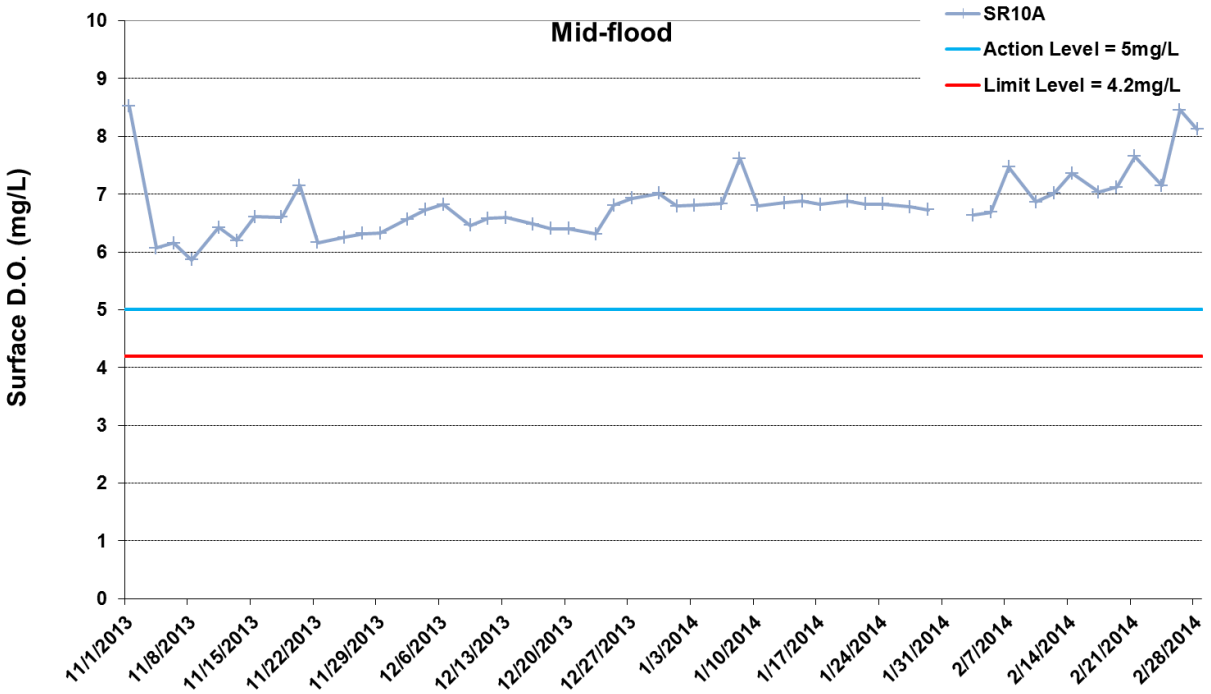
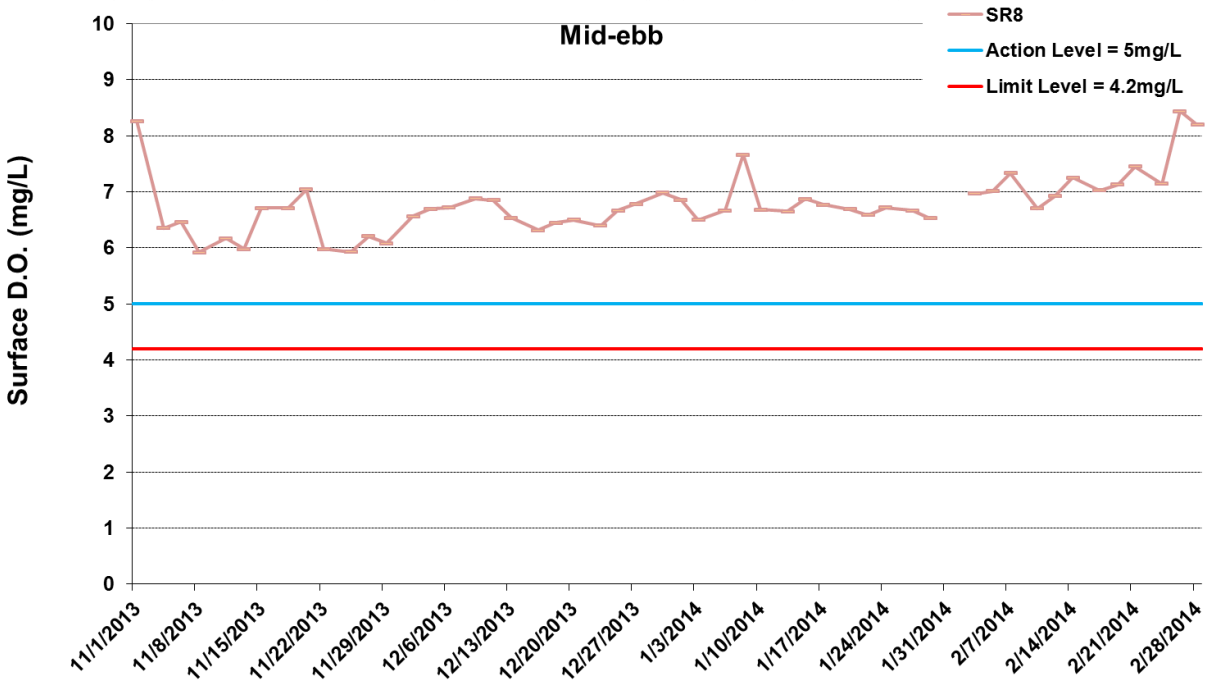


Figure H7 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at SR10A. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



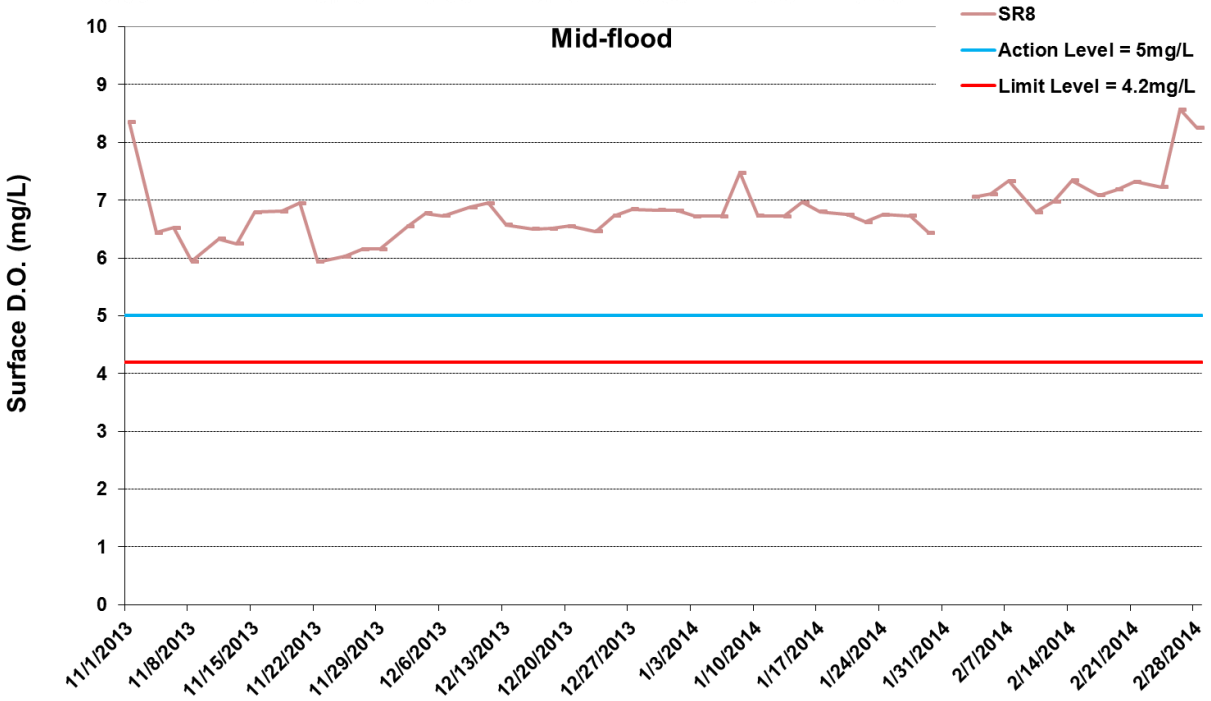
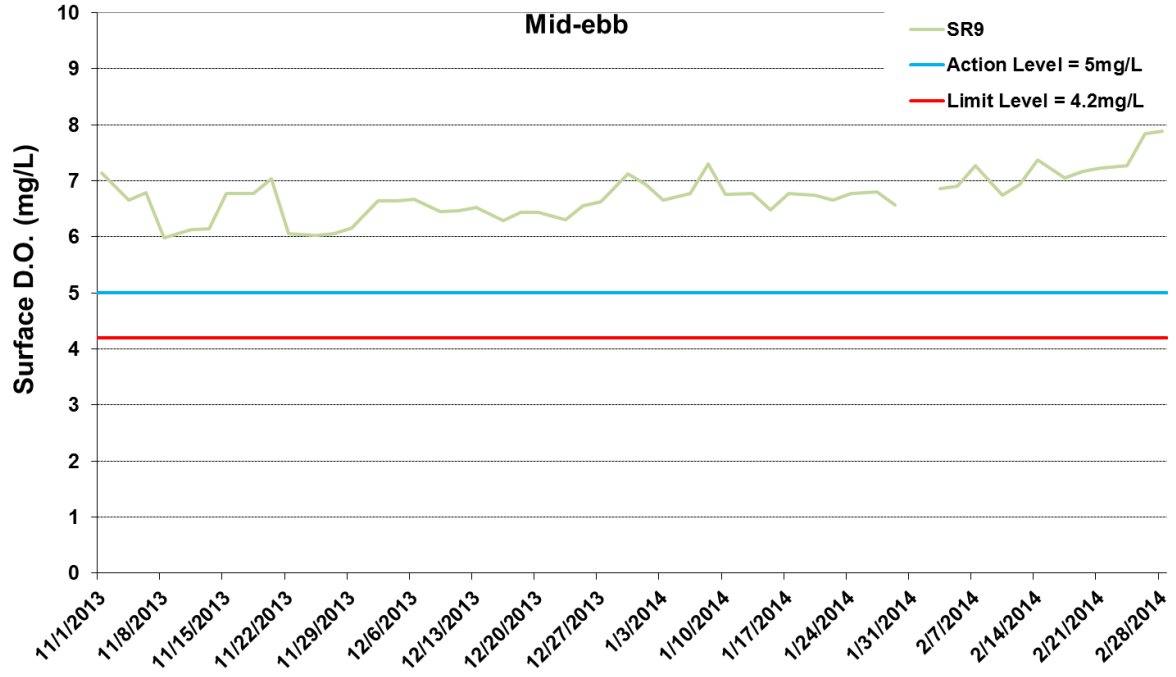


Figure H8 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at SR8. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



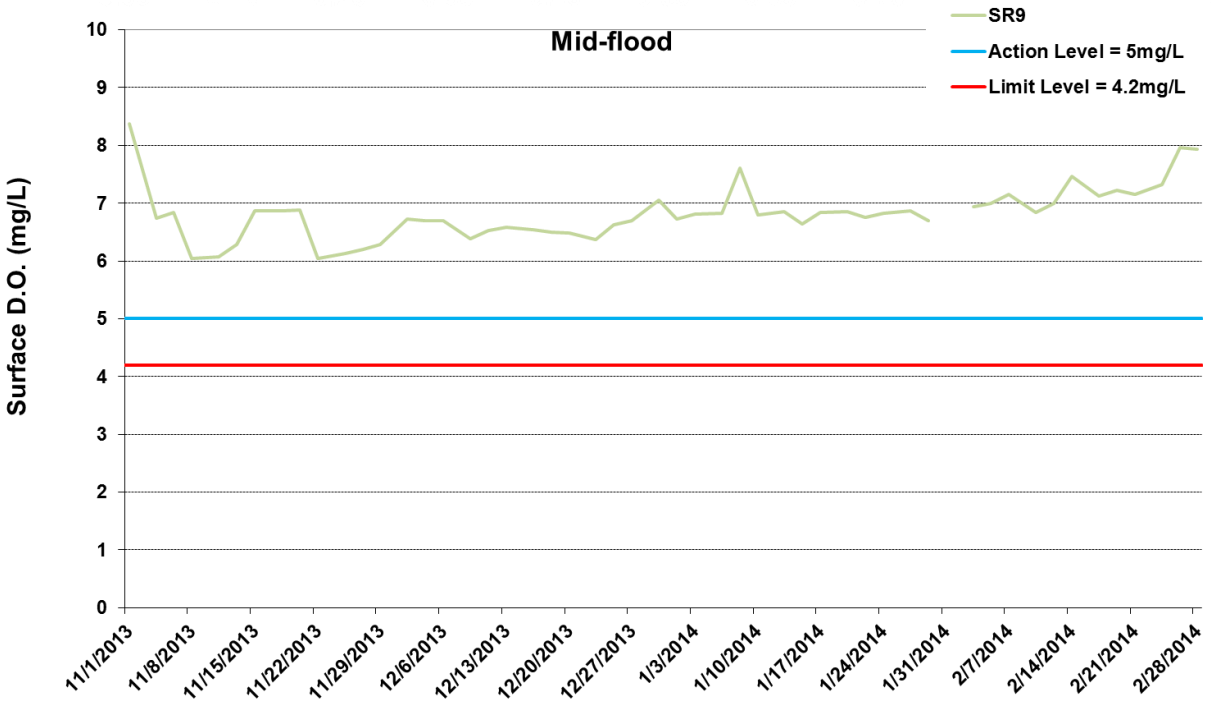
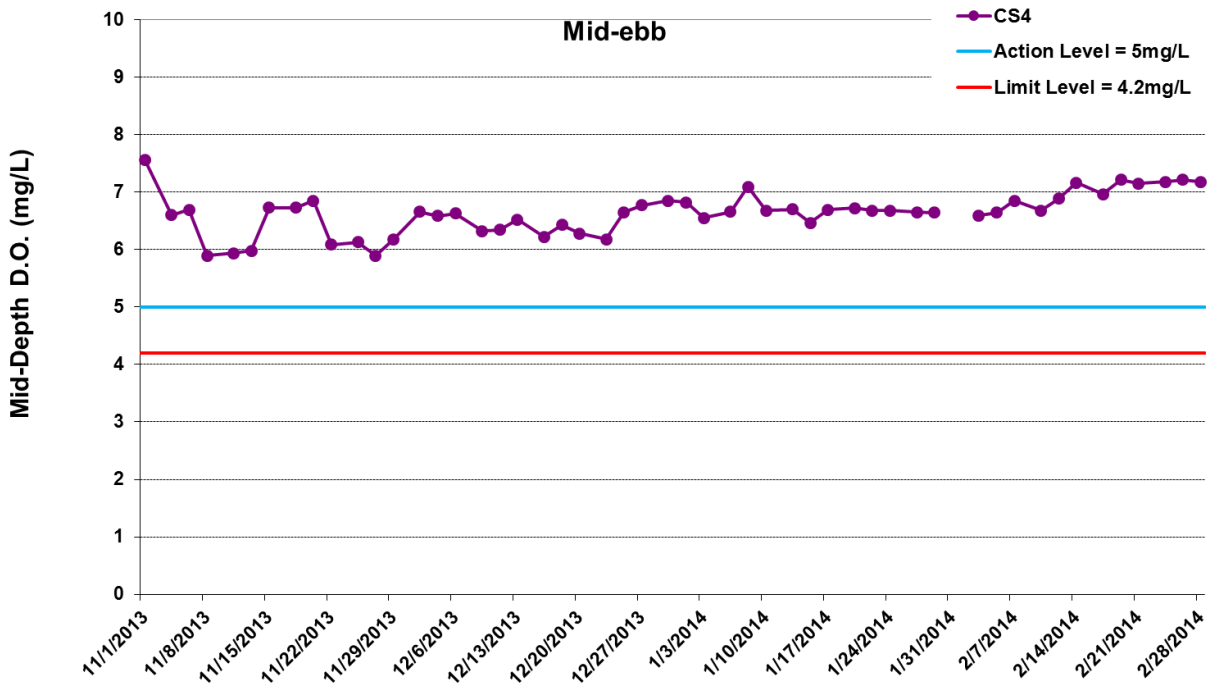
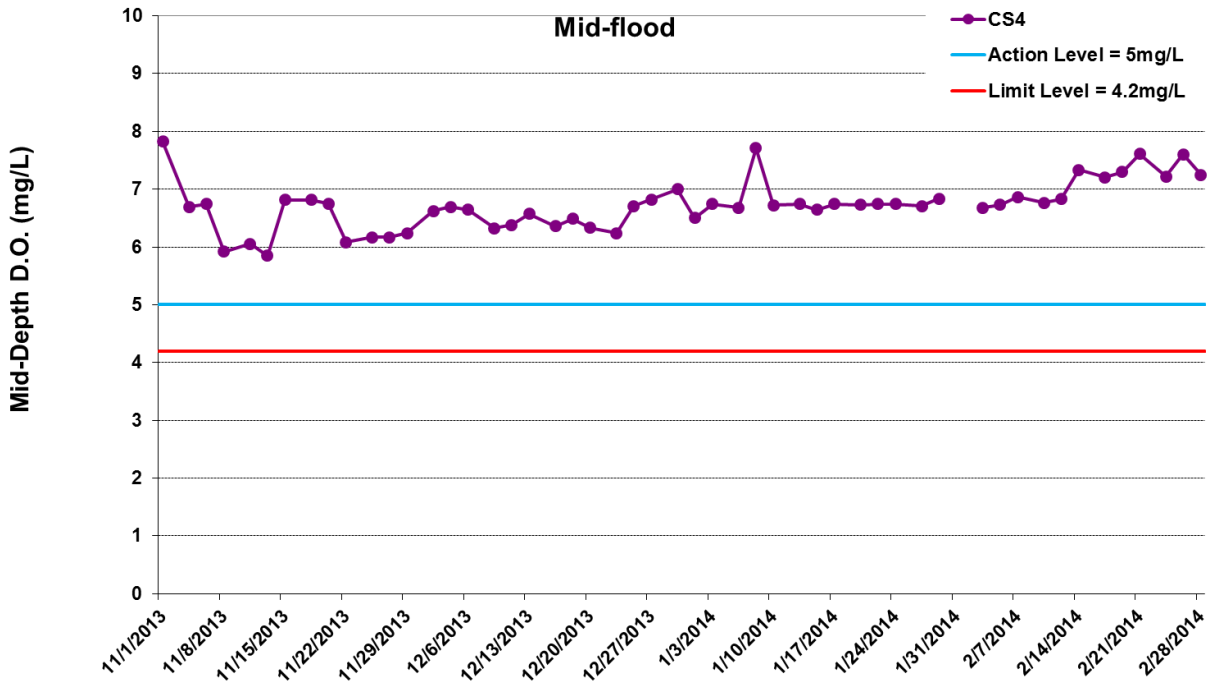


Figure H9 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 November 2013 and 28 February 2014 at SR9. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

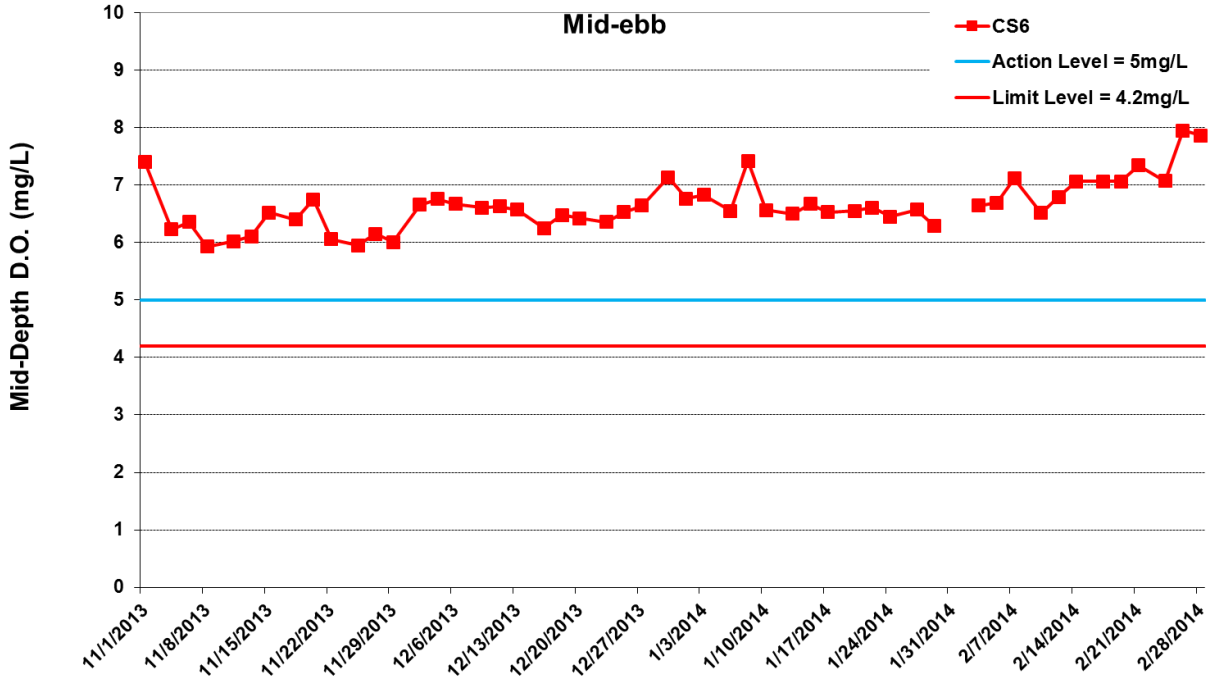


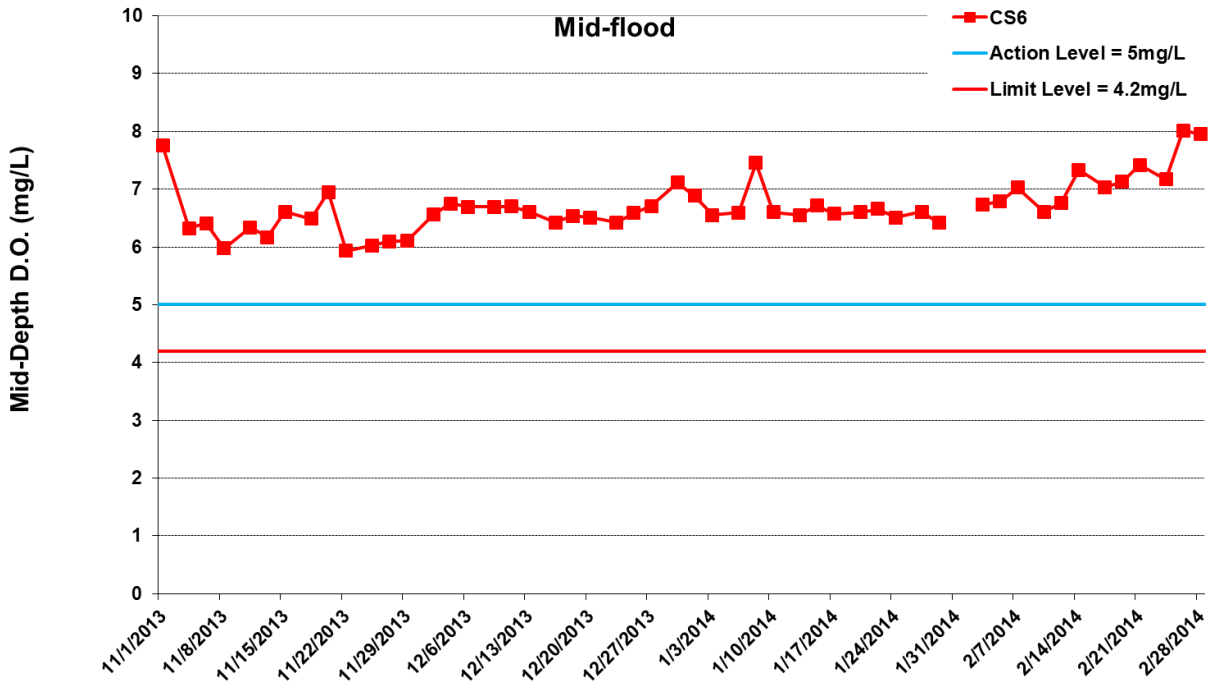


*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H10 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at the CS4. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

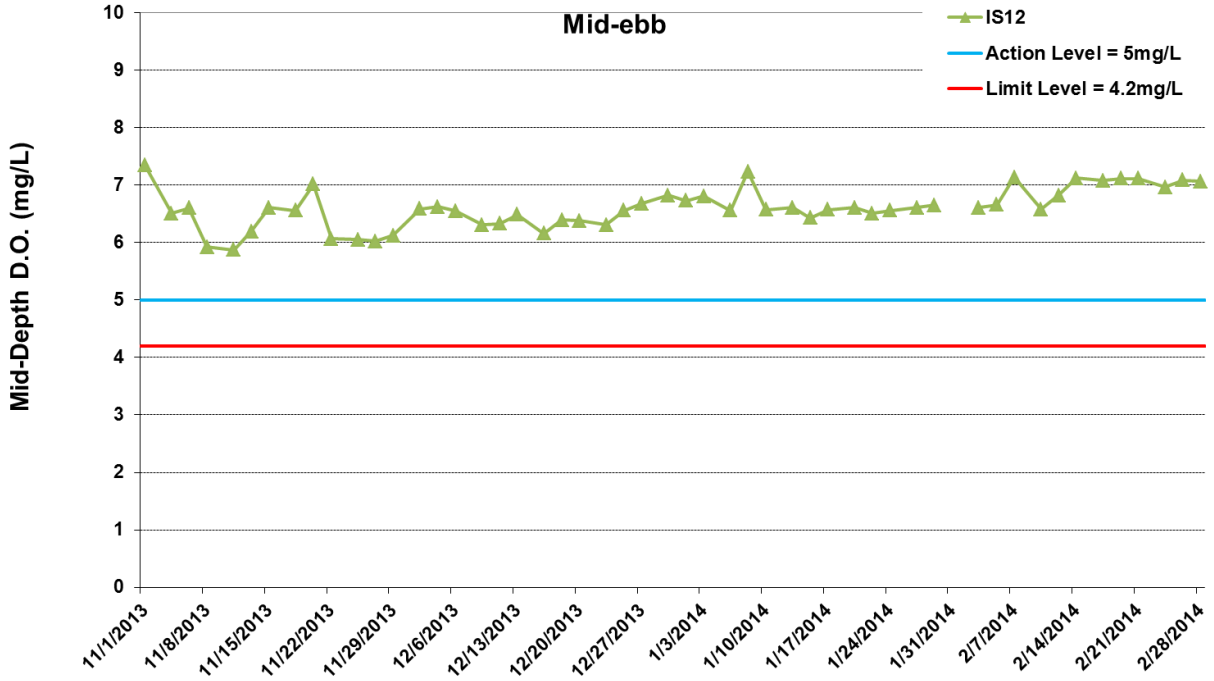


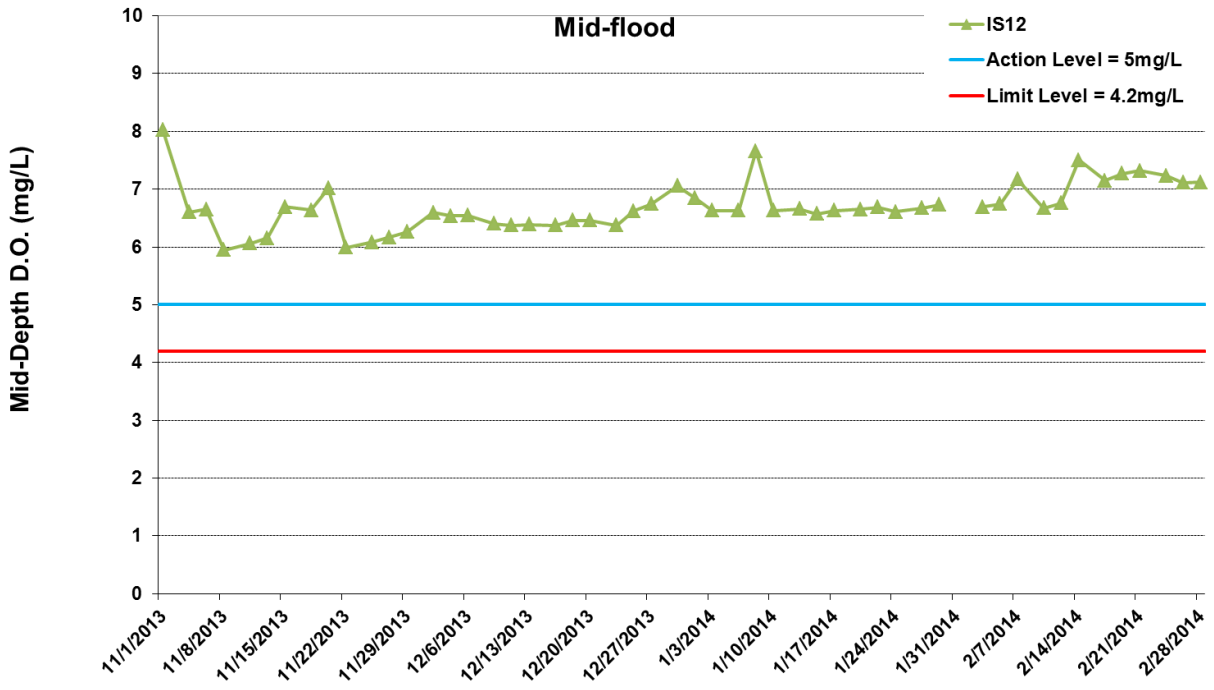


*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H11 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at CS6. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

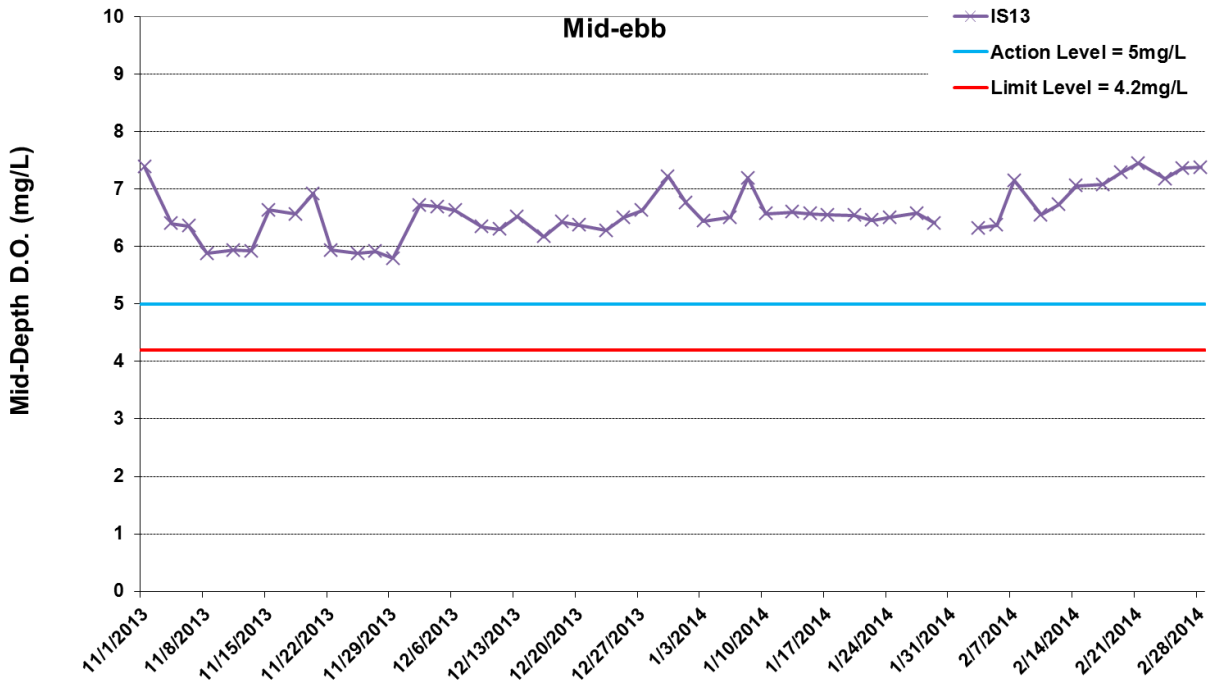


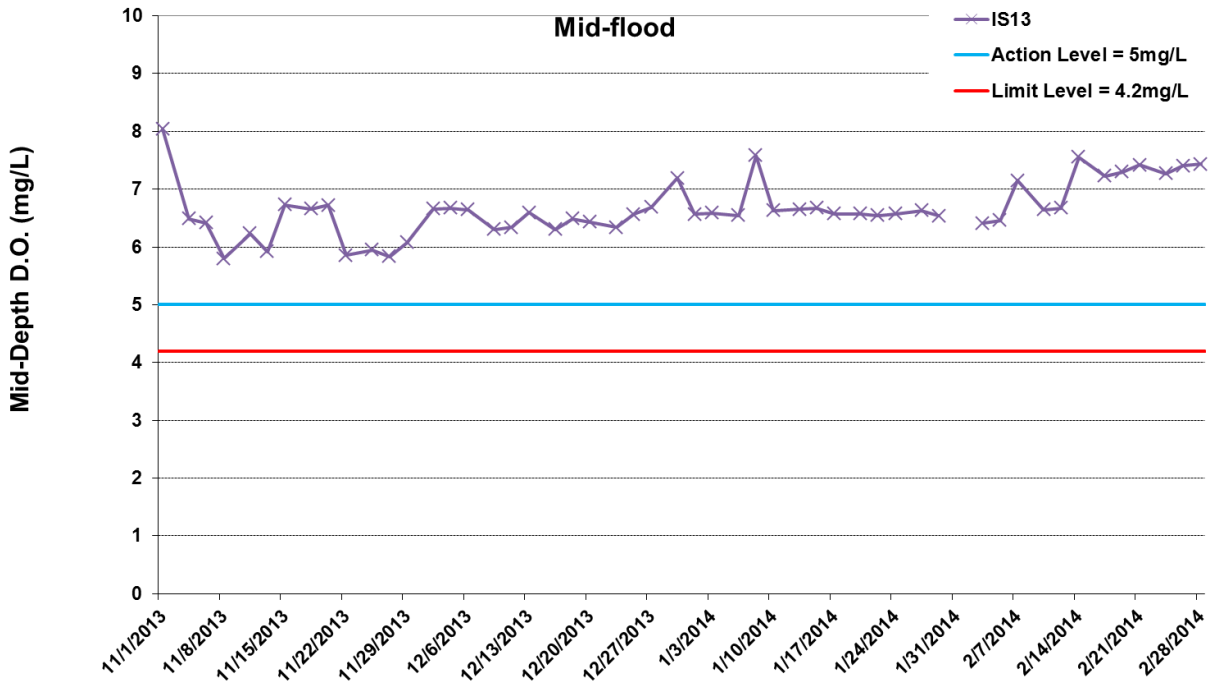


*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H12 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at IS12. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

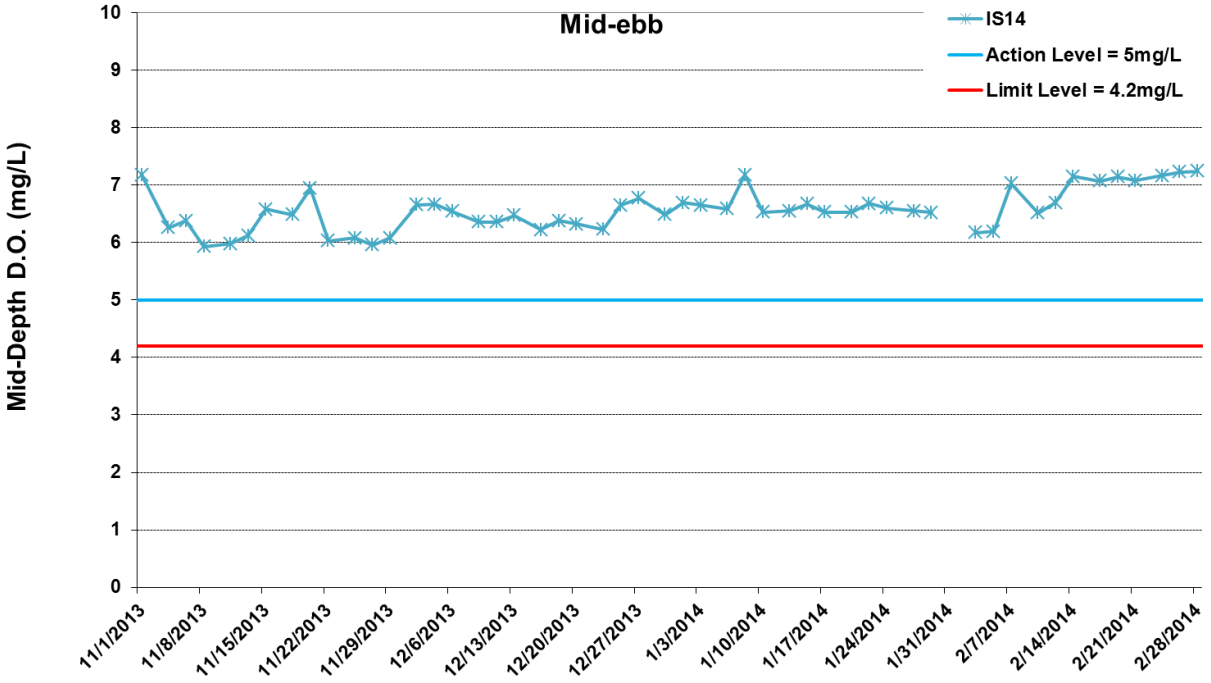


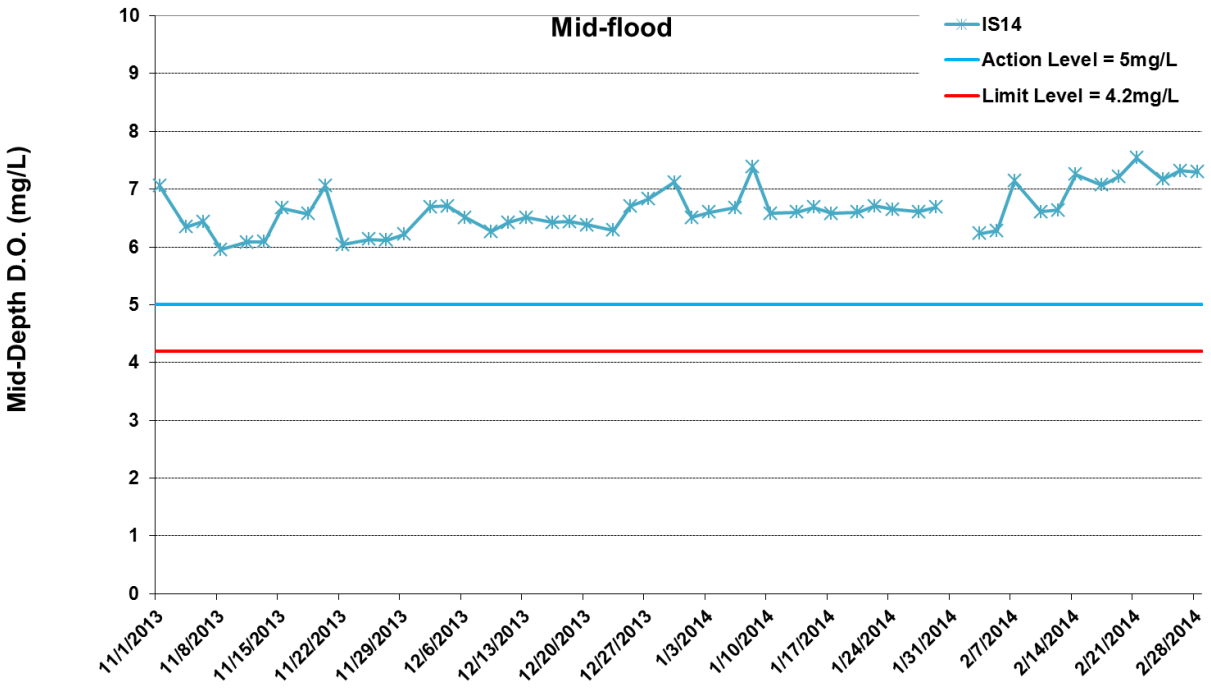


*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H13 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at IS13. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

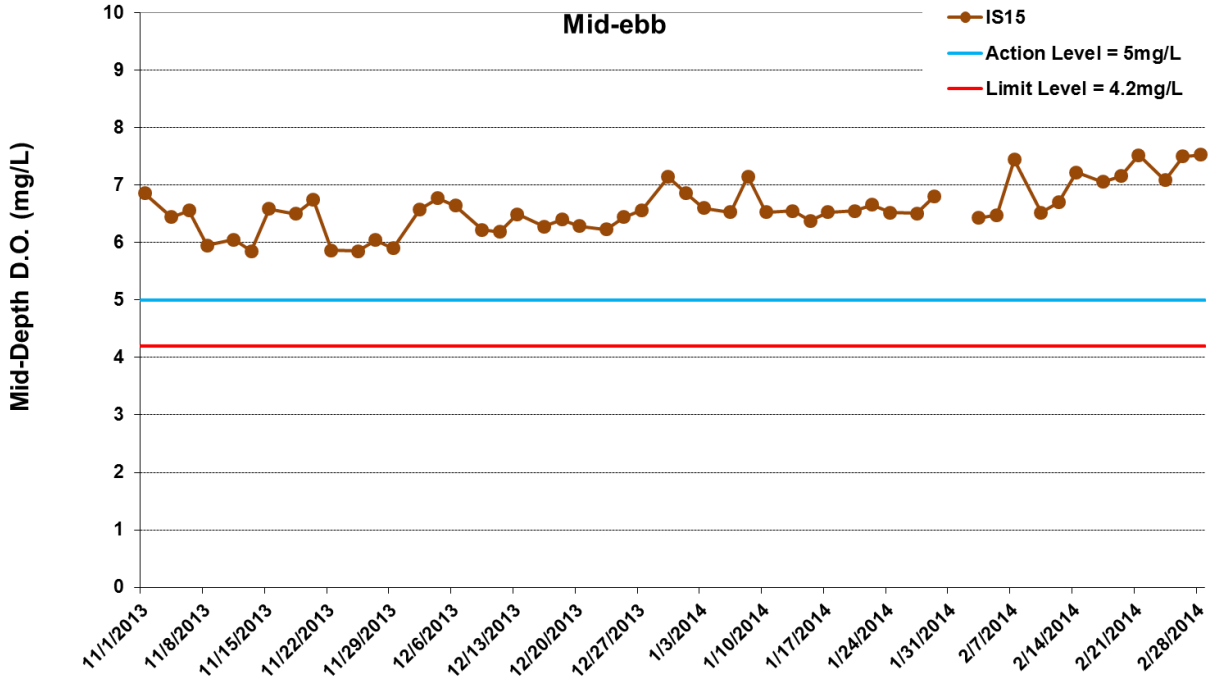


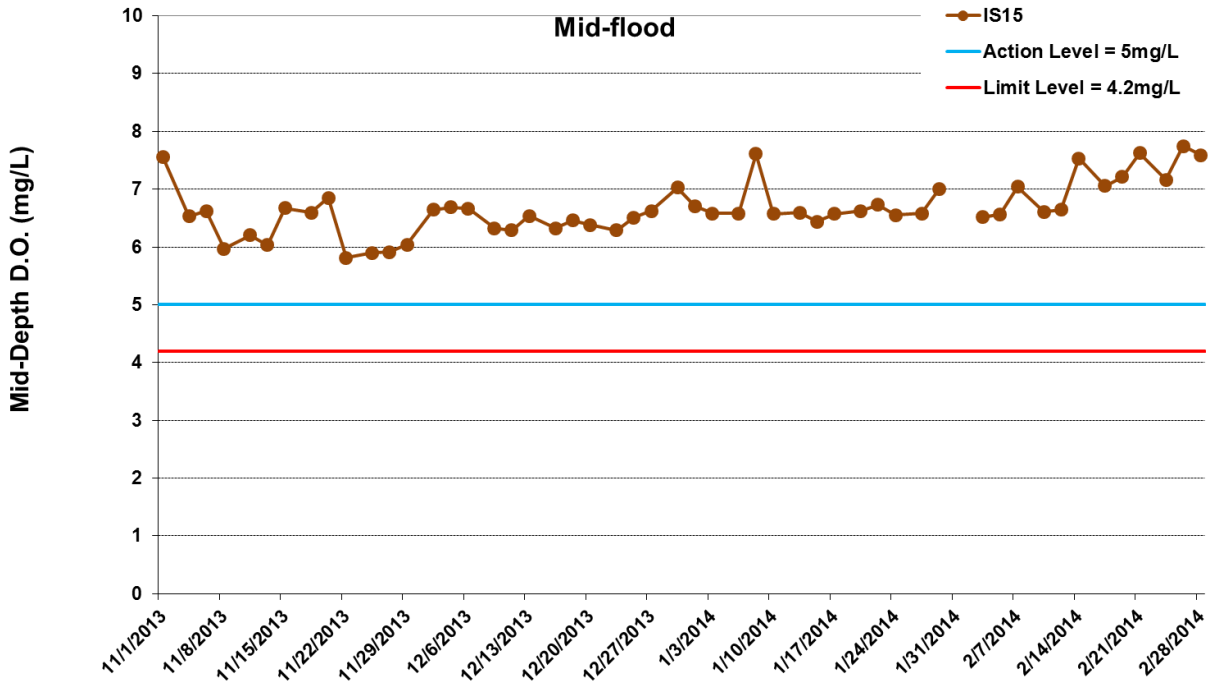


*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H14 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at IS14. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

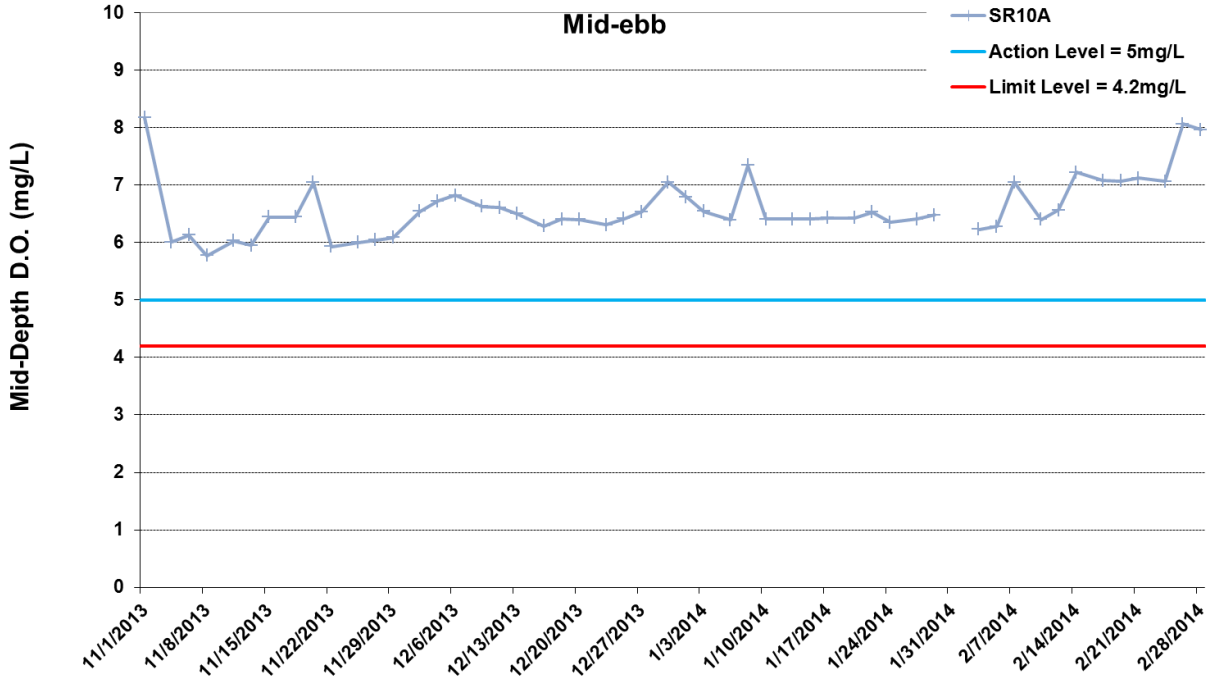


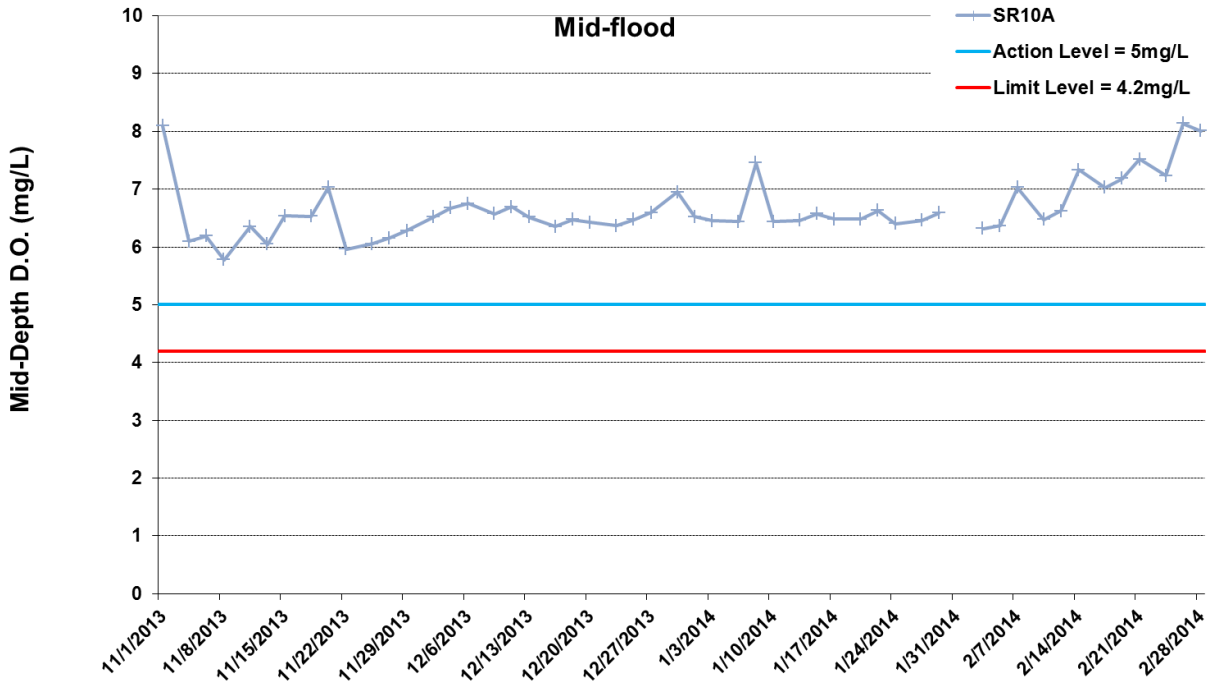


*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H15 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at IS15. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

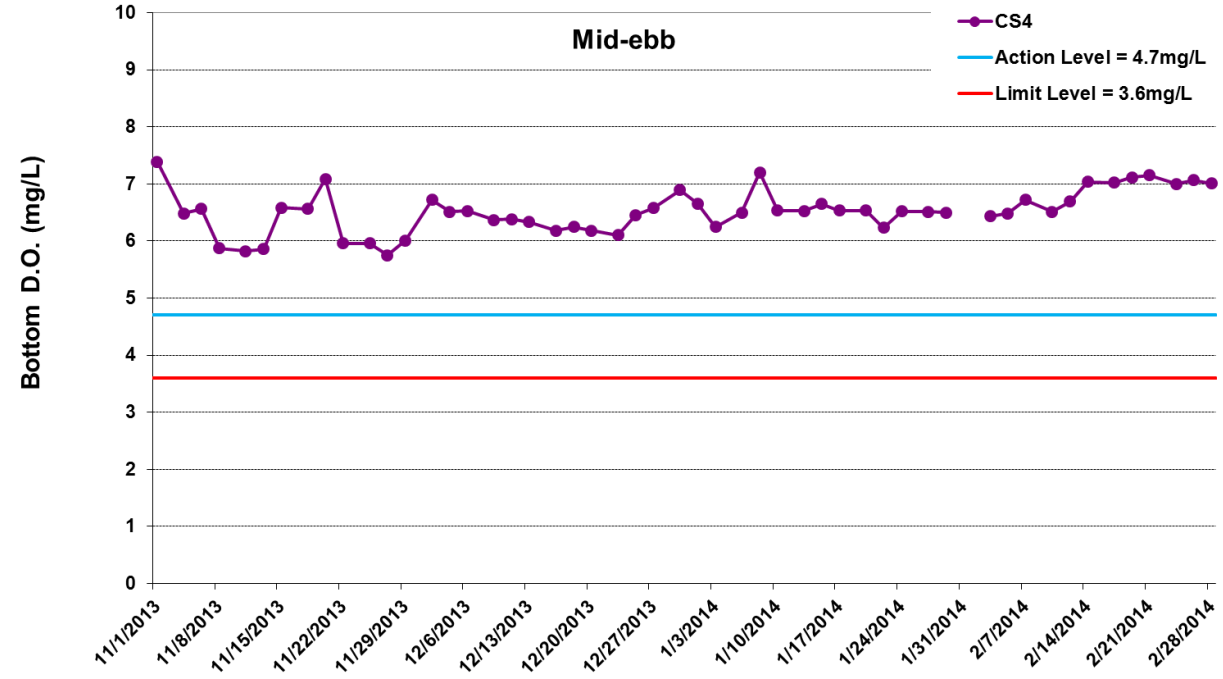




*No data for Stations SR8 and SR9 due to shallow water depth (< 6m).

Figure H16 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 November 2013 and 28 February 2014 at SR10A. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



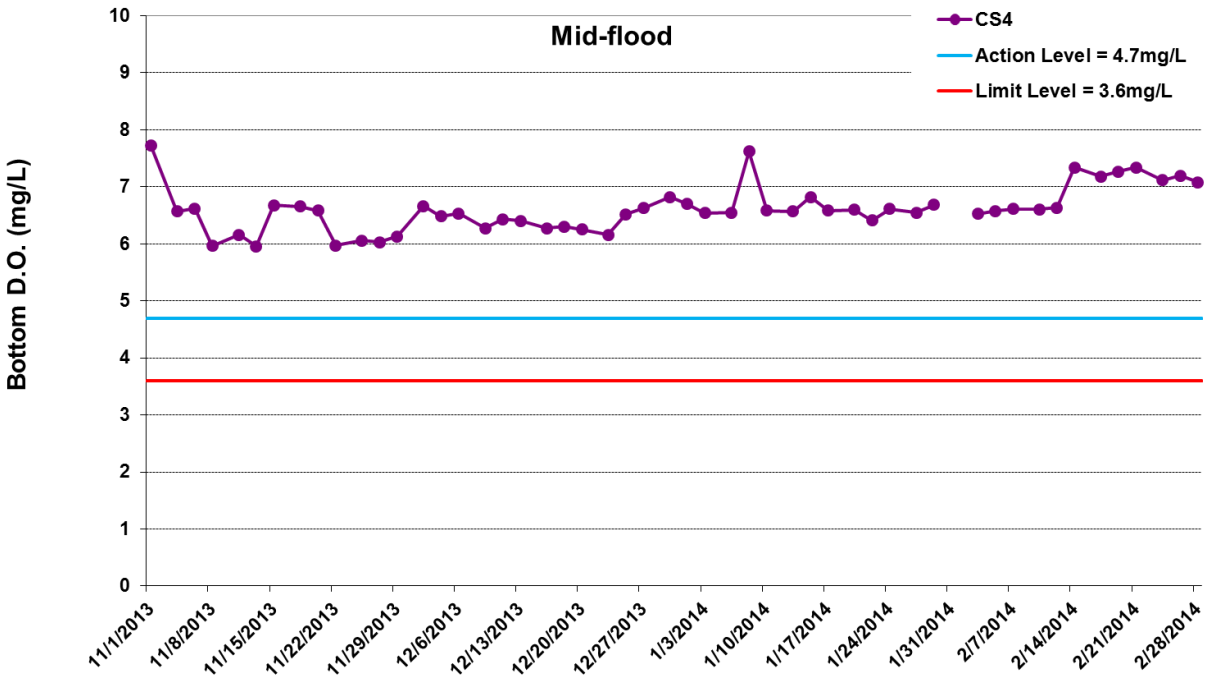
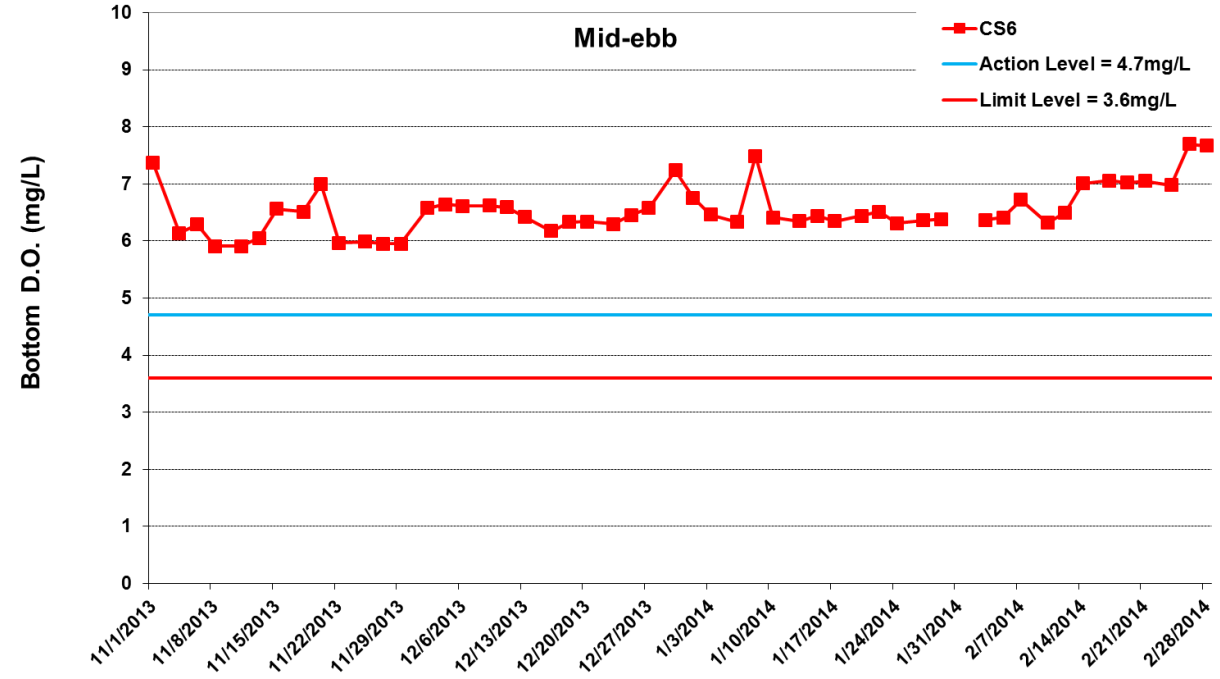


Figure H17 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at CS4. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



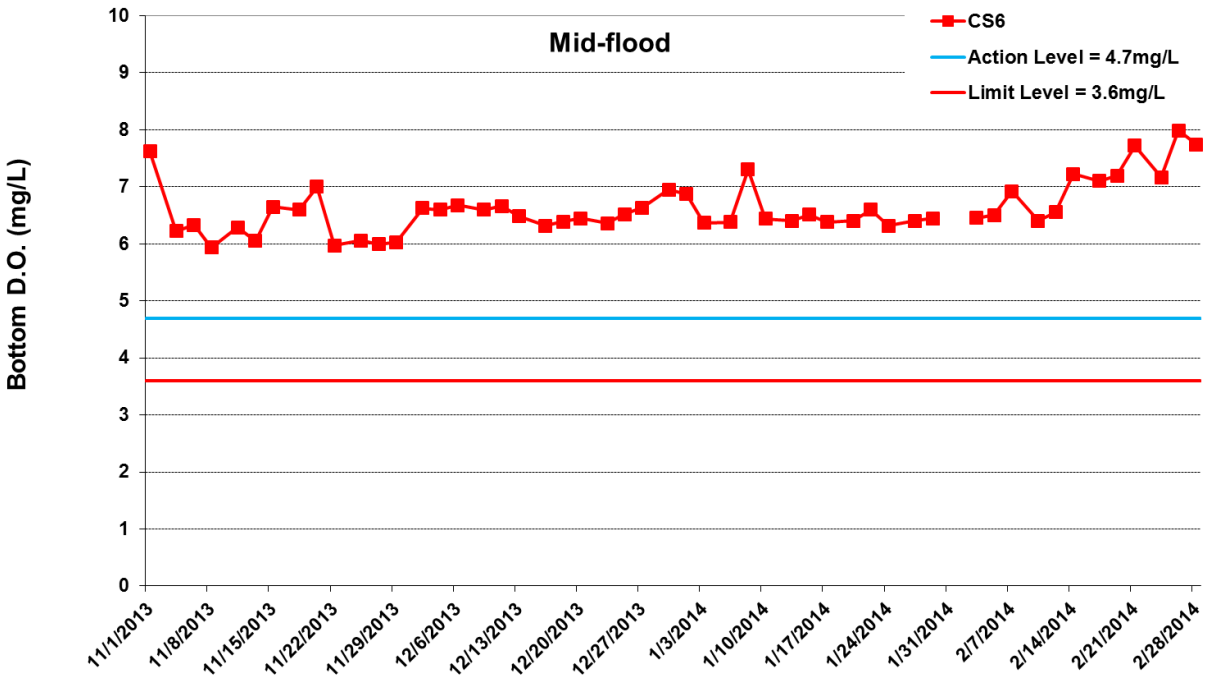
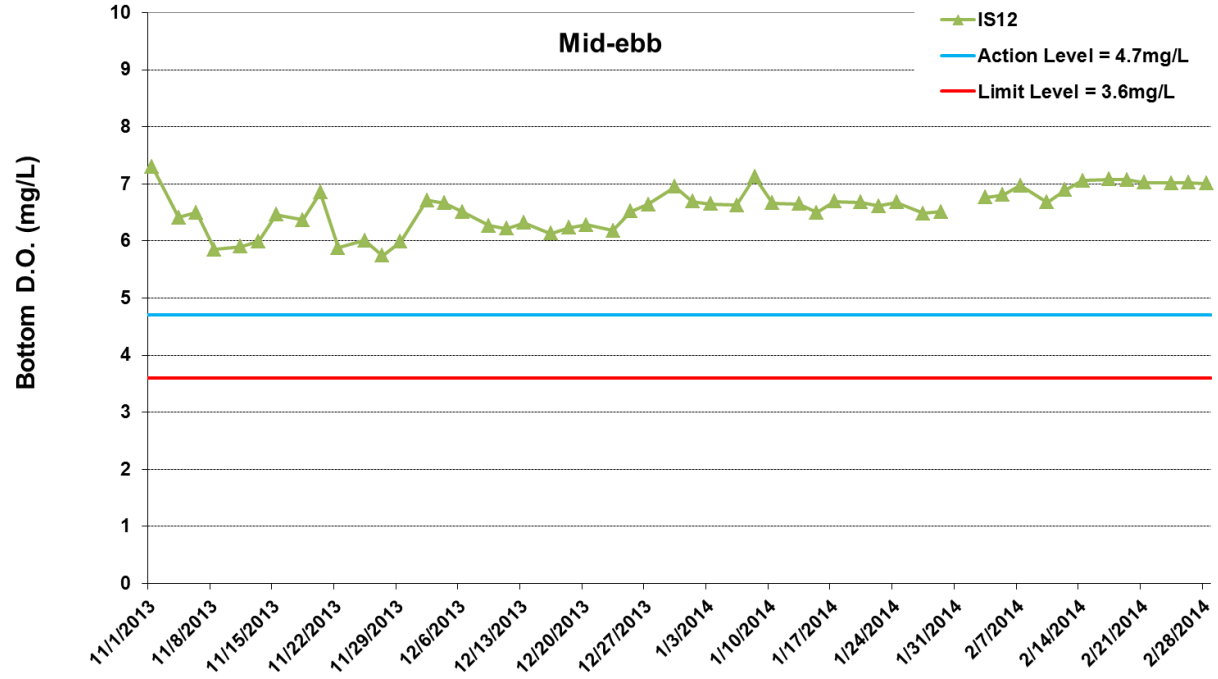


Figure H18 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at CS6. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



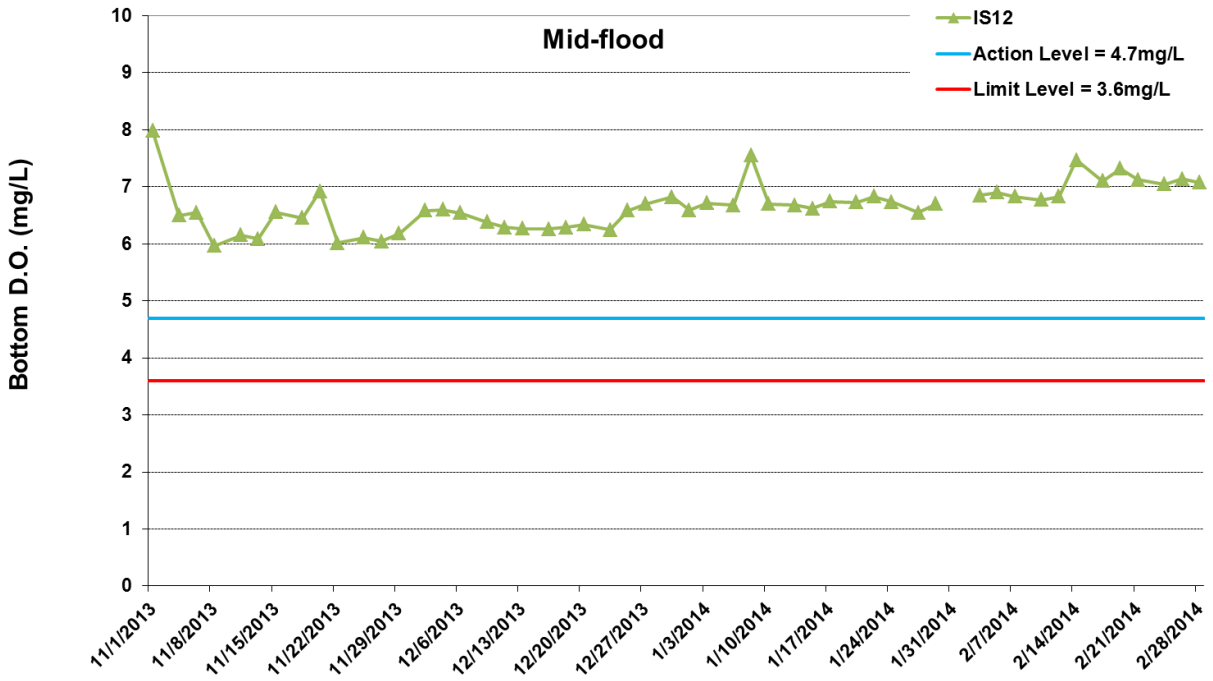


Figure H19 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at IS12. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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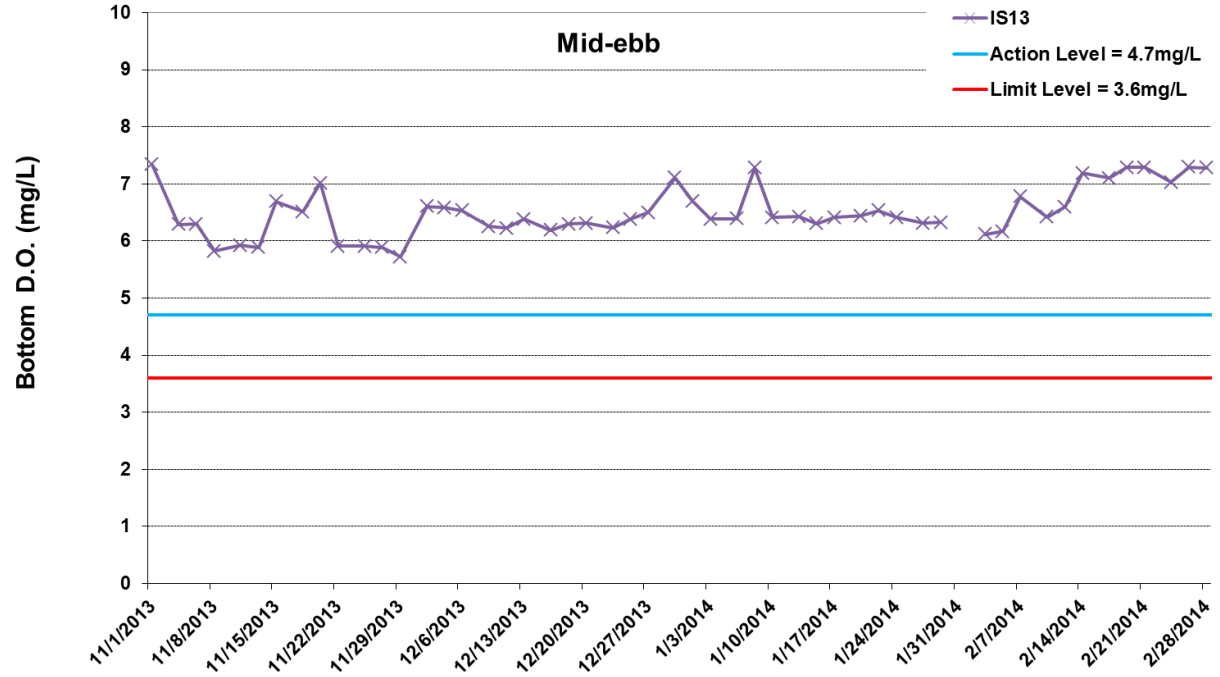

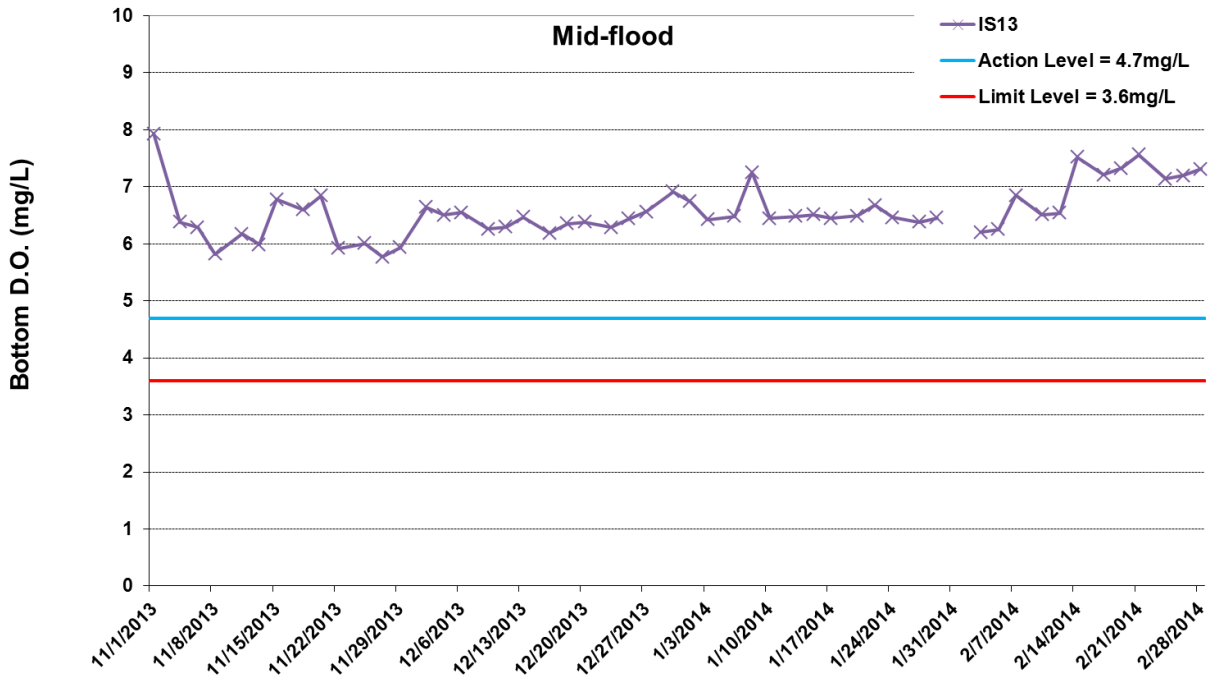

Figure H20 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at IS13. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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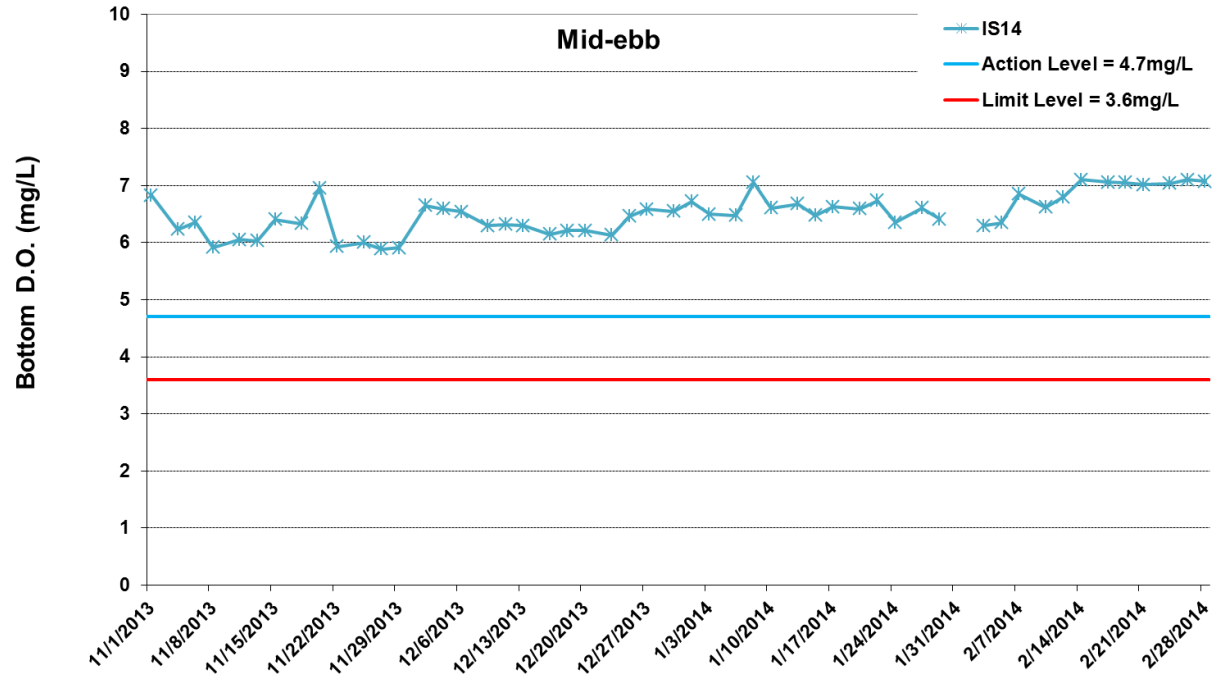

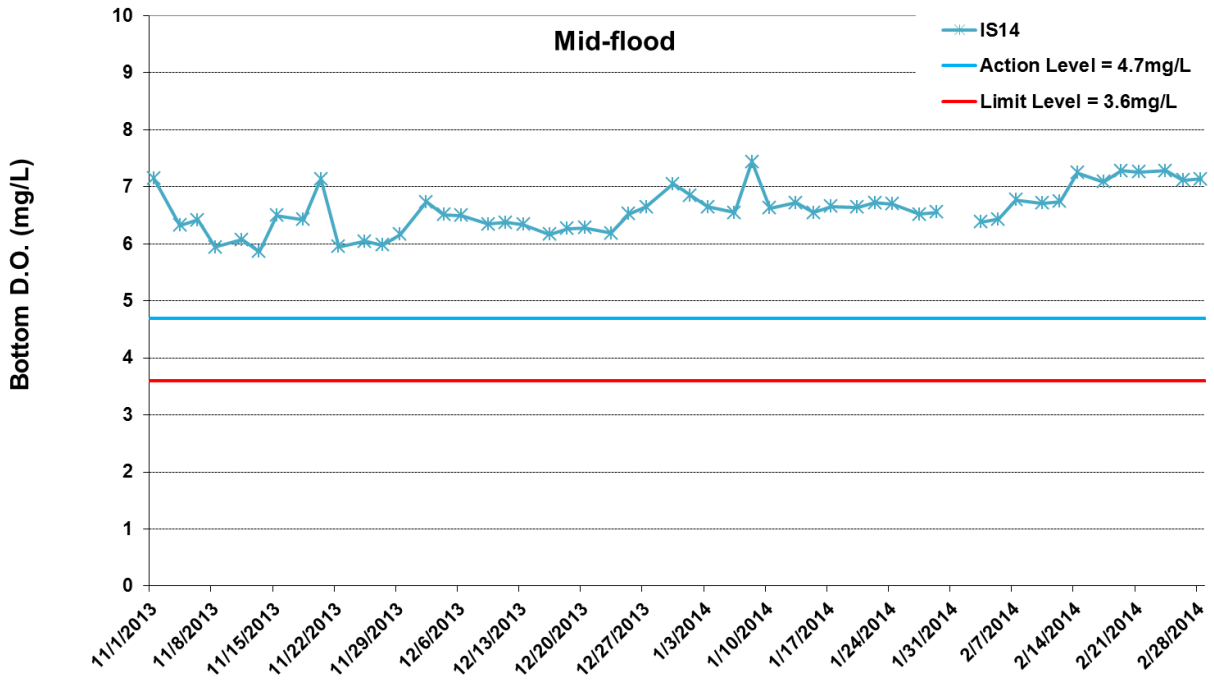

Figure H21 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at IS14. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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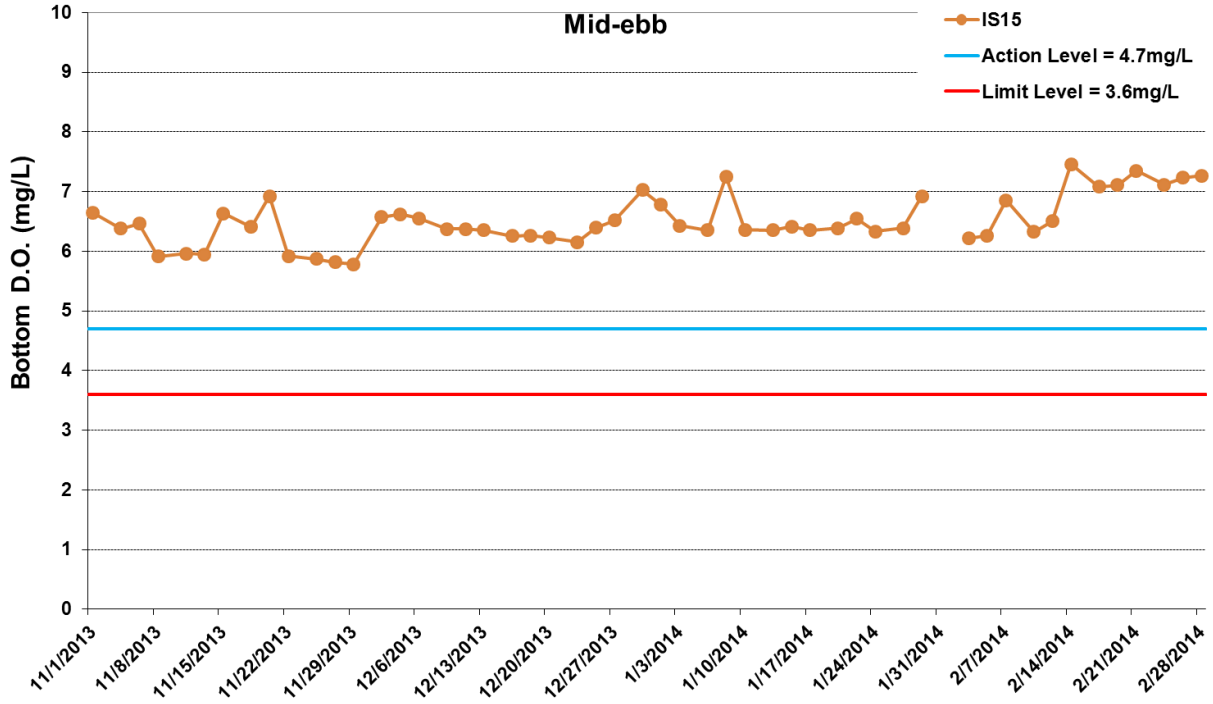

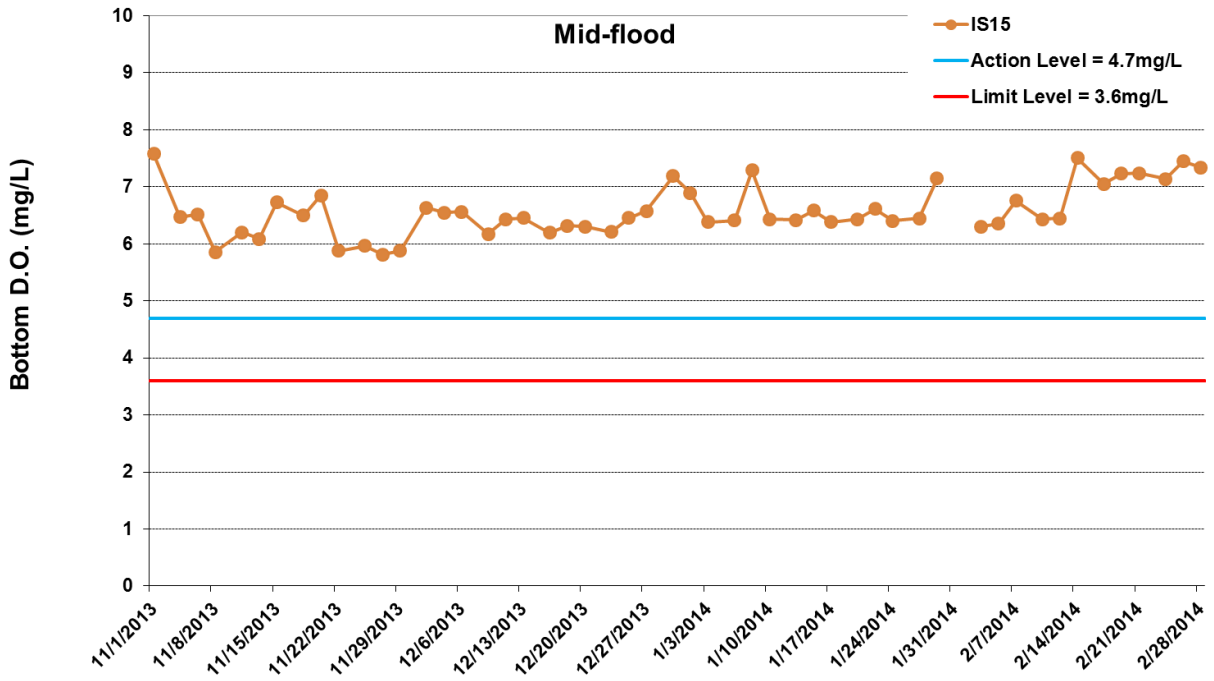

Figure H22 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at IS15. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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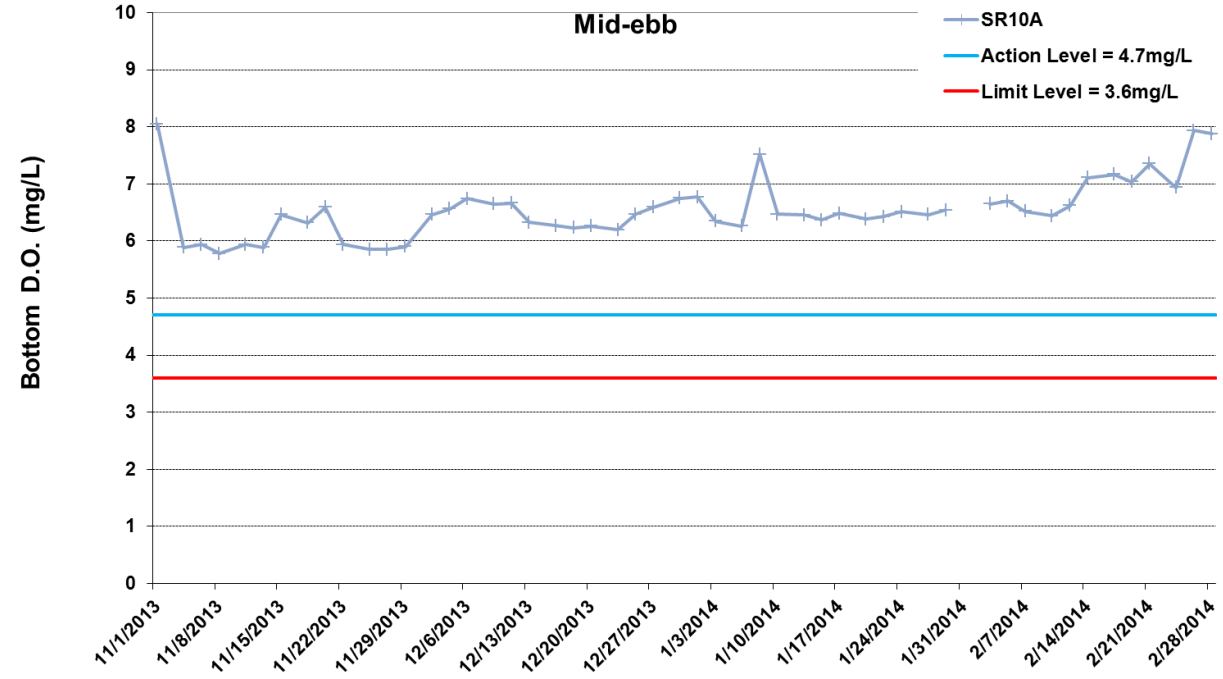

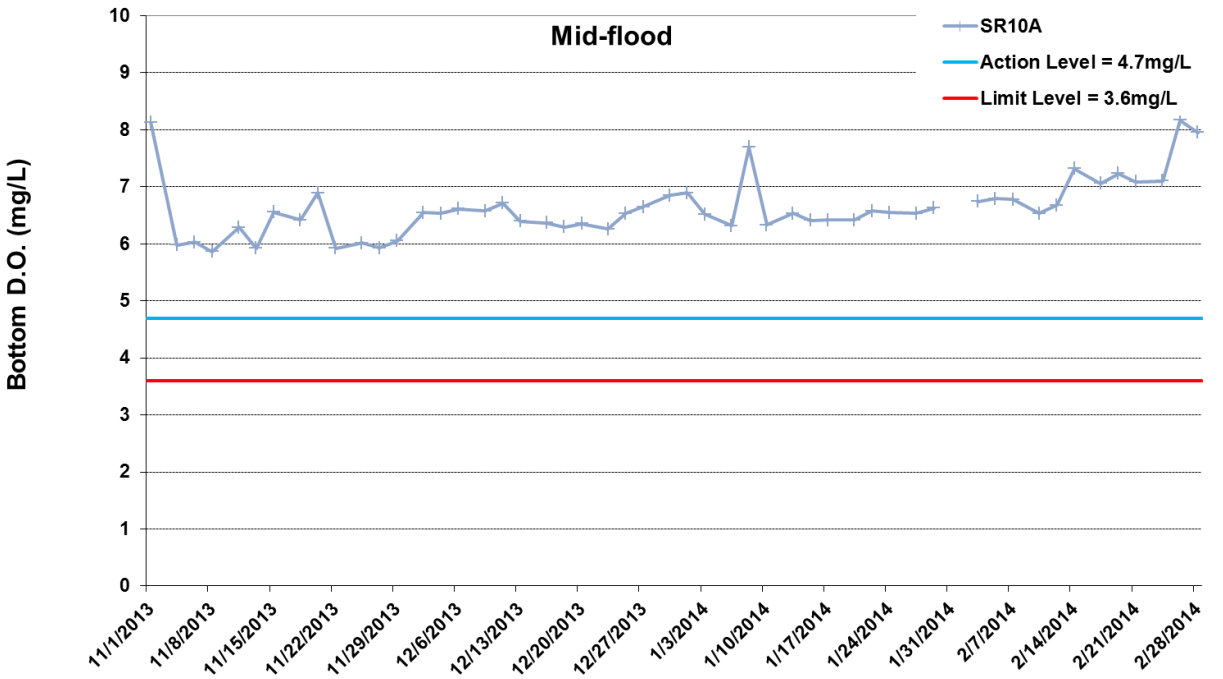

Figure H23 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at SR10A. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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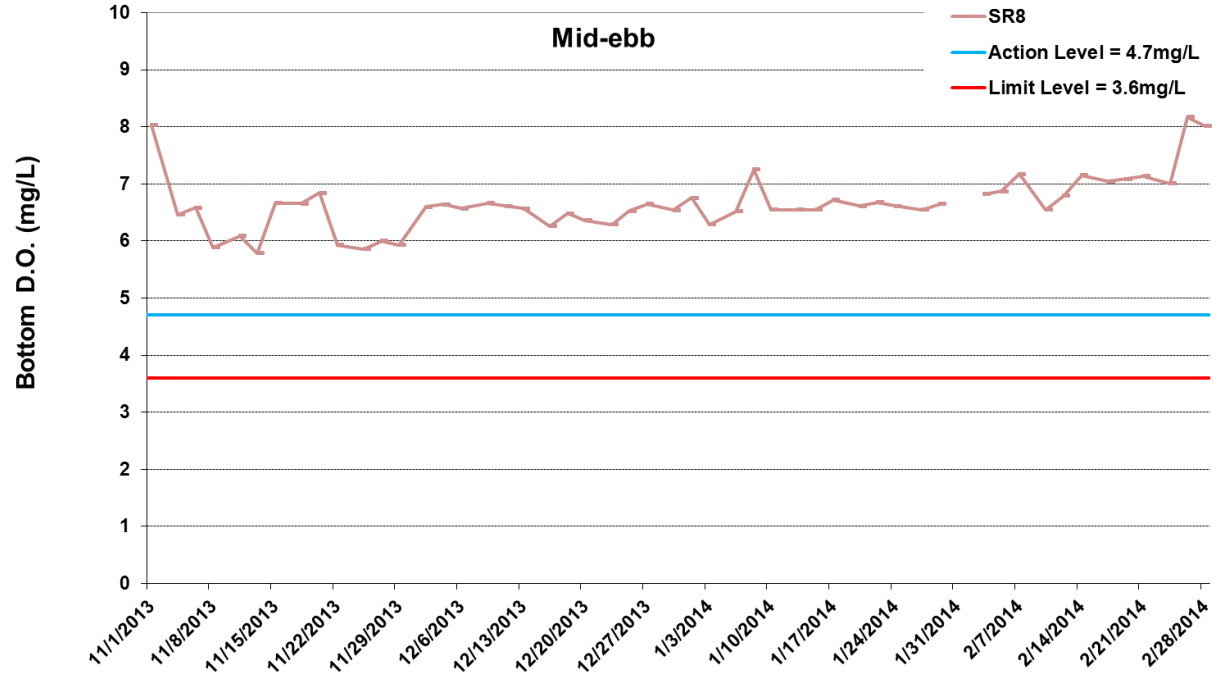


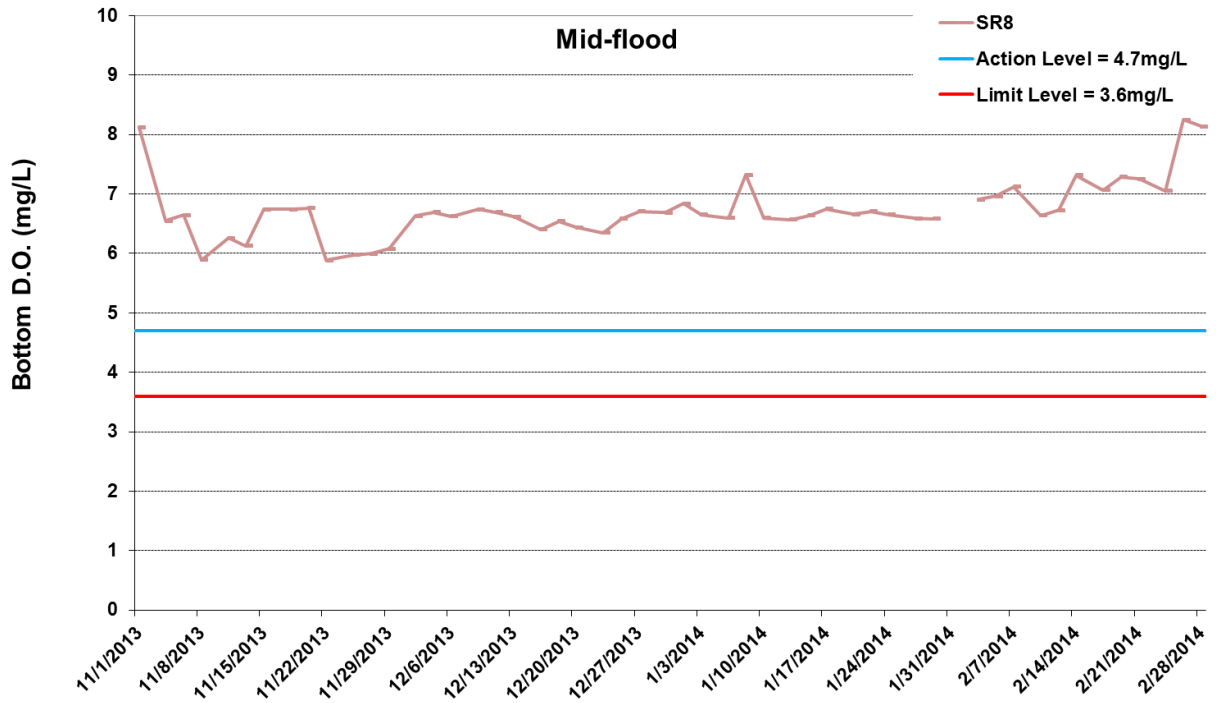
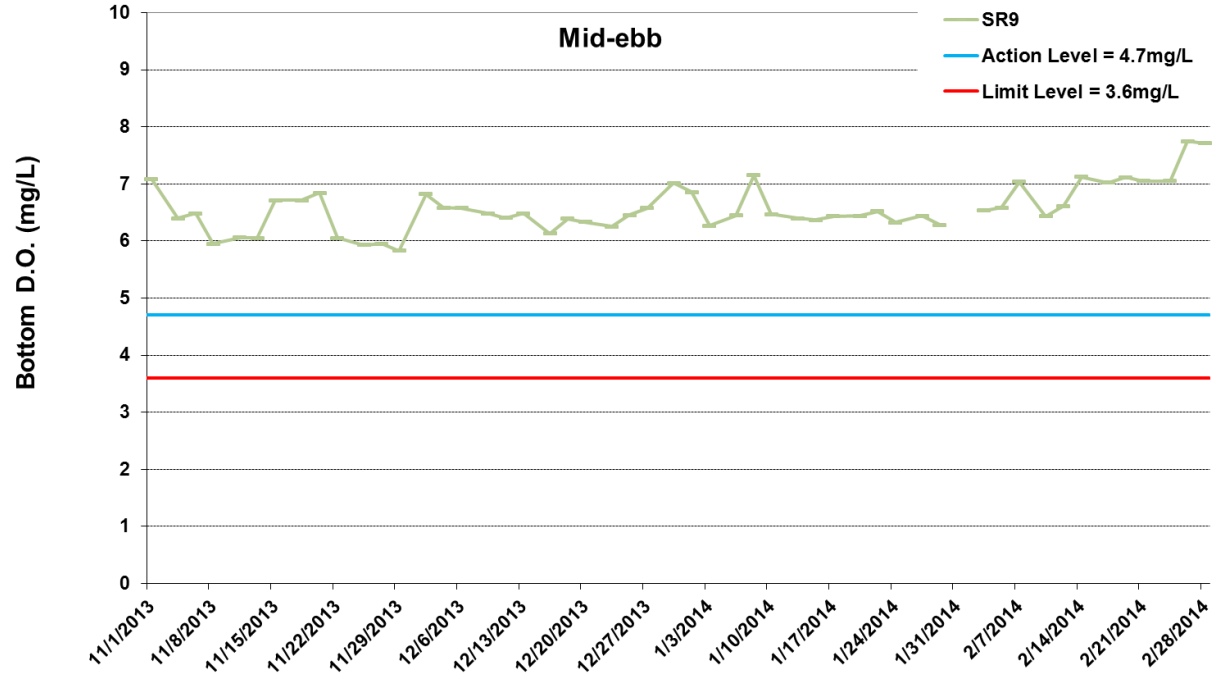


Figure H24 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at SR8. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



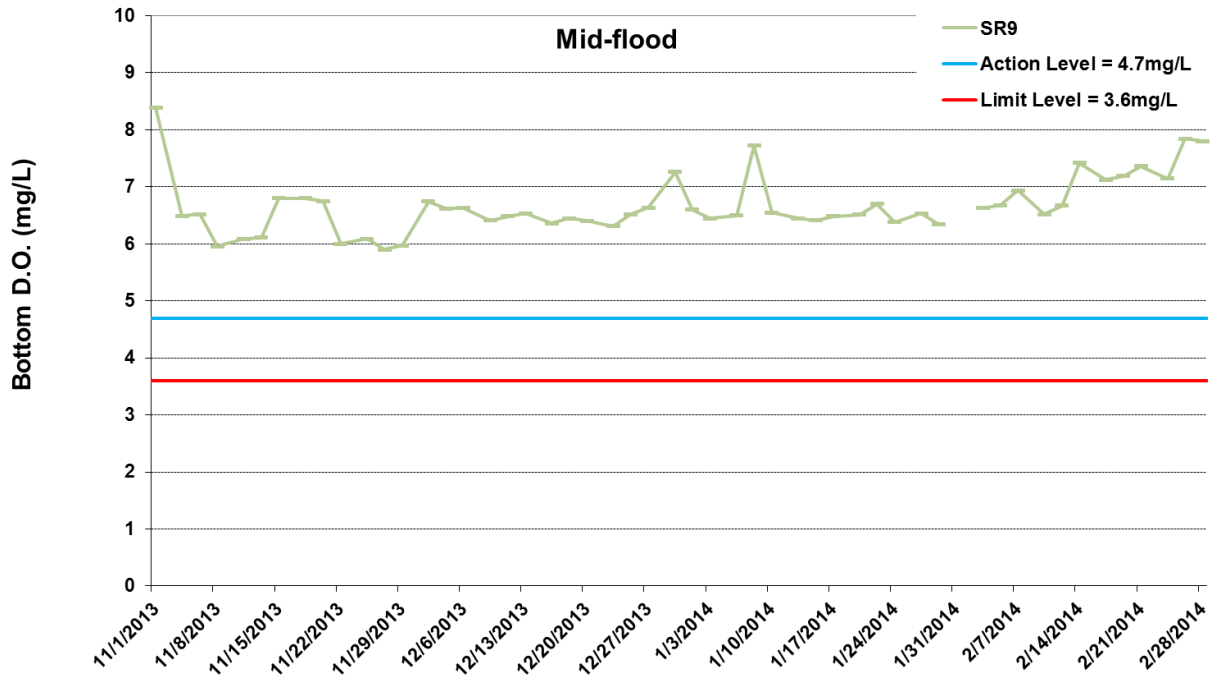
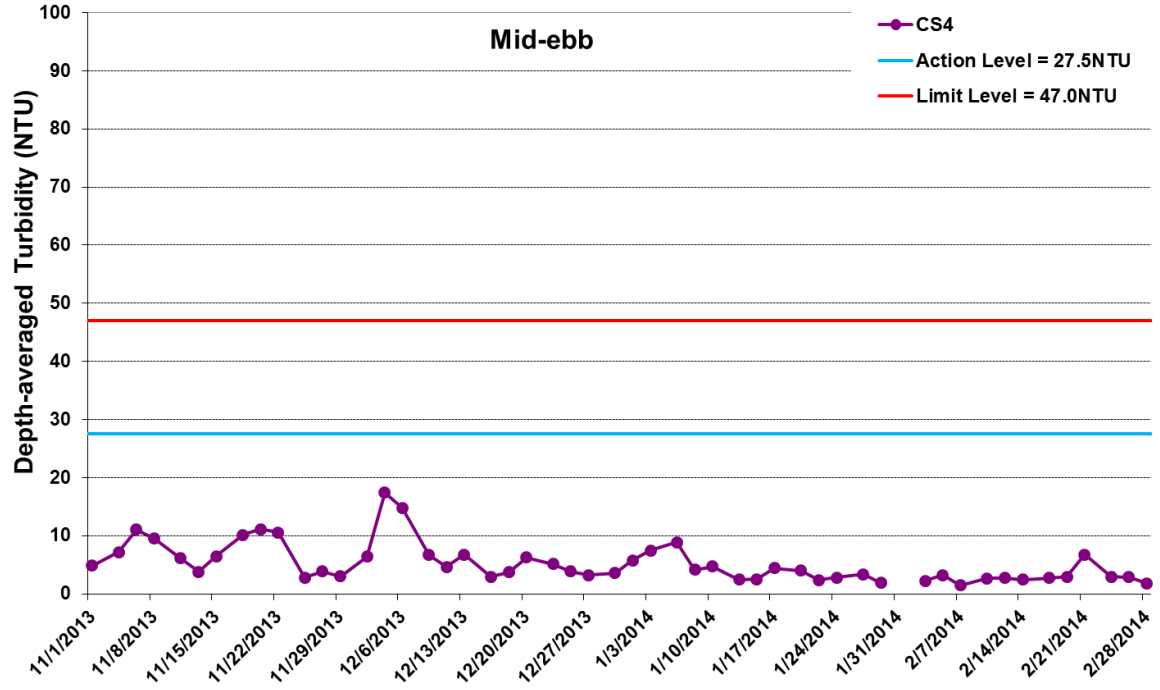


Figure H25 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 November 2013 and 28 February 2014 at SR9. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



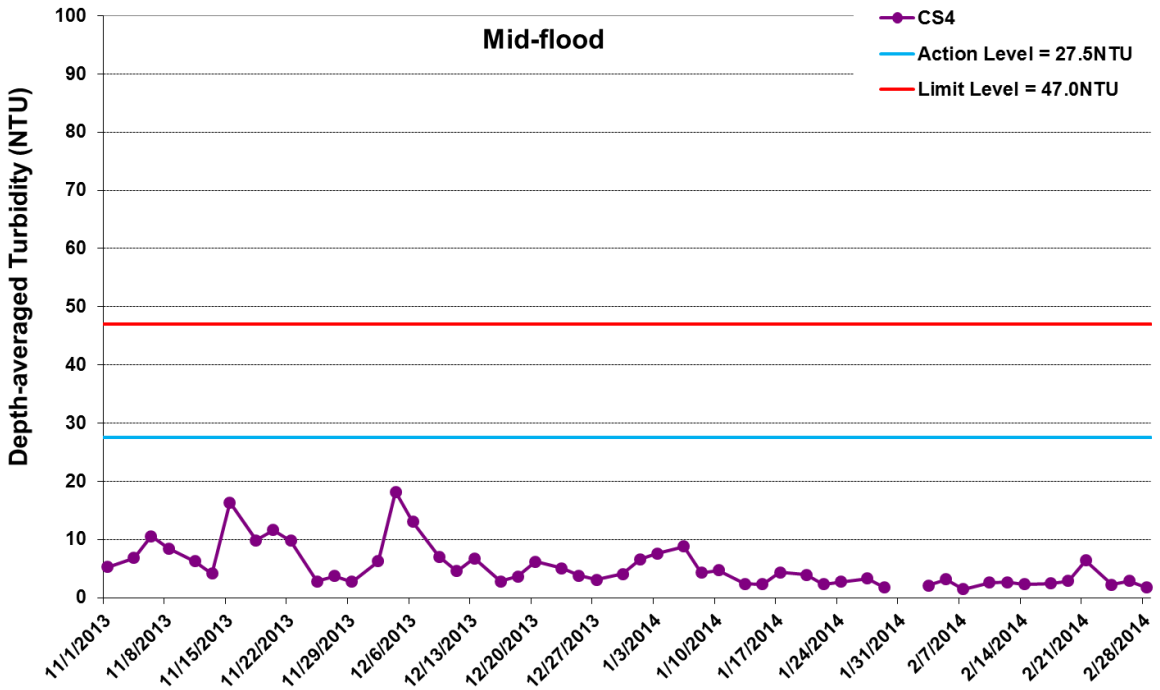
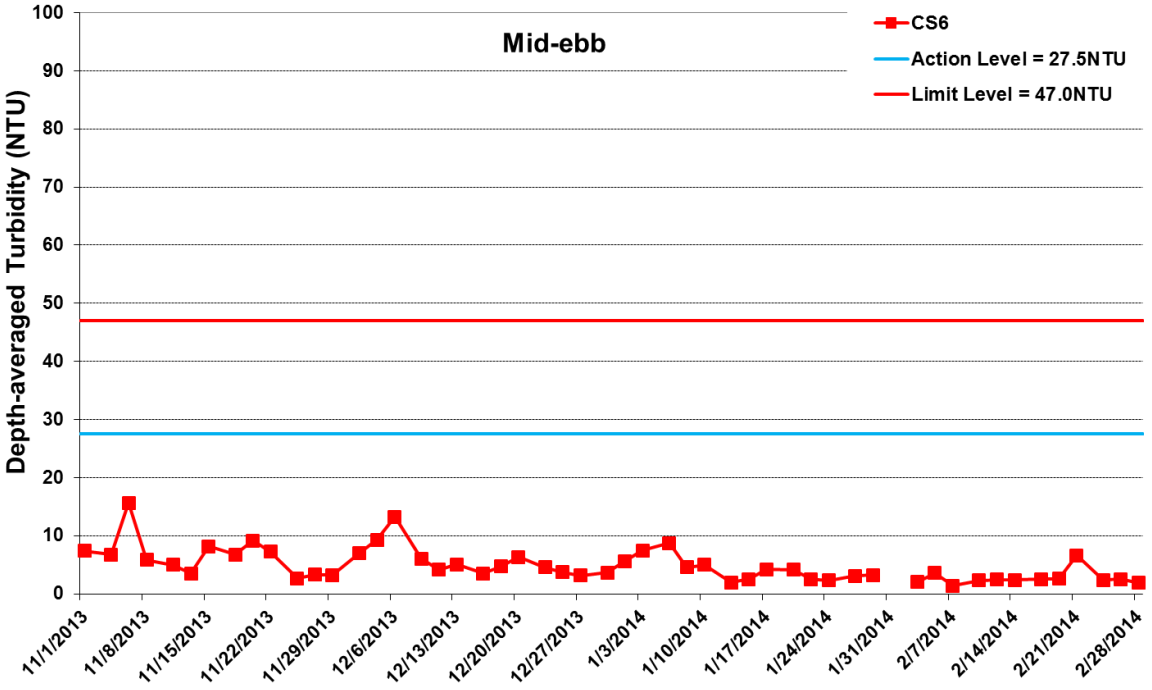


Figure H26 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at CS4. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



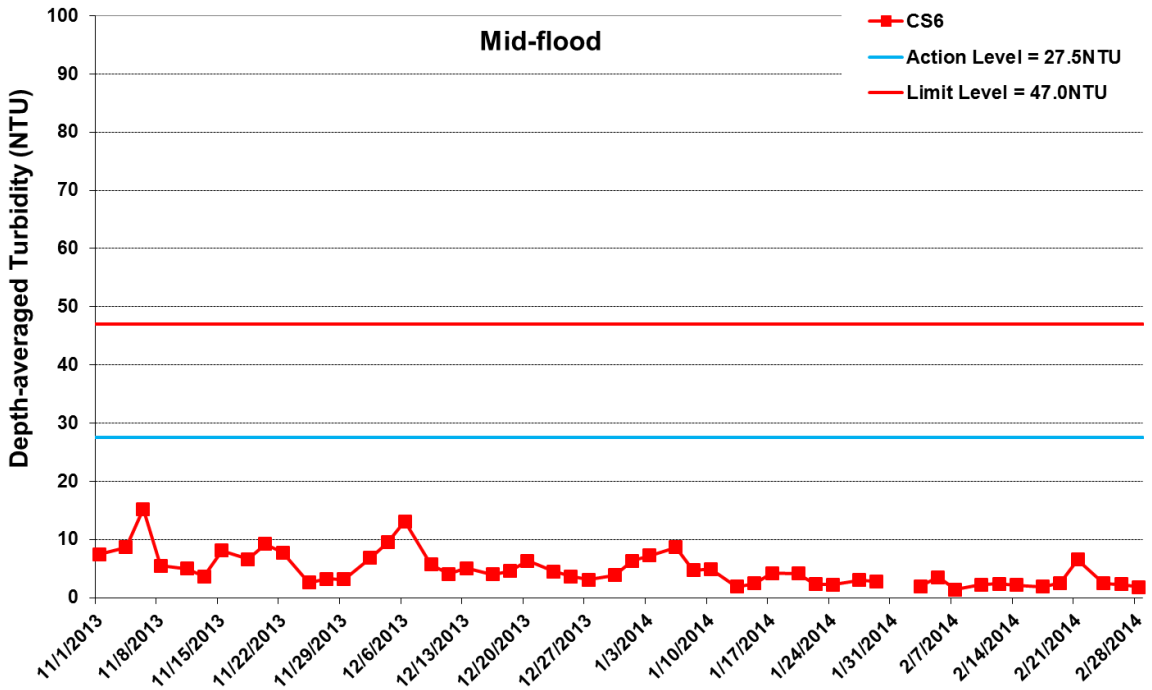
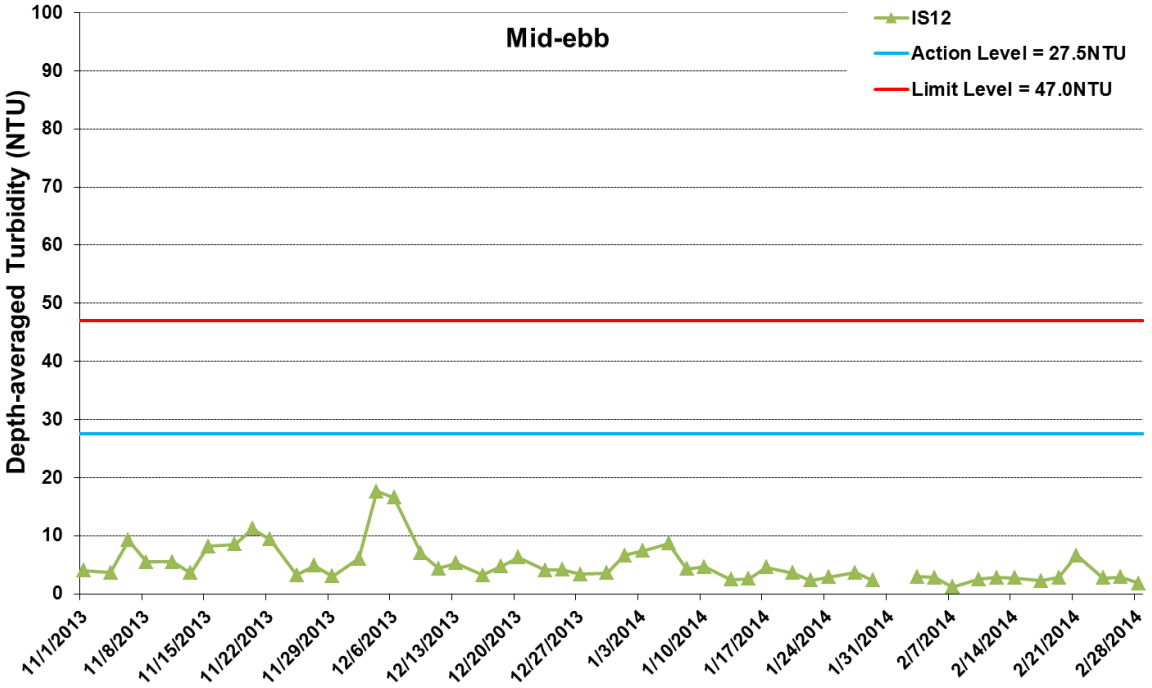


Figure H27 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at CS6. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



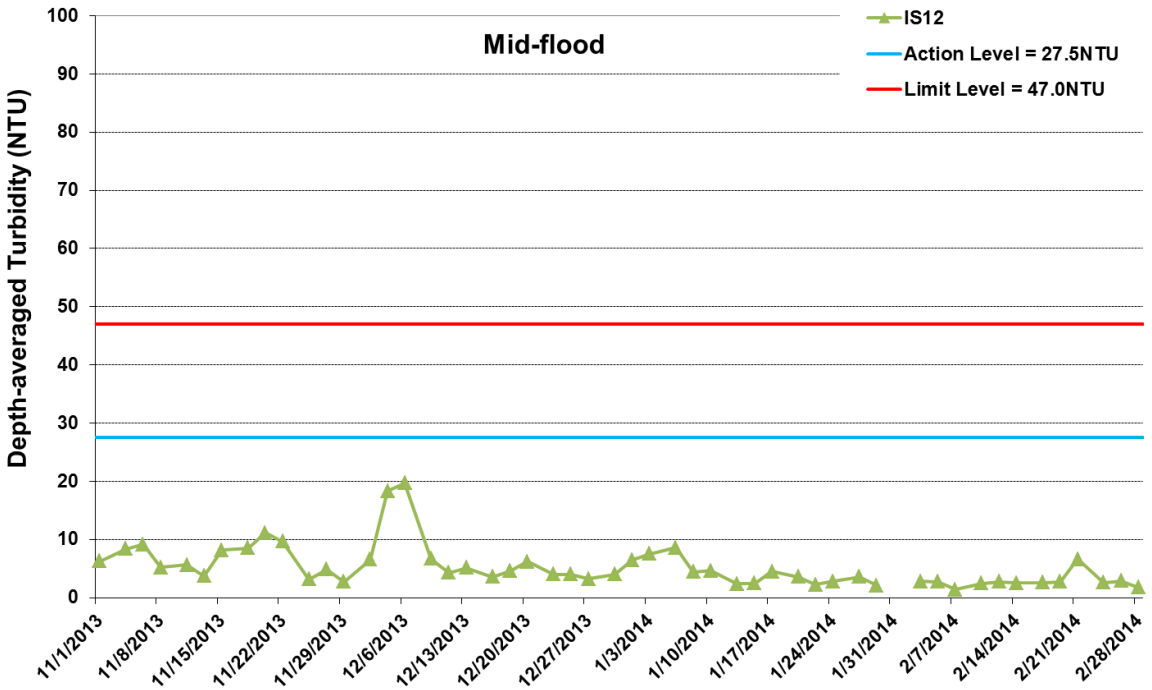
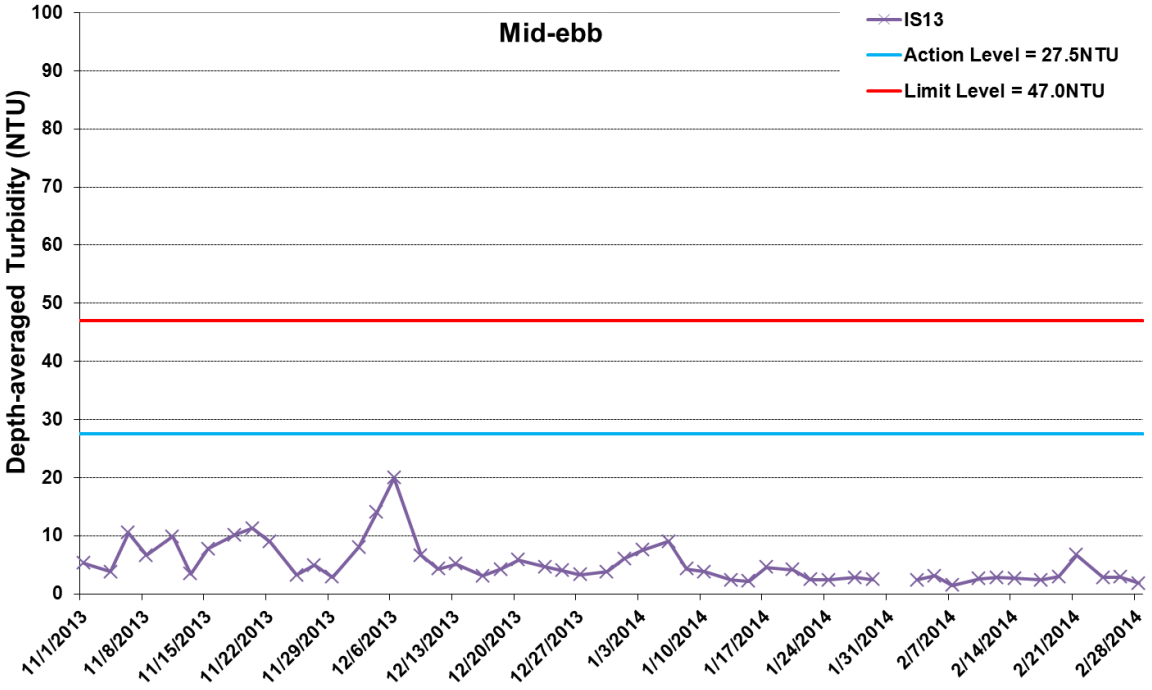


Figure H28 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at IS12. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



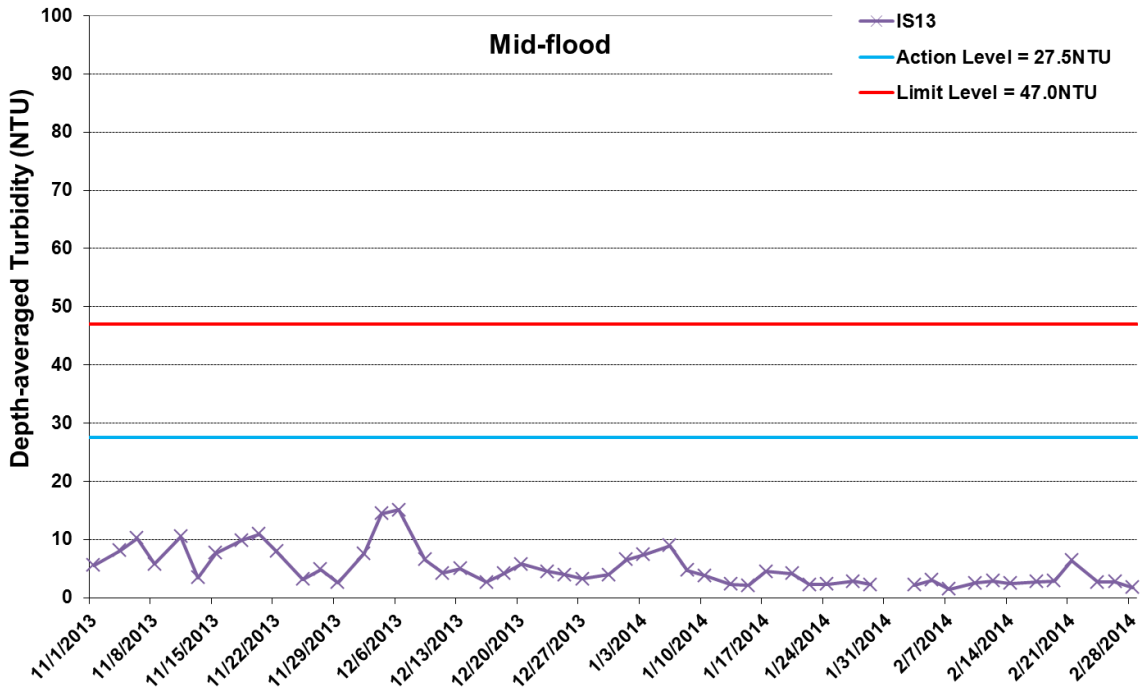


Figure H29 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at IS13. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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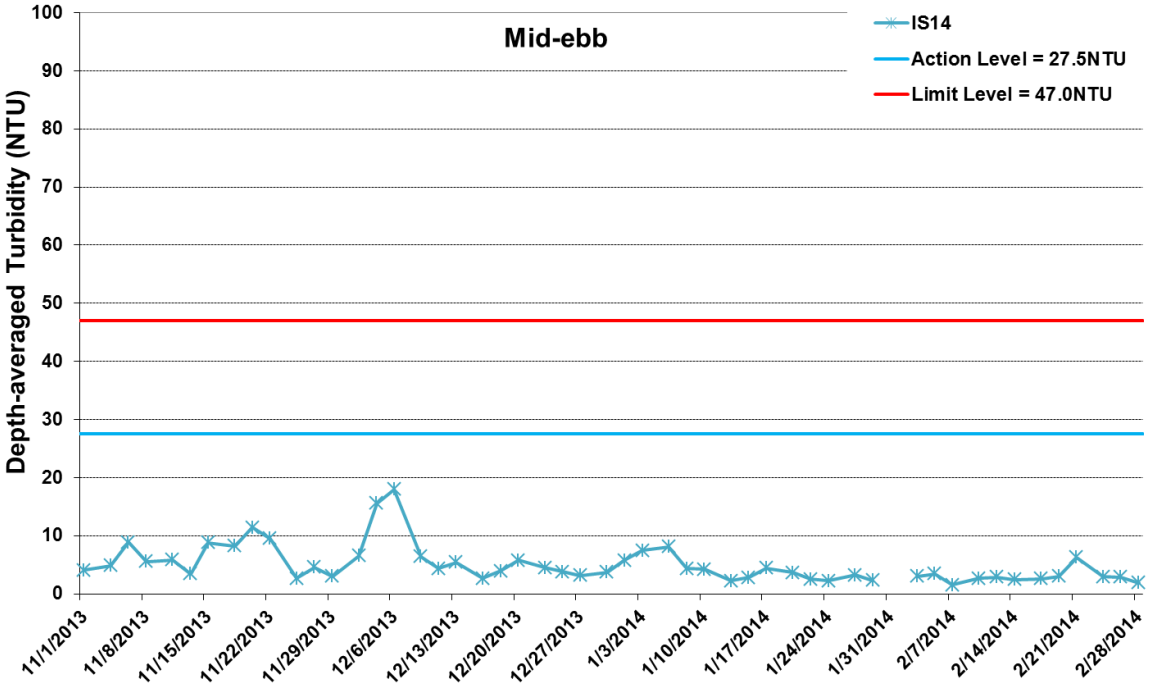

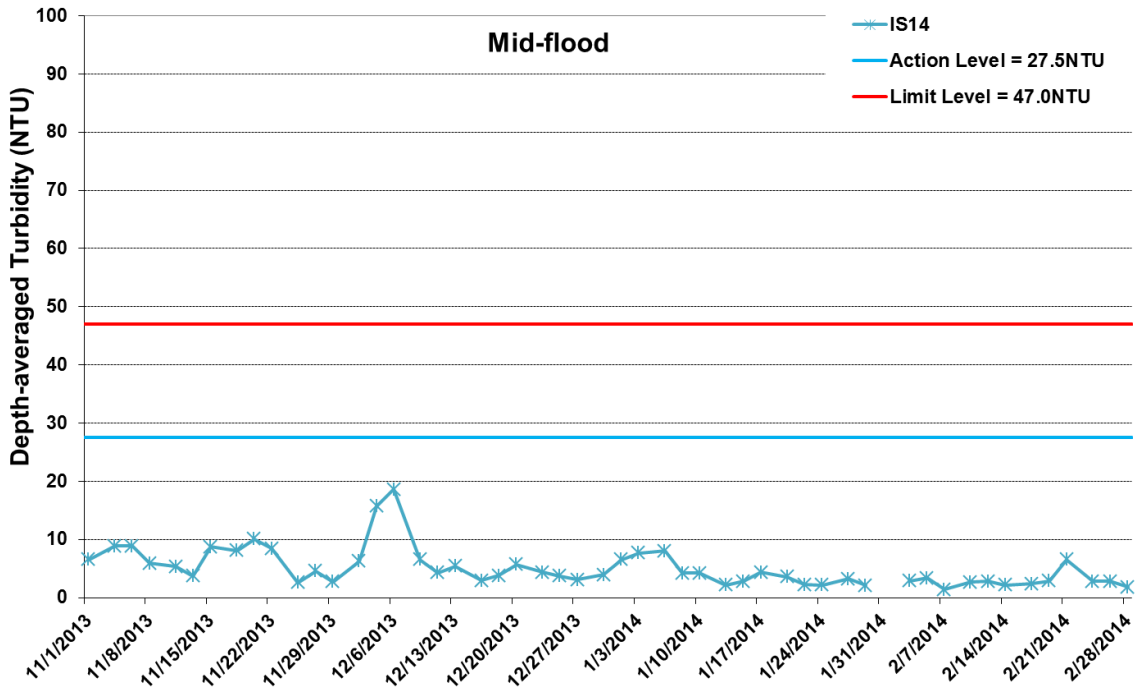

Figure H30 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at IS14. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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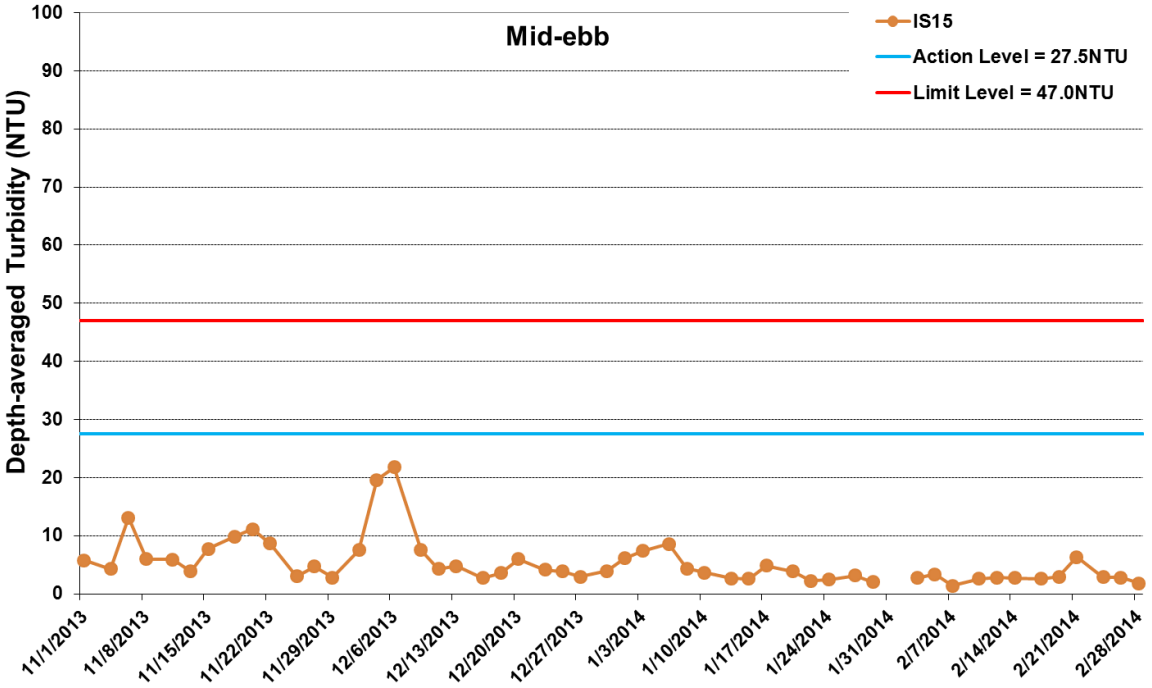

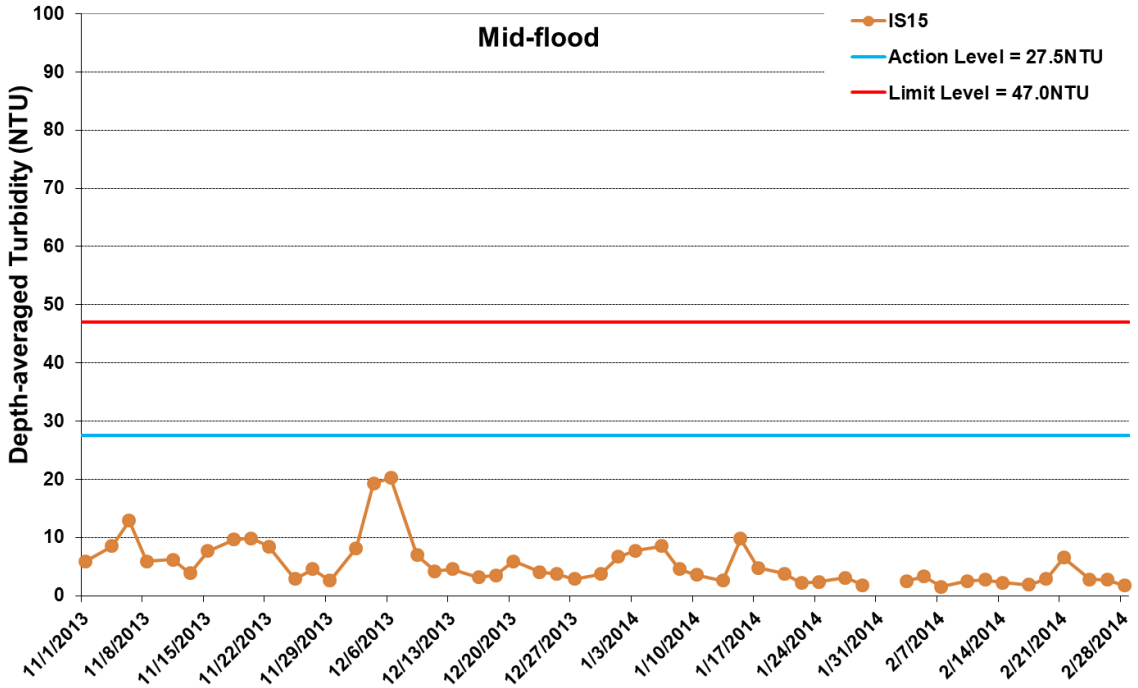

Figure H31 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at IS15. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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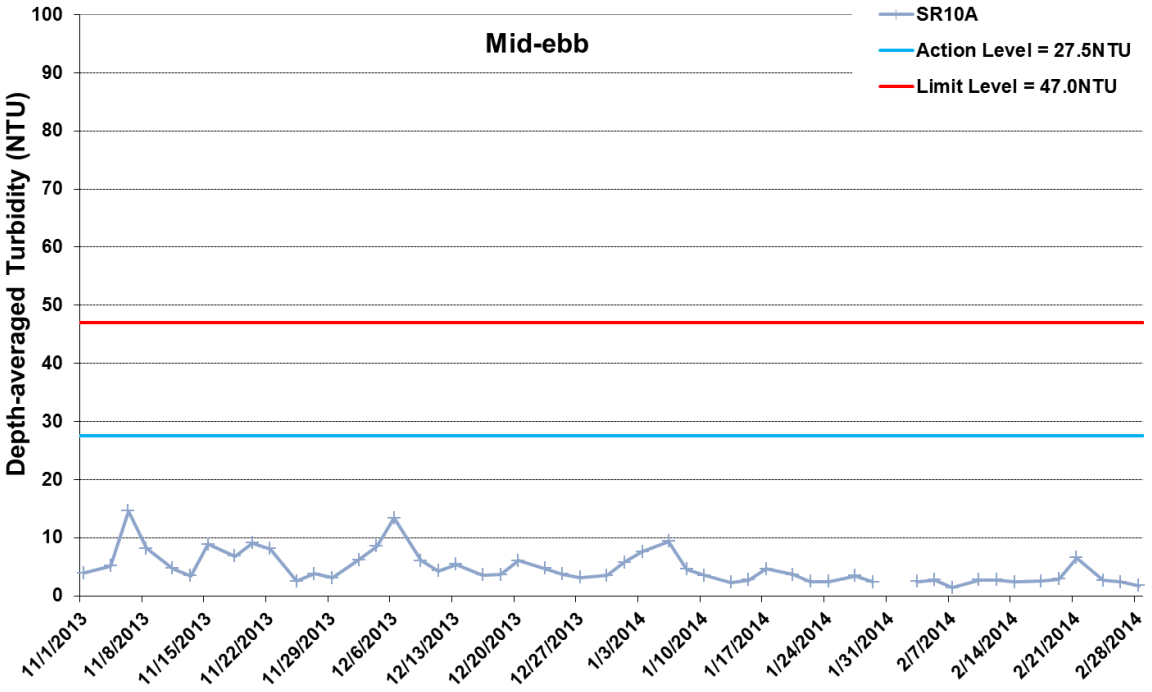

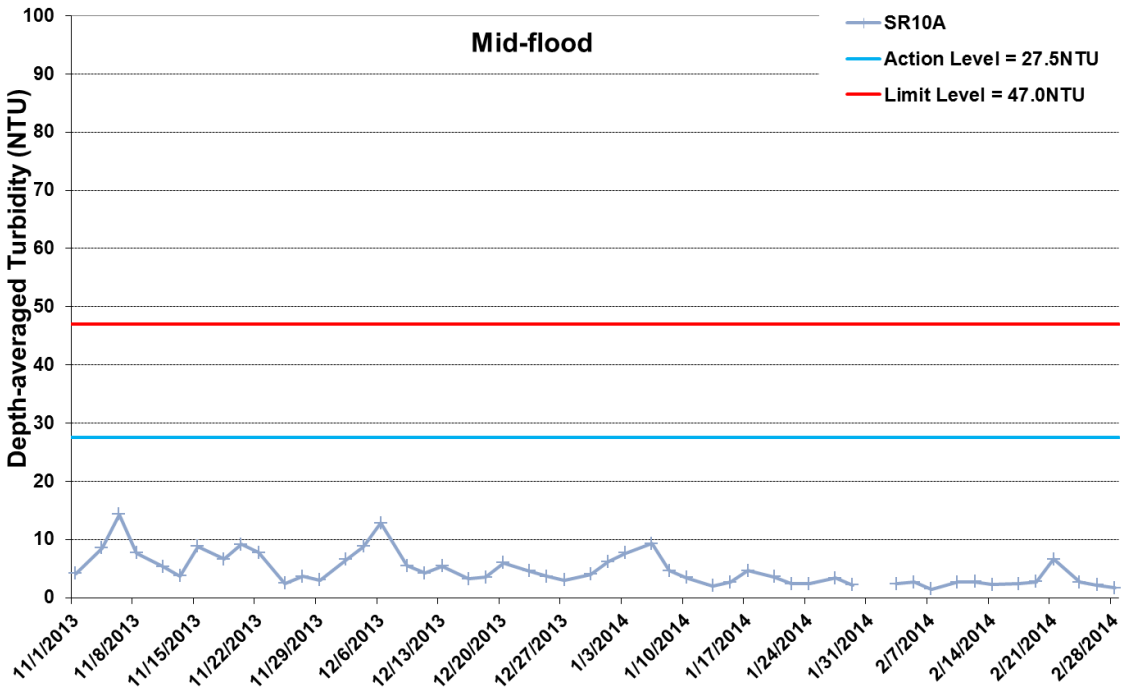

Figure H32 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at SR10A. The weather conditions during the monitoring period varied from sunny to cloudy. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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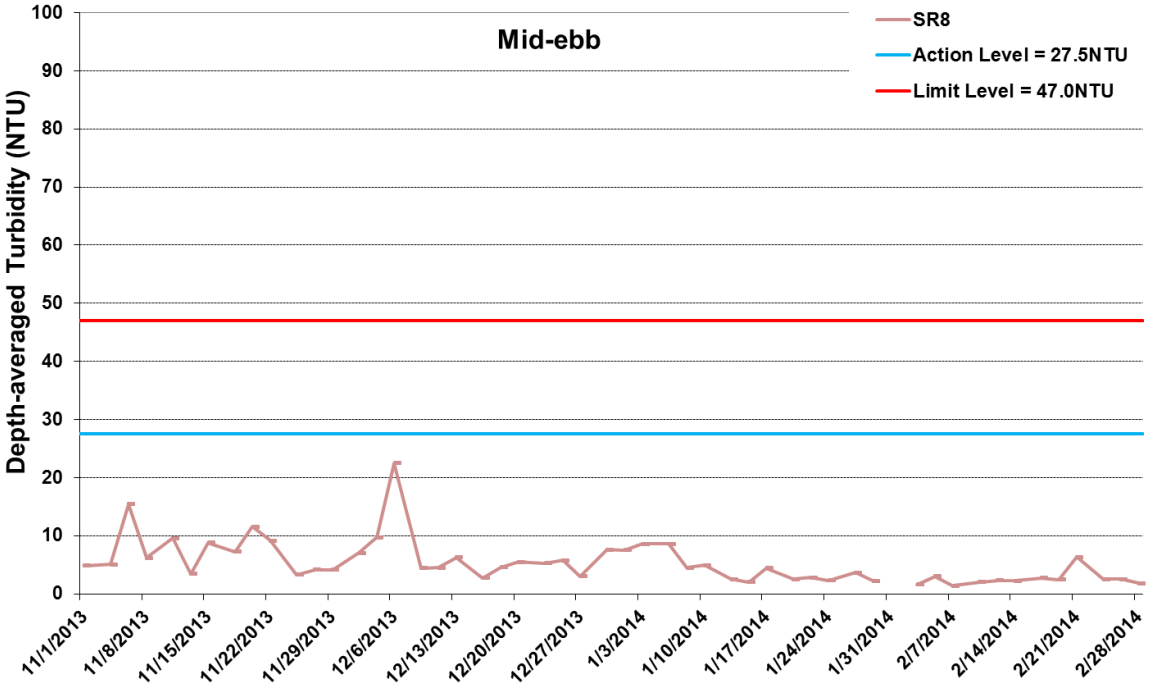

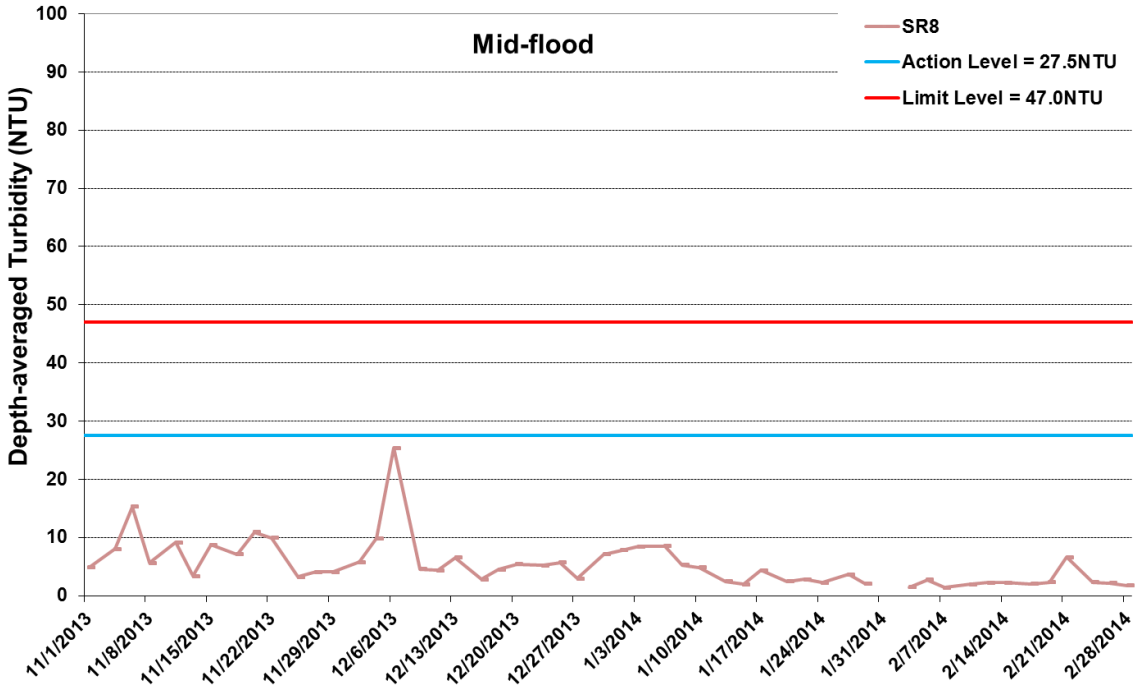

Figure H33 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at SR8. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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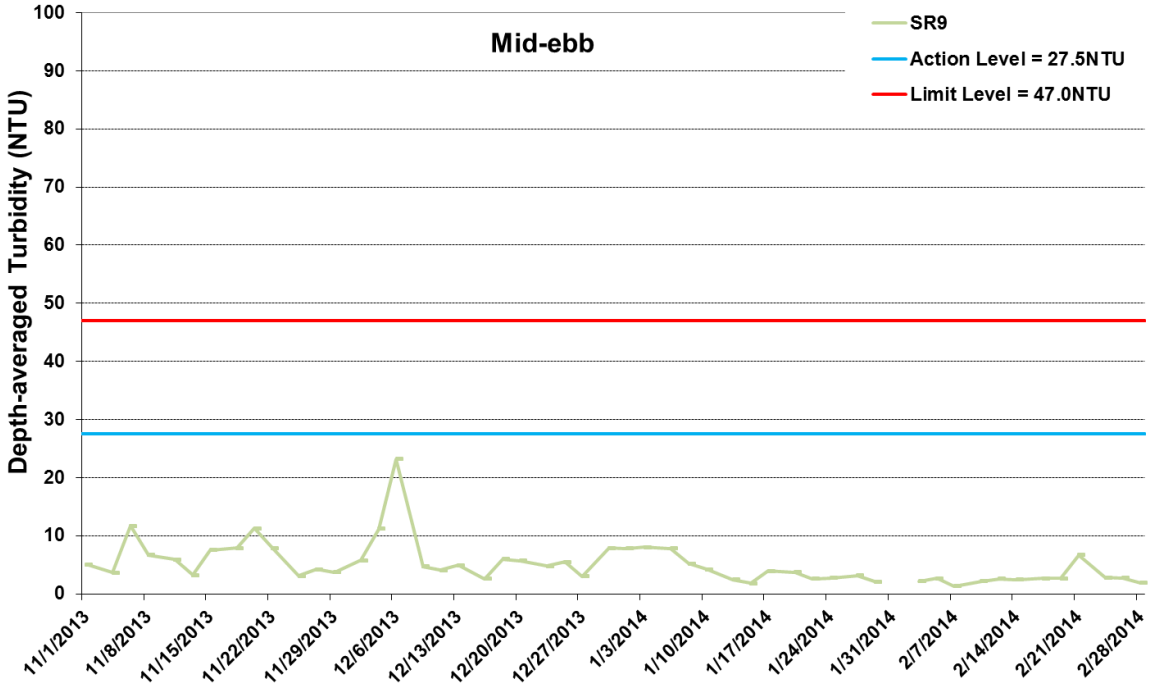

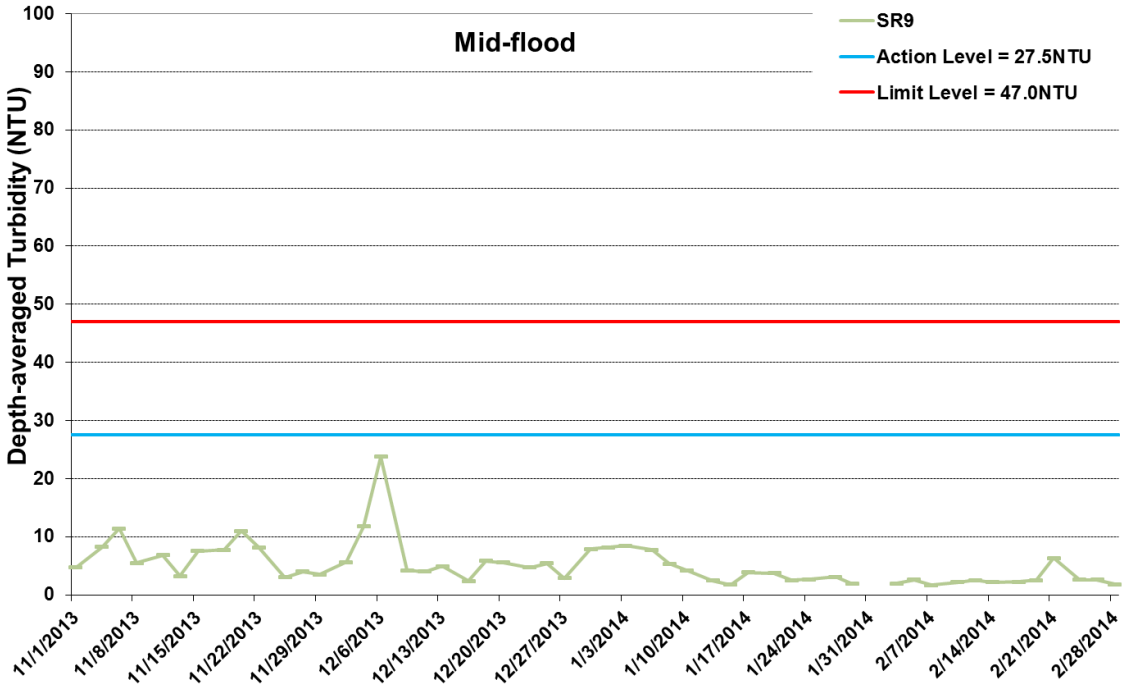

Figure H34 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 November 2013 and 28 February 2014 at SR9. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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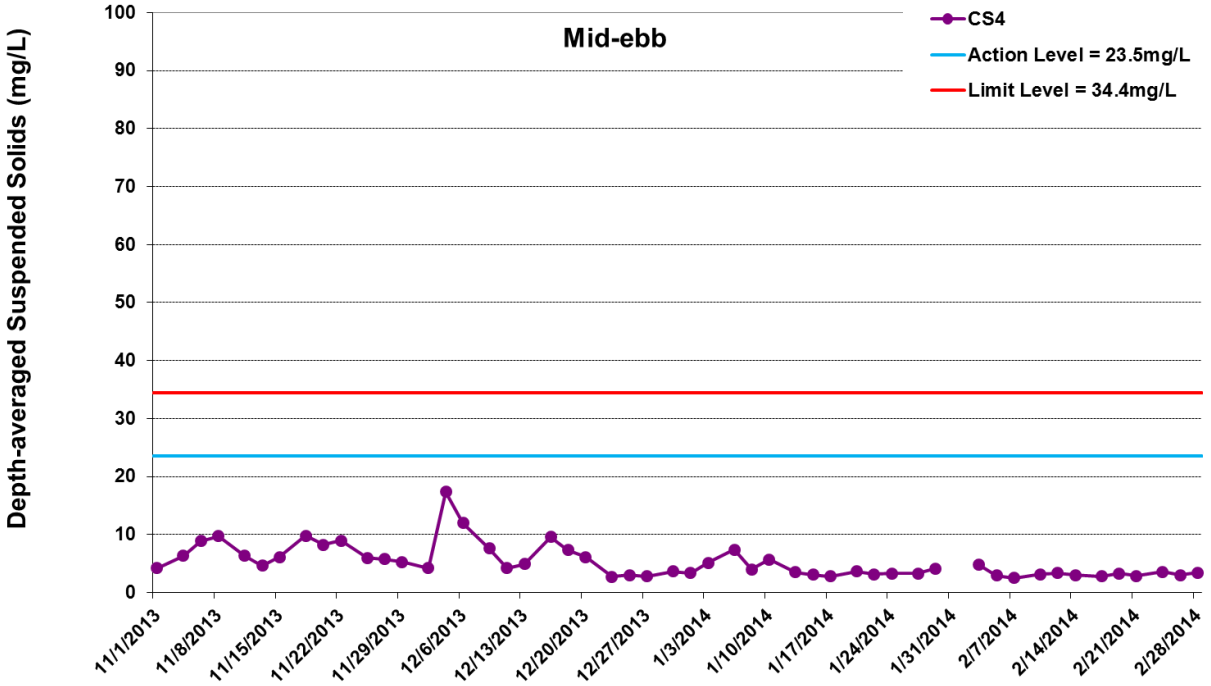

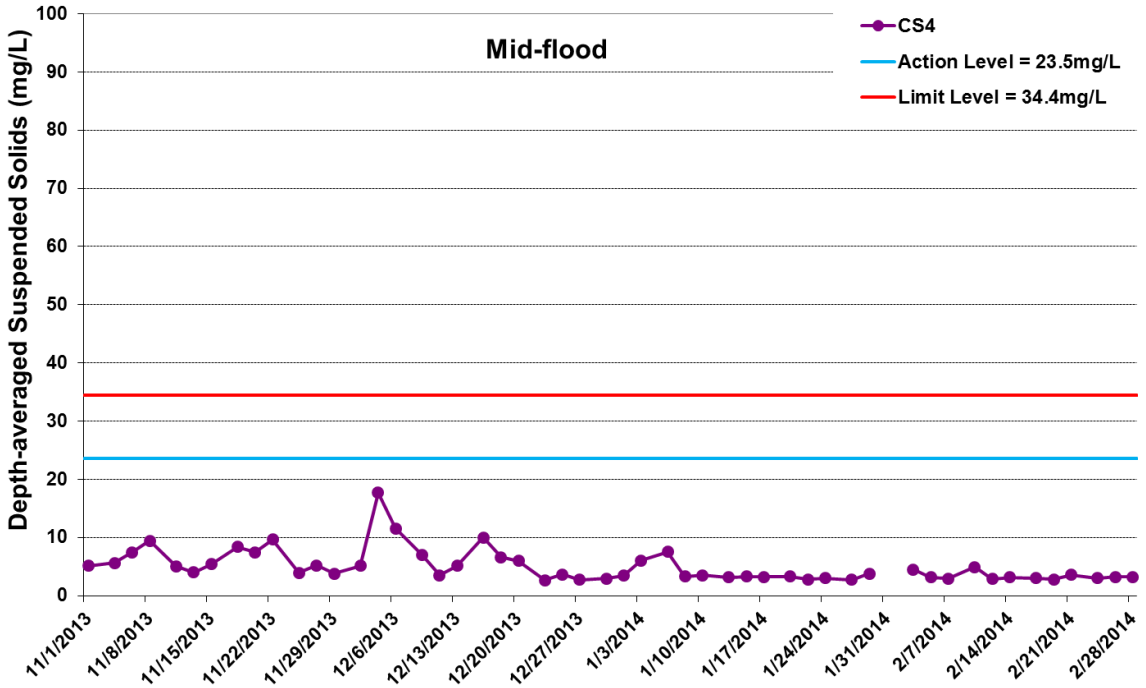

Figure H35 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at CS4. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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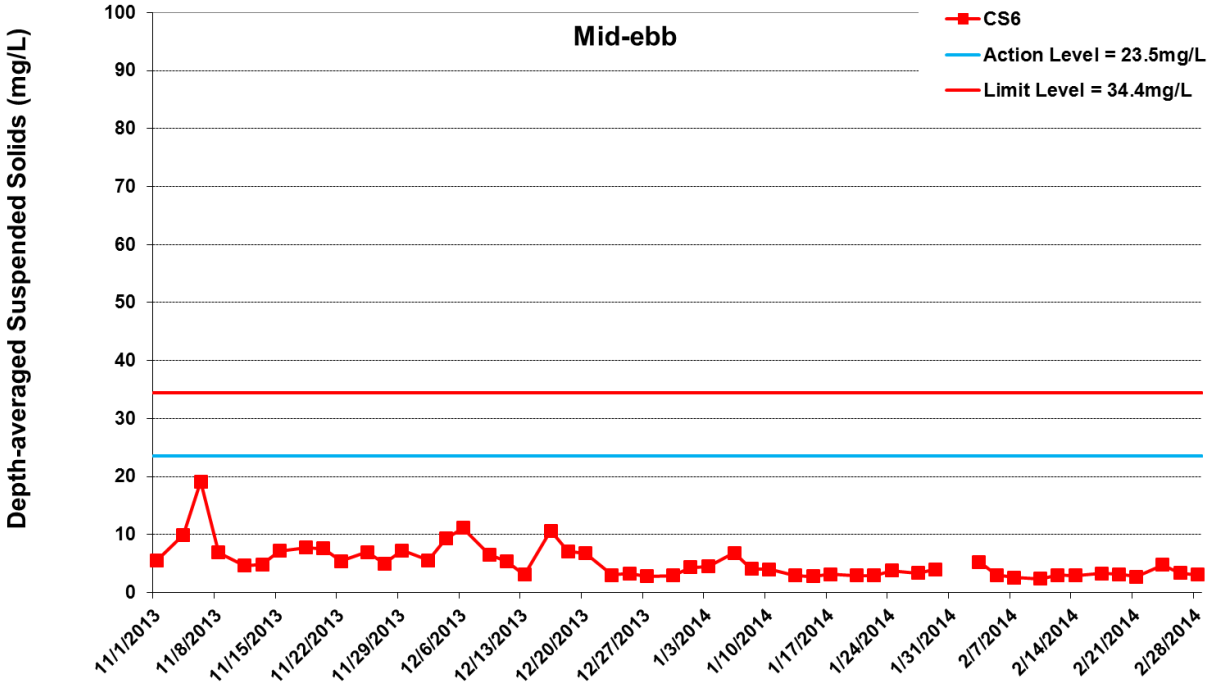

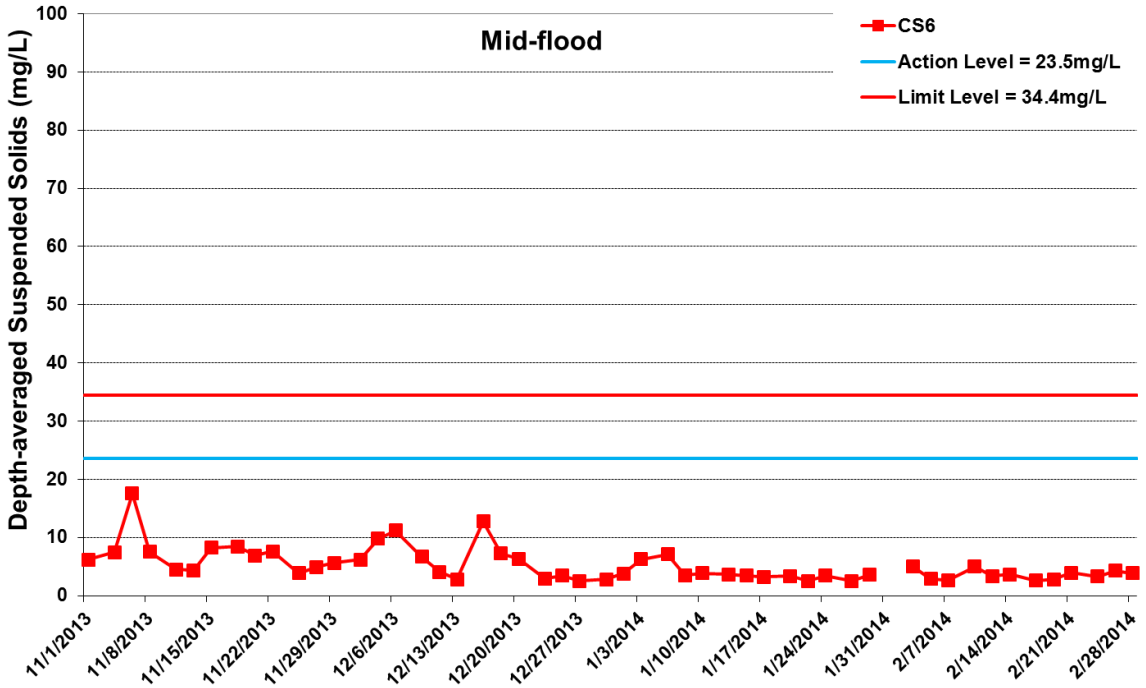

Figure H36 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at CS6. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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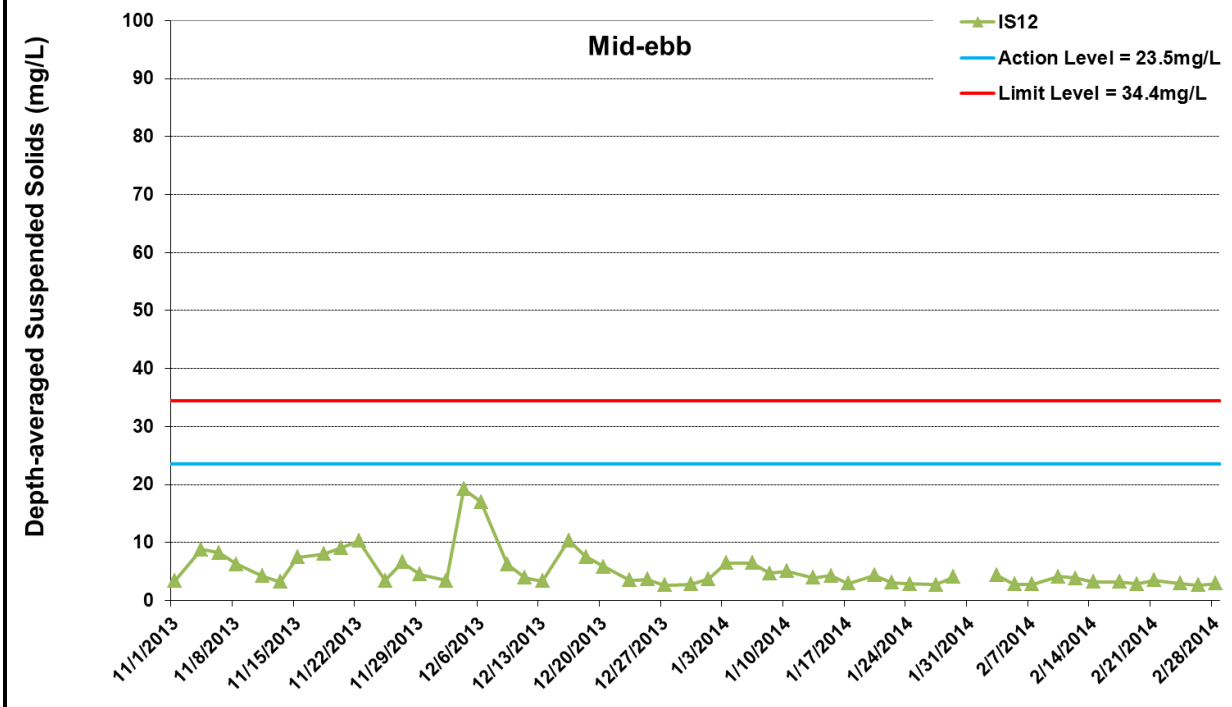

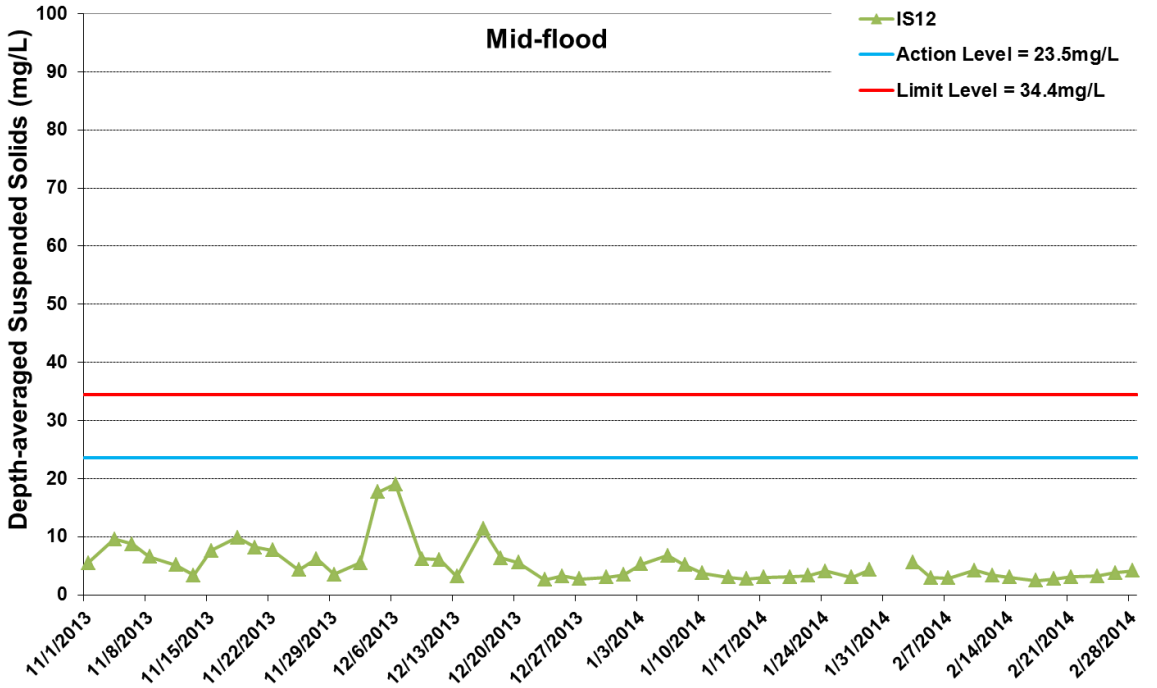

Figure H37 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at IS12. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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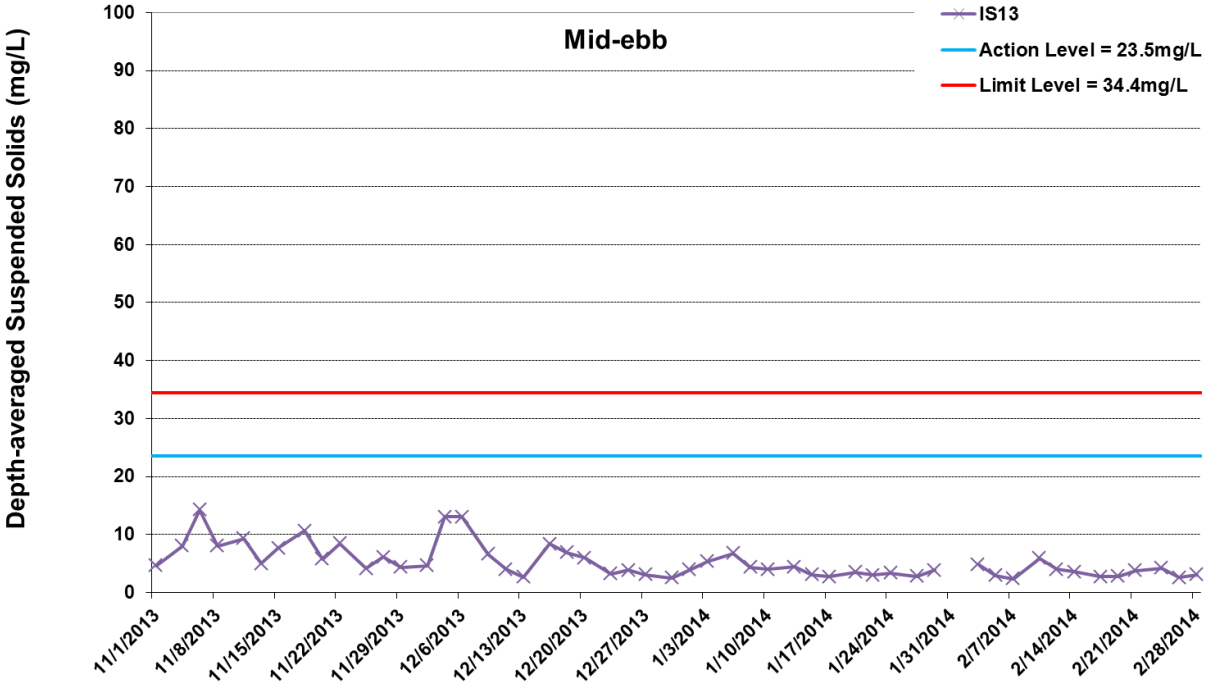

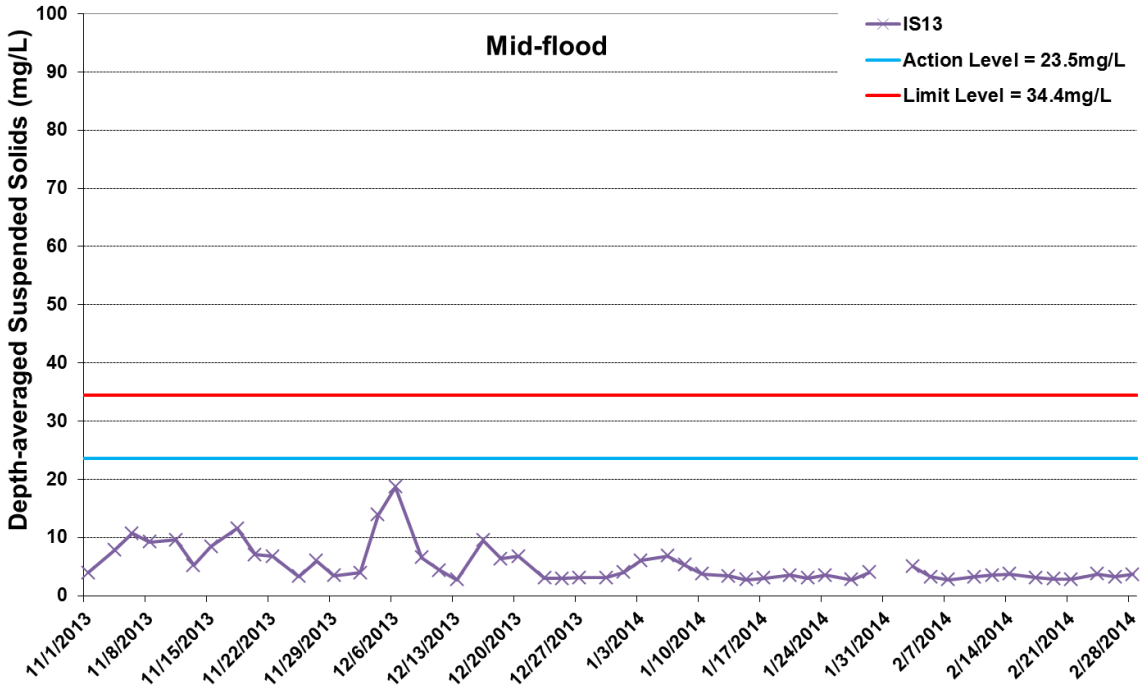

Figure H38 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at IS13. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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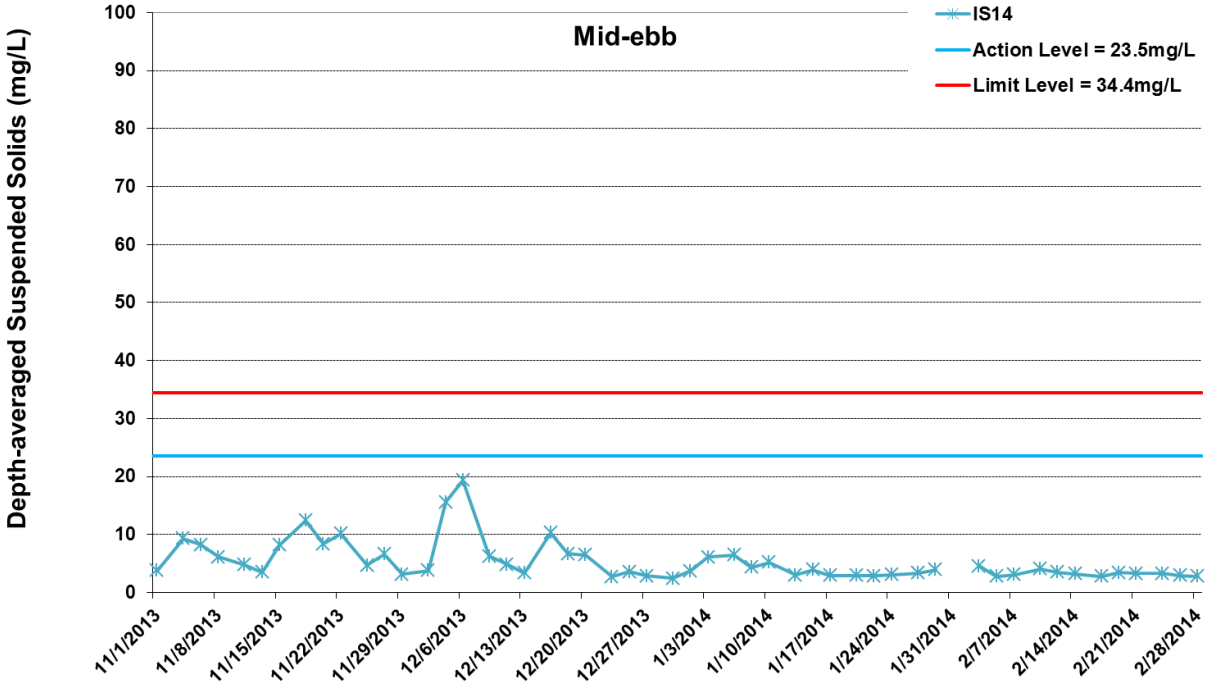

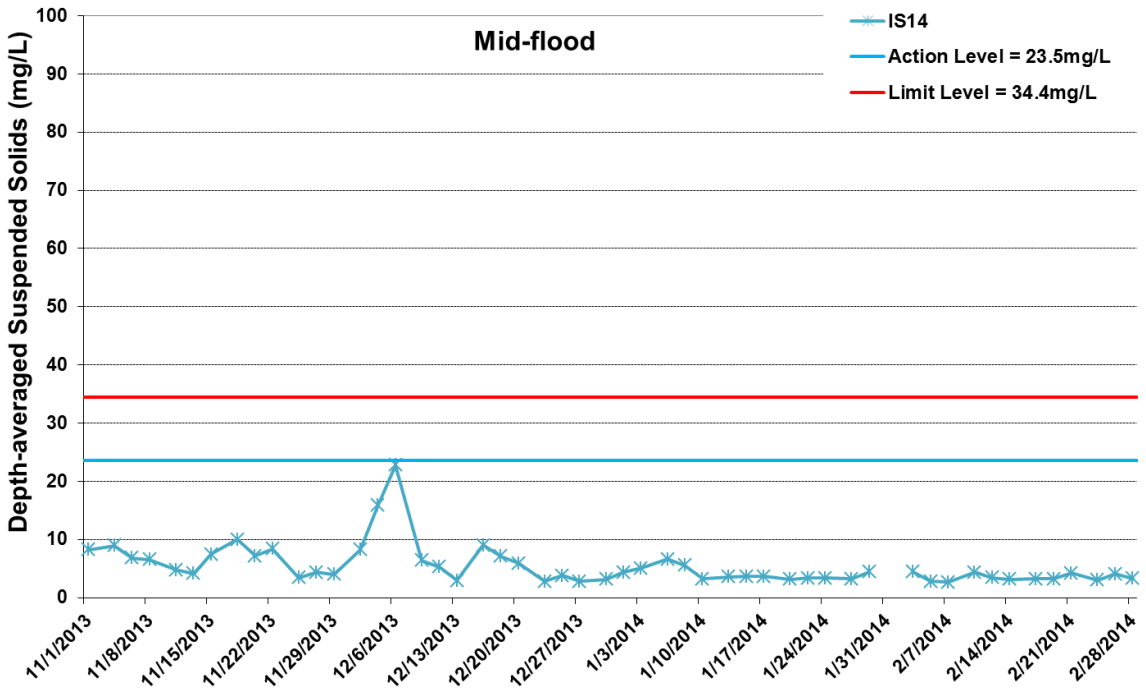

Figure H39 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at IS14. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

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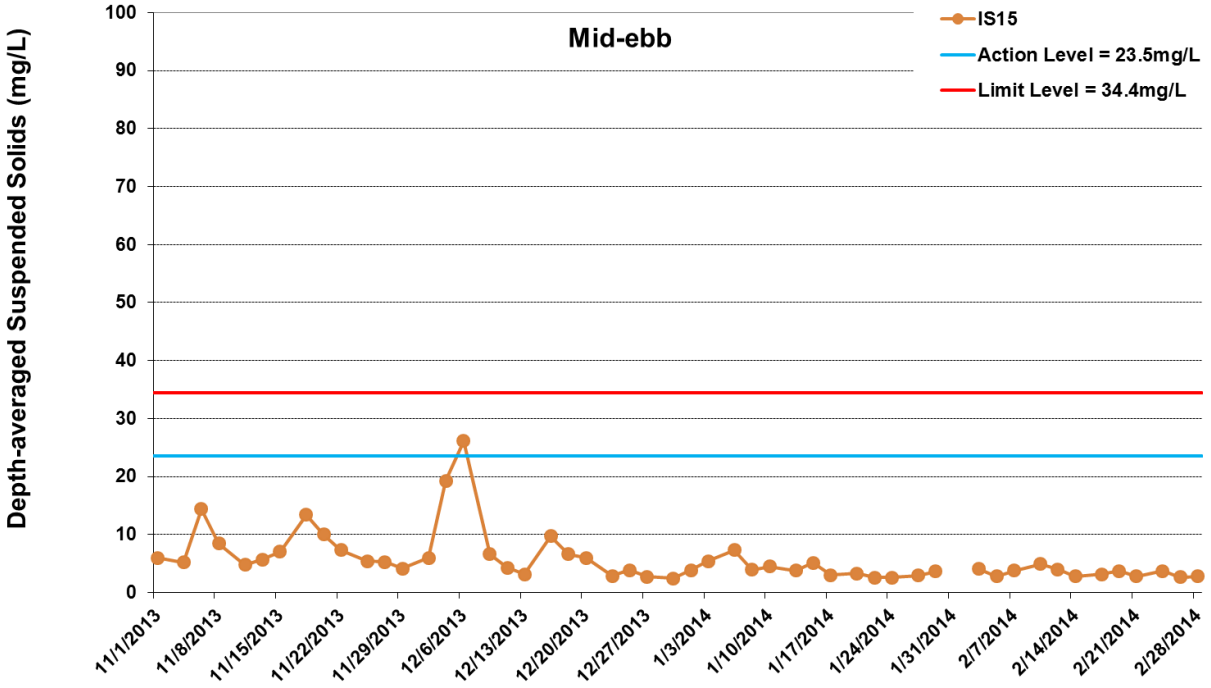


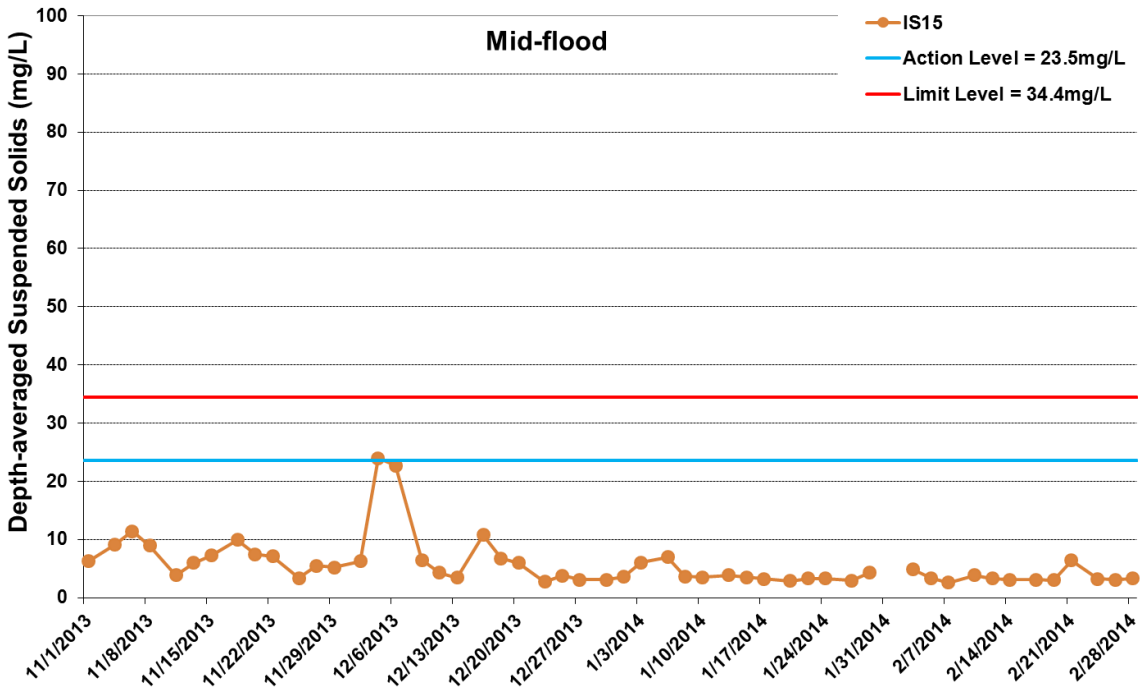
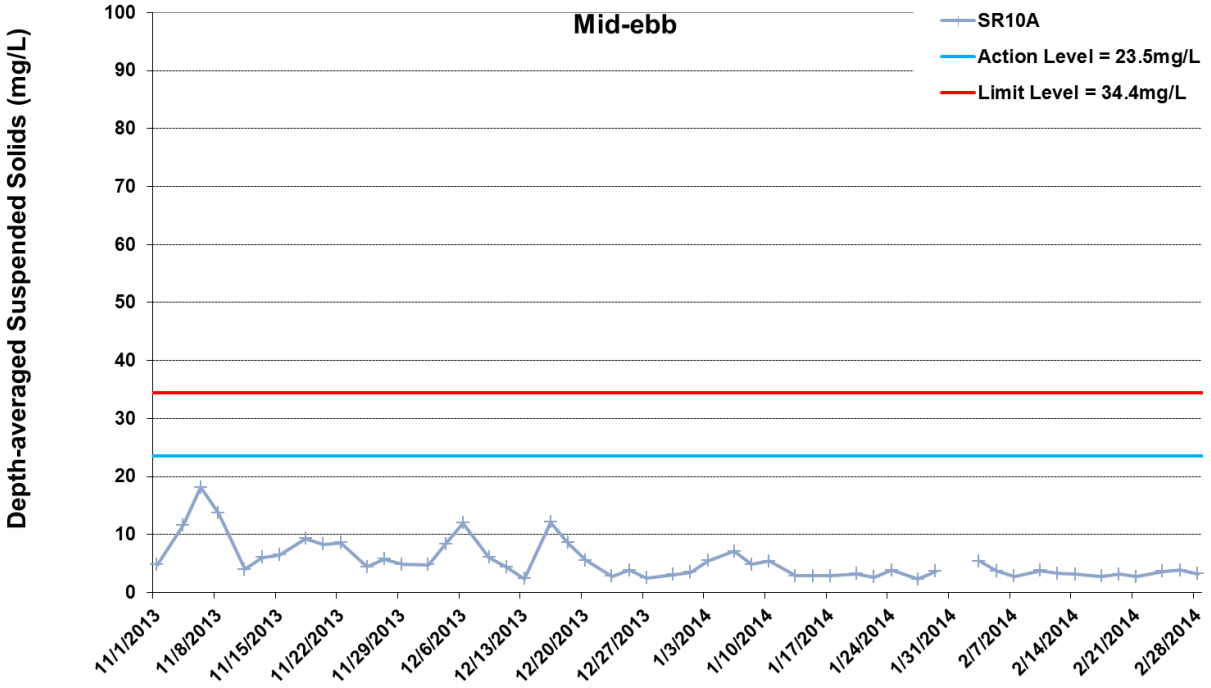


Figure H40 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at IS15. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



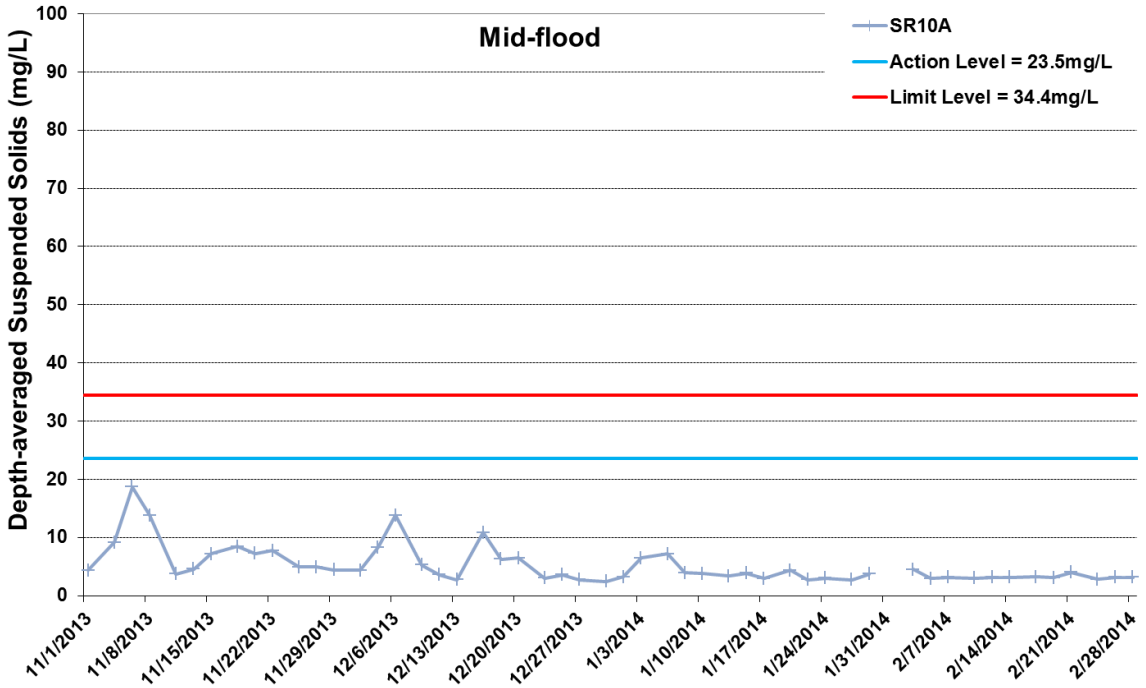
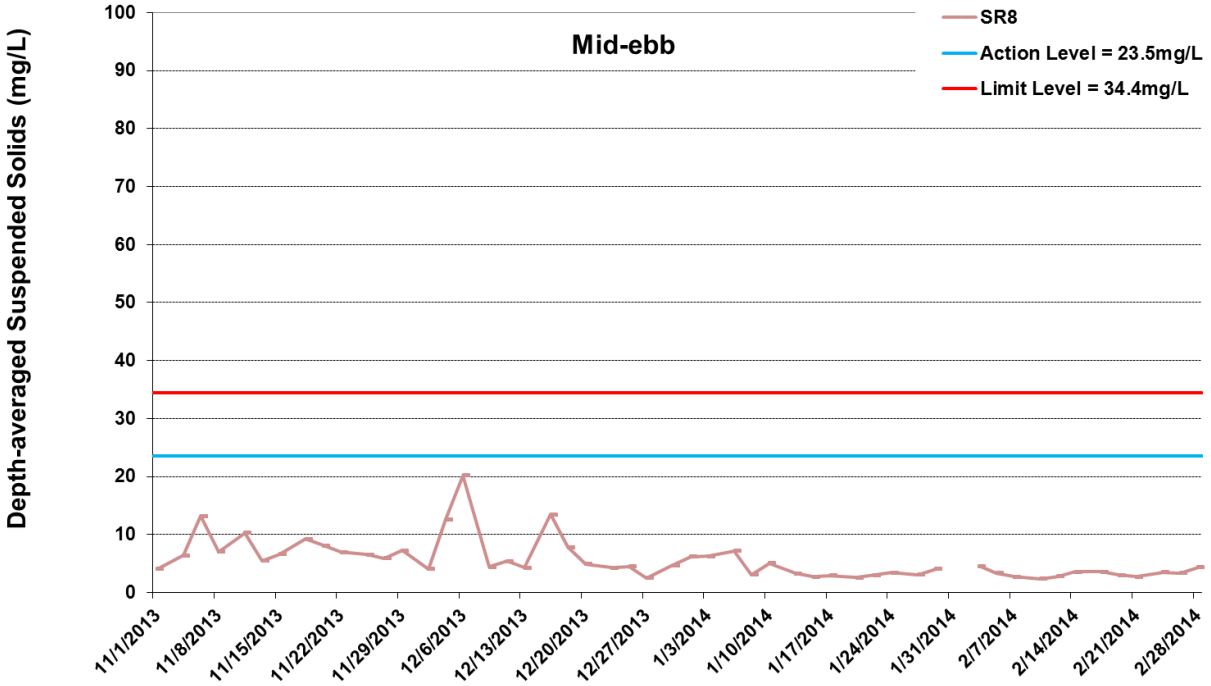


Figure H41 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at SR10A. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



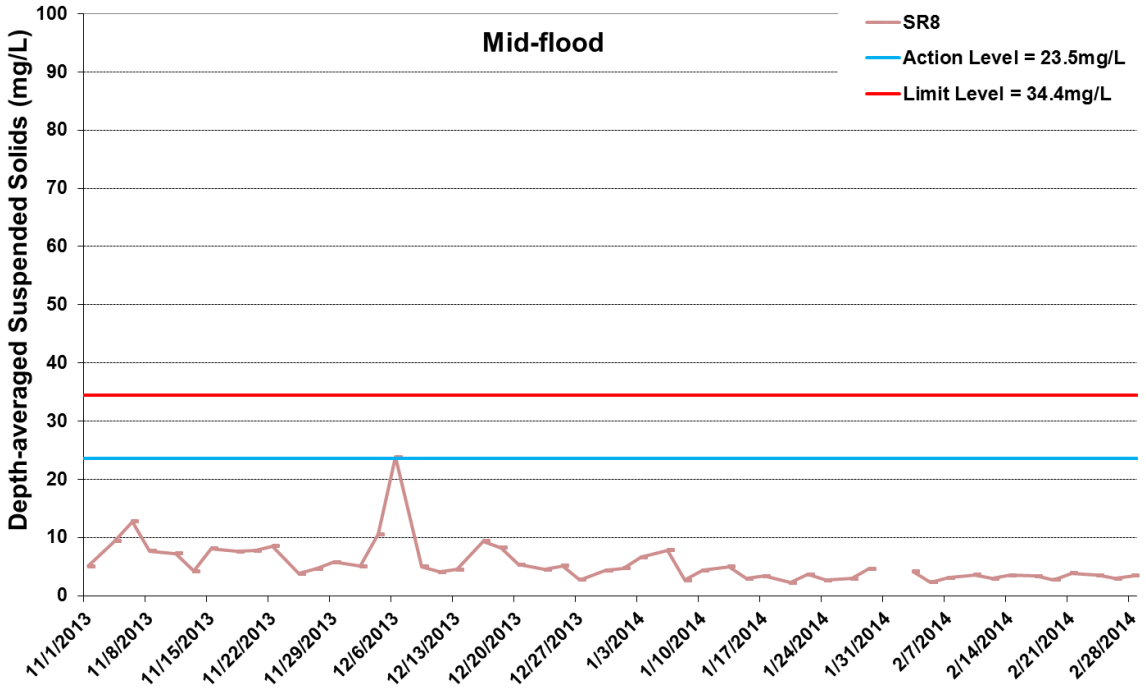
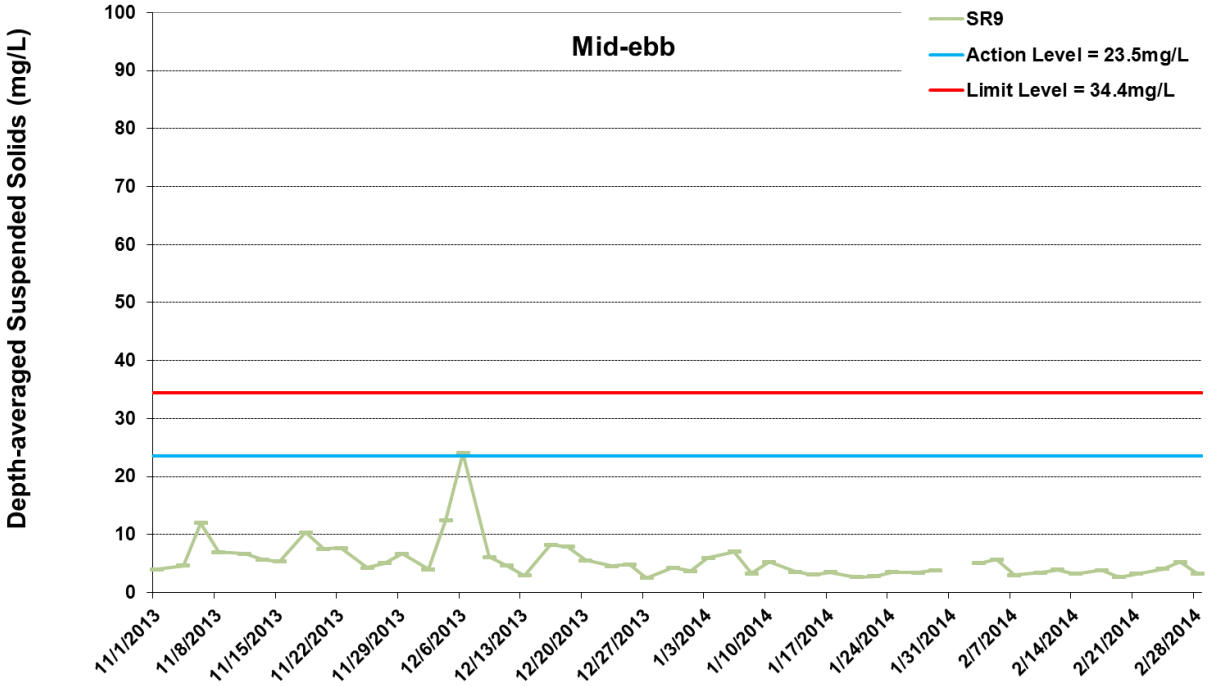


Figure H42 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at SR8. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls



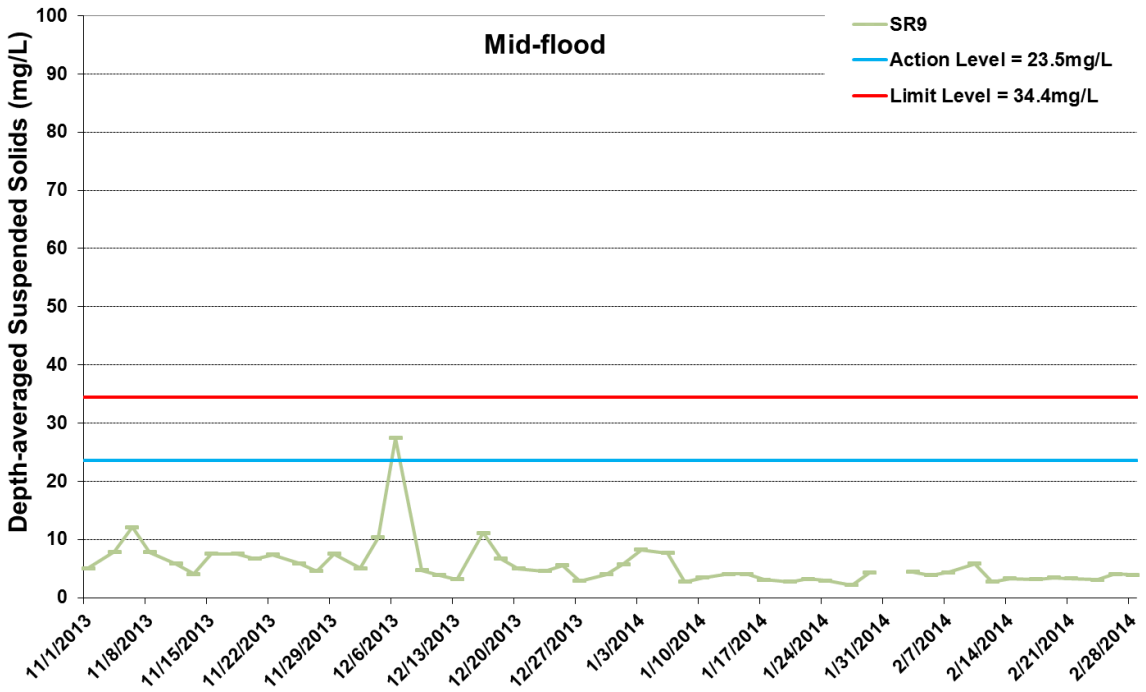


Figure H43 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 November 2013 and 28 February 2014 at SR9. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine construction activities: Dredging (11/1/2013 – 2/28/2014, except 1/31/2014); Construction of Temporary Seawalls (11/18/2013 – 2/28/2014); Sheet Piling (1/10/2014 – 2/28/2014).

Ref: 0212330_Impact-WQM_Nov2013_Feb2014_graphs_Rev a.xls

Appendix I

Impact Dolphin Monitoring Survey

CONTRACT NO. HY/2012/08
Hong Kong-Zhuhai-Macao Bridge Tuen Mun – Chek Lap Kok Link (Northern Connection Sub-sea Tunnel Section)
Dolphin Quarterly Monitoring

1st Quarterly Progress Report (November 2013 – February 2014)
submitted to Dragages – Bouygues Joint Venture & ERM Hong Kong Ltd.

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

5 April 2014

1. Introduction

1.1. As part of the Hong Kong-Zhuhai-Macao Bridge, the Tuen Mun-Chek Lap Kok Link (TM-CLKL) Northern Connection Sub-sea Tunnel Section (Contract no. HY/2012/08) comprises the sub-sea TBM tunnels (two tubes with cross passages) across the Urmston Road to connect Tuen Area 40 and Hong Kong Boundary Crossing Facilities (HKBCF) of approximately 4 km in length with dual 2-lane carriageway, the tunnels at both the southern landfall and the northern landfall for construction of approach roads to the sub-sea TBM tunnels of approximately 1.5 km in length, as well as the northern landfall reclamation of approximately 16.5 hectares and about 20.km long seawalls. Dragages – Bouygues Joint Venture (hereinafter called the "Contractor") was awarded as the main contractor for the Northern Connection Sub-sea Tunnel Section, and ERM Hong Kong Limited would serve as the Environmental Team to implement the Environmental Monitoring and Audit (EM&A) programme.

1.2. According to the updated EM&A Manual (for TM-CLKL), monthly line-transect vessel surveys for Chinese White Dolphin should be conducted to cover the Northwest (NWL) and Northeast Lantau (NEL) survey areas as in AFCD annual marine mammal monitoring programme. However, as such surveys have been undertaken by the HKLR03 and HKBCF projects in the same areas (i.e. NWL and NEL), a combined monitoring approach is recommended by the Highways Department, that the TM-CLKL EM&A project can utilize the monitoring data collected by HKLR03 or HKBCF project to avoid any redundancy in monitoring effort. Such exemption for the dolphin monitoring will end upon the completion of the dolphin monitoring carried out by HKLR03 contract.

1.3. In November 2013, the Director of Hong Kong Cetacean Research Project (HKCRP), Dr. Samuel Hung, has been appointed by ERM Hong Kong Limited as the dolphin specialist for the TM-CLKL Northern Connection Sub-sea Tunnel Section EM&A project. He is responsible for the dolphin monitoring study, including the data collection on Chinese White

Dolphins during the construction phase (i.e. impact period) of the TM-CLKL project in Northwest Lantau (NWL) and Northeast Lantau (NEL) survey areas.

1.4. During the construction period of HKLR, the dolphin specialist would be in charge of reviewing and collating information collected by HKLR03 dolphin monitoring programme to examine any potential impacts of TM-CLKL construction works on the dolphins.

1.5. From the monitoring results, any changes in dolphin occurrence within the study area will be examined for possible causes, and appropriate actions and additional mitigation measures will be recommended as necessary.

1.6. This report is the first quarterly progress report under the TM-CLKL construction phase dolphin monitoring programme submitted to the Contractor, summarizing the results of the surveys findings during the period of November 2013 to February 2014 utilizing the survey data collected by HKLR03 project.

2. Monitoring Methodology

2.1. Vessel-based Line-transect Survey

2.1.1. According to the requirement of the updated EM&A manual, dolphin monitoring programme should cover all transect lines in NEL and NWL survey areas (see Figure 1) twice per month throughout the entire construction period. The co-ordinates of all transect lines conducted during the HKLR03 dolphin monitoring surveys are shown in Table 1.

Table 1 Co-ordinates of transect lines conducted by HKLR03 project

Line No.		Easting	Northing		Line No.		Easting	Northing
1	Start Point	804671	814577		13	Start Point	816506	819480
1	End Point	804671	831404		13	End Point	816506	824859
2	Start Point	805475	815457		14	Start Point	817537	820220
2	End Point	805477	826654		14	End Point	817537	824613
3	Start Point	806464	819435		15	Start Point	818568	820735
3	End Point	806464	822911		15	End Point	818568	824433
4	Start Point	807518	819771		16	Start Point	819532	821420
4	End Point	807518	829230		16	End Point	819532	824209
5	Start Point	808504	820220		17	Start Point	820451	822125
5	End Point	808504	828602		17	End Point	820451	823671
6	Start Point	809490	820466		18	Start Point	821504	822371
6	End Point	809490	825352		18	End Point	821504	823761
7	Start Point	810499	820690		19	Start Point	822513	823268
7	End Point	810499	824613		19	End Point	822513	824321

8	Start Point	811508	820847		20	Start Point	823477	823402
8	End Point	811508	824254		20	End Point	823477	824613
9	Start Point	812516	820892		21	Start Point	805476	827081
9	End Point	812516	824254		21	End Point	805476	830562
10	Start Point	813525	820872		22	Start Point	806464	824033
10	End Point	813525	824657		22	End Point	806464	829598
11	Start Point	814556	818449		23	Start Point	814559	821739
11	End Point	814556	820992		23	End Point	814559	824768
12	Start Point	815542	818807					
12	End Point	815542	824882					

2.1.2. The HKLR03 survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 16 years of marine mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2012, 2013). For each monitoring vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) was used to make observations from the flying bridge area.

2.1.3. Two experienced observers (a data recorder and a primary observer) made up the on-effort survey team, and the survey vessel transited different transect lines at a constant speed of 13-15 km per hour. The data recorder searched with unaided eyes and filled out the datasheets, while the primary observer searched for dolphins and porpoises continuously through 7 x 50 *Fujinon* marine binoculars. Both observers searched the sea ahead of the vessel, between 270^{o} and 90^{o} (in relation to the bow, which is defined as 0^{o}). One to two additional experienced observers were available on the boat to work in shift (i.e. rotate every 30 minutes) in order to minimize fatigue of the survey team members. All observers were experienced in small cetacean survey techniques and identifying local cetacean species.

2.1.4. During on-effort survey periods, the survey team recorded effort data including time, positions (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance traveled in each series (a continuous period of search effort) with the assistance of a handheld GPS (*Garmin eTrex Legend*).

2.1.5. Data including time, position and vessel speed were also automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.

2.1.6. When dolphins were sighted, the survey team would end the survey effort, and immediately record the initial sighting distance and angle of the dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel was diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, and behavioural observations. The perpendicular distance (PSD) of the dolphin group to the transect line was later calculated from the initial sighting distance and angle.

2.1.7. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as "primary" survey effort, while the survey effort conducted along the connecting lines between parallel lines was labeled as "secondary" survey effort. According to HKCRP long-term dolphin monitoring data, encounter rates of Chinese white dolphins deduced from effort and sighting data collected along primary and secondary lines were similar in NEL and NWL survey areas. Therefore, both primary and secondary survey effort were presented as on-effort survey effort in this report.

2.2. Photo-identification Work

2.2.1. When a group of Chinese White Dolphins were sighted during the line-transect survey, the HKLR03 survey team would end effort and approach the group slowly from the side and behind to take photographs of them. Every attempt was made to photograph every dolphin in the group, and even photograph both sides of the dolphins, since the colouration and markings on both sides may not be symmetrical.

2.2.2. A professional digital camera (*Canon* EOS 7D or 60D model), equipped with long telephoto lenses (100-400 mm zoom), were available on board for researchers to take sharp, close-up photographs of dolphins as they surfaced. The images were shot at the highest available resolution and stored on Compact Flash memory cards for downloading onto a computer.

2.2.3. All digital images taken in the field were first examined, and those containing potentially identifiable individuals were sorted out. These photographs would then be examined in greater detail, and were carefully compared to the existing Chinese White Dolphin photo-identification catalogue maintained by HKCRP since 1995.

2.2.4. Chinese White Dolphins can be identified by their natural markings, such as nicks, cuts, scars and deformities on their dorsal fin and body, and their unique spotting patterns were also used as secondary identifying features (Jefferson 2000).

2.2.5. All photographs of each individual were then compiled and arranged in chronological order, with data including the date and location first identified (initial sighting), re-sightings, associated dolphins, distinctive features, and age classes entered into a computer database.

2.3. Data Analysis

2.3.1. Distribution Analysis – The line-transect survey data was integrated with the Geographic Information System (GIS) in order to visualize and interpret different spatial and temporal patterns of dolphin distribution using sighting positions. Location data of dolphin groups were plotted on map layers of Hong Kong using a desktop GIS (ArcView© 3.1) to examine their distribution patterns in details. The dataset was also stratified into different subsets to examine distribution patterns of dolphin groups with different categories of group sizes, young calves and activities.

2.3.2. Encounter rate analysis – Encounter rates of Chinese white dolphins (number of on-effort sightings per 100 km of survey effort, and total number of dolphins sighted on-effort per 100 km of survey effort) were calculated in NEL and NWL survey areas in relation to the amount of survey effort conducted during each month of monitoring survey. Only data collect under Beaufort 3 or below condition would be used for the encounter rate analyses. Dolphin encounter rates were calculated in two ways for comparisons with the HZMB baseline monitoring results as well as to AFCD long-term marine mammal monitoring results.

Firstly, for the comparison with the HZMB baseline monitoring results, the encounter rates were calculated using primary survey effort alone. The average encounter rate of sightings (STG) and average encounter rate of dolphins (ANI) were deduced based on the encounter rates from six events during the present quarter (i.e. six sets of line-transect surveys in North Lantau), which was also compared with the one deduced from the six events during the baseline period (i.e. six sets of line-transect surveys in North Lantau).

Secondly, the encounter rates were calculated using both primary and secondary survey effort collected under Beaufort 3 or below condition as in AFCD long-term monitoring study. The encounter rate of sightings and dolphins were deduced by dividing the total number of on-effort sightings (STG) and total number of dolphins (ANI) by the amount of survey effort for the quarterly period of December 2013 – February 2014.

2.3.3. Quantitative grid analysis on habitat use – To conduct quantitative grid analysis of habitat use, positions of on-effort sightings of Chinese White Dolphins collected during the quarterly impact phase monitoring period were plotted onto 1-km^2 grids among NWL and NEL survey areas on GIS. Sighting densities (number of on-effort sightings per km^2) and dolphin densities (total number of dolphins from on-effort sightings per km^2) were then calculated for each 1 km by 1 km grid with the aid of GIS. Sighting density grids and dolphin density grids were then further normalized with the amount of survey effort conducted within each grid. The total amount of survey effort spent on each grid was calculated by examining the survey coverage on each line-transect survey to determine how many times the grid was surveyed during the study period. For example, when the survey boat traversed through a specific grid 50 times, 50 units of survey effort were counted for that grid. With the amount of survey effort calculated for each grid, the sighting density and dolphin density of each grid were then normalized (i.e. divided by the unit of survey effort).

The newly-derived unit for sighting density was termed SPSE, representing the number of on-effort **s**ightings **p**er 100 units of **s**urvey **e**ffort. In addition, the derived unit for actual dolphin density was termed DPSE, representing the number of **d**olphins **p**er 100 units of **s**urvey **e**ffort. Among the 1-km^2 grids that were partially covered by land, the percentage of sea area was calculated using GIS tools, and their SPSE and DPSE values were adjusted accordingly. The following formulae were used to estimate SPSE and DPSE in each 1-km^2 grid within the study area:

SPSE = ((S / E) x 100) / SA%
DPSE = ((D / E) x 100) / SA%

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

2.3.4. Behavioural analysis – When dolphins were sighted during vessel surveys, their behaviour was observed. Different activities were categorized (i.e. feeding, socializing, traveling, and milling/resting) and recorded on sighting datasheets. This data was then input into a separate database with sighting information, which can be used to determine the distribution of behavioural data with a desktop GIS. Distribution of sightings of dolphins engaged in different activities and behaviours would then be plotted on GIS and carefully examined to identify important areas for different activities of the dolphins.

2.3.5. Ranging pattern analysis – Location data of individual dolphins that occurred during the 3-month impact phase monitoring period were obtained from the dolphin sighting database and photo-identification catalogue. To deduce home ranges for individual dolphins using the fixed kernel methods, the program Animal Movement Analyst Extension, was loaded as an extension with ArcView© 3.1 along with another extension Spatial Analyst 2.0. Using the fixed kernel method, the program calculated kernel density estimates based on all sighting positions, and provided an active interface to display kernel density plots. The kernel estimator then calculated and displayed the overall ranging area at 95% UD level.

3. Monitoring Results

3.1. Summary of survey effort and dolphin sightings

3.1.1. During the period of November 2013 to February 2014, eight sets of systematic line-transect vessel surveys were conducted under the HKLR03 monitoring works to cover all transect lines in NWL and NEL survey areas twice per month.

3.1.2. From these HKLR03 surveys, a total of 1,137.92 km of survey effort was collected, with 95.0% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas, 428.91 km and 709.01 km of survey effort were conducted in NEL and NWL survey areas respectively.

3.1.3. The total survey effort conducted on primary lines was 852.63 km, while the effort on secondary lines was 285.29 km. Both survey effort conducted on primary and secondary lines were considered as on-effort survey data. Summary table of the survey effort is shown in Appendix I.

3.1.4. During the eight sets of HKLR03 monitoring surveys from November 2013 to February 2014, a total of 59 groups of 249 Chinese White Dolphins were sighted. All except four sightings were made during on-effort search. Fifty on-effort sightings were made on

primary lines, while five other on-effort sightings were made on secondary lines. During this four-month period, only three groups of 16 dolphins were sighted in NEL (with only one group of three dolphins sighted on primary lines), while the other 56 groups of 233 dolphins were sighted in NWL. Summary table of the dolphin sightings is shown in Appendix II.

3.1.5. For the detailed comparison of dolphin occurrence and usage of NEL and NWL survey area between the impact phase and baseline phase monitoring (i.e. Sections 3.2 to 3.7, and Section 3.9), only the quarterly data of December 2013 – February 2014 from the impact phase monitoring was used in the present report to tally with the three-month period of baseline monitoring (September-November 2011). The three-month period (December 2013 – February 2014) was also consistent with seasonality period as defined in the long-term monitoring dolphin research conducted by AFCD (Hung 2012, 2013) to allow direct comparison between the baseline and impact phase monitoring data.

3.2. Distribution

3.2.1. Distribution of dolphin sightings made during the HKLR03 monitoring surveys in December 2013 to February 2014 is shown in Figure 1. The majority of dolphin sightings were made in the northwestern portion of the North Lantau region. Concentration of sightings were located within the Sha Chau and Lung Kwu Chau Marine Park, and to the west of Black Point (Figure 1). On the other hand, a few dolphin groups were sighted near Pillar Point, and near the Brothers Islands (Figure 1).

3.2.2. One sighting was made very close to the reclamation site of TMCLKL northern landfall, but none of the dolphin groups were sighted in the vicinity of TMCLKL southern viaduct section, or the HKLR03/HKBCF reclamation site (Figure 1). Only one dolphin sighting was made near the HKLR09 alignment (Figure 1).

3.2.3. Sighting distribution of the present impact phase monitoring period (December 2013 – February 2014) was compared to the one in the baseline monitoring period (September to November 2011). During the present quarter, dolphins rarely occurred in NEL region, which was in stark contrast to their frequent occurrence around the Brothers Islands and in the vicinity of HKBCF reclamation site during the baseline period (Figure 1). On the other hand, dolphin occurrence in the northwestern portion of North Lantau region was largely similar between the baseline and impact phase quarters, but there appeared to be fewer dolphins occurred in the middle portion of North Lantau region where dolphins supposedly moved between their core areas around Lung Kwu Chau and the Brothers Islands (Figure 1).

3.2.4. As the baseline monitoring period was in autumn season while the present monitoring period was in winter season, a direct comparison in dolphin distribution between the two quarterly periods of winter months in 2012-13 and 2013-14 was also made to avoid the potential bias in seasonal variation. Between the two winter periods, there were still much fewer dolphins sighted in NEL waters as well as the middle portion of North Lantau waters during the winter months of 2013-14 than the winter months of 2012-13 (Figure 2). In fact, both HKLR03 and HKBCF have already commenced their works since the third and first quarters of 2013 respectively, implying that dolphin usage has further declined in

the central and eastern portion of North Lantau waters in winter months of 2013-14 from the previous year.

3.3. Encounter rate

3.3.1. During the present quarterly period, the encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data from the primary transect lines under favourable conditions (Beaufort 3 or below) for each set of the HKLR03 surveys in NEL and NWL are shown in Table 2. The average encounter rates deduced from the six sets of HKLR03 surveys were also compared with the ones deduced from the baseline monitoring period (September – November 2011) (Table 3).

Table 2. Dolphin encounter rates (sightings per 100 km of survey effort) during December 2013 – February 2014 deduced from HKLR03 monitoring surveys

SURVEY AREA	HKLR03 DOLPHIN MONITORING DATES	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	Primary Lines Only
Northeast Lantau	Set 1 (5 & 9 Dec 2013)	2.68	8.05
	Set 2 (13 & 19 Dec 2013)	0.00	0.00
	Set 3 (7 & 9 Jan 2014)	0.00	0.00
	Set 4 (21 & 23 Jan 2014)	0.00	0.00
	Set 5 (6 & 12 Feb 2014)	0.00	0.00
	Set 6 (14 & 20 Feb 2014)	0.00	0.00
Northwest Lantau	Set 1 (5 & 9 Dec 2013)	6.95	30.57
	Set 2 (13 & 19 Dec 2013)	6.82	27.27
	Set 3 (7 & 9 Jan 2014)	10.00	39.99
	Set 4 (21 & 23 Jan 2014)	11.84	50.33
	Set 5 (6 & 12 Feb 2014)	7.44	17.86
	Set 6 (14 & 20 Feb 2014)	6.20	29.47

Table 3. Comparison of average dolphin encounter rates from impact monitoring period (December 2013 – February 2014) and baseline monitoring period (September – November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	December 2013 - February 2014	September - November 2011	December 2013 - February 2014	September - November 2011
Northeast Lantau	0.45 ± 1.10	6.00 ± 5.05	1.34 ± 3.29	22.19 ± 26.81
Northwest Lantau	8.21 ± 2.21	9.85 ± 5.85	32.58 ± 11.21	44.66 ± 29.85

3.3.2. To facilitate the comparison with the AFCD long-term monitoring results, the encounter rates were also calculated for the present quarter using both primary and secondary survey effort. The encounter rates of sightings (STG) and dolphins (ANI) in NWL were 7.00 sightings and 26.77 dolphins per 100 km of survey effort respectively, while the encounter rates of sightings (STG) and dolphins (ANI) in NEL were 0.61 sightings and 3.67 dolphins per 100 km of survey effort respectively.

3.3.3. In NEL, the average dolphin encounter rates (both STG and ANI) in the present three-month impact phase were only small fractions of the ones recorded in the 3-month baseline period (reductions of 92.5% and 94.0% respectively between the two periods; Table 3). On the other hand, the average dolphin encounter rates (STG and ANI) in NWL during the present impact phase monitoring period were slightly lower (reductions of 16.6% and 27.0% respectively) than the ones recorded in the 3-month baseline period, indicating a reduced dolphin usage of this survey area during the present construction period.

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

3.3.5. For the comparison between the baseline period and the present quarter, the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.0774 and 0.1671 respectively. If the alpha value is set at 0.1, significant difference was detected between the baseline and present quarters in the dolphin encounter rates of STG, but not in the encounter rates of ANI.

3.4. Group size

3.4.1. Group size of Chinese White Dolphins ranged from 1-12 individuals per group in North Lantau region during December 2013 to February 2014. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in Table 4.

Table 4. Comparison of average dolphin group sizes from impact monitoring period (December 2013 – February 2014) and baseline monitoring period (September – November 2011)

	Average Dolphin Group Size	
	December 2013 – February 2014	**September – November 2011**
Overall	3.87 ± 2.84 (n = 38)	3.72 ± 3.13 (n = 66)
Northeast Lantau	5.33 ± 3.21 (n = 3)	3.18 ± 2.16 (n = 17)
Northwest Lantau	3.74 ± 2.82 (n = 35)	3.92 ± 3.40 (n = 49)

3.4.2. The average dolphin group sizes in the entire North Lantau region during December 2013 to February 2014 were slightly higher than the ones recorded in the three-month baseline period (Table 5). Although the average group size in NEL was quite high during the present monitoring period when compared to the baseline period, the sample size of the three dolphin groups in 2013 was actually very small for such comparison.

3.4.3. Distribution of dolphins with larger group sizes during the present quarter is shown in Figure 3, with comparison to the one in baseline period. In winter months of 2013-14, almost all larger dolphin groups were clustered at the northwestern portion of North Lantau near Sha Chau, Lung Kwu Chau and Black Point, with only one other larger dolphin group sighted near Siu Ho Wan in NEL (Figure 3). This distribution pattern was similar to the baseline period, except that a few more larger dolphin groups were sighted in NEL as well as around the airport platform during the baseline period. Notably, none of the larger dolphin groups were sighted near the TMCLKL alignment in the present monitoring period (Figure 3).

3.5. Habitat use

3.5.1. From December 2013 to February 2014, the most heavily utilized habitats by Chinese White Dolphins mainly concentrated around Lung Kwu Chau, to the west of Sha Chau and Black Point (Figures 4a and 4b). Only two grids in NEL recorded the presence of dolphins near Siu Ho Wan with moderately high dolphin densities. None of the grids along TMCLKL or HKLR09 alignment and around the HKLR03/HKBCF reclamation sites recorded the presence of dolphins during on-effort search in the present quarterly period.

3.5.2. However, it should be emphasized that the amount of survey effort collected in each grid during the three-month period was fairly low (6-12 units of survey effort for most grids), and therefore the habitat use pattern derived from the three-month dataset should be treated with caution. A more complete picture of dolphin habitat use pattern will be presented when more survey effort for each grid will be collected throughout the impact phase monitoring programme.

3.5.3. When compared with the habitat use patterns during the baseline period, dolphin usage in NEL was noticeably much lower in the present impact monitoring period (Figure 5). During the baseline period, nine grids between Siu Mo To and Shum Shui Kok recorded moderately high to high dolphin densities, which was in stark contrast to the only two grids with dolphin presence during the present impact phase period (Figure 5). On the other hand, the density patterns between the baseline and impact phase monitoring periods were similar in NWL, except that dolphins were rarely present in the eastern portion of this region (Figure 5).

3.6. Mother-calf pairs

3.6.1. During the three-month period, a total of one unspotted calf (UC) and nine unspotted juveniles (UJ) were sighted in NEL and NWL survey areas. These young calves comprised 6.8% of all animals sighted, which was the same percentage recorded during the baseline monitoring period (6.8%).

3.6.2. All except one of these young calves were present within and adjacent to the Sha Chau and Lung Kwu Chau Marine Park (Figure 6), and all of them were sighted within larger dolphin groups with at least five individuals. Notably, only one UJ was sighted near Siu Ho Wan in NEL, and none of the young calves were sighted in the vicinity of the TMCLKL/HKLR09 alignments and HKBCF/HKLR03 reclamation sites during the present quarter (Figure 6).

3.7. Activities and associations with fishing boats

3.7.1. A total of six dolphin sightings were associated with feeding and socializing activities during the quarterly period. The percentage of feeding activities comprised of 7.9% of the total number of dolphin sightings, which was lower than the one recorded during the baseline period (11.6%). On the contrary, the percentage of socializing activities during the present impact phase monitoring period (7.9%) was slightly higher than the one recorded during the baseline period (5.4%). Only one group of dolphins was engaged in traveling activity, and the rarity of this observed activity was similar to the baseline monitoring period and previous impact phase monitoring periods.

3.7.2. Distribution of dolphins engaged in different activities during the three-month study period is shown in Figure 7. No apparent concentration of sightings was found for feeding activity, but all three sightings associated with socializing activities were located in the waters between Black Point and Lung Kwu Chau (Figure 7).

3.7.3. During the quarterly period, only one of the 38 dolphin groups was found to be associated with an operating hang trawler near the western border of Hong Kong. The extremely low level of fishing boat association in the present and previous quarters was consistently found, and was likely related to the recent trawl ban being implemented in 2013 in Hong Kong waters.

3.8. Summary of photo-identification works

3.8.1. From November 2013 to February 2014, over 4,000 digital photographs of Chinese White Dolphins were taken during the impact phase monitoring surveys for the photo-identification work.

3.8.2. In total, 59 individuals sighted 144 times altogether were identified (see summary table in Appendix III and photographs of identified individuals in Appendix IV). Only 13 of these 144 re-sightings were made in NEL, which involved nine different individuals.

3.8.3. Most identified individuals were sighted only once or twice during the three-month period, with the exception of five individuals being sighted thrice, and eight individuals being sighted four to five times. Several individuals were sighted frequently on different survey days during the four-month period, including CH34, NL261 and NL33 (six times each), NL48 and NL139 (seven times each) and NL24 (eight times).

3.8.5. Six well-recognized females were accompanied with their calves during their re-sightings. All of these mothers (NL33, NL93, NL98, NL123, NL202 and NL221) were frequently sighted with their calves throughout the HKLR03 impact phase monitoring period.

3.9. Individual range use

3.9.1. Ranging patterns of the 44 individuals identified during the quarterly period of December 2013 – February 2014 were determined by fixed kernel method, and are shown in Appendix V.

3.9.2. The majority of individuals sighted in this quarter were utilizing their range use in NWL, and only a few individuals had their range extended to NEL survey area, especially around the Brothers Islands (Appendix V).

3.9.3. For many individuals that previously utilized the Brothers Islands as their major core area of activities, they have apparently shifted their range use away from this important habitat (e.g. CH34, NL48, NL123), while others have greatly diminished their range use in NEL in the past quarters in 2013-14 (e.g. NL98, NL120, NL261), and further expanded their range use elsewhere in WL waters (e.g. NL33, NL226).

4. Conclusion

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

4.2. Although the dolphins infrequently occurred along the alignment of TMCLKL northern connection sub-sea tunnel section in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL, and many individuals have shifted away from the important habitat around the Brothers Islands.

4.3. It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

5. References

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- Jefferson, T. A. 2000. Population biology of the Indo-Pacific hump-backed dolphin in Hong Kong waters. Wildlife Monographs 144:1-65.

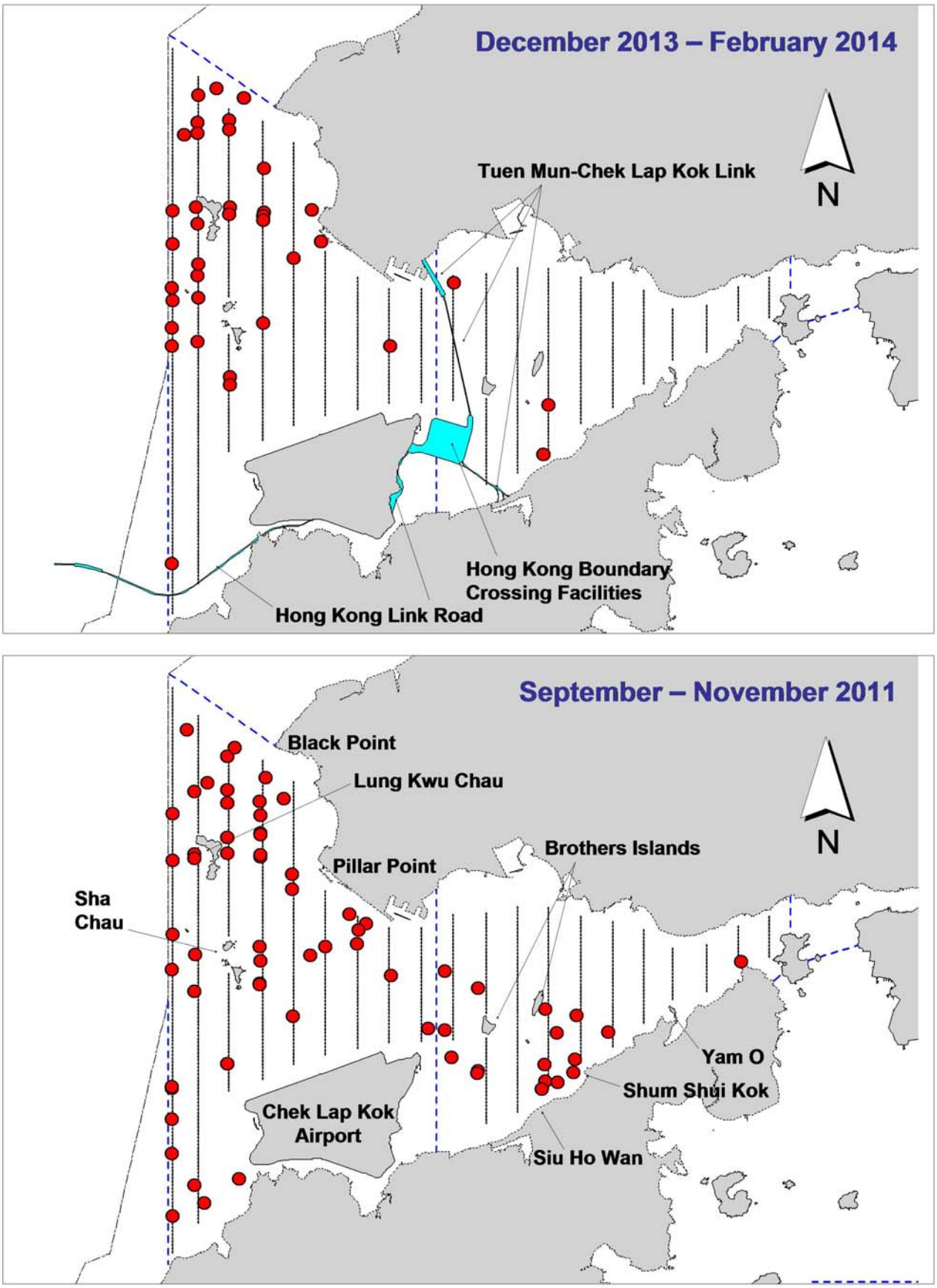


Figure 1. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

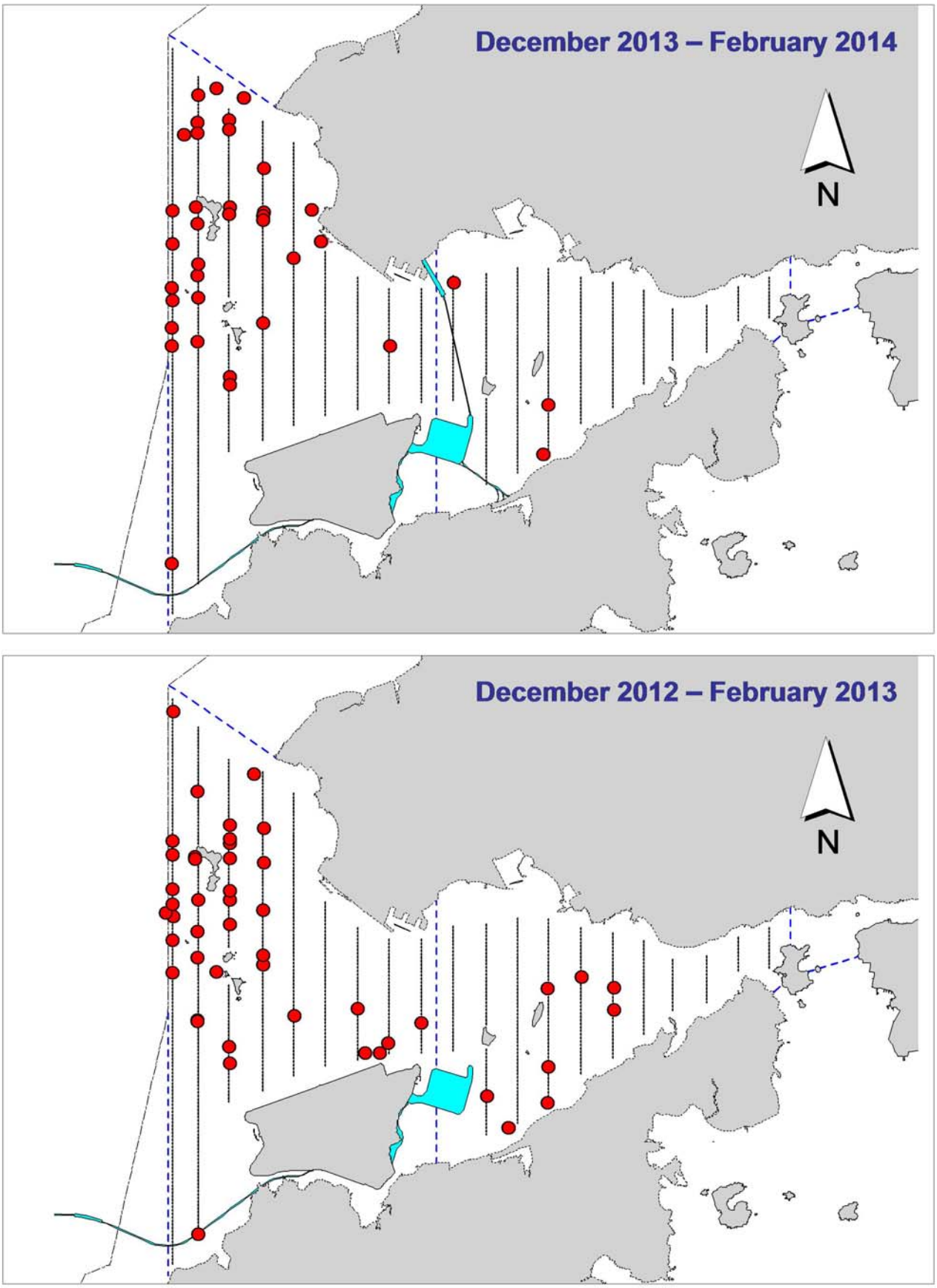


Figure 2. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during the same winter quarter of HKLR03 impact phase in 2013-14 (top) and 2012-13 (bottom)

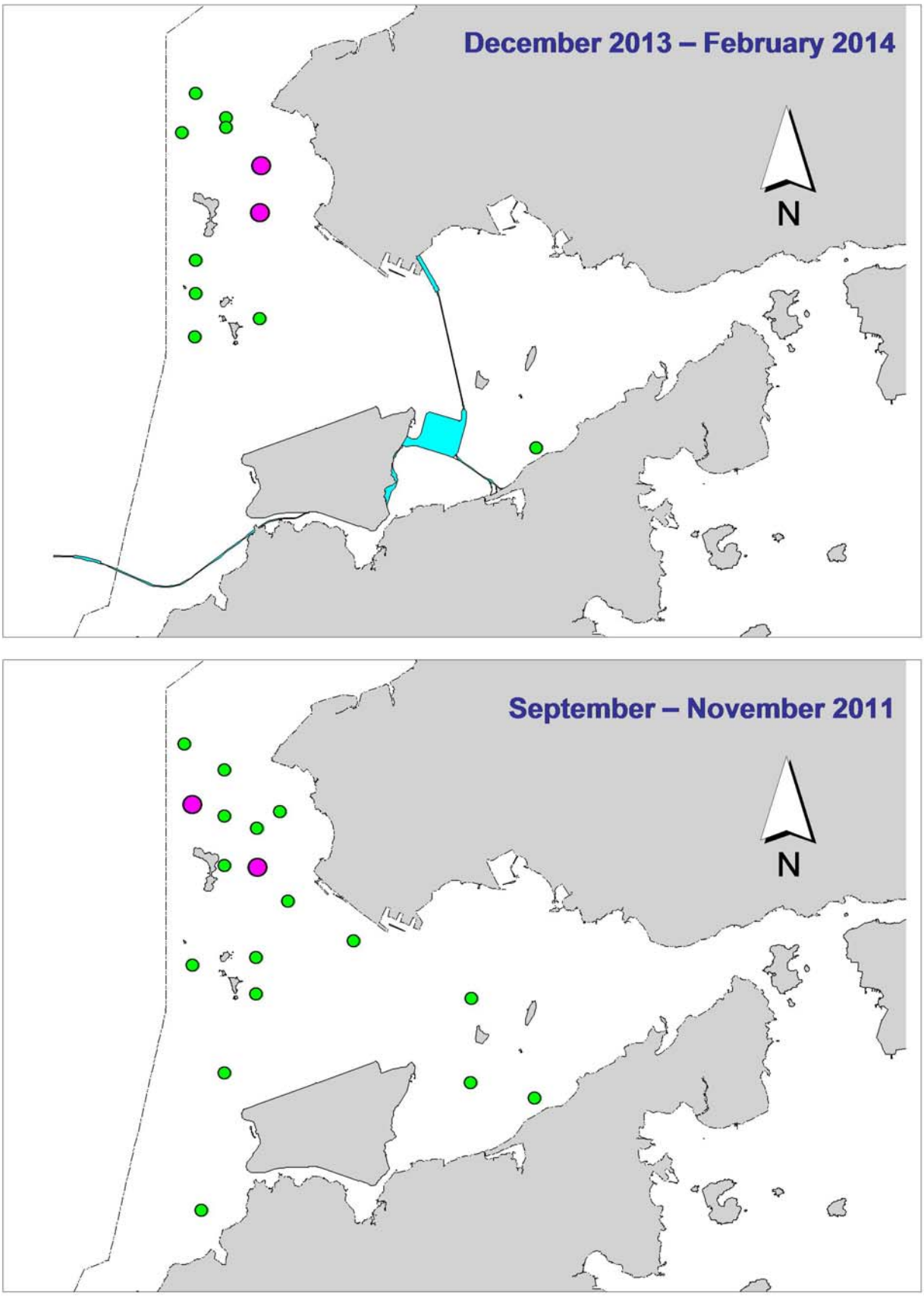


Figure 3. Distribution of Chinese white dolphins with larger group sizes during HKLR03 impact phase (top) and baseline monitoring surveys (bottom) (green dots: group sizes of 5 or more; purple dots: group sizes of 10 or more)

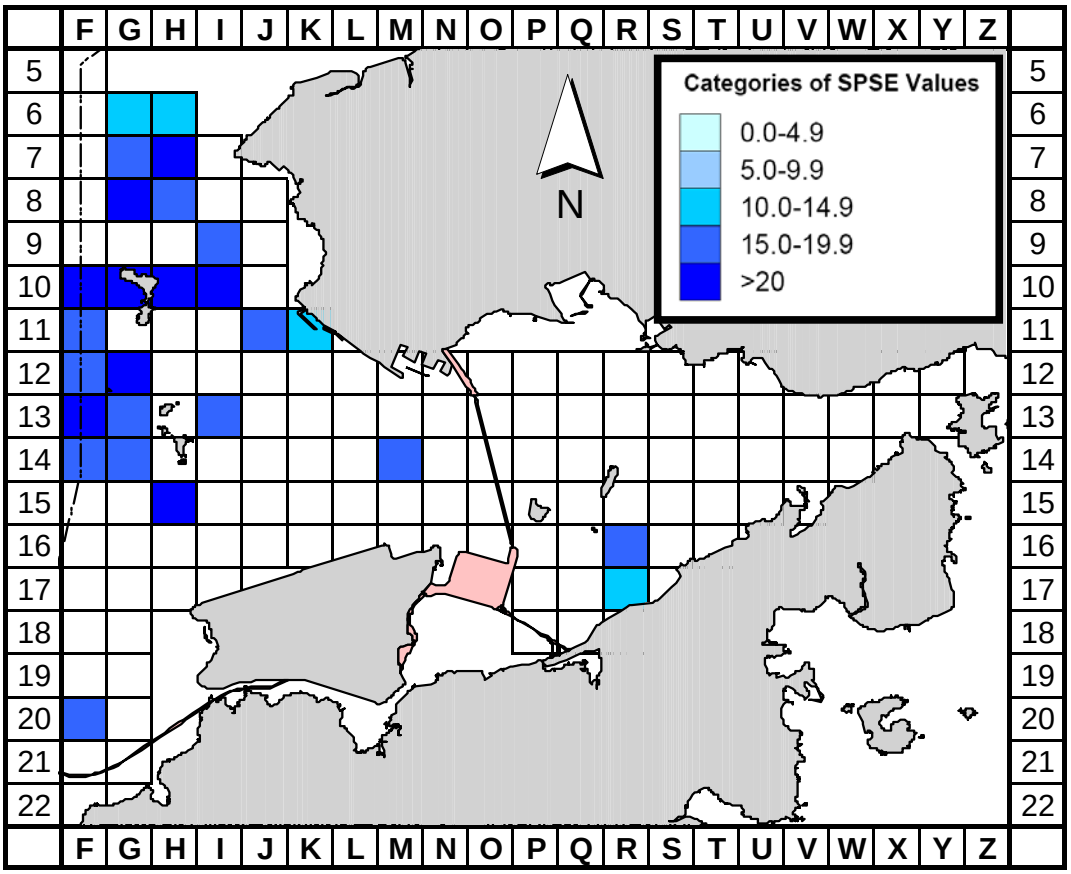


Figure 4a. Sighting density of Chinese white dolphins with corrected survey effort per km^2 in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period monitoring period (Dec 13-Feb 14) (SPSE = no. of on-effort sightings per 100 units of survey effort)

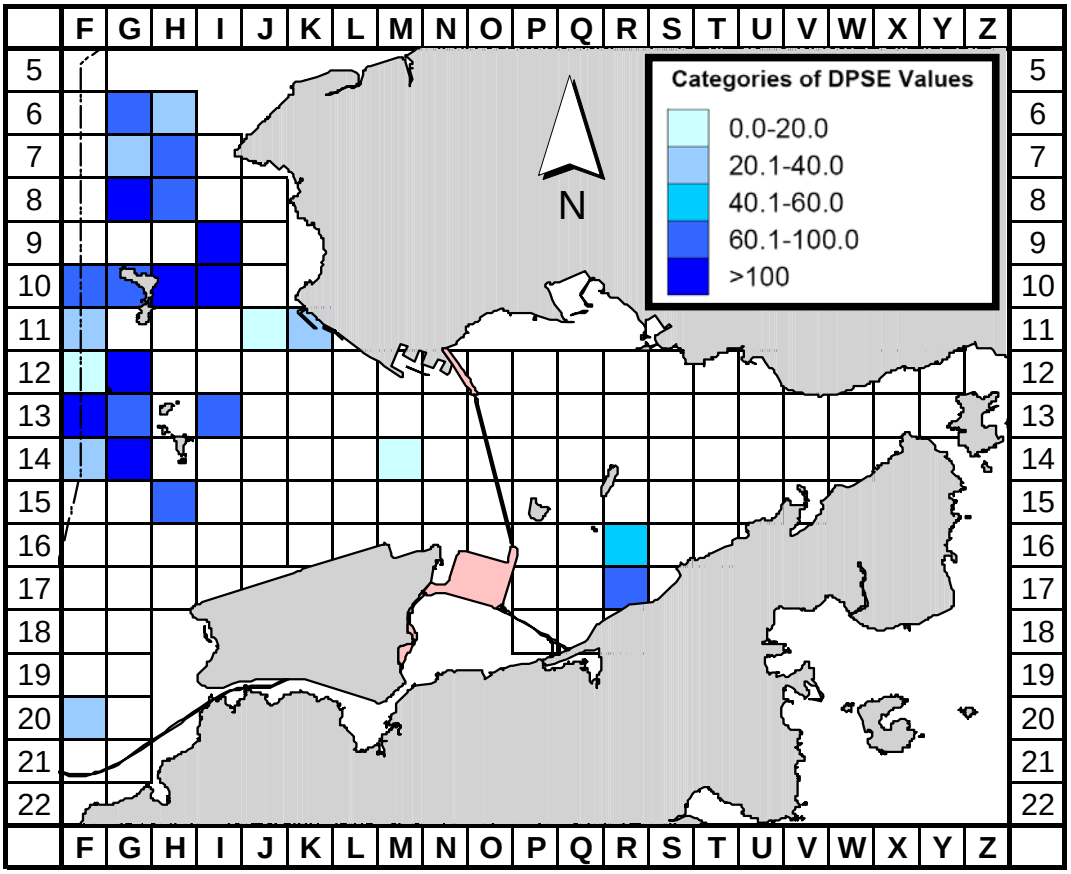


Figure 4b. Density of Chinese white dolphins with corrected survey effort per km^2 in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period (Dec 13-Feb 14) (DPSE = no. of dolphins per 100 units of survey effort)

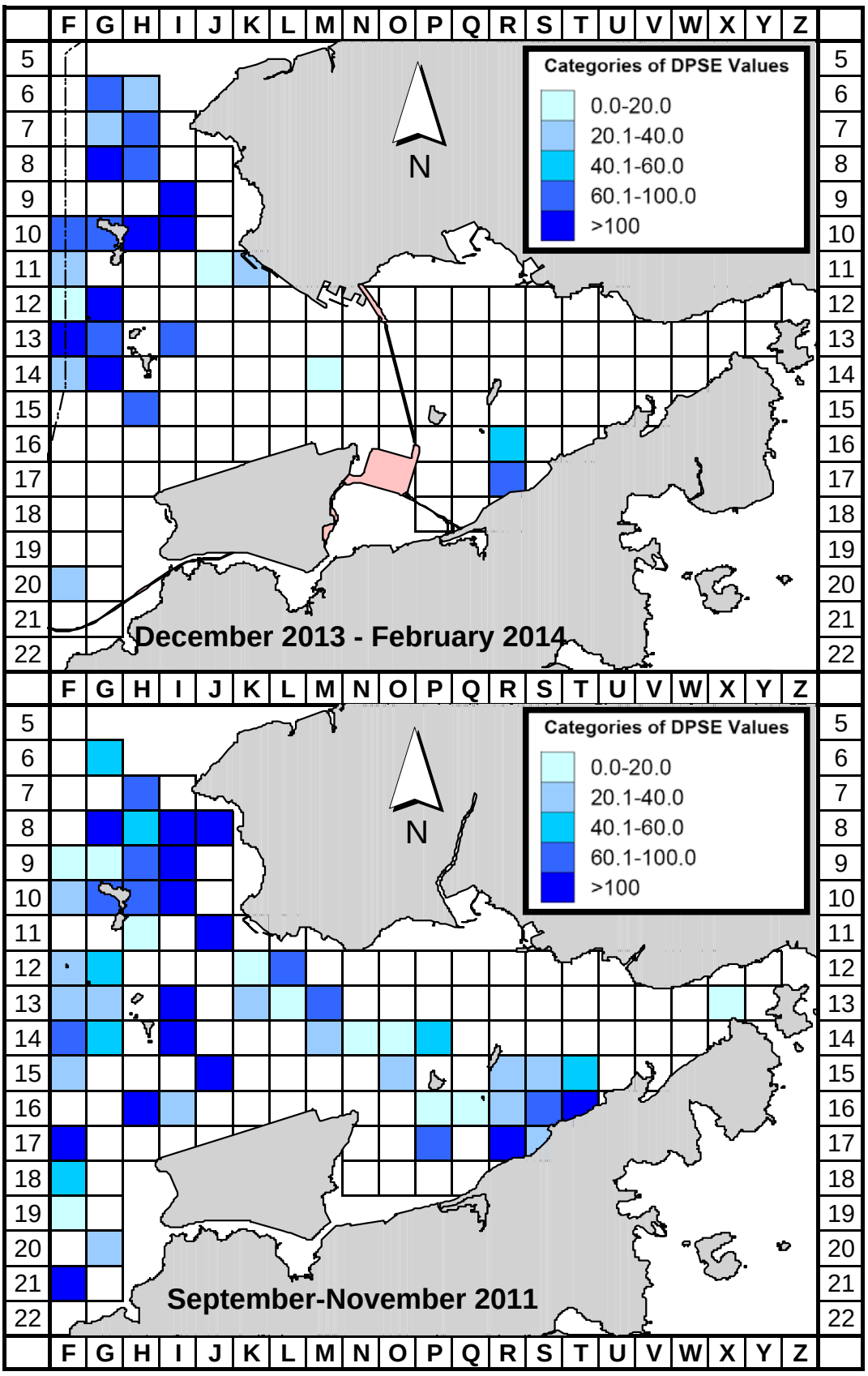


Figure 5. Comparison of density of Chinese white dolphins with corrected survey effort per km^2 in Northwest and Northeast Lantau survey area between the impact monitoring period (Dec 2013-Feb 2014) and baseline monitoring period (Sept-Nov 2011)
(DPSE = no. of dolphins per 100 units of survey effort)

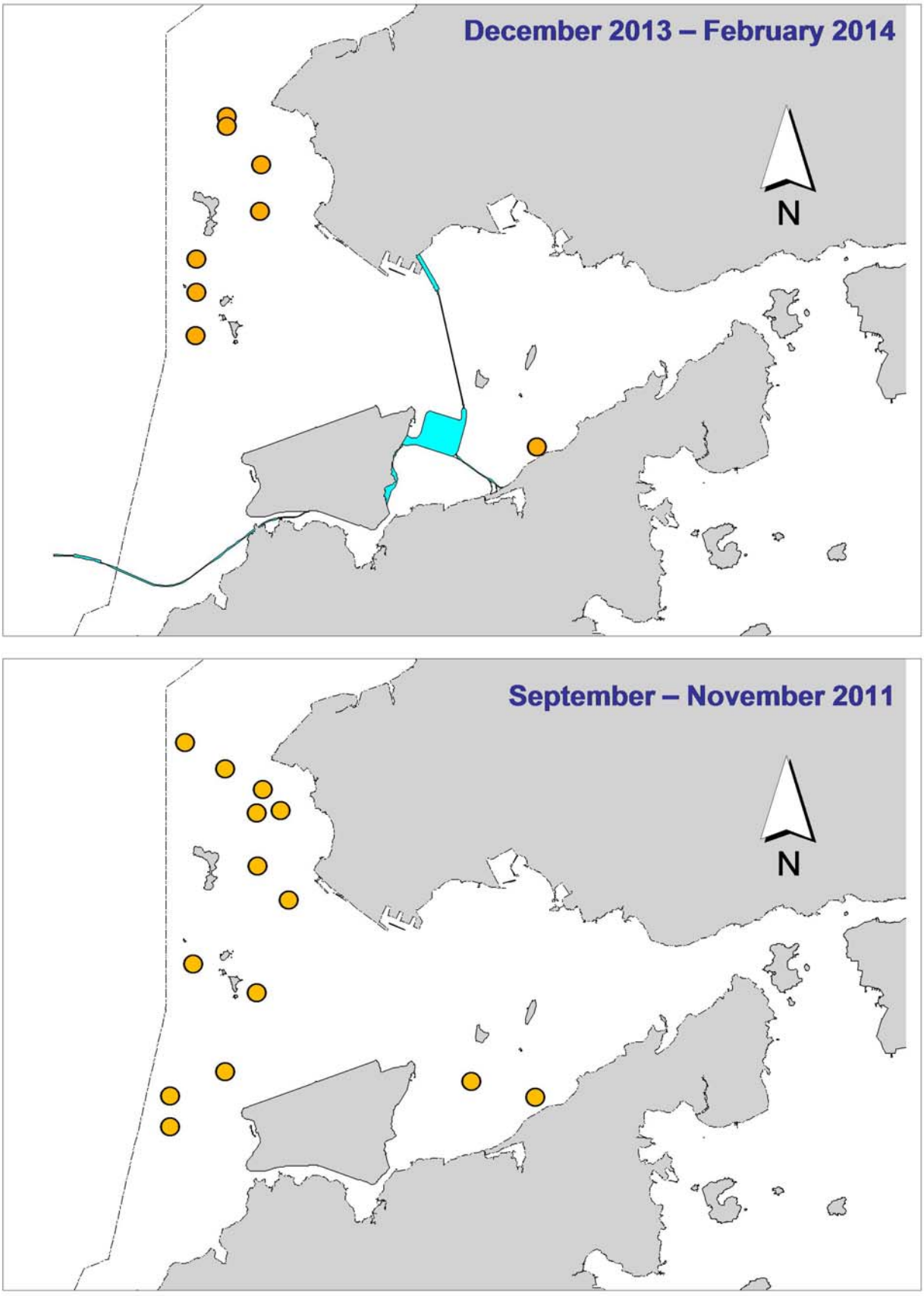


Figure 6. Distribution of young calves of Chinese white dolphins during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

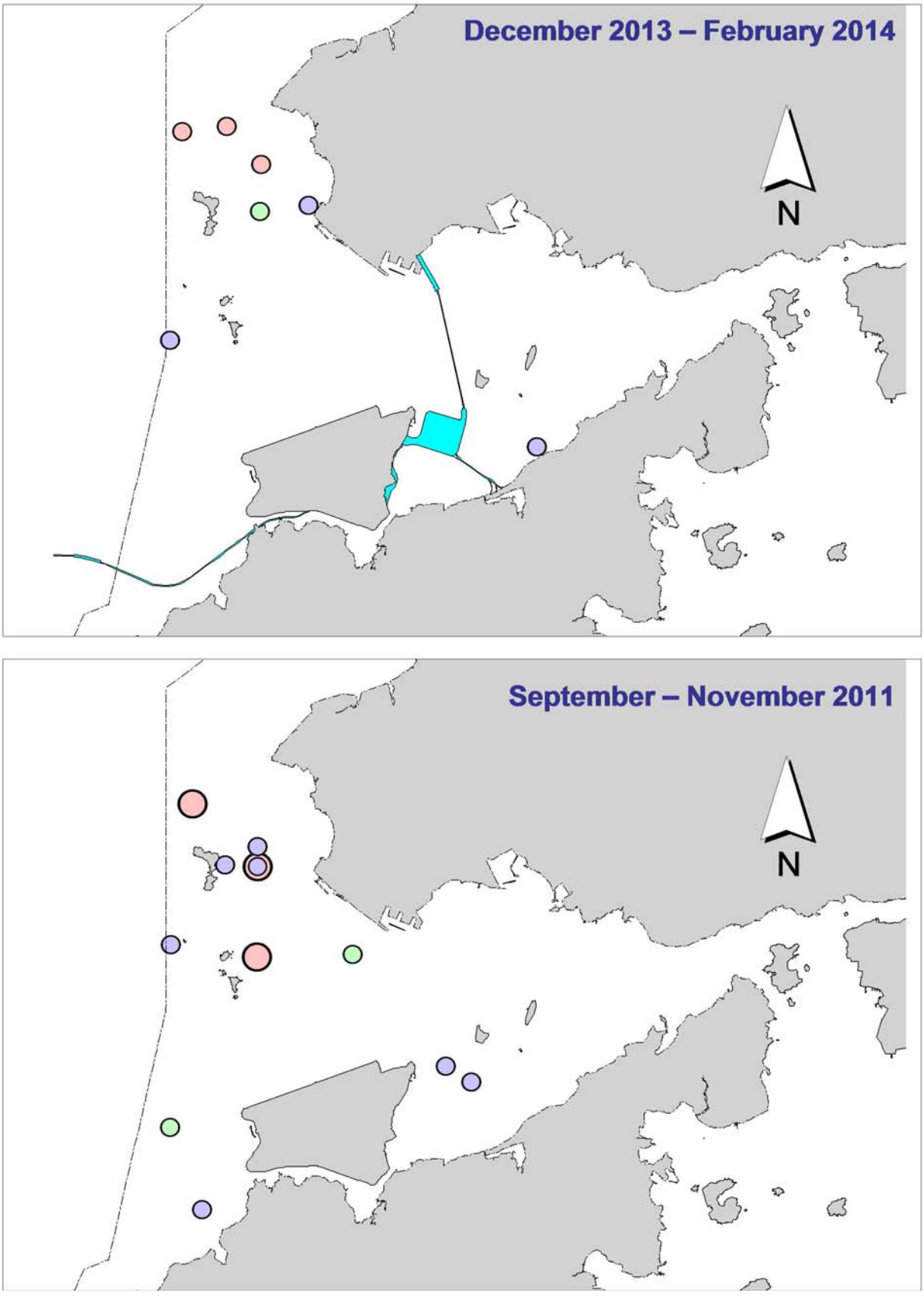


Figure 7. Distribution of Chinese white dolphins engaged in feeding (purple dots), socializing (pink dots) and traveling (green dots) activities during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

Appendix I. HKLR03 Survey Effort Database (November 2013 - February 2014)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
1-Nov-13	NW LANTAU	1	6.43	AUTUMN	STANDARD31516	HKLR	P
1-Nov-13	NW LANTAU	2	28.32	AUTUMN	STANDARD31516	HKLR	P
1-Nov-13	NW LANTAU	3	19.23	AUTUMN	STANDARD31516	HKLR	P
1-Nov-13	NW LANTAU	1	2.25	AUTUMN	STANDARD31516	HKLR	S
1-Nov-13	NW LANTAU	2	5.73	AUTUMN	STANDARD31516	HKLR	S
1-Nov-13	NW LANTAU	3	4.87	AUTUMN	STANDARD31516	HKLR	S
1-Nov-13	NE LANTAU	2	3.67	AUTUMN	STANDARD31516	HKLR	P
5-Nov-13	NE LANTAU	2	34.75	AUTUMN	STANDARD31516	HKLR	P
5-Nov-13	NE LANTAU	2	10.65	AUTUMN	STANDARD31516	HKLR	S
5-Nov-13	NW LANTAU	2	13.99	AUTUMN	STANDARD31516	HKLR	P
5-Nov-13	NW LANTAU	2	6.61	AUTUMN	STANDARD31516	HKLR	S
8-Nov-13	NW LANTAU	0	1.73	AUTUMN	STANDARD31516	HKLR	P
8-Nov-13	NW LANTAU	1	10.57	AUTUMN	STANDARD31516	HKLR	P
8-Nov-13	NW LANTAU	2	39.88	AUTUMN	STANDARD31516	HKLR	P
8-Nov-13	NW LANTAU	3	1.5	AUTUMN	STANDARD31516	HKLR	P
8-Nov-13	NW LANTAU	1	1.29	AUTUMN	STANDARD31516	HKLR	S
8-Nov-13	NW LANTAU	2	5.53	AUTUMN	STANDARD31516	HKLR	S
8-Nov-13	NW LANTAU	3	2.36	AUTUMN	STANDARD31516	HKLR	S
13-Nov-13	NE LANTAU	1	5.7	AUTUMN	STANDARD31516	HKLR	P
13-Nov-13	NE LANTAU	2	21.79	AUTUMN	STANDARD31516	HKLR	P
13-Nov-13	NE LANTAU	3	9.6	AUTUMN	STANDARD31516	HKLR	P
13-Nov-13	NE LANTAU	2	11.71	AUTUMN	STANDARD31516	HKLR	S
13-Nov-13	NE LANTAU	3	1.1	AUTUMN	STANDARD31516	HKLR	S
13-Nov-13	NW LANTAU	1	1.93	AUTUMN	STANDARD31516	HKLR	P
13-Nov-13	NW LANTAU	2	5.89	AUTUMN	STANDARD31516	HKLR	P
13-Nov-13	NW LANTAU	3	6.87	AUTUMN	STANDARD31516	HKLR	P
13-Nov-13	NW LANTAU	2	4.22	AUTUMN	STANDARD31516	HKLR	S
5-Dec-13	NE LANTAU	1	21.06	WINTER	STANDARD31516	HKLR	P
5-Dec-13	NE LANTAU	2	16.22	WINTER	STANDARD31516	HKLR	P
5-Dec-13	NE LANTAU	1	6.64	WINTER	STANDARD31516	HKLR	S
5-Dec-13	NE LANTAU	2	5.18	WINTER	STANDARD31516	HKLR	S
5-Dec-13	NW LANTAU	2	11.53	WINTER	STANDARD31516	HKLR	P
5-Dec-13	NW LANTAU	3	3.89	WINTER	STANDARD31516	HKLR	P
5-Dec-13	NW LANTAU	2	3.87	WINTER	STANDARD31516	HKLR	S
5-Dec-13	NW LANTAU	3	2.51	WINTER	STANDARD31516	HKLR	S
9-Dec-13	NW LANTAU	2	19.03	WINTER	STANDARD31516	HKLR	P
9-Dec-13	NW LANTAU	3	37.52	WINTER	STANDARD31516	HKLR	P
9-Dec-13	NW LANTAU	2	5.22	WINTER	STANDARD31516	HKLR	S
9-Dec-13	NW LANTAU	3	6.78	WINTER	STANDARD31516	HKLR	S
13-Dec-13	NE LANTAU	1	4.5	WINTER	STANDARD31516	HKLR	P
13-Dec-13	NE LANTAU	2	31.16	WINTER	STANDARD31516	HKLR	P
13-Dec-13	NE LANTAU	1	3.9	WINTER	STANDARD31516	HKLR	S
13-Dec-13	NE LANTAU	2	9.44	WINTER	STANDARD31516	HKLR	S
13-Dec-13	NW LANTAU	2	8.88	WINTER	STANDARD31516	HKLR	P
13-Dec-13	NW LANTAU	3	6.4	WINTER	STANDARD31516	HKLR	P
13-Dec-13	NW LANTAU	2	4.12	WINTER	STANDARD31516	HKLR	S
19-Dec-13	NW LANTAU	3	14.06	WINTER	STANDARD31516	HKLR	P
19-Dec-13	NW LANTAU	4	36.79	WINTER	STANDARD31516	HKLR	P
19-Dec-13	NW LANTAU	5	6.1	WINTER	STANDARD31516	HKLR	P
19-Dec-13	NW LANTAU	3	8.79	WINTER	STANDARD31516	HKLR	S
19-Dec-13	NW LANTAU	4	2.91	WINTER	STANDARD31516	HKLR	S

Appendix I. (cont'd)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
19-Dec-13	NW LANTAU	5	0.90	WINTER	STANDARD31516	HKLR	S
7-Jan-14	NE LANTAU	2	1.09	WINTER	STANDARD31516	HKLR	P
7-Jan-14	NE LANTAU	3	14.05	WINTER	STANDARD31516	HKLR	P
7-Jan-14	NE LANTAU	4	1.01	WINTER	STANDARD31516	HKLR	P
7-Jan-14	NE LANTAU	2	3.39	WINTER	STANDARD31516	HKLR	S
7-Jan-14	NE LANTAU	3	7.6	WINTER	STANDARD31516	HKLR	S
7-Jan-14	NW LANTAU	2	9.81	WINTER	STANDARD31516	HKLR	P
7-Jan-14	NW LANTAU	3	28.88	WINTER	STANDARD31516	HKLR	P
7-Jan-14	NW LANTAU	2	8.13	WINTER	STANDARD31516	HKLR	S
7-Jan-14	NW LANTAU	3	3.43	WINTER	STANDARD31516	HKLR	S
9-Jan-14	NE LANTAU	1	4.79	WINTER	STANDARD31516	HKLR	P
9-Jan-14	NE LANTAU	2	14.76	WINTER	STANDARD31516	HKLR	P
9-Jan-14	NE LANTAU	1	2.3	WINTER	STANDARD31516	HKLR	S
9-Jan-14	NE LANTAU	2	8.28	WINTER	STANDARD31516	HKLR	S
9-Jan-14	NW LANTAU	2	10.13	WINTER	STANDARD31516	HKLR	P
9-Jan-14	NW LANTAU	3	21.2	WINTER	STANDARD31516	HKLR	P
9-Jan-14	NW LANTAU	2	5.02	WINTER	STANDARD31516	HKLR	S
9-Jan-14	NW LANTAU	3	2.06	WINTER	STANDARD31516	HKLR	S
21-Jan-14	NE LANTAU	2	4	WINTER	STANDARD 31516	HKLR	P
21-Jan-14	NE LANTAU	3	15.27	WINTER	STANDARD 31516	HKLR	P
21-Jan-14	NE LANTAU	4	1.5	WINTER	STANDARD 31516	HKLR	P
21-Jan-14	NE LANTAU	3	10.76	WINTER	STANDARD 31516	HKLR	S
21-Jan-14	NE LANTAU	4	0.4	WINTER	STANDARD 31516	HKLR	S
21-Jan-14	NW LANTAU	2	13.76	WINTER	STANDARD 31516	HKLR	P
21-Jan-14	NW LANTAU	3	14.44	WINTER	STANDARD 31516	HKLR	P
21-Jan-14	NW LANTAU	4	1.29	WINTER	STANDARD 31516	HKLR	P
21-Jan-14	NW LANTAU	2	4.95	WINTER	STANDARD 31516	HKLR	S
21-Jan-14	NW LANTAU	3	3.95	WINTER	STANDARD 31516	HKLR	S
23-Jan-14	NW LANTAU	1	4.93	WINTER	STANDARD31516	HKLR	P
23-Jan-14	NW LANTAU	2	29.22	WINTER	STANDARD31516	HKLR	P
23-Jan-14	NW LANTAU	3	5.21	WINTER	STANDARD31516	HKLR	P
23-Jan-14	NW LANTAU	1	2.2	WINTER	STANDARD31516	HKLR	S
23-Jan-14	NW LANTAU	2	10.18	WINTER	STANDARD31516	HKLR	S
23-Jan-14	NE LANTAU	1	1.41	WINTER	STANDARD31516	HKLR	P
23-Jan-14	NE LANTAU	2	12.52	WINTER	STANDARD31516	HKLR	P
23-Jan-14	NE LANTAU	3	2.59	WINTER	STANDARD31516	HKLR	P
23-Jan-14	NE LANTAU	1	0.47	WINTER	STANDARD31516	HKLR	S
23-Jan-14	NE LANTAU	2	9.53	WINTER	STANDARD31516	HKLR	S
6-Feb-14	NW LANTAU	1	1.68	WINTER	STANDARD 31516	HKLR	P
6-Feb-14	NW LANTAU	2	35.03	WINTER	STANDARD 31516	HKLR	P
6-Feb-14	NW LANTAU	3	2.9	WINTER	STANDARD 31516	HKLR	P
6-Feb-14	NW LANTAU	2	11.99	WINTER	STANDARD 31516	HKLR	S
6-Feb-14	NW LANTAU	3	1.2	WINTER	STANDARD 31516	HKLR	S
6-Feb-14	NE LANTAU	1	5.59	WINTER	STANDARD 31516	HKLR	P
6-Feb-14	NE LANTAU	2	8.66	WINTER	STANDARD 31516	HKLR	P
6-Feb-14	NE LANTAU	3	2.6	WINTER	STANDARD 31516	HKLR	P
6-Feb-14	NE LANTAU	1	4.45	WINTER	STANDARD 31516	HKLR	S
6-Feb-14	NE LANTAU	2	6.5	WINTER	STANDARD 31516	HKLR	S
12-Feb-14	NE LANTAU	2	13.78	WINTER	STANDARD 31516	HKLR	P
12-Feb-14	NE LANTAU	3	5.91	WINTER	STANDARD 31516	HKLR	P
12-Feb-14	NE LANTAU	1	2.02	WINTER	STANDARD 31516	HKLR	S
12-Feb-14	NE LANTAU	2	5.36	WINTER	STANDARD 31516	HKLR	S
12-Feb-14	NE LANTAU	3	3.53	WINTER	STANDARD 31516	HKLR	S
12-Feb-14	NW LANTAU	2	11.72	WINTER	STANDARD 31516	HKLR	P

Appendix I. (cont'd)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
12-Feb-14	NW LANTAU	3	15.87	WINTER	STANDARD 31516	HKLR	P
12-Feb-14	NW LANTAU	2	3.67	WINTER	STANDARD 31516	HKLR	S
12-Feb-14	NW LANTAU	3	7.72	WINTER	STANDARD 31516	HKLR	S
14-Feb-14	NE LANTAU	2	11.72	WINTER	STANDARD 31516	HKLR	P
14-Feb-14	NE LANTAU	3	5.58	WINTER	STANDARD 31516	HKLR	P
14-Feb-14	NE LANTAU	2	7.68	WINTER	STANDARD 31516	HKLR	S
14-Feb-14	NE LANTAU	3	2.72	WINTER	STANDARD 31516	HKLR	S
14-Feb-14	NW LANTAU	2	17.02	WINTER	STANDARD 31516	HKLR	P
14-Feb-14	NW LANTAU	3	24.77	WINTER	STANDARD 31516	HKLR	P
14-Feb-14	NW LANTAU	2	9.82	WINTER	STANDARD 31516	HKLR	S
14-Feb-14	NW LANTAU	3	2.18	WINTER	STANDARD 31516	HKLR	S
20-Feb-14	NW LANTAU	3	22.68	WINTER	STANDARD 31516	HKLR	P
20-Feb-14	NW LANTAU	4	6.16	WINTER	STANDARD 31516	HKLR	P
20-Feb-14	NW LANTAU	3	7.31	WINTER	STANDARD 31516	HKLR	S
20-Feb-14	NE LANTAU	2	17.92	WINTER	STANDARD 31516	HKLR	P
20-Feb-14	NE LANTAU	3	2.19	WINTER	STANDARD 31516	HKLR	P
20-Feb-14	NE LANTAU	1	0.97	WINTER	STANDARD 31516	HKLR	S
20-Feb-14	NE LANTAU	2	8.94	WINTER	STANDARD 31516	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (November 2013 - February 2014)

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

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
1-Nov-13	1	1049	4	NW LANTAU	2	74	ON	HKLR	823145	809509	AUTUMN	NONE	P
1-Nov-13	2	1152	3	NW LANTAU	3	214	ON	HKLR	826947	807517	AUTUMN	NONE	P
1-Nov-13	3	1203	7	NW LANTAU	3	159	ON	HKLR	827235	807539	AUTUMN	NONE	P
1-Nov-13	4	1225	1	NW LANTAU	2	137	ON	HKLR	827490	807539	AUTUMN	NONE	P
1-Nov-13	5	1236	3	NW LANTAU	2	358	ON	HKLR	828232	807530	AUTUMN	NONE	P
1-Nov-13	6	1252	7	NW LANTAU	2	ND	OFF	HKLR	828941	807583	AUTUMN	NONE	
1-Nov-13	7	1312	4	NW LANTAU	2	72	ON	HKLR	830018	805999	AUTUMN	NONE	S
1-Nov-13	8	1458	11	NW LANTAU	3	60	ON	HKLR	821228	804642	AUTUMN	NONE	P
5-Nov-13	1	1421	5	NW LANTAU	2	378	ON	HKLR	828097	808508	AUTUMN	NONE	P
8-Nov-13	1	1041	4	NW LANTAU	1	302	ON	HKLR	824489	807678	AUTUMN	NONE	P
8-Nov-13	2	1103	8	NW LANTAU	2	694	ON	HKLR	827091	807858	AUTUMN	NONE	P
8-Nov-13	3	1152	7	NW LANTAU	3	299	ON	HKLR	827660	805459	AUTUMN	NONE	P
8-Nov-13	4	1215	9	NW LANTAU	2	756	ON	HKLR	825357	805465	AUTUMN	NONE	P
8-Nov-13	5	1232	5	NW LANTAU	2	ND	OFF	HKLR	825025	805464	AUTUMN	NONE	
8-Nov-13	6	1249	4	NW LANTAU	2	7	ON	HKLR	823806	805462	AUTUMN	NONE	P
8-Nov-13	7	1400	2	NW LANTAU	2	155	ON	HKLR	818382	804657	AUTUMN	NONE	P
8-Nov-13	8	1426	8	NW LANTAU	2	149	ON	HKLR	823675	804648	AUTUMN	NONE	P
8-Nov-13	9	1526	1	NW LANTAU	2	45	ON	HKLR	826872	806446	AUTUMN	NONE	P
8-Nov-13	10	1536	4	NW LANTAU	1	225	ON	HKLR	825643	806454	AUTUMN	NONE	P
8-Nov-13	11	1606	4	NW LANTAU	2	223	ON	HKLR	821988	806457	AUTUMN	NONE	P
13-Nov-13	1	1451	1	NW LANTAU	3	343	ON	HKLR	825118	808482	AUTUMN	NONE	P
5-Dec-13	1	1127	3	NE LANTAU	1	275	ON	HKLR	820787	816500	WINTER	NONE	P
9-Dec-13	1	1119	1	NW LANTAU	3	77	ON	HKLR	822544	811516	WINTER	NONE	P
9-Dec-13	2	1238	4	NW LANTAU	2	132	ON	HKLR	826515	807547	WINTER	NONE	P
9-Dec-13	3	1256	12	NW LANTAU	2	103	ON	HKLR	827833	807540	WINTER	NONE	P
9-Dec-13	4	1518	4	NW LANTAU	3	177	ON	HKLR	823088	804646	WINTER	NONE	P
9-Dec-13	5	1539	1	NW LANTAU	2	866	ON	HKLR	826577	804664	WINTER	NONE	P
19-Dec-13	1	1203	2	NW LANTAU	3	73	ON	HKLR	824648	805453	WINTER	NONE	P
19-Dec-13	2	1216	6	NW LANTAU	3	150	ON	HKLR	823972	805483	WINTER	NONE	P
7-Jan-14	1	1258	2	NW LANTAU	3	87	ON	HKLR	825659	809348	WINTER	NONE	S
7-Jan-14	2	1337	1	NW LANTAU	3	125	ON	HKLR	825152	808472	WINTER	NONE	P
7-Jan-14	3	1452	3	NW LANTAU	2	1171	ON	HKLR	826673	806456	WINTER	NONE	P

Appendix II. (cont'd)

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

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
7-Jan-14	4	1515	6	NW LANTAU	2	5	ON	HKLR	829275	806451	WINTER	NONE	P
9-Jan-14	1	1336	6	NW LANTAU	3	24	ON	HKLR	823238	807510	WINTER	NONE	P
9-Jan-14	2	1407	10	NW LANTAU	2	62	ON	HKLR	826405	807506	WINTER	NONE	P
9-Jan-14	3	1435	1	NW LANTAU	3	56	ON	HKLR	826272	807526	WINTER	NONE	P
9-Jan-14	4	1534	3	NW LANTAU	2	131	ON	HKLR	826675	805395	WINTER	NONE	S
9-Jan-14	5	1546	1	NW LANTAU	2	113	ON	HKLR	826176	805446	WINTER	NONE	P
21-Jan-14	1	1407	2	NW LANTAU	2	99	ON	HKLR	829916	806916	WINTER	NONE	S
21-Jan-14	2	1426	7	NW LANTAU	2	260	ON	HKLR	830008	805474	WINTER	NONE	P
21-Jan-14	3	1444	2	NW LANTAU	2	84	ON	HKLR	829188	805452	WINTER	NONE	P
21-Jan-14	4	1521	9	NW LANTAU	2	434	ON	HKLR	824969	805464	WINTER	NONE	P
23-Jan-14	1	1015	2	NW LANTAU	2	977	ON	HKLR	816090	804642	WINTER	NONE	P
23-Jan-14	2	1101	4	NW LANTAU	2	329	ON	HKLR	826576	804674	WINTER	NONE	P
23-Jan-14	3	1133	3	NW LANTAU	1	957	ON	HKLR	830195	806061	WINTER	NONE	P
23-Jan-14	4	1202	5	NW LANTAU	1	199	ON	HKLR	828976	806450	WINTER	NONE	P
23-Jan-14	5	1250	2	NW LANTAU	2	372	ON	HKLR	821623	806467	WINTER	NONE	P
23-Jan-14	6	1538	9	NE LANTAU	2	365	ON	HKLR	819337	816344	WINTER	NONE	S
6-Feb-14	1	1040	2	NW LANTAU	2	895	ON	HKLR	822535	804645	WINTER	HANG	P
6-Feb-14	2	1049	4	NW LANTAU	2	515	ON	HKLR	823908	804658	WINTER	NONE	P
6-Feb-14	3	1109	2	NW LANTAU	2	422	ON	HKLR	825591	804672	WINTER	NONE	P
6-Feb-14	4	1204	3	NW LANTAU	1	888	ON	HKLR	826473	806445	WINTER	NONE	P
6-Feb-14	5	1428	4	NE LANTAU	2	ND	OFF	HKLR	824423	813528	WINTER	NONE	
12-Feb-14	1	1449	1	NW LANTAU	2	290	ON	HKLR	828878	805462	WINTER	NONE	P
14-Feb-14	1	1237	1	NW LANTAU	2	ND	OFF	HKLR	826601	809051	WINTER	NONE	
14-Feb-14	2	1348	4	NW LANTAU	3	133	ON	HKLR	821401	806466	WINTER	NONE	P
14-Feb-14	3	1525	1	NW LANTAU	3	112	ON	HKLR	824262	804649	WINTER	NONE	P
20-Feb-14	1	1046	7	NW LANTAU	3	72	ON	HKLR	822688	805449	WINTER	NONE	P
20-Feb-14	2	1135	7	NW LANTAU	3	648	ON	HKLR	828813	805029	WINTER	NONE	P

Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in November 2013 - February 2014

ID#	DATE	STG#	AREA
CH34	05/11/13	1	NW LANTAU
	08/11/13	4	NW LANTAU
	08/11/13	5	NW LANTAU
	09/12/13	3	NW LANTAU
	23/01/14	4	NW LANTAU
	20/02/14	1	NW LANTAU
CH112	23/01/14	2	NW LANTAU
EL01	05/11/13	1	NW LANTAU
	05/12/13	1	NE LANTAU
	21/01/14	1	NW LANTAU
	23/01/14	6	NE LANTAU
	06/02/14	5	NE LANTAU
NL11	23/01/14	3	NW LANTAU
NL24	08/11/13	4	NW LANTAU
	08/11/13	5	NW LANTAU
	05/12/13	1	NE LANTAU
	09/12/13	4	NW LANTAU
	19/12/13	2	NW LANTAU
	09/01/14	2	NW LANTAU
	23/01/14	6	NE LANTAU
	20/02/14	1	NW LANTAU
NL33	05/11/13	1	NW LANTAU
	08/11/13	4	NW LANTAU
	08/11/13	5	NW LANTAU
	08/11/13	11	NW LANTAU
	09/01/14	2	NW LANTAU
	23/01/14	6	NE LANTAU
NL37	08/11/13	2	NW LANTAU
NL46	01/11/13	3	NW LANTAU
	23/01/14	4	NW LANTAU
NL48	08/11/13	9	NW LANTAU
	09/12/13	3	NW LANTAU
	07/01/14	4	NW LANTAU
	09/01/14	2	NW LANTAU
	09/01/14	3	NW LANTAU
	21/01/14	1	NW LANTAU
	23/01/14	3	NW LANTAU
NL49	08/11/13	2	NW LANTAU
	09/12/13	3	NW LANTAU

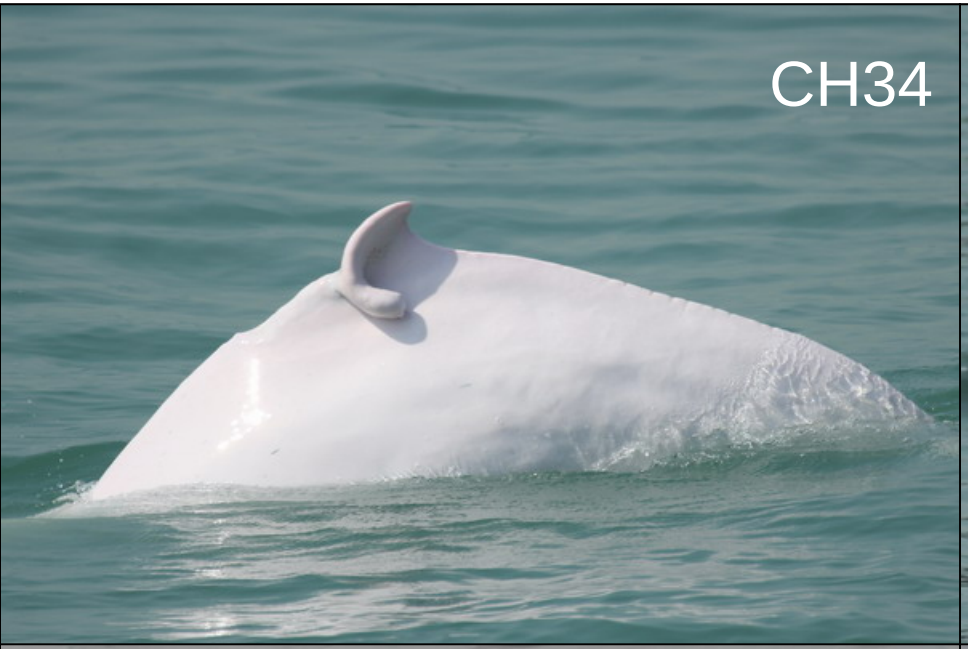
ID#	DATE	STG#	AREA
NL80	01/11/13	3	NW LANTAU
	01/11/13	6	NW LANTAU
	08/11/13	6	NW LANTAU
	21/01/14	2	NW LANTAU
NL93	01/11/13	8	NW LANTAU
	20/02/14	2	NW LANTAU
NL98	01/11/13	2	NW LANTAU
	19/12/13	2	NW LANTAU
	09/01/14	2	NW LANTAU
	20/02/14	1	NW LANTAU
NL103	08/11/13	3	NW LANTAU
	07/01/14	4	NW LANTAU
NL104	09/12/13	3	NW LANTAU
	23/01/14	4	NW LANTAU
NL120	09/01/14	2	NW LANTAU
	23/01/14	6	NE LANTAU
	06/02/14	5	NE LANTAU
NL123	08/11/13	11	NW LANTAU
	23/01/14	2	NW LANTAU
	23/01/14	5	NW LANTAU
NL136	01/11/13	8	NW LANTAU
	09/12/13	2	NW LANTAU
	07/01/14	1	NW LANTAU
	09/01/14	1	NW LANTAU
	20/02/14	2	NW LANTAU
NL139	01/11/13	8	NW LANTAU
	08/11/13	1	NW LANTAU
	09/12/13	2	NW LANTAU
	07/01/14	1	NW LANTAU
	09/01/14	1	NW LANTAU
	23/01/14	6	NE LANTAU
	20/02/14	1	NW LANTAU
NL145	01/11/13	3	NW LANTAU
NL150	08/11/13	3	NW LANTAU
NL165	01/11/13	8	NW LANTAU
	08/11/13	1	NW LANTAU
	09/12/13	3	NW LANTAU
	20/02/14	1	NW LANTAU
NL182	01/11/13	6	NW LANTAU
NL188	08/11/13	8	NW LANTAU

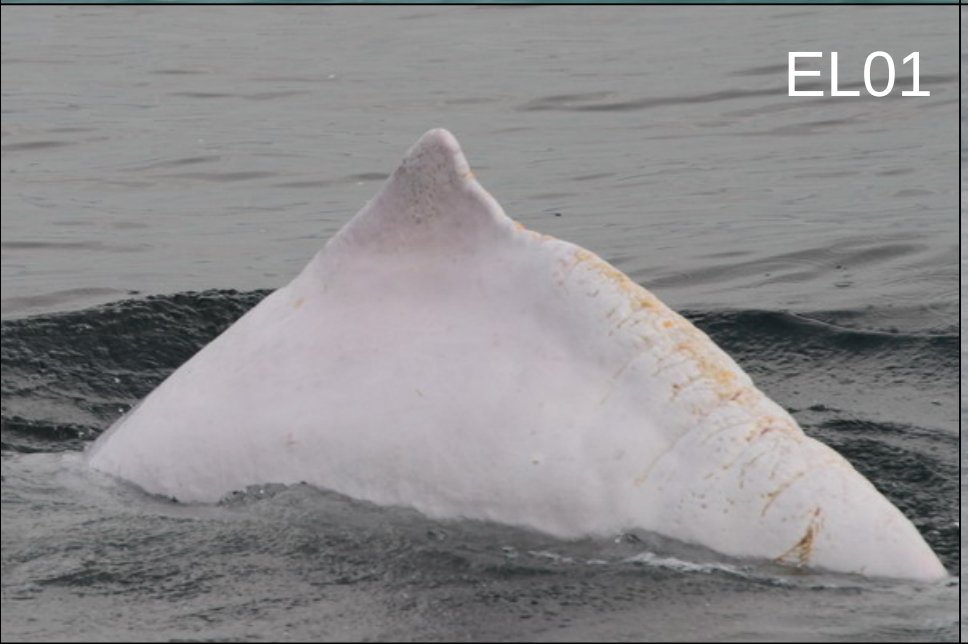
Appendix III. (cont'd)

ID#	DATE	STG#	AREA
NL202	06/02/14	3	NW LANTAU
NL210	14/02/14	1	NW LANTAU
NL212	08/11/13	3	NW LANTAU
NL214	07/01/14	4	NW LANTAU
	21/01/14	4	NW LANTAU
NL220	09/01/14	1	NW LANTAU
NL221	07/01/14	4	NW LANTAU
	21/01/14	4	NW LANTAU
NL226	01/11/13	1	NW LANTAU
	05/12/13	1	NE LANTAU
	21/01/14	4	NW LANTAU
NL236	01/11/13	7	NW LANTAU
	08/11/13	2	NW LANTAU
	21/01/14	3	NW LANTAU
NL242	08/11/13	4	NW LANTAU
	08/11/13	5	NW LANTAU
	19/12/13	2	NW LANTAU
	09/01/14	2	NW LANTAU
	23/01/14	6	NE LANTAU
NL244	09/12/13	1	NW LANTAU
NL259	01/11/13	8	NW LANTAU
	23/01/14	4	NW LANTAU
	20/02/14	2	NW LANTAU
NL260	20/02/14	2	NW LANTAU
NL261	01/11/13	1	NW LANTAU
	08/11/13	1	NW LANTAU
	08/11/13	10	NW LANTAU
	09/12/13	3	NW LANTAU
	23/01/14	4	NW LANTAU
	06/02/14	5	NE LANTAU
NL262	01/11/13	8	NW LANTAU
	09/12/13	3	NW LANTAU
NL269	01/11/13	8	NW LANTAU
NL272	01/11/13	1	NW LANTAU
	08/11/13	4	NW LANTAU
	09/01/14	1	NW LANTAU
	21/01/14	2	NW LANTAU
	23/01/14	6	NE LANTAU

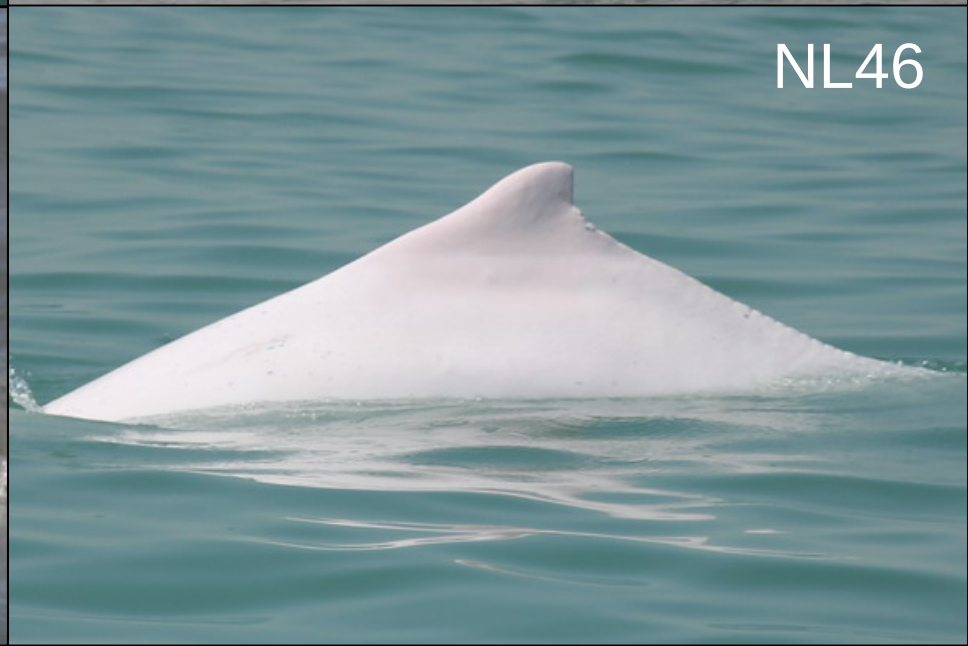
ID#	DATE	STG#	AREA
NL284	01/11/13	1	NW LANTAU
	09/12/13	3	NW LANTAU
	21/01/14	4	NW LANTAU
	20/02/14	1	NW LANTAU
NL285	08/11/13	11	NW LANTAU
	23/01/14	2	NW LANTAU
NL286	06/02/14	3	NW LANTAU
NL296	05/11/13	1	NW LANTAU
	20/02/14	2	NW LANTAU
NL300	08/11/13	6	NW LANTAU
NL301	01/11/13	4	NW LANTAU
	01/11/13	6	NW LANTAU
NL308	21/01/14	2	NW LANTAU
SL35	08/11/13	10	NW LANTAU
WL04	01/11/13	8	NW LANTAU
	09/12/13	2	NW LANTAU
WL05	01/11/13	8	NW LANTAU
	09/12/13	3	NW LANTAU
WL11	08/11/13	2	NW LANTAU
WL15	08/11/13	10	NW LANTAU
WL46	09/12/13	3	NW LANTAU
WL79	08/11/13	4	NW LANTAU
WL98	08/11/13	4	NW LANTAU
WL124	08/11/13	8	NW LANTAU
WL162	21/01/14	3	NW LANTAU
WL179	09/12/13	4	NW LANTAU
WL214	09/01/14	4	NW LANTAU

Appendix IV. Fifty-nine individual dolphins that were identified during November 2013 – February 2014 under HKLR03 impact phase monitoring surveys

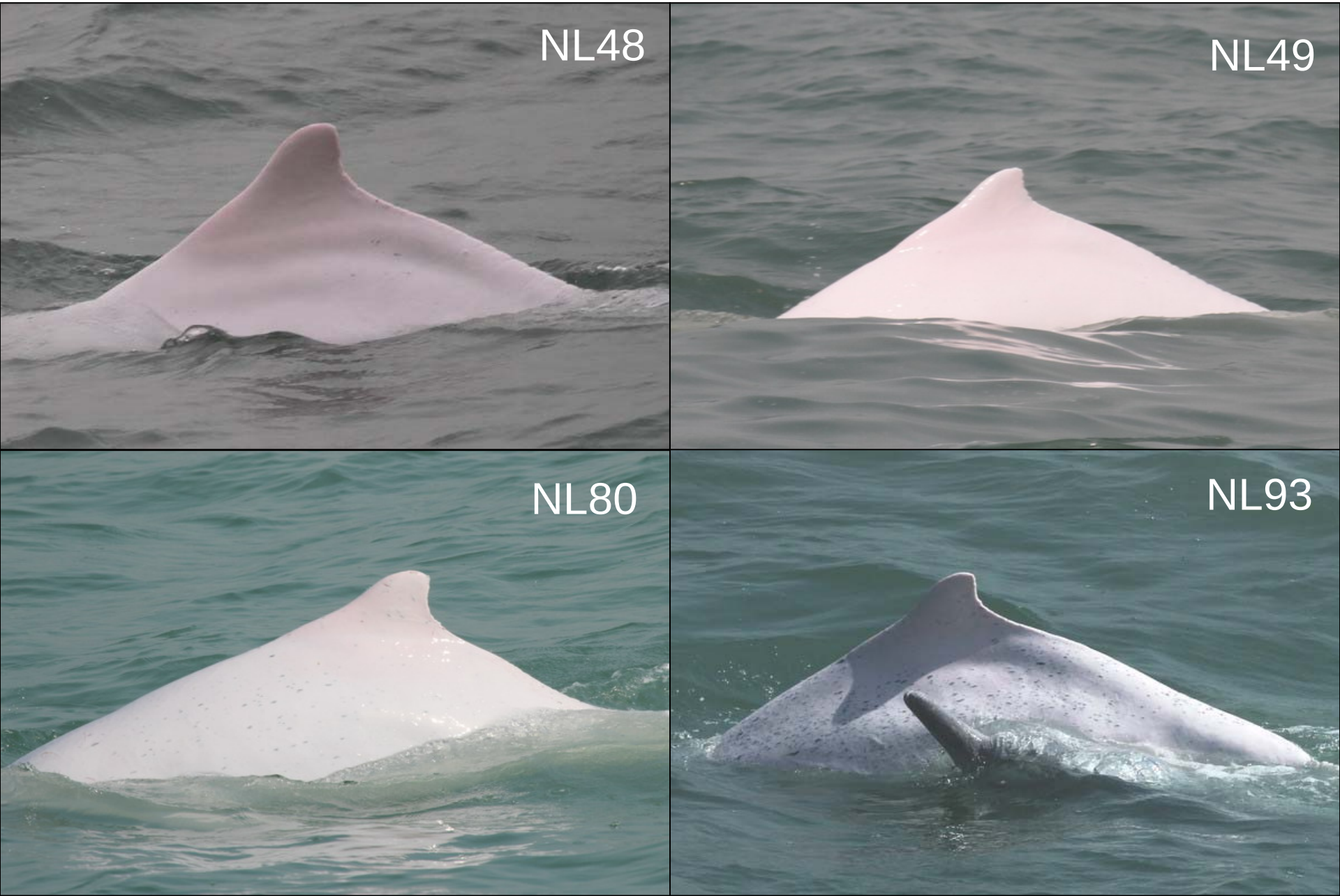




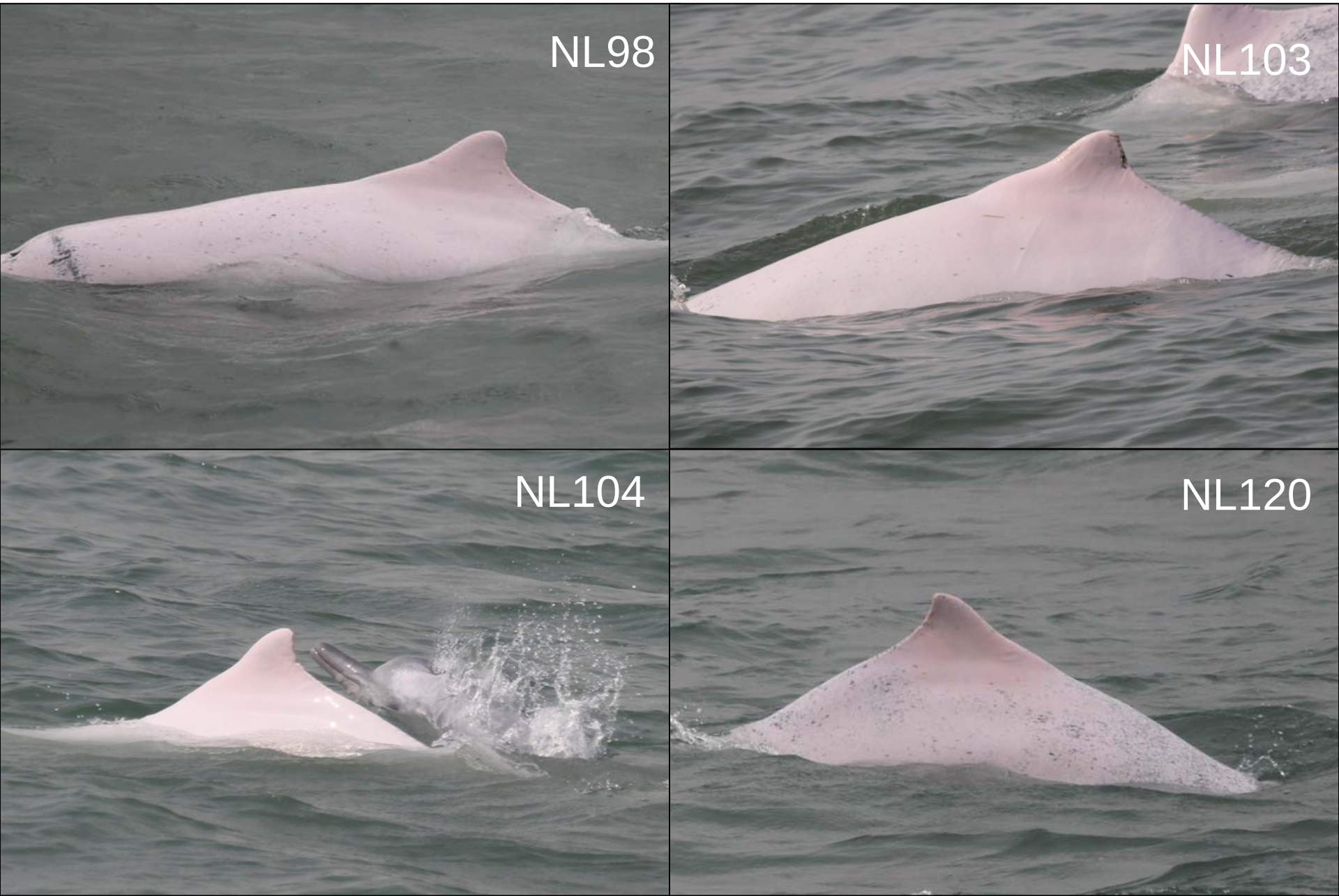
Appendix IV. (cont'd)



Appendix IV. (cont'd)



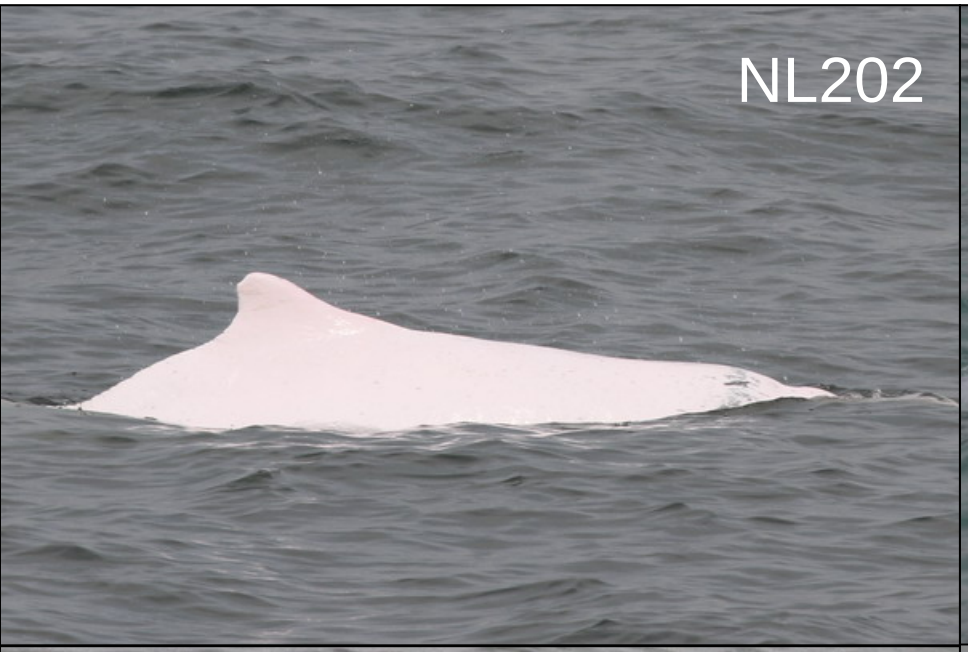
Appendix IV. (cont'd)



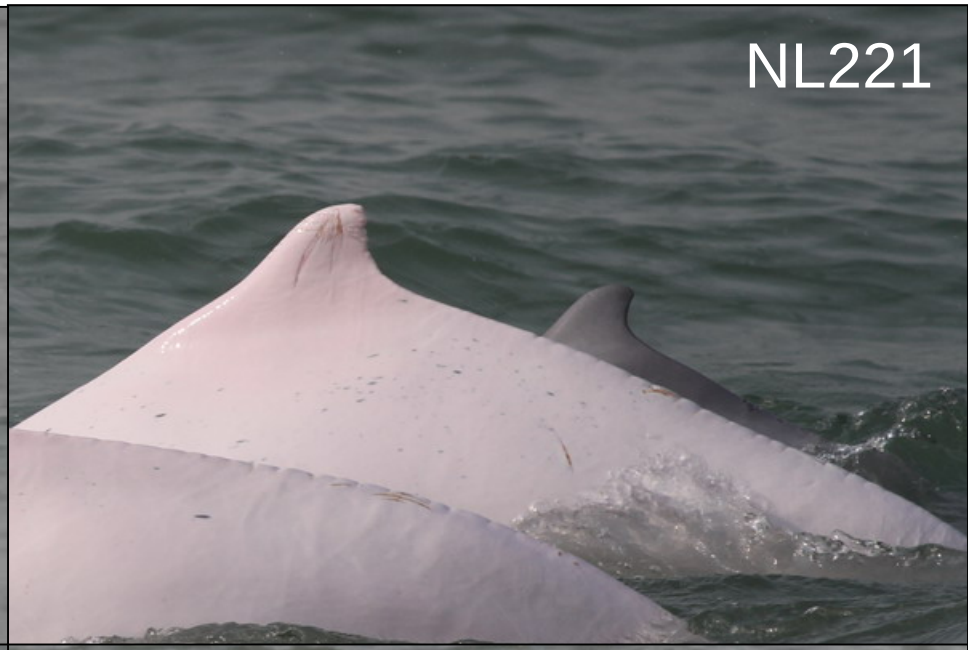
Appendix IV. (cont'd)

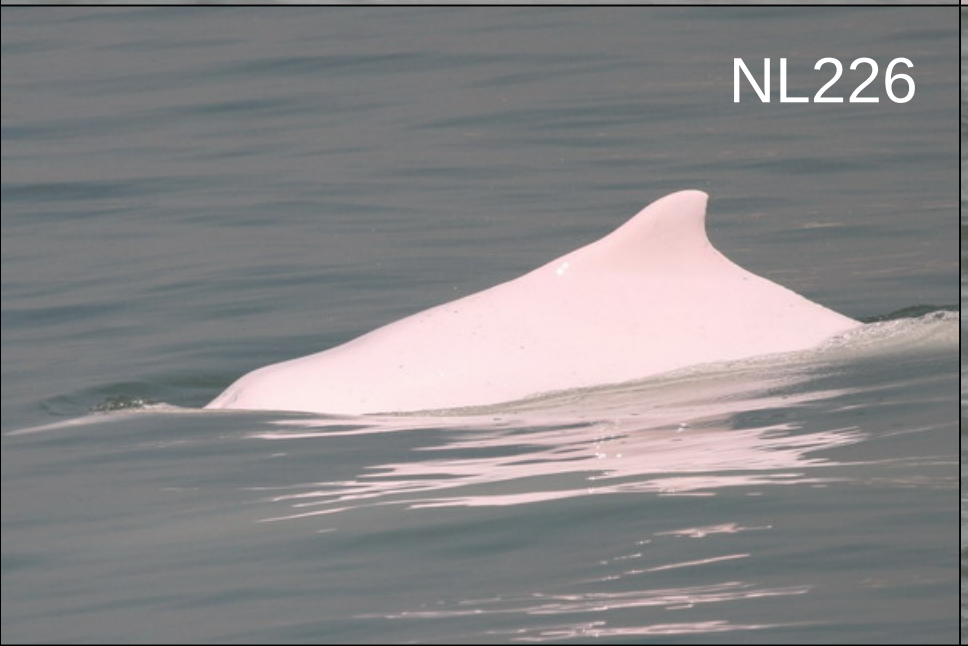
Appendix IV. (cont'd)

Appendix IV. (cont'd)



Appendix IV. (cont'd)





Appendix IV. (cont'd)

Appendix IV. (cont'd)

Appendix IV. (cont'd)

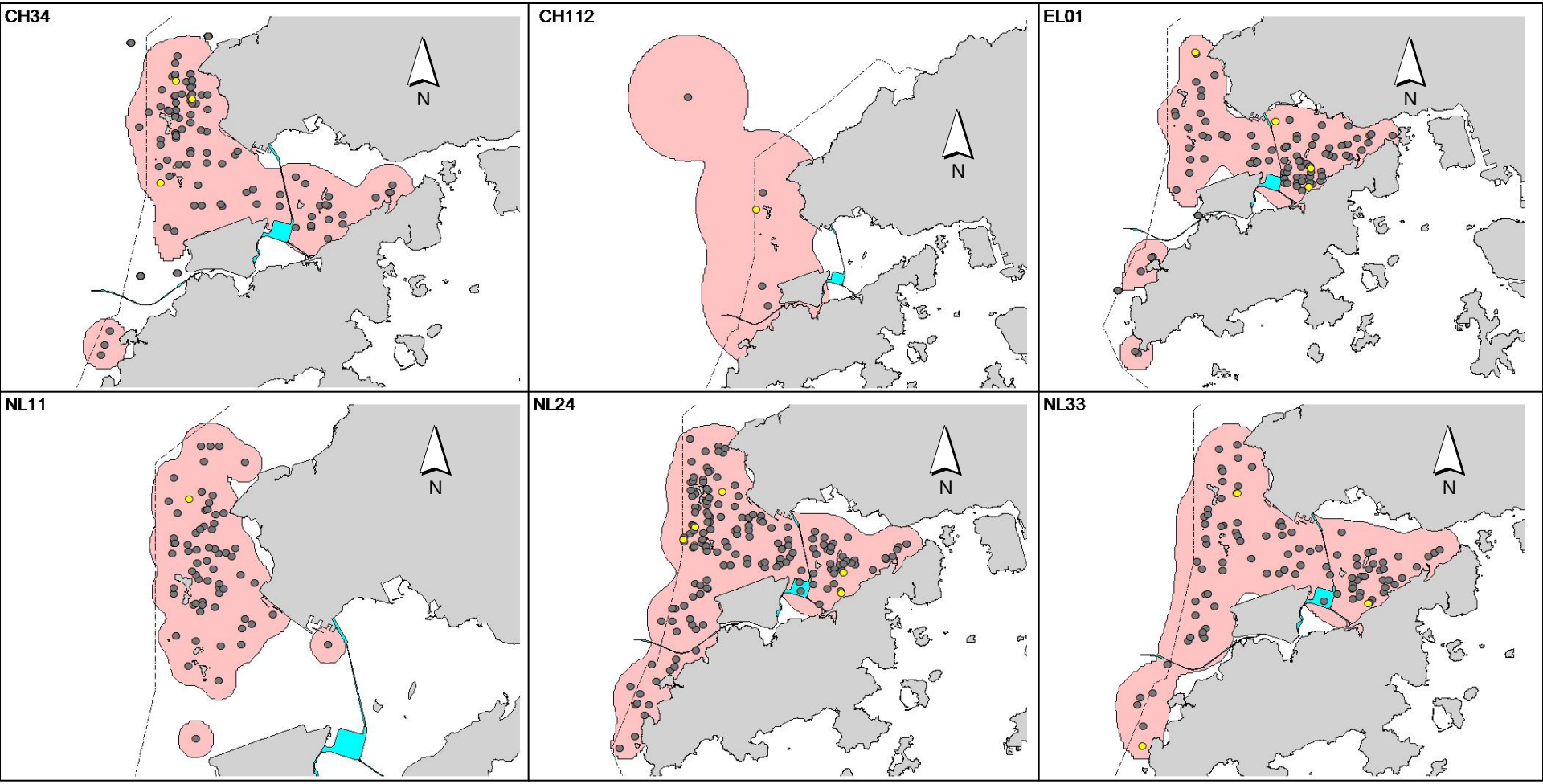
Appendix IV. (cont'd)

Appendix IV. (cont'd)

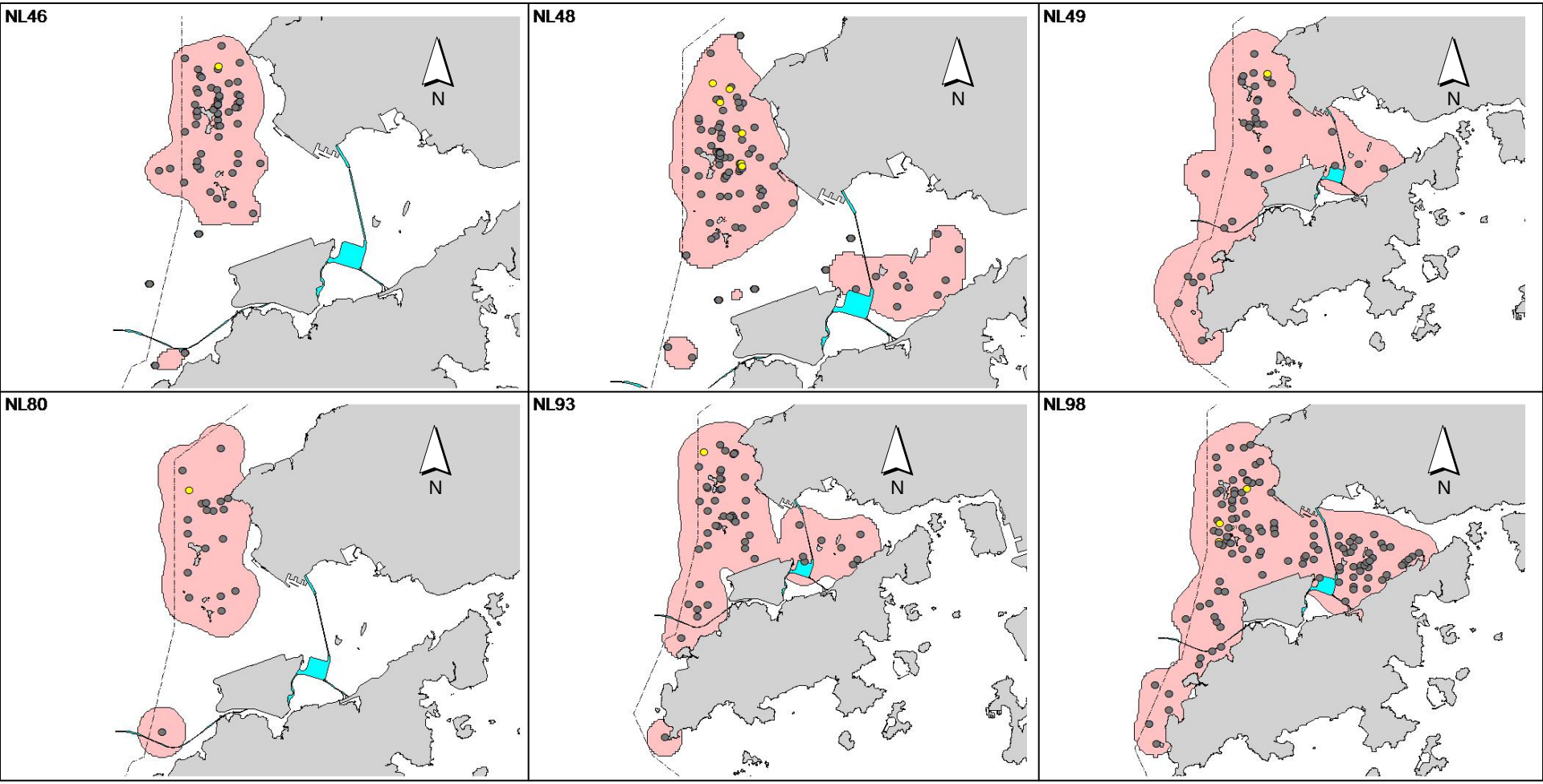
Appendix IV. (cont'd)

Appendix IV. (cont'd)

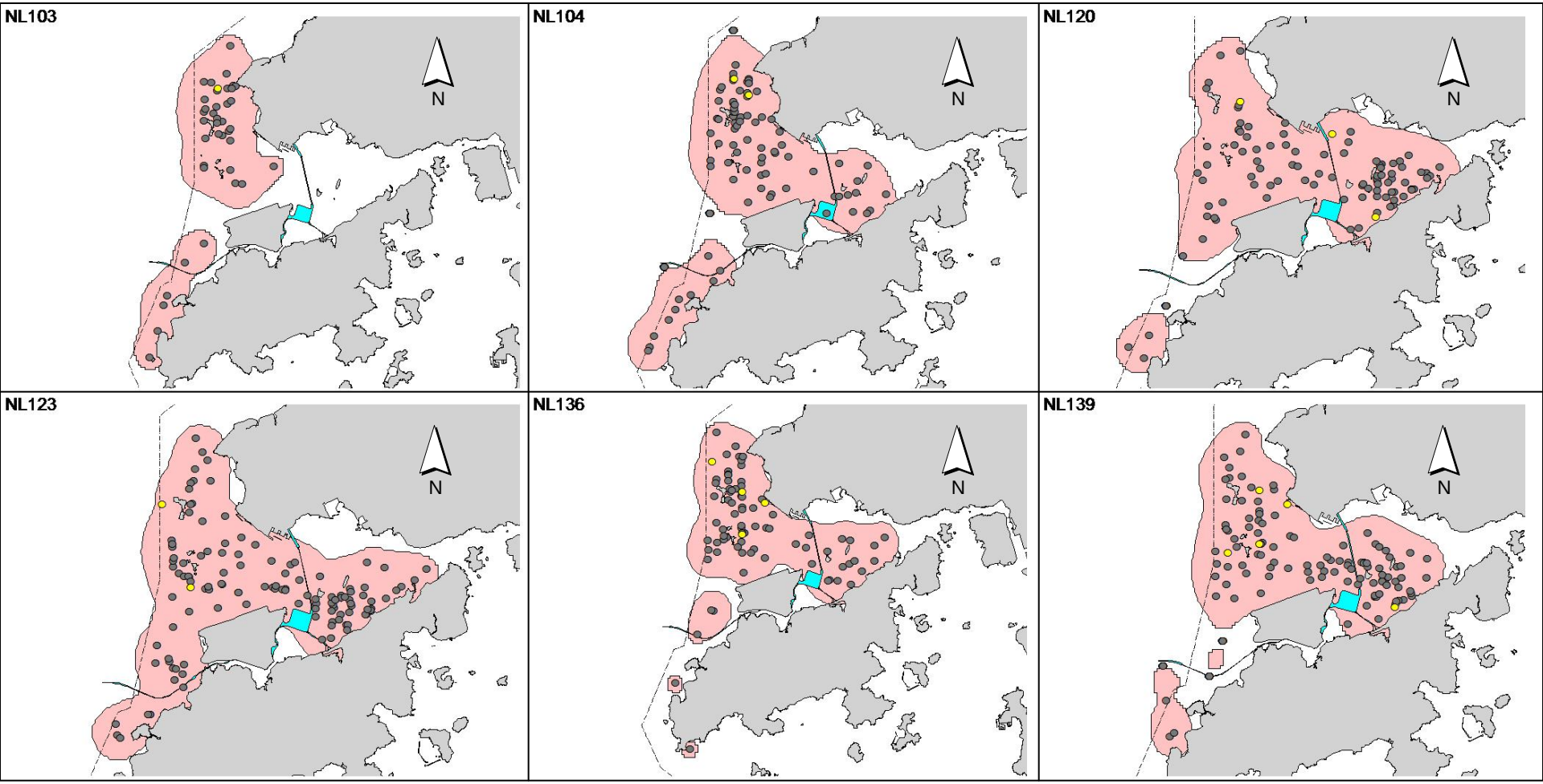
Appendix V. Ranging patterns (95% kernel ranges) of 44 individual dolphins that were sighted during HKLR03 impact phase monitoring period (note: yellow dots indicates sightings made in December 2013 – February 2014)



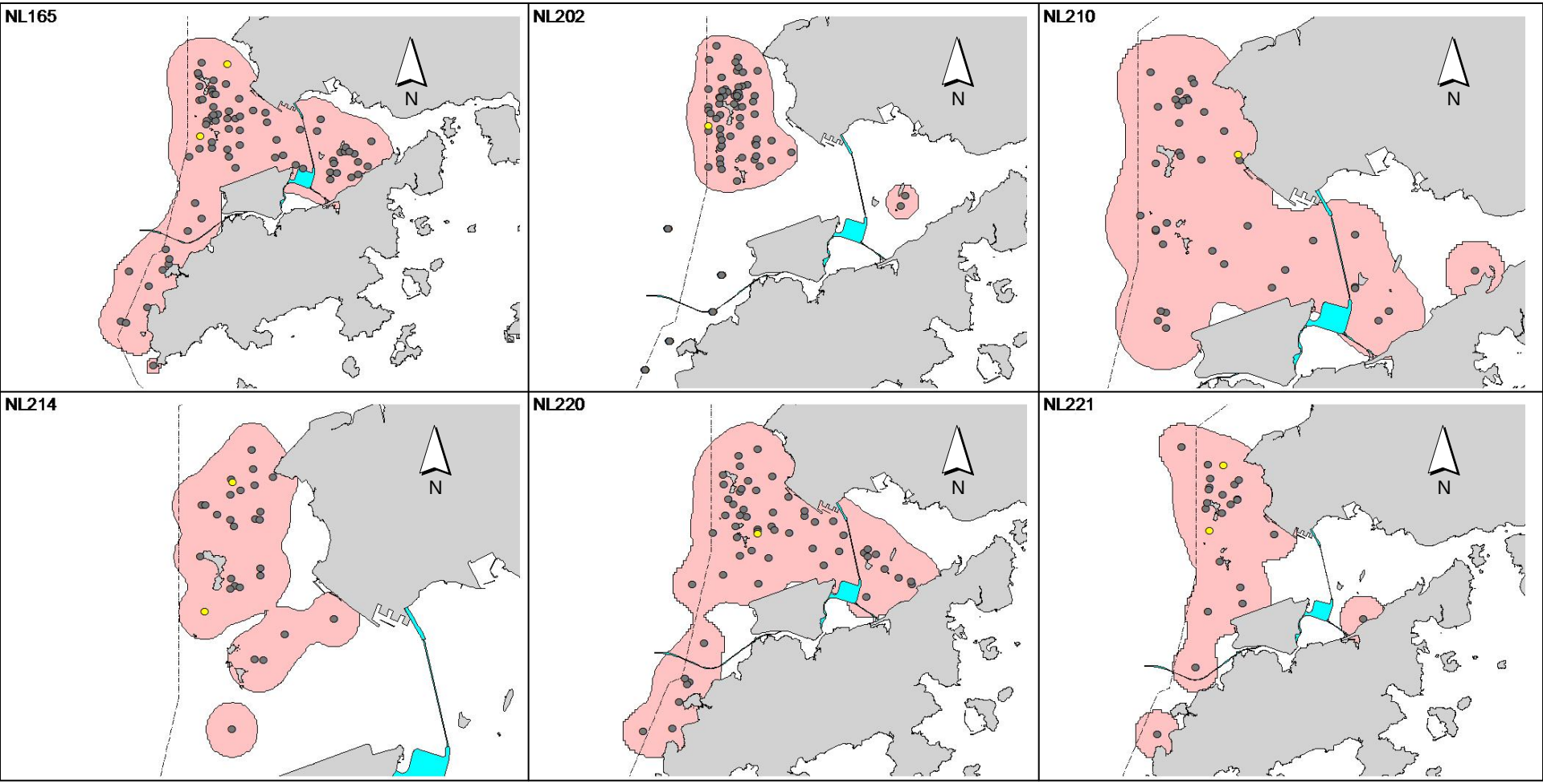
Appendix V. (cont'd)



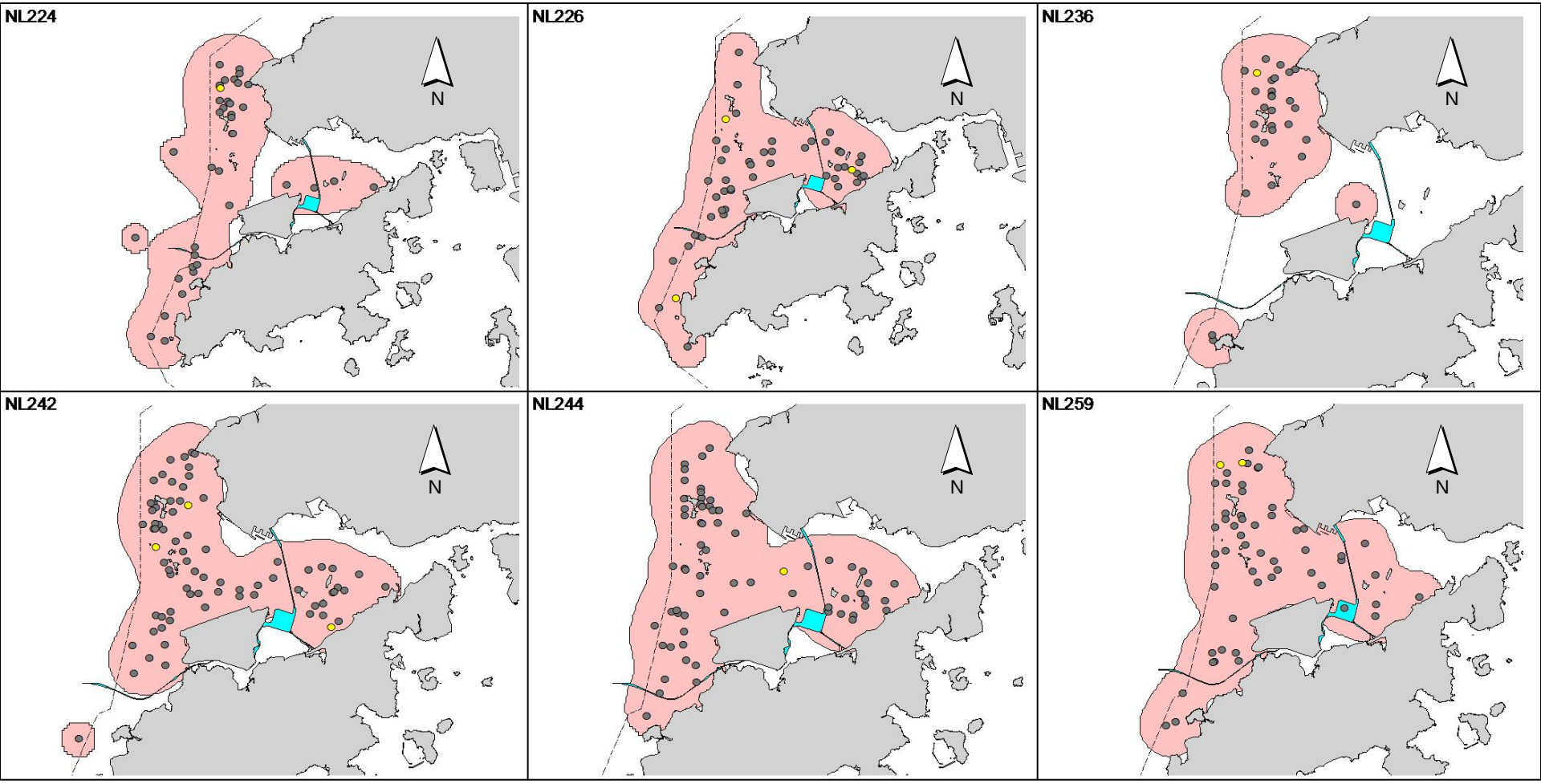
Appendix V. (cont'd)



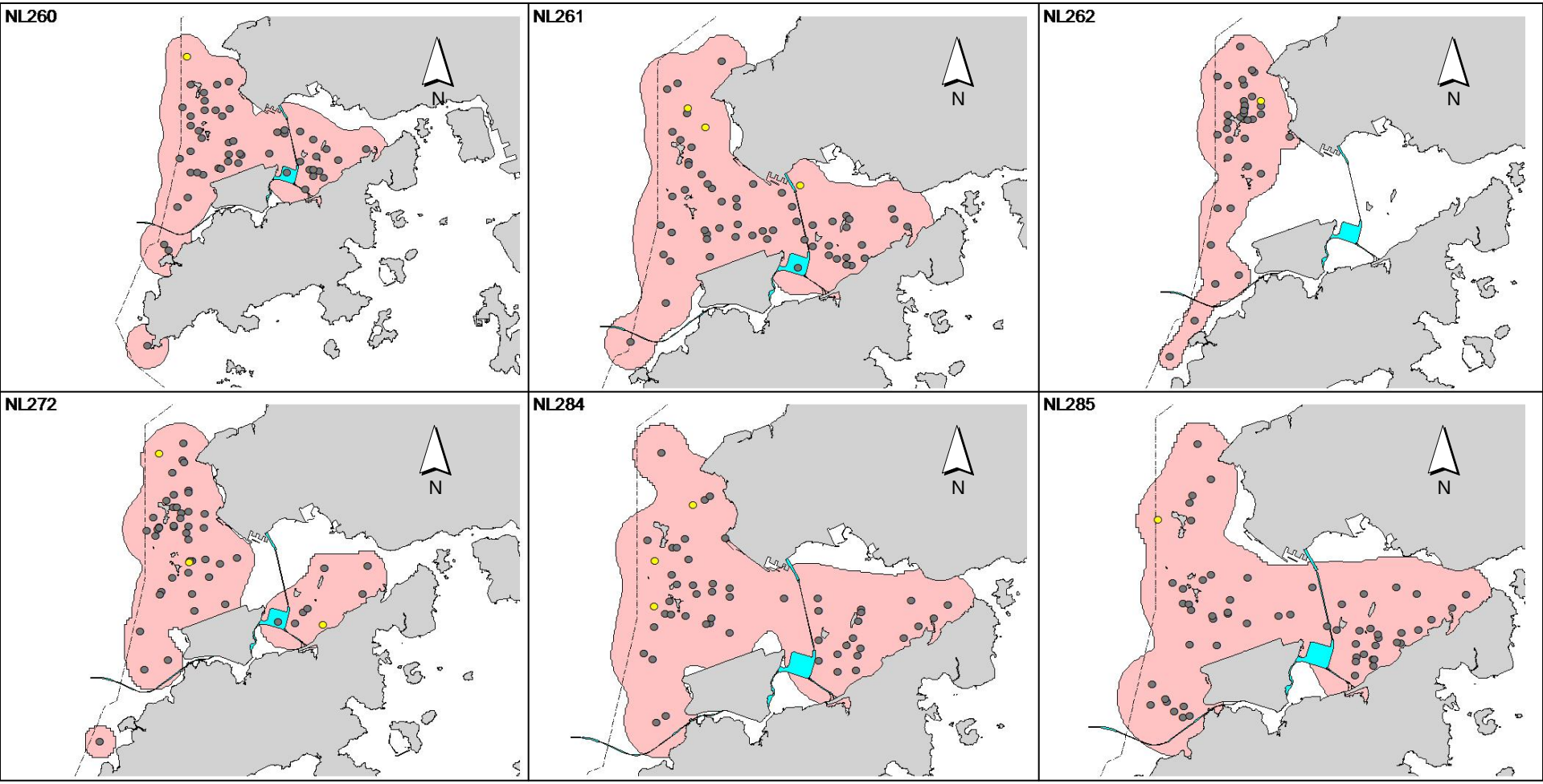
Appendix V. (cont'd)



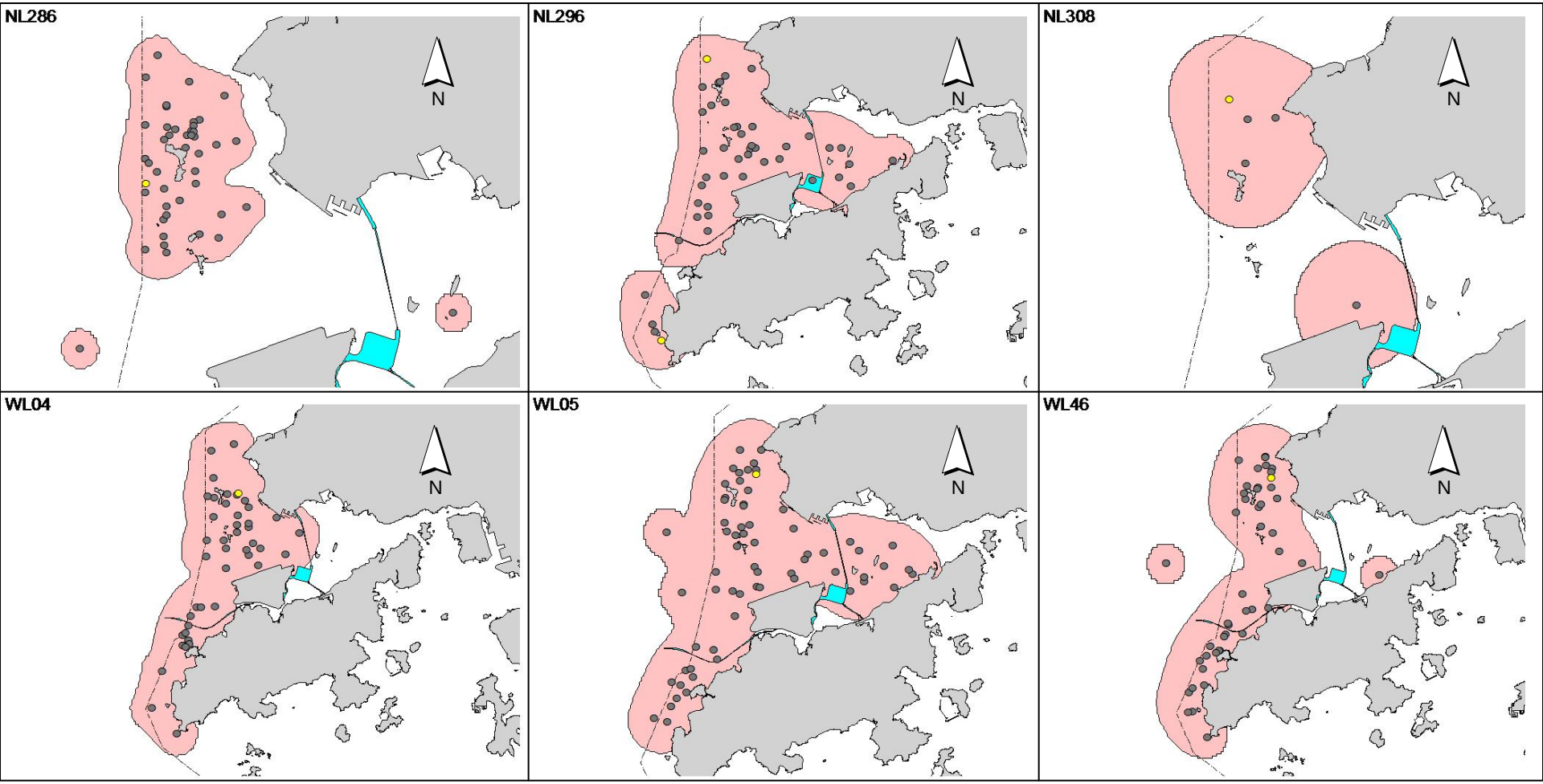
Appendix V. (cont'd)



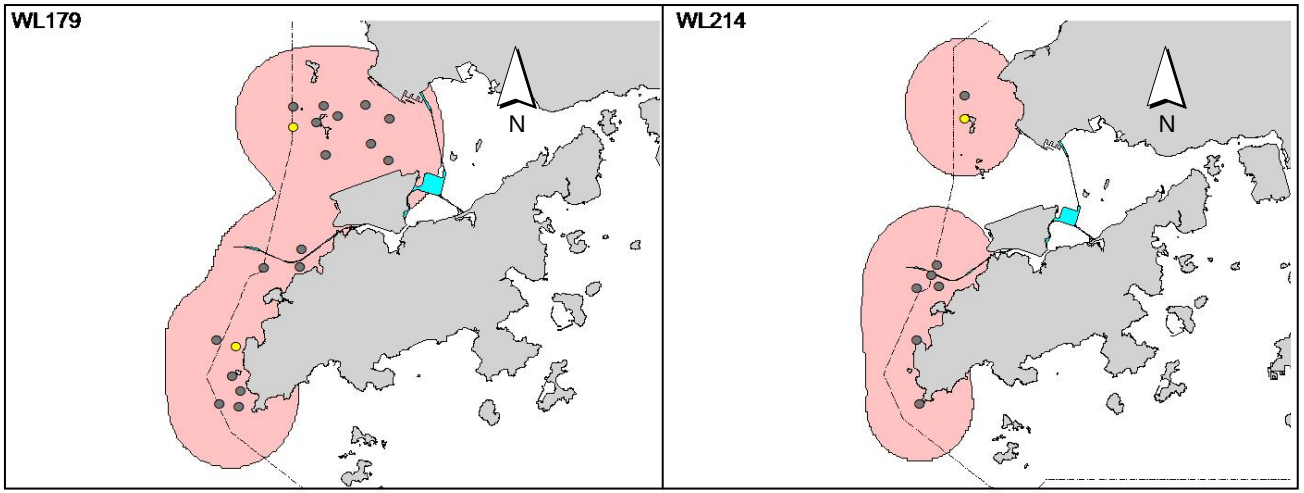
Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix J

Event and Action Plan

Event and Action Plan for Impact Air Monitoring

	Action			
	ET [(a)]	**IEC [(a)]**	**SOR [(a)]**	**Contractor(s)**
Action Level Exceedance				
	1. Identify the source. 2. Repeat measurement to confirm finding. If two consecutive measurements exceed Action Level, the exceedance is then confirmed. 3. Inform the IEC and the SOR. 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Discuss with the IEC and the Contractor on remedial actions required. 7. If exceedance continues, arrange meeting with the IEC and the SOR. 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working method. 3. If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	1. Rectify any unacceptable practice 2. Amend working methods if appropriate 3. If the exceedance is confirmed to be Project related, submit proposals for remedial actions to IEC within 3 working days of notification 4. Implement the agreed proposals 5. Amend proposal if appropriate

	Action			
	ET [(a)]	**IEC [(a)]**	**SOR [(a)]**	**Contractor(s)**
Limit Level Exceedance				
	1. Identify the source. 2. Repeat measurement to confirm finding. If two consecutive measurements exceed Limit Level, the exceedance is then confirmed. 3. Inform the IEC, the SOR, the DEP and the Contractor. 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 7. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken. 8. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results. 9. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 3. If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. If the exceedance is confirmed to be Project related after investigation, in consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. If the exceedance is confirmed to be Project related after investigation, submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal if appropriate. 5. Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

Note: (a) ET – Environmental Team; IEC – Independent Environmental Checker; SOR – Supervising Officer's Representative

Event & Action Plan for Impact Water Quality Monitoring

Event	ET Leader	IEC	SOR	Contractor
Action level being exceeded by one sampling day	1. Repeat *in situ* measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor and SOR; 4. Check monitoring data, all plant, equipment and Contractor's working methods.	1. Check monitoring data submitted by ET and Contractor's working methods.	1. Confirm receipt of notification of non-compliance in writing; 2. Notify Contractor.	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Action level;	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 SOR accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. Ensure mitigation measures are properly implemented; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Supervising Officer 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 additional mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR; 5. Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	1. Repeat measurement on next day of exceedance to confirm findings;	1. Check monitoring data submitted by ET and	1. Confirm receipt of notification of failure in	1. Inform the SOR and confirm notification of the

Event	ET Leader	IEC	SOR	Contractor
	2. Identify source(s) of impact; 3. Inform IEC, Contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor;	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 SOR accordingly.	writing; 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Request Contractor to review the working methods.	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 SOR within 3 working days of notification and discuss with ET, IEC and SOR.
Limit level being exceeded by two or more consecutive sampling days	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR 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;	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 SOR accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented; 5. 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.	1. Take immediate action to avoid further exceedance; 2. Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Note: ET – Environmental Team, IEC – Independent Environmental Checker, SOR – Supervising Officer's Representative

Event / Action Plan for Impact Dolphin Monitoring

EVENT	ACTION			
	ET	**IEC**	**SOR**	**Contractor**
Action Level	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, 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.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor.	1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If SOR is satisfied with the proposal of any other measures, SOR to signify the agreement in writing on the measures to be implemented.	1. Inform the 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 SOR; 3. Implement the agreed measures.
Limit Level	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;	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, SOR and	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 SOR is satisfied with the	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and SOR the necessity of additional dolphin monitoring and any other

EVENT	ACTION			
	ET	**IEC**	**SOR**	**Contractor**
	3. Identify source(s) of impact; 4. Inform the IEC, 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, 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.	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 SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise SOR the results and findings accordingly.	proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, 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.	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.

Note: ET – Environmental Team, IEC – Independent Environmental Checker, SOR – Supervising Officer's Representative

Appendix K

Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions

Table K1 *Cumulative Statistics on Exceedances*

Monitoring Parameters	Action/Limit Level	Total No. recorded in this reporting quarter	Total No. recorded since project commencement
1-Hr TSP	Action	21	21
	Limit	2	2
24-Hr TSP	Action	5	5
	Limit	1	1
Water Quality	Action	5	5
	Limit	0	0
Impact Dolphin Monitoring	Action	1	1
	Limit	0	0

Table K2 *Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions*

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Period (Nov 2013 to Feb 2014)	0	0	0
Total No. received since project commencement	0	0	0

Email message

Environmental Resources Management

16/F DCH Commercial Centre,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	ENVIRON - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Impact Dolphin Monitoring
Date	9 April 2014

ERM

Dear Sir or Madam,

Please find attached the Notification of Exceedance (NOE) of the following Log no.:

0212330_Dec2013/Feb2014_dolphin_STG&ANI_NEL

A total of one action exceedance was recorded in the quarterly impact dolphin monitoring data between December 2013 and February 2014.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Impact Dolphin Monitoring
Notification of Exceedance

Log No.	**0212330_Dec2013/Feb2014_dolphin_STG&ANI_NEL** **[Total No. of Exceedances = 1]**	
Date	December 2013 to February 2014 (monitored) 03 April 2014 (results received by ERM)	
Monitoring Area	Northeast Lantau (NEL) and Northwest Lantau (NWL)	
Parameter(s) with Exceedance(s)	Quarterly encounter rate of dolphin sightings (STG) Quarterly encounter rate of total number of dolphins (ANI)	
Action Levels	North Lantau Social cluster	NEL: STG < 4.2 & ANI < 15.5 or NWL: STG < 6.9 & ANI< 31.3
Limit Levels		NEL: STG < 2.34 & ANI < 8.9 and NWL: STG< 3.9 & ANI < 17.9
Recorded Levels	NEL	STG = 0.4 & ANI = 1.3
	NWL	STG = 8.2 & ANI = 32.6
	Action Level Exceedance is recorded in the quarterly impact dolphin monitoring between December 2013 and February 2014.	
Statistical Analyses	A two-way ANOVA with repeated measures and unequal sample size was conducted using Period (2 levels: baseline vs impact) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and impact monitoring periods. By setting $\alpha = 0.1$ as the significance level in the statistical tests, a significant difference in STG ($p = 0.0774$) between baseline and present quarter was detected but not in ANI ($p = 0.1671$).	
Works Undertaken (in the monitoring quarter)	In the quarter between December 2013 and February 2014, the major marine works under *Contract No. HY/2012/08* included: • Dredging works at Portions N-A and N-B • Removal of existing seawall • Vertical seawall and sloping seawall constructions • Marine sheet piling for box culvert extension	

Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is considered to be the natural variation of Chinese white dolphin (CWD) *Sousa chinessis* ranging pattern and unlikely to be due to the Project, in view of the following: • According to the long-term monitoring results of marine mammals collected by AFCD, the CWD in winter months (December to February) are usually ranging in waters around Sha Chau, Lung Kwu Chau and north Lantau, with some of them in the east and south of Lantau waters and outer Deep Bay, but less frequently at NEL • As per the findings from the EIA report (Section 8.11.9), the major influences on the CWD are marine traffics, dredging works and reclamation/ filling works. The Contractor has implemented the marine traffic control as per the requirements in the EP-354/2009/B and the updated EM&A Manual. Likewise, dredging works were undertaken within the working rate described in the EP and the approved EIA Report by a closed grab dredger with silt curtains being deployed throughout the dredging period. No reclamation/ filling works was undertaken in the reporting quarter. • Seasonal variation in individual ranging pattern has been well documented in the long-term monitoring of marine mammals conducted by AFCD and in the literatures (1) (2). • According to the findings of EIA report (Section 8.9) and Baseline Dolphin Monitoring, dolphin sightings at the northeast Lantau are not particularly high, which is commensurate with the quarterly findings that dolphin sightings at NEL is relatively lower than that at NWL.
Actions Taken / To Be Taken	With reference to the site inspection records in this quarter, the respective marine ecological mitigation measures (including 250 m dolphin exclusion zone, passive acoustic monitoring, underwater acoustic decoupling plan and marine traffic control) have been implemented properly by the Contractor throughout the marine works period. No immediate additional action is considered necessary. The ET will monitor for future trends in exceedance(s).
Remarks	The quarterly monitoring results and the transact location of impact dolphin monitoring are attached.

(1) Jefferson & Hung (2010) A review of the status of the Indo-Pacific Humpback Dolphin (*Sousa chinensis*) in Chinese Waters. Aquatic Mammals (30): 149 – 158.

(2) Chen et al., (2010) Distribution, abundance, and individual movements of Indo-Pacific humpback dolphins (*Sousa chinensis*) in the Pearl River Estuary, China. Mammalia (74): 117 – 125.

Appendix L

Waste Flow Table

Name of Department: HyD **Contract No. / Works Order No.:** HY/2012/08

Summary Waste Flow Table from Nov 2013 to Dec 2013 [to be submitted not later than the 15th day of each month following reporting month]

(All quantities shall be rounded off to 3 decimal places.)

Month	Actual Quantities of Inert Construction Waste Generated Monthly									
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Hard Rock and Large Broken Concrete	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed of as Public Fill	Imported Fill to WA 23 & Reclamation Area (Rockfill 400)	Imported Fill to WA 23 & Reclamation Area (Rockfill Type A)	Imported Fill to RTT Barging Point	Marine Disposal (Cat. L)	Marine Disposal (Cat. M)
	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 m^3)	(in '000 m^3)
Jan										
Feb										
Mar										
Apr										
May										
Jun										
Sub-total										
Jul										
Aug										
Sep	0.000	0.000	0.000	0.000	0.000	1.820	0.788	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000	0.000	18.667	3.328	0.000	0.000	0.000
Nov	2.835	0.000	0.000	0.000	2.835	45.929	1.520	0.000	21.100	13.200
Dec	0.883	0.000	0.000	0.000	0.883	145.125	13.824	45.472	40.500	5.000
Total	3.718	0.000	0.000	0.000	3.718	211.541	19.460	45.472	61.600	18.200

First Issue Date - 15 : 07 : 2013
Current Issue Date - 01 : 08 : 2013

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly								
	Metals		Paper/ cardboard packaging		Plastics (see Note 3)		Chemical Waste		Others, e.g. General Refuse disposed at Landfill
	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000ton)
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated
Jan									
Feb									
Mar									
Apr									
May									
Jun									
Sub-total									
Jul									
Aug									
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
Oct	0.000	0.000	0.120	0.120	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.130	0.130	0.000	0.000	0.000	0.000	0.152
Dec	0.000	0.000	0.130	0.130	0.000	0.000	0.000	0.000	0.012
Total	0.000	0.000	0.380	0.380	0.000	0.000	0.000	0.000	0.172

Name of Department: HyD **Contract No. / Works Order No.:** HY/2012/08

Summary Waste Flow Table for January 2014 to February 2014

[to be submitted not later than the 15th day of each month following reporting month]

(All quantities shall be rounded off to 3 decimal places.)

Month	Actual Quantities of Inert Construction Waste Generated Monthly									
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Hard Rock and Large Broken Concrete	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed of as Public Fill	Imported Fill to WA 23 & Reclamation Area (Rockfill 400)	Imported Fill to WA 23 & Reclamation Area (Rockfill Type A)	Imported Fill to RTT Barging Point	Marine Disposal (Cat. L)	Marine Disposal (Cat. M_P &M_F)
	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 m^3)	(in '000 m^3)
Jan	9.012	0.000	0.000	0.000	9.012	177.300	8.544	124.412	34.000	12.500
Feb	0.000	0.000	0.000	0.000	0.000	132.652	5.371	81.296	18.500	24.500
Mar										
Apr										
May										
Jun										
Sub-total										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										
Total	12.730	0.000	0.000	0.000	12.730	521.493	33.375	251.18	114.100	55.200

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly								
	Metals		Paper/ cardboard packaging		Plastics (see Note 3)		Chemical Waste		Others, e.g. General Refuse disposed at Landfill
	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000ton)
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated
Jan	0.000	0.000	0.130	0.130	0.000	0.000	0.000	0.000	0.045
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.028
Mar									
Apr									
May									
Jun									
Sub-total									
Jul									
Aug									
Sep									
Oct									
Nov									
Dec									
Total	0.000	0.000	0.510	0.510	0.000	0.000	0.020	0.020	0.245

Forecast of Total Quantities of Construction and Demolition Materials to be Generated from the Contract*							
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill	Imported Fill	Marine Disposal (Cat. L)	Marine Disposal (Cat. M)
(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 m^3)	(in '000 m^3)
5.000	0.000	0.000	0.000	5.000	180.000	5.000	40.000

Forecast of Total Quantities of Construction and Demolition Materials to be Generated from the Contract*				
Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	General Refuse disposed of at Landfill
(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
0.000	0.050	0.000	0.000	0.100

Notes:
(1) The performance targets are given in the **ER Appendix 8J Clause 14** and the EM & A Manual(s).
(2) The waste flow table shall also include C&D materials to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m^3. (**ER Part 8 Clause 8.8.5 (d) (ii)** refers).