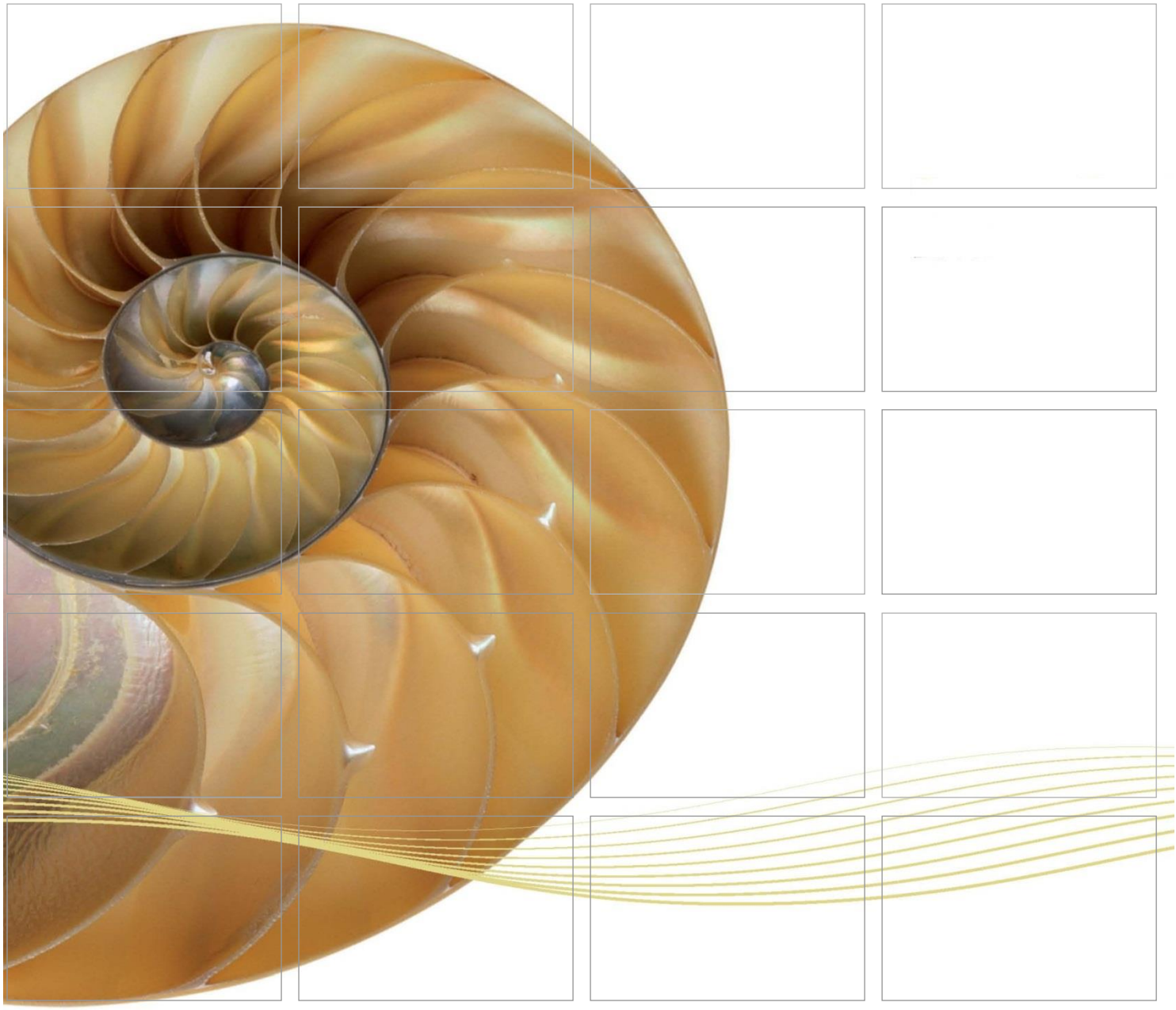
Report



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

Sixty-eighth Monthly Environmental Monitoring & Audit (EM&A) Report

15 July 2019

Environmental Resources Management
2507, 25/F One Harbourfront
18 Tak Fung Street
Hunghom, Kowloon
Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

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RAMBOLL

Ref.: HYDHZMBEEM00_0_7580L.19

15 July 2019

By Fax (2293 6300) and By Post

AECOM Asia Co. Ltd.
Supervising Officer Representative's Office
No.8 Mong Fat Street, Tuen Mun, New Territories, Hong Kong

Attention: Messrs. Andy Westmoreland / Roger Man

Dear Sirs,

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
68th Monthly EM&A Report for June 2019 (EP-354/2009/D)

Reference is made to the Monthly EM&A Report for June 2019 (ET's ref.: "*0212330_68th Monthly EM&A_20190711.doc*") certified by the ET Leader and provided to us via e-mail on 15 July 2019.

Please be informed that we have no adverse comments on the captioned Report. We write to verify the captioned submission in accordance with Condition 4.4 of EP-354/2009/D.

Thank you for your 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. Patrick Ng	(By Fax: 3188 6614)
HyD	Mr. Cheng Pan	(By Fax: 3188 6614)
AECOM	Mr. Conrad Ng	(By Fax: 3922 9797)
ERM	Dr. Jasmine Ng	(By Fax: 2723 5660)
DBJV	Mr. Bryan Lee	(By Fax: 2293 7499)

Internal: DY, YH, DF, ENPO Site

Q:\Projects\HYDHZMBEEM00\02_Proj_Mgt\02_Corr\2019\HYDHZMBEEM00_0_7580L.19.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com

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

Sixty-eighth Monthly Environmental Monitoring & Audit (EM&A) Report

Document Code: 0212330_68th Monthly EM&A_20190711.doc

Environmental Resources Management

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Client: DBJV	Project No: 0212330
Summary: This document presents the Sixty-eighth Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section.	Date: 15 July 2019 Approved by: *Mr Craig Reid* *Partner* Certified by: *Dr Jasmine Ng* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	68th Monthly EM&A Report	VAR	JN	CAR	15/07/19

Distribution

☐ Internal

☒ Public

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OHSAS 18001:2007 Certificate No. OHS 515956

ISO 9001 : 2008 Certificate No. FS 32515

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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*. Ramboll Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO). Subsequent applications for variation of environmental permits (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

The construction phase of the Contract commenced on 1 November 2013 and will tentatively be completed by the end of 2019. 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 Sixty-eighth Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 30 June 2019 for the *Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section* (the "Contract") in accordance with the Updated EM&A Manual of the TM-CLK Link Contract. As informed by the Contractor, major activities in the reporting period included:

Land-based Works

- Construction of Thermal barrier – TBM tunnel;
- Construction of Walkway Corbel & Cover – TBM Tunnel;
- Backfilling – Portion N-A
- RC structure – Portion S-A;
- D-wall Removal – Portion S-A;
- E&M Platform Installation – Portion S-A
- STP Demolition – Portion S-C
-

Marine-based Works

- Seawall Modification Works – Portion S-B

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

24-hour TSP Monitoring	10 sessions
1-hour TSP Monitoring	10 sessions
Water Quality Monitoring	9 sessions
Impact Dolphin Monitoring	2 sessions
Joint Environmental Site Inspection	4 sessions

Implementation of Marine Mammal Exclusion Zone

Daily marine mammal exclusion zone was in effect during the period of silt curtain installation in open waters under this Contract. No sighting of the Indo-Pacific humpback dolphin Sousa chinensis (i.e. Chinese White Dolphin) was recorded in June 2019 during the exclusion zone monitoring.

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

No exceedances were recorded in the air quality monitoring of this reporting month.

Breaches of Action and Limit Levels for Water Quality

No exceedances were recorded in the water quality monitoring of this reporting month.

Breaches of Action and Limit Levels for Dolphin Monitoring

Due to monthly variation in dolphin occurrence within the survey area, it would be more appropriate to draw conclusion on whether any unacceptable impacts on dolphins have been detected in relation to the construction activities of this Project in the quarterly EM&A reports, where comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

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

As stage 2 of sloping seawall construction has commenced on 15 April 2019, water quality monitoring was carried out in this reporting month.

Upcoming Works for the Next Reporting Month

Works to be undertaken in the next monitoring period of July 2019 include the following:

Land-based Works

- Construction of Thermal barrier – TBM tunnel;
- Construction of Walkway Corbel & Cover – TBM Tunnel;
- Gantry Removal – TBM tunnel
- Backfilling – Portion N-A
- RC structure – Portion S-A;
- D-wall Removal – Portion S-A;
- E&M Platform Installation – Portion S-A
- STP Demolition – Portion S-C
-

Marine-based Works

- Seawall Modification Works – Portion S-B

Future Key Issue

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of July 2019 are mainly associated with dust, marine water quality, marine ecology and waste management issues.

1 INTRODUCTION

1.1 BACKGROUND

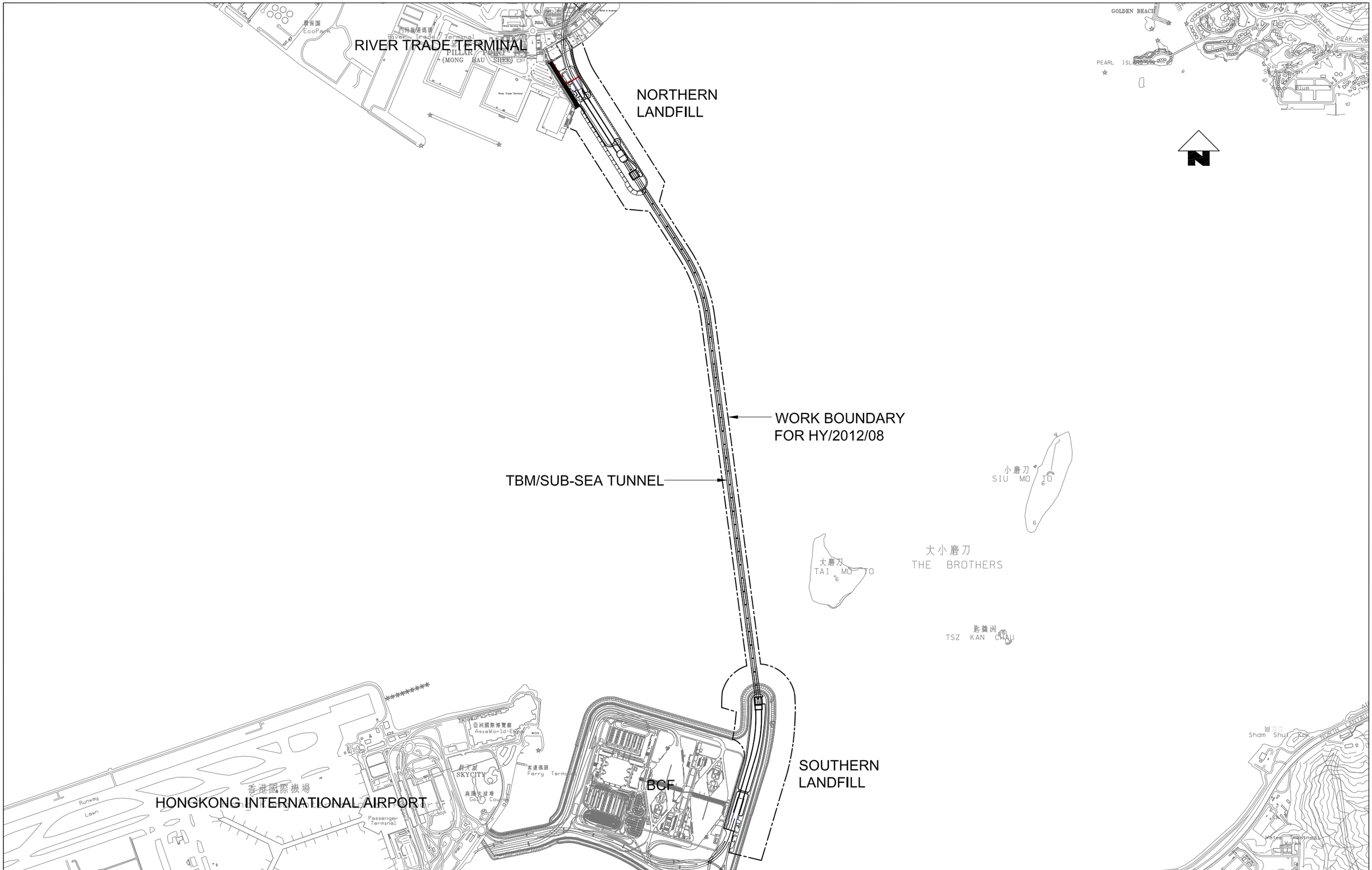
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated 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-146/2009), 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-354/2009/A) was issued on 8 December 2010. Subsequent applications for variation of environmental permits (VEPs), *EP-354/2009/B, EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

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). Ramboll 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 the end of 2019. 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 Sixty-eighth Monthly 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 in June 2019.

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 24/SD	Ken T.M. Cheng	2762 4062	3188 6614
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Roger Man	2293 6388	2293 6300
		Andrew Westmoreland	2293 6360	2293 6300
ENPO / IEC (Ramboll Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
	IEC	Dr. F.C. Tsang	3465 2851	3465 2899
Contractor (Dragages – Bouygues Joint Venture)	Deputy Environmental Manager	Bryan Lee	2293 7323	2293 7499
	Senior Environmental Officer	Ashley Au	52950766	
	24-hour hotline		2293 7330	
ET (ERM-HK)	ET Leader	Jasmine Ng	2271 3311	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

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

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

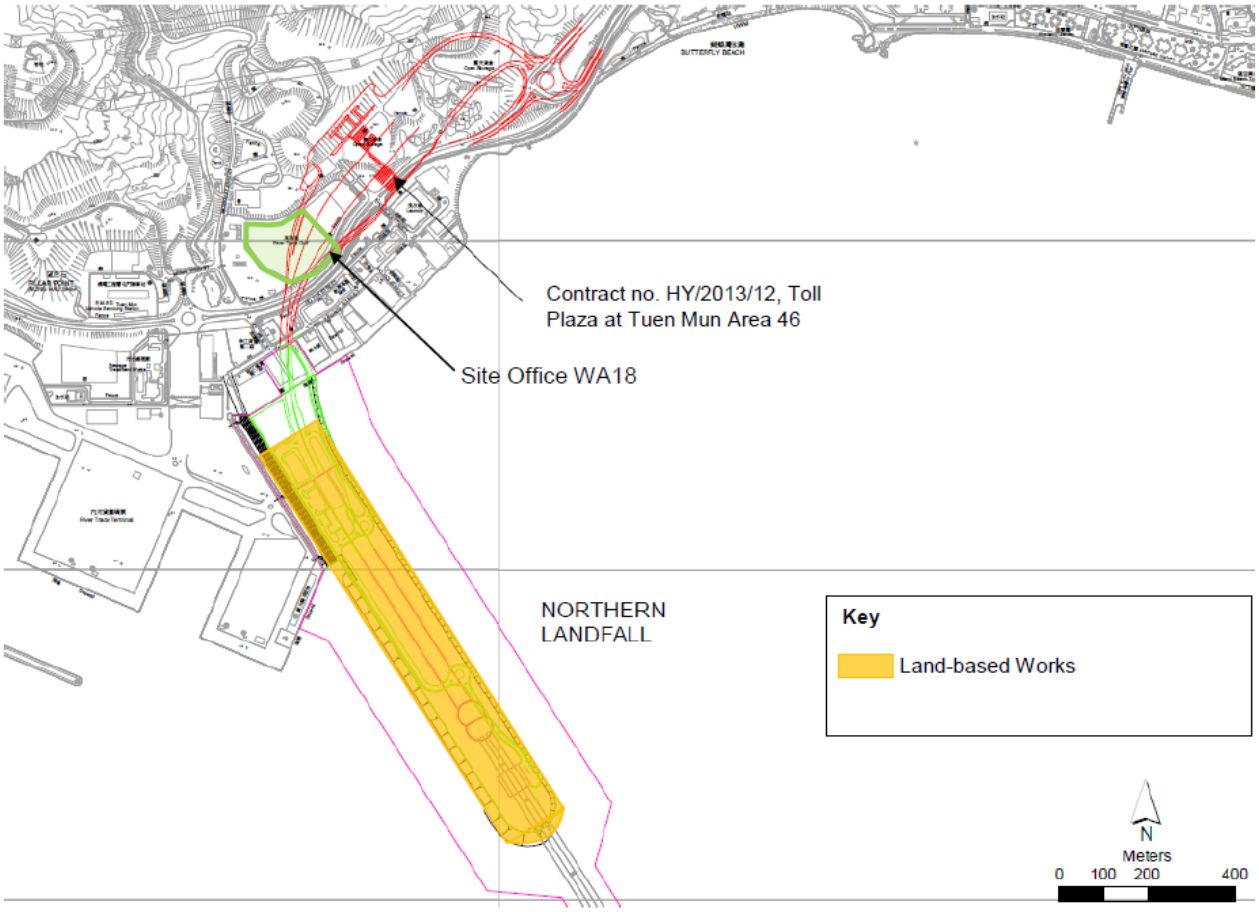
The general layout plan of the site showing the detailed works areas is shown in *Figure 1.2*. The Environmental Sensitive Receivers in the vicinity of the Project are shown in *Figure 1.3*.

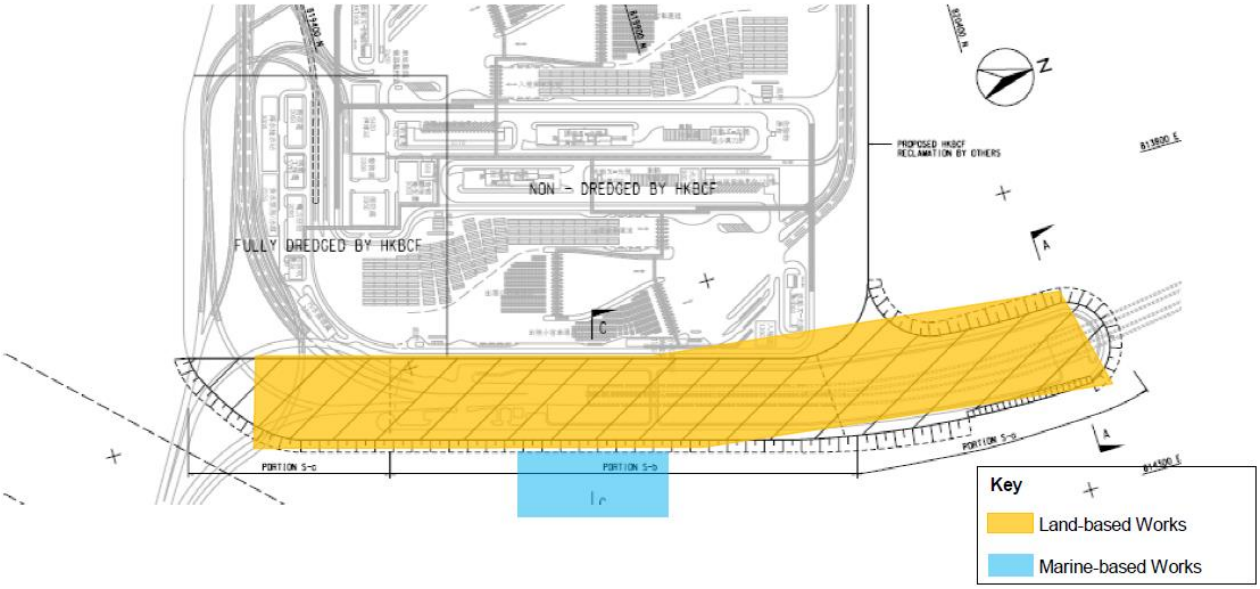
The implementation schedule of environmental mitigation measures is presented in *Appendix C*.

Table 1.2 Summary of Construction Activities Undertaken during the Reporting Period

Construction Activities Undertaken
Land-based Works
• Construction of Thermal barrier – TBM tunnel; • Construction of Walkway Corbel & Cover – TBM Tunnel; • Backfilling – Portion N-A • RC structure – Portion S-A; • D-wall Removal – Portion S-A; • E&M Platform Installation – Portion S-A • STP Demolition – Portion S-C •
Marine-based Works
• Seawall Modification Works – Portion S-B

Figure 1.2 Locations of Construction Activities – June 2019





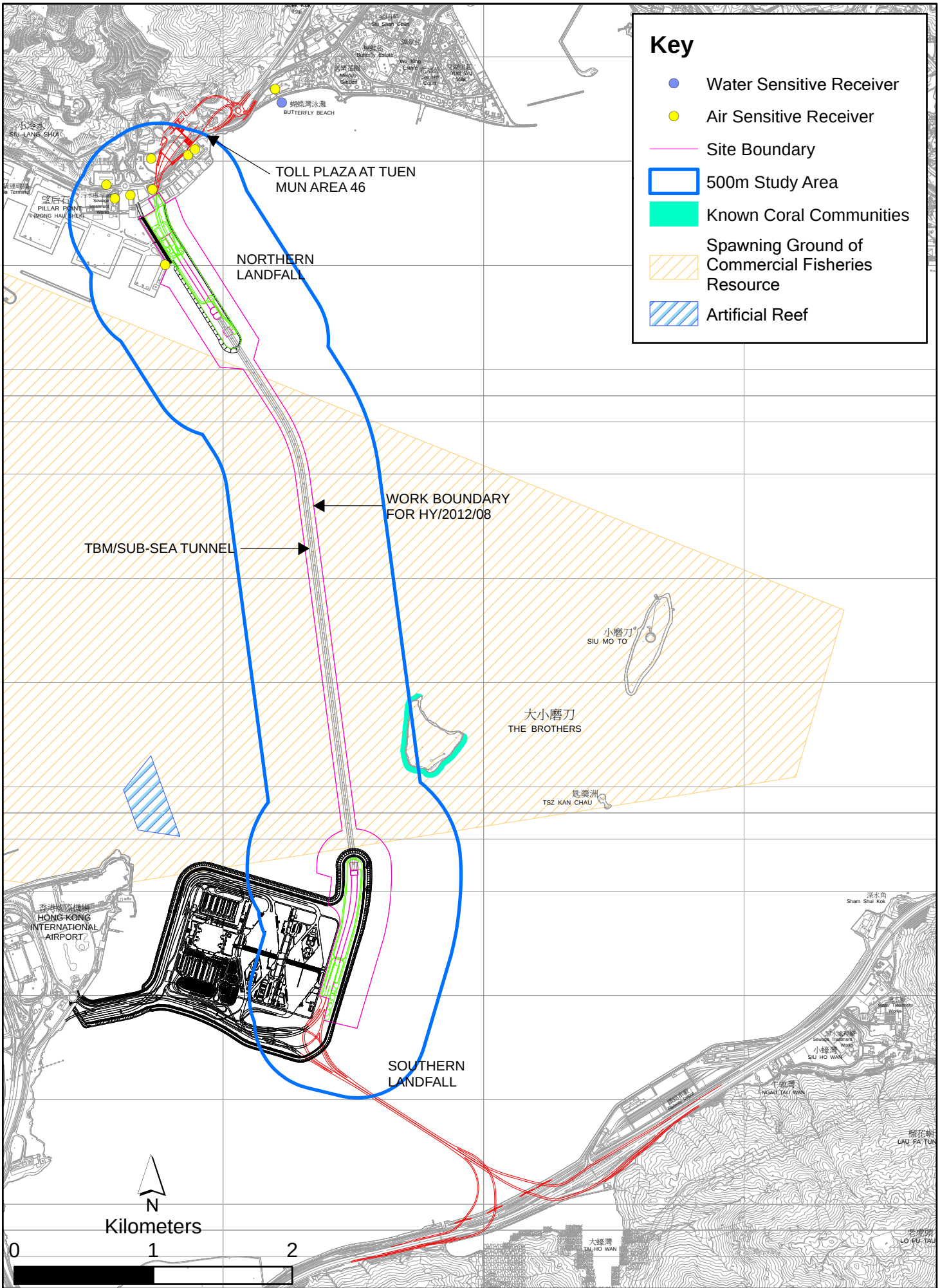


Figure 1.3 Environmental Sensitive Receivers in the vicinity of Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-Sea Tunnel Section

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Date: 15/4/2014

Environmental Resources Management

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

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. 1-hr and 24-hr TSP monitoring frequency was increased to three times per day every three days and daily every three days, respectively, as excavation works for launching shaft commenced on 24 October 2014.

High volume samplers (HVSs) were used to carry out the 1-hour and 24-hour TSP monitoring on 1, 4, 7, 10, 13, 16, 19, 22, 25 and 28 June 2019 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 meter 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*. Copies of the calibration certificates for the equipment are presented in *Appendix E*.

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

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR1	1, 4, 7, 10, 13, 16, 19, 22, 25 and 28 June 2019	Tuen Mun Fireboat Station	Office	TSP monitoring • 1-hour Total Suspended Particulates (1-hour TSP, µg/m³), 3 times in every 6 days • 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour in every 6 days Enhanced TSP monitoring (commenced on 24 October 2014) • 1-hour Total Suspended Particulates (1-hour TSP, µg/m³), 3 times in every 3 days • 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour in every 3 days
ASR5		Pillar Point Fire Station	Office	
AQMS1		Previous River Trade Golf	Bare ground	
ASR6		Butterfly Beach Laundry	Office	
ASR10		Butterfly Beach Park	Recreational uses	

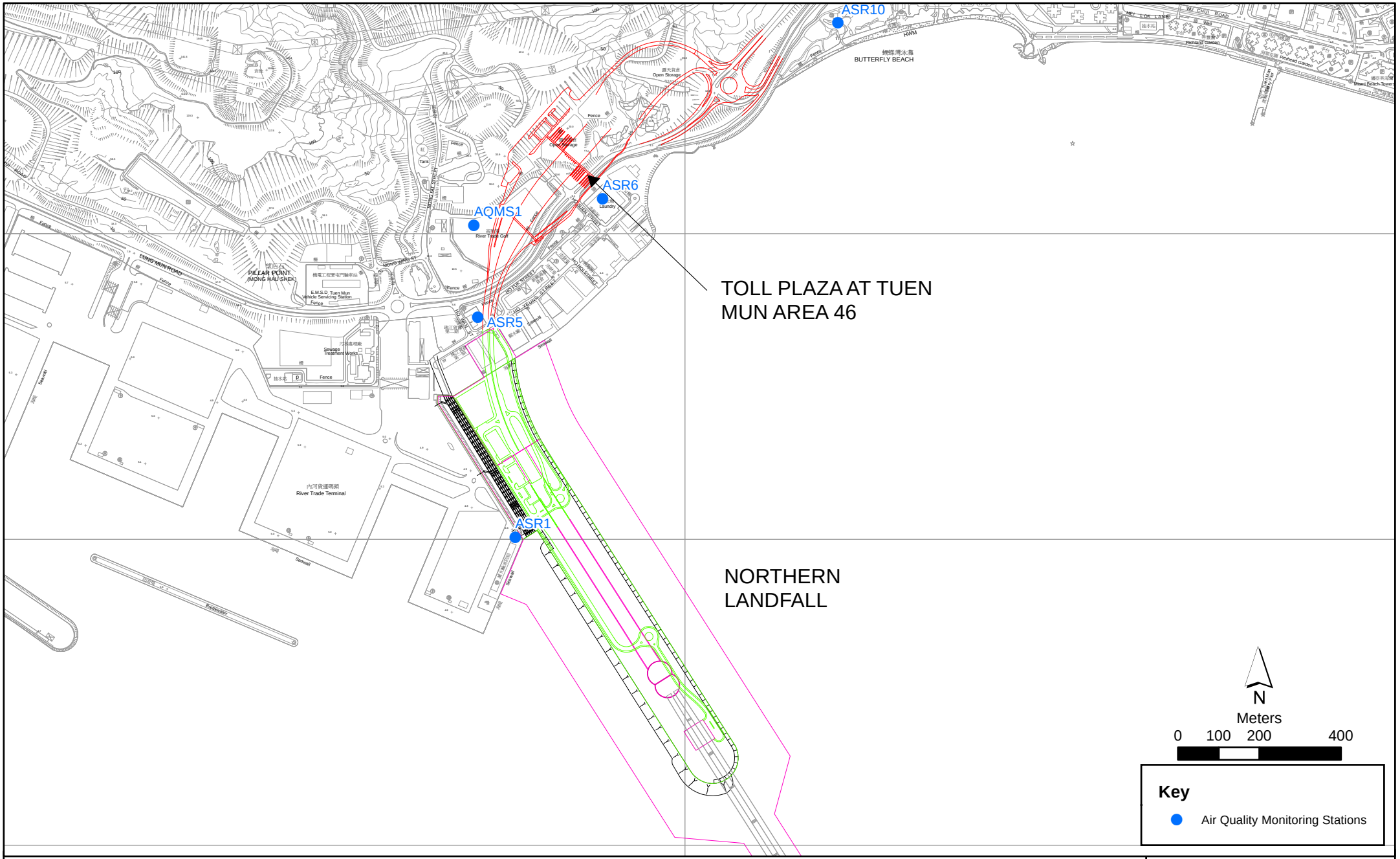

Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

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Date: 21/2/2014

Environmental Resources Management

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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 Meter	Davis (Model: Vantage Pro 2 (S/N: AS160104014)
Wind Anemometer for calibration	Lutron (Model No. AM-4201)

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 K.*

2.1.3 Monitoring Schedule for the Reporting Month

The schedule for air quality monitoring in June 2019 is provided in *Appendix F*.

2.1.4 Results and Observations

The monitoring results for 1-hour TSP and 24-hour TSP are summarized in *Tables 2.3* and *2.4,* respectively. Detailed impact air quality monitoring results and graphical presentations are presented in *Appendix G*.

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

Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
ASR1	55	18 - 117	331	500
ASR5	96	22 - 178	340	500
AQMS1	50	14 - 119	335	500
ASR6	79	14 - 294	338	500
ASR10	45	14 - 122	337	500

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

Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
ASR1	53	30 - 84	213	260
ASR5	62	32 - 99	238	260
AQMS1	36	26 - 51	213	260
ASR6	51	25 - 76	238	260
ASR10	28	18 - 36	214	260

The weather condition during the monitoring period varied from sunny to cloudy. The major dust sources in the reporting period included construction activities under the Contract as well as nearby traffic emissions.

A total of 10 1-hour TSP and 24-hour TSP monitoring were undertaken in this reporting month. No exceedances were recorded in the air quality monitoring of this reporting month.

Meteorological information collected at the ASR5, including wind speed and wind direction, is provided in *Appendix H*.

2.2 WATER QUALITY MONITORING

2.2.1 Monitoring Requirements & Equipment

Seawall Modification Works at Portion S-B has commenced on 15 April 2019.

Impact marine water quality monitoring has resumed on 15 April 2019.

Stage 2 of Seawall Modification Works was completed on 24 June 2019.

In accordance with the approved Environmental Review Report dated 21 March 2018 for the Change in Design of Vertical Seawall to Sloping Seawall on Southern Landfall, Updated Impact water quality monitoring programme and water quality monitoring stations IS17, SR7 and IS(Mf)11 specified under the EM&A Manual for HZMB HKBCF project will be adopted. (*Figure 2.2*; *Table 2.5*).

Results of water quality monitoring were adopted from the published EM&A data of Contract No. HY/2012/07 Tuen Mun-Chek Lap Kok Link – Southern Connection Viaduct Section .

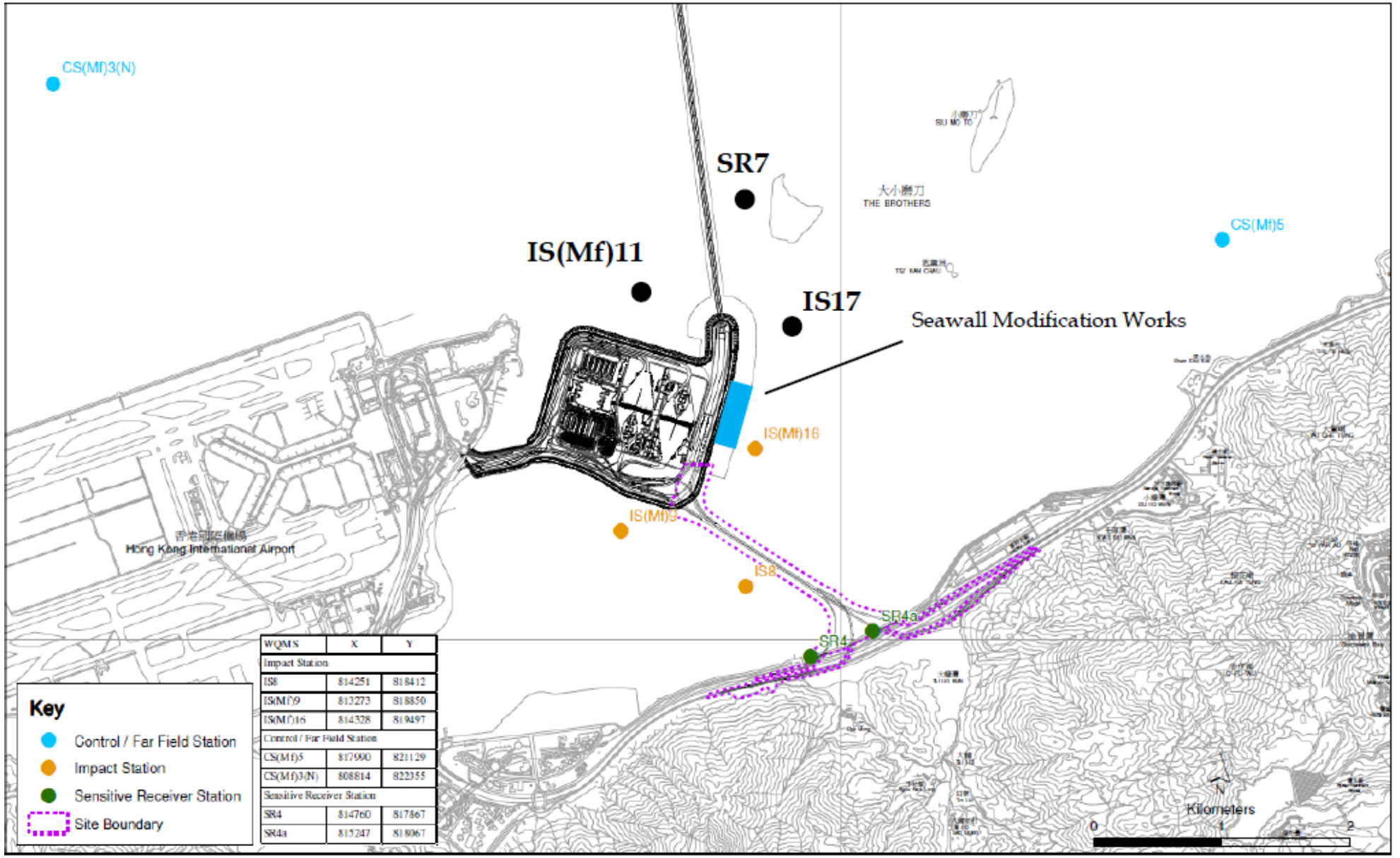
The Action and Limit Levels of the water quality monitoring were adopted from the EM&A Manual for HZMB HKBCF project. The Action and Limit Levels are provided in Appendix D.

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

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
IS(Mf)11	Impact Station (Close to HKBCF construction site) 8	813562	820716	• Temperature(°C) • pH(pH unit) • Turbidity (NTU) • Water depth (m) • Salinity (ppt)	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.
IS17	Impact Station (Close to HKBCF construction site)	814539	820391	• DO (mg/L and % of saturation) • SS (mg/L)		
SR7	Sensitive receivers (Tai Mo Do)	814293	821431			

*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. Copies of the calibration certificates are attached in *Appendix E*.



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

Figure 2.2

Water Quality Monitoring Stations

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Table 2.6 Water Quality Monitoring Equipment

Equipment	Model
Multi-Parameters	YSI ProDss 17E100747
Multi-Parameters	YSI ProDss 16H104234
Multi-Parameters	YSI ProDss 17H105557
Positioning Equipment	Furuno GP-170
Water Depth Detector	Lowrance Mark 5x / Garmin Striker 4

2.2.1 Action & Limit Levels

The Action and Limit levels of water quality impact monitoring are shown in *Appendix D*. The Event and Action plan is presented in *Appendix K*.

2.2.2 Monitoring Schedule for the Reporting Month

The schedule for water quality monitoring in June 2019 is provided in *Appendix F*.

2.2.3 Results and Observations

Impact water quality monitoring was conducted at all designated monitoring stations in the reporting month. Results and graphical presentations of impact water quality monitoring are presented in *Appendix J*.

In this reporting period, a total of nine (9) monitoring events were undertaken in which no exceedances were recorded in the water quality monitoring of this reporting month.

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

Equipment	Model
Camera	Nikon D90 300m 2.8D fixed focus Nikon D90 20-300m zoom lens
Laser Binocular	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.

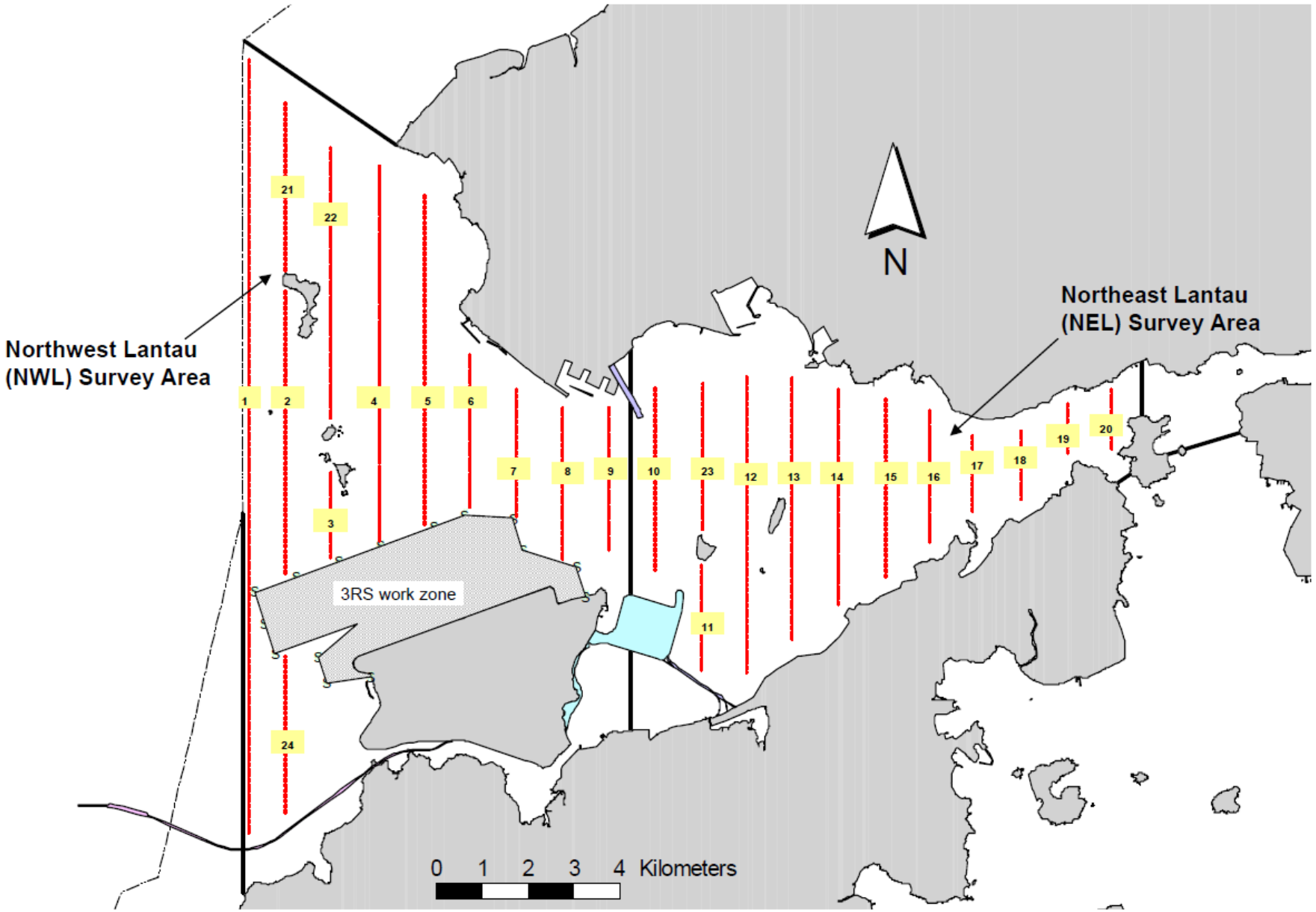

Figure 2.3

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

Remarks: The coordinates of several starting and ending points have been revised due to the presence of a work zone to the north of the airport platform with intense construction activities in association with the construction of the third runway expansion for the Hong Kong International Airport. Co-ordinates in red and marked with asterisk are revised co-ordinates of transect line.

2.3.5 *Action & Limit Levels*

The Action and Limit levels of impact dolphin monitoring are shown in *Appendix D*. The Event and Action plan is presented in *Appendix K*.

2.3.6 Monitoring Schedule for the Reporting Month

Dolphin monitoring was carried out on 3, 6, 10 and 13 of June 2019. The dolphin monitoring schedule for the reporting month is shown in *Appendix F*.

2.3.7 Results & Observations

A total of 262.12 km of survey effort was collected, with 91.7% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) in June 2019. Among the two areas, 98.52 km and 163.60 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 190.34 km and 71.78 km respectively. The survey efforts are summarized in *Appendix I.*

Two group of 5 Chinese White Dolphins sighting was recorded during the two sets of surveys in June 2019. The dolphin sighting was made in NWL, while none was sighted in NEL. The dolphin sighting was made during on-effort search and was made on primary lines. The dolphin groups were not associated with any operating fishing vessel.

No dolphin sighting was made in the proximity of the TM-CLKL alignment. The distribution of dolphin sightings during the reporting month is shown in *Figure 2.4.*

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) in June 2019 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: June 3rd / 6th	0.0	0.0
	Set 2: June 10th / 13th	0.0	0.0
NWL	Set 1: June 3rd / 6th	3.7	9.3
	Set 2: June 10th / 13th	0.0	0.0

Note: Dolphin Encounter Rates are deduced from the Two Sets of Surveys (Two Surveys in Each Set) in June 2019 in Northeast (NEL) and Northwest Lantau (NWL)

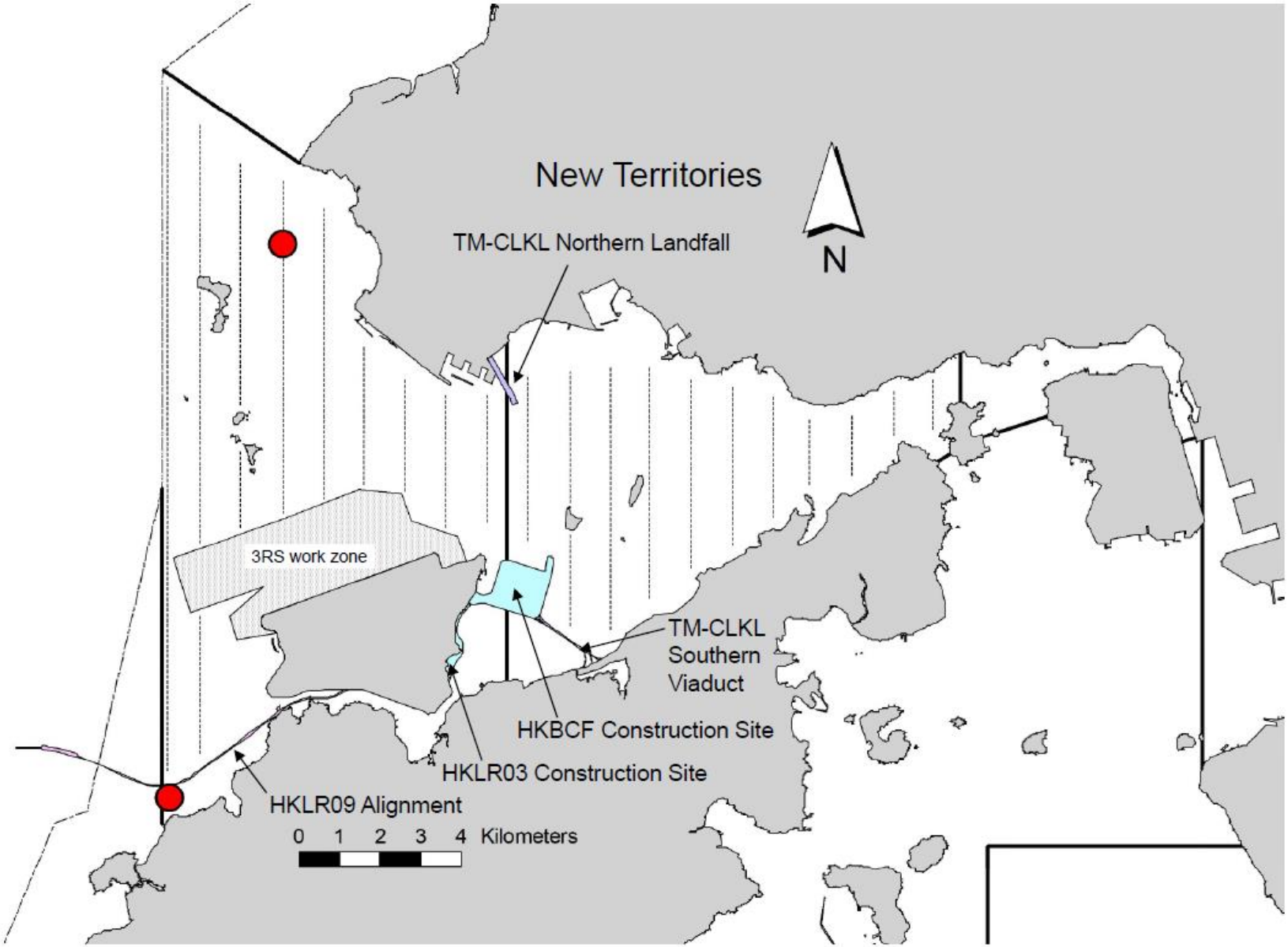

Figure 2.4

HY/2012/08 TM-CLKL Northern Connection Sub-sea Tunnel Section
The distribution of dolphin sightings during the reporting period
(Source: Adopted from HKLR03 Monitoring Survey in June 2019)

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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)	
	Primary Lines Only	**Both Primary and Secondary Lines**	**Primary Lines Only**	**Both Primary and Secondary Lines**
Northeast Lantau	0.0	0.0	0.0	0.0
Northwest Lantau	1.9	1.4	4.9	3.5

Note: Overall dolphin encounter rates (sightings per 100 km of survey effort) from all four surveys are conducted in June 2019 on primary lines only as well as both primary lines and secondary lines in Northeast and Northwest Lantau.

Due to monthly variation in dolphin occurrence within the survey area, it would be more appropriate to draw conclusion on whether any unacceptable impacts on dolphins have been detected in relation to the construction activities of this Contract in the quarterly EM&A reports, where comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

2.3.8 Implementation of Marine Mammal Exclusion Zone

Daily marine mammal exclusion zone was in effect during the period of silt curtain installation in open waters under this Contract. No sighting of the Indo-Pacific humpback dolphin Sousa chinensis (i.e. Chinese White Dolphin) was recorded in June 2019 during the exclusion zone monitoring.

2.4 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. In the reporting month, four (4) site inspections were carried out on 5, 12, 19 and 26 June 2019.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.11*.

Table 2.11 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Month

Inspection Date	Observations	Recommendations/ Remarks
5 June 2019	Works Area – Portion N-A • Cement bags should be covered with tarpaulin sheet. • Drip tray should be provided for the chemical containers. Works Area - Portion S-C • Food waste should be disposed of. Works Area - Portion S-B • Food waste in the cage should be disposed of. **Reminder from the SOR** Works Area – Portion S-A • Stagnant water should be cleared. • Stagnant water should be cleared. • Stagnant water should be cleared.	Works Area – Portion N-A • The Contractor was reminded to cover the cement bags with tarpaulin sheet. • The Contractor was reminded to provide drip tray for the chemical containers. Works Area - Portion S-C • The Contractor was reminded to dispose of the food waste. Works Area - Portion S-B • The Contractor was reminded to dispose of the food waste in the cage. **Reminder from the SOR** Works Area – Portion S-A • The Contractor was reminded to clear the stagnant water. • The Contractor was reminded to clear the stagnant water. • The Contractor was reminded to clear the stagnant water.
12 June 2019	Works Area – TBM tunnel • Drip tray should be provided for the chemical containers. Works Area - Portion S-B • Food waste should be disposed of. Works Area - Portion S-C • Food waste should be disposed of. **Reminder from the SOR** Works Area – TBM tunnel • The breaker tip should be wrapped. Works Area – Portion S-A • Stagnant water should be cleared. Works Area – Portion S-B • Stagnant water should be cleared.	Works Area – TBM tunnel • The Contractor was reminded to provide drip tray for the chemical containers. Works Area - Portion S-B • The Contractor was reminded to dispose of the food waste. Works Area - Portion S-C • The Contractor was reminded to dispose of the food waste. **Reminder from the SOR** Works Area – TBM tunnel • The Contractor was reminded to wrap the breaker tip. Works Area – Portion S-A • The Contractor was reminded to clear the stagnant water. Works Area – Portion S-B • The Contractor was reminded to clear the stagnant water.

Inspection Date	Observations	Recommendations/ Remarks
19 June 2019	Works Area – Portion N-B • Food waste in the waste skip should be removed. Works Area - Portion S-B • Food waste in the waste skip should be removed. **Reminder from the SOR** Works Area – Portion N-C • Stagnant water trapped in the tray should be cleared.	Works Area – Portion N-B • The Contractor was reminded to remove the food waste in the waste skip. Works Area - Portion S-B • The Contractor was reminded to remove the food waste in the waste skip. **Reminder from the SOR** Works Area – Portion N-C • The Contractor was reminded to clear the stagnant water in the tray.
26 June 2019	Works Area –TBM tunnel • Drip tray should be provided for the chemical containers. • Water spraying should be applied for dust control. Works Area - Portion S-A • Rubbish on the water barrier should be removed. • Cement bags should be covered with tarpaulin sheet. **Reminder from the SOR** Works Area –TBM tunnel • Water barriers should be capped with lids for mosquito control. Works Area - Portion S-A • Stagnant water trapped above the tarpaulin sheets should be cleared.	Works Area –TBM tunnel • The Contractor was reminded to provide drip tray for chemical containers. • The Contractor was reminded to apply water spraying for dust control. Works Area - Portion S-A • The Contractor was reminded to remove the rubbish on the water barrier. • The Contractor was reminded to cover the cement bags with tarpaulin sheets. **Reminder from the SOR** Works Area –TBM tunnel • The Contractor was reminded to cap the water barriers with lids for mosquito control. Works Area - Portion S-A • The Contractor was reminded to clear the stagnant water trapped above the tarpaulin sheets.

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

2.5 *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 included mainly construction wastes (inert and non-inert). Reference has been made to the waste flow table prepared by the Contractor (*Appendix M*). The quantities of different types of wastes are summarized in *Table 2.12*.

Table 2.12 Quantities of Different Waste Generated in the Reporting Month

Month/Year	Inert Construction Waste [a] (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 (M_p & M_f)	Mixed (L+M)
June 2019	4,134	0	751	940	4,000	0	0	0

Notes:

Month/Year	Inert Construction Waste [a] (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 (M_p & M_f)	Mixed (L+M)

(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.

2.6 ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.13* below.

Table 2.13 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/D	13 March 2015	Throughout the Contract	HyD	Application for VEP on 3 March 2015 to supersede EP-354/2009/C
Construction Dust Notification	363510	19 August 2013	Throughout the Contract	DBJV	Northern Landfall
Construction Dust Notification	403620	10 June 2016	Throughout the Contract	DBJV	Southern Landfall
Chemical Waste Registration	5213-422-D2516-02	18 January 2017	Throughout the Contract	DBJV	Northern Landfall
Chemical Waste Registration	5213-951-D2591-01	25 May 2016	Throughout the Contract	DBJV	Southern Landfall
Construction Waste Disposal Account	7018108	28 August 2013	Throughout the Contract	DBJV	Waste disposal in Contract No. HY/2012/08
Construction Waste Disposal Account	7021715	21 March 2019	14 July 2019	DBJV	Vessel Disposal
Waste Water Discharge License	WT00019248-2014	5 June 2014	30 June 2019	DBJV	For site Portion N6 and Reclamation Area E
Waste Water Discharge License	WT00031435-2018	2 August 2018	31 August 2023	DBJV	Southern Landfall
Marine Dumping Permit	EP/MD/20-013	19 May 2019	18 November 2019	DBJV	Type 1 (Open Sea Disposal)
Marine Dumping Permit	EP/MD/20-001	5 May 2019	4 June 2019	DBJV	Type 1 (Dedicated site) and Type 2 (Confined Marine Disposal)
Construction Noise Permit	GW-RW0406-18	27 April 2019	15 October 2019	DBJV	Urmston Road in front of Pillar Point
Construction Noise Permit	GW-RW0063-19	20 February 2019	19 August 2019	DBJV	WA23 @ Tsing Yi
Construction Noise Permit	GW-RS0224-19	25 March 2019	24 September 2019	DBJV	Southern Landfall
Construction Noise Permit	GW-RW0179-19	27 April 2019	15 October 2019	DBJV	Urmston Road in front of Pillar Point

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

2.7 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.

2.8 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

No exceedances were recorded in the air quality monitoring of this reporting month.

No exceedances were recorded in the water quality monitoring of this reporting month.

Cumulative statistics are provided in *Appendix L*.

2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

The Environmental Complaint Handling Procedure is provided in *Figure 2.5*.

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

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

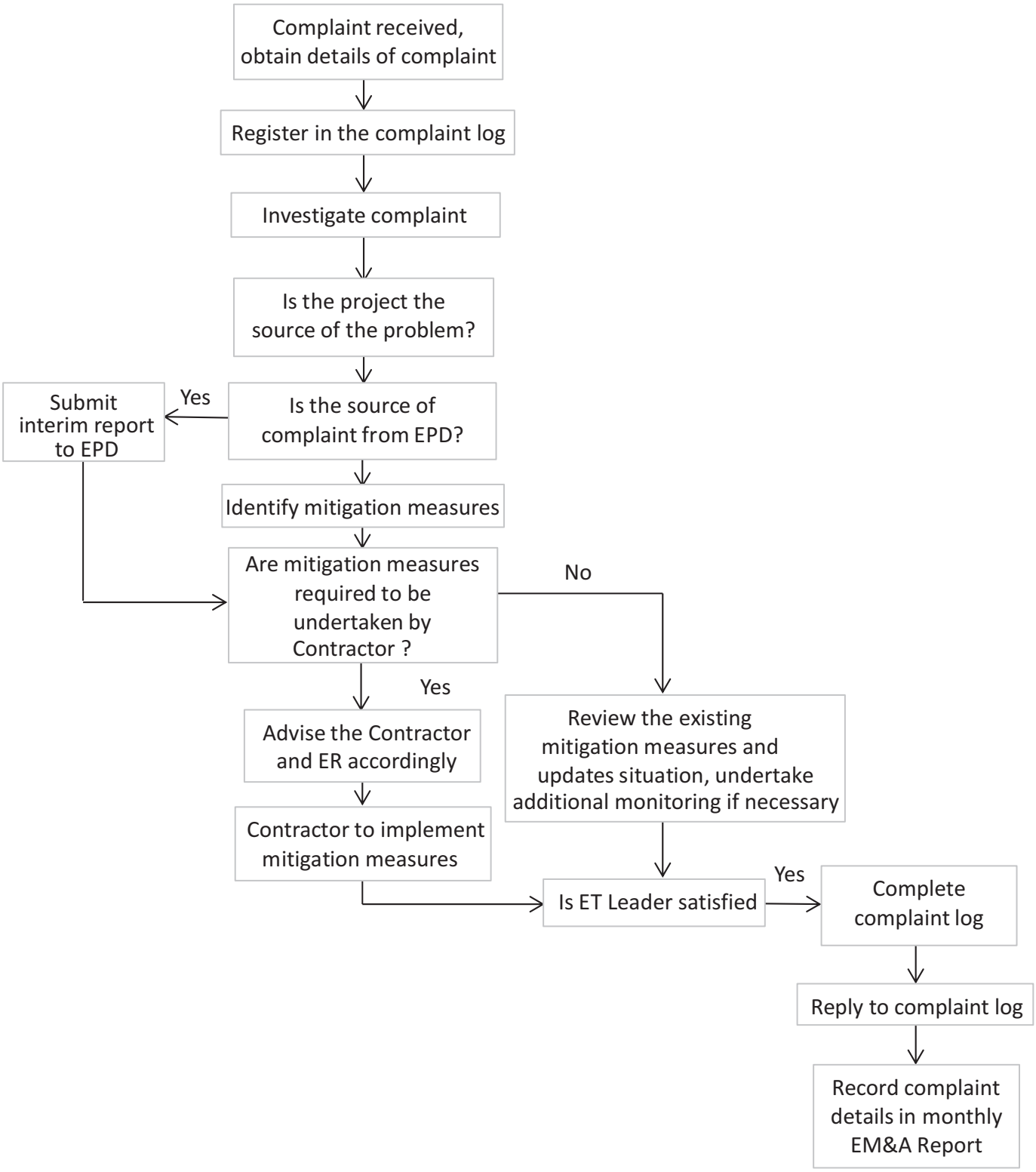

Figure 2.5 Environmental Complaint Handling Procedure

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DATE: 06/12/2013

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3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

As informed by the Contractor, the major works for the Contract in July 2019 are summarized in *Table 3.1*.

Table 3.1 Construction Works to Be Undertaken in the Coming Month

Works to be undertaken
Land-based Works • Construction of Thermal barrier – TBM tunnel; • Construction of Walkway Corbel & Cover – TBM Tunnel; • Gantry Removal – TBM tunnel • Backfilling – Portion N-A • RC structure – Portion S-A; • D-wall Removal – Portion S-A; • E&M Platform Installation – Portion S-A • STP Demolition – Portion S-C Marine-based Works • Seawall Modification Works – Portion S-B

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of July 2019 are mainly associated with dust, marine water quality, marine ecology and waste management issues.

3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedule for environmental monitoring in July 2019 is provided in *Appendix F*.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Sixty-eighth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 30 June 2019, in accordance with the Updated EM&A Manual and the requirements of EP-354/2009/D.

Air quality (including 1-hour TSP and 24-hour TSP), water quality monitoring and dolphin monitoring were carried out in this reporting month.

No exceedances were recorded in the air quality monitoring of this reporting month.

No exceedances were recorded in the water quality monitoring of this reporting month.

Two group of 5 Chinese White Dolphins sighting was recorded during the two sets of surveys in June 2019. The dolphin sighting was made in NWL, while none was sighted in NEL. The dolphin sighting was made during on-effort search and was made on primary lines. The dolphin groups were not associated with any operating fishing vessel.

Environmental site inspection was carried out four (4) times in June 2019. Remedial actions recommended for the deficiencies identified during the site audits were properly implemented by the Contractor.

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

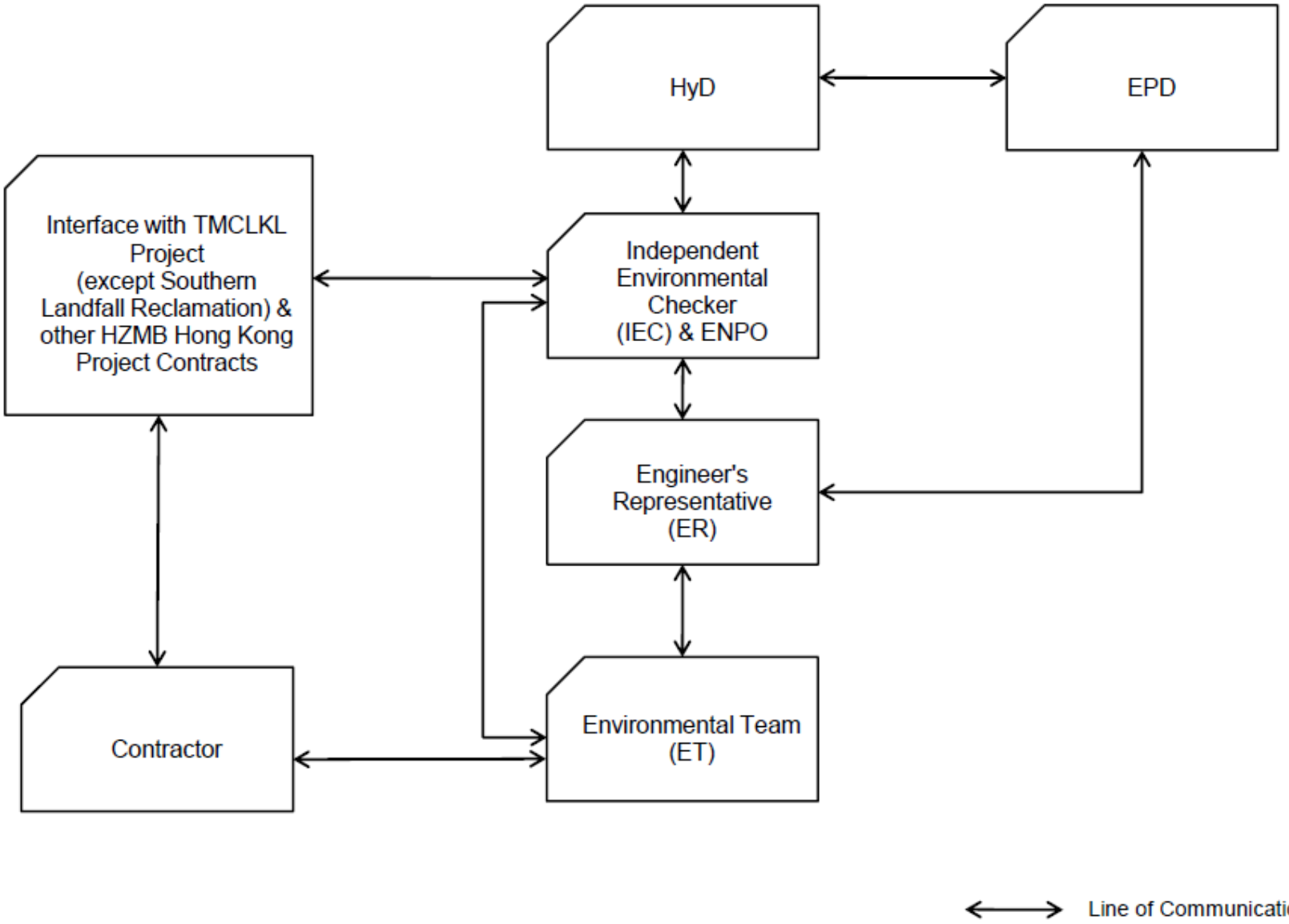
No environmental complaint was received in this reporting period.

No environmental summons was received in this 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

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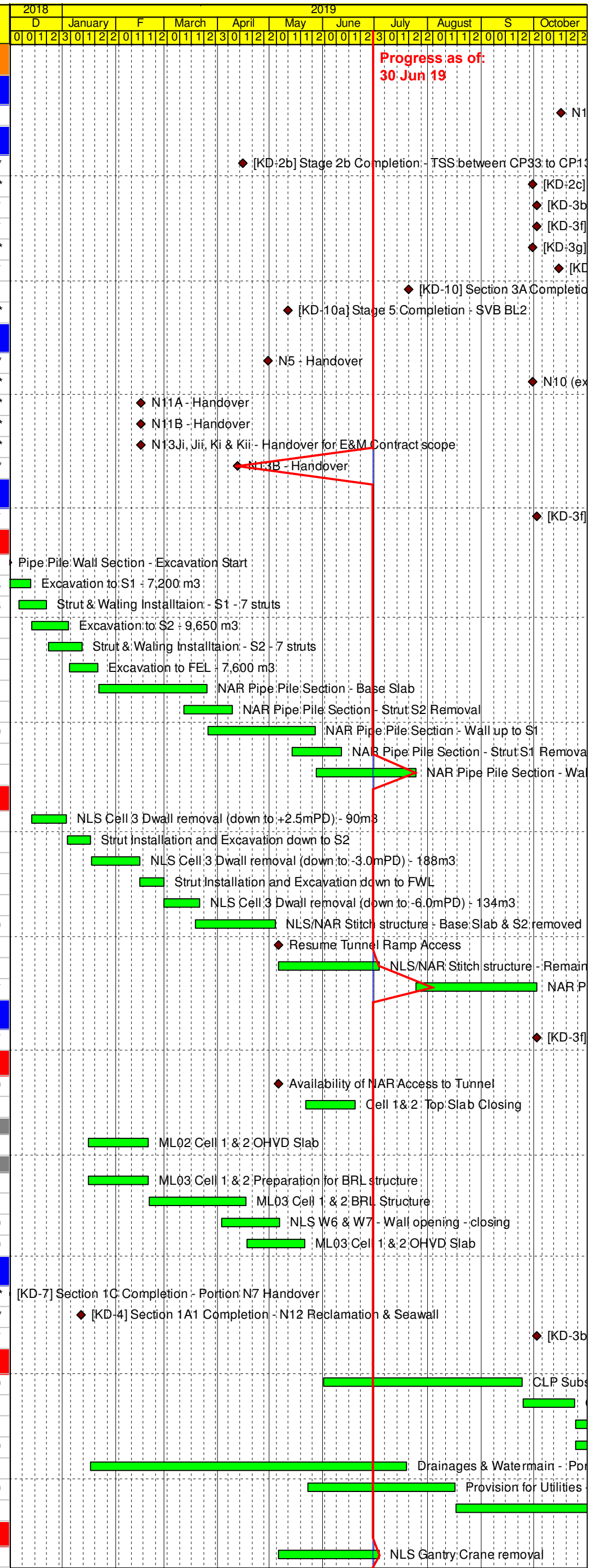
Appendix B

Construction Programme

TMCLKL Northern Connection Sub-sea Tunnel Section

Progress as of: 30 Jun 19

Activity Name	Orig Dur	Start	Finish
Possession / Access Dates			
N13Ji, Jii, Ki & Kii - Possession / Access (after E&M scope)	0	16-Oct-19	
Contract Key Dates			
[KD-2b] Stage 2b Completion - TSS between CP33 to CP13	0		15-Apr-19*
[KD-2c] Stage 2c Completion - Remaining TSS & TSA	0		30-Sep-19*
[KD-3b] Stage 3b Completion - NLF Provision for CLP, LV & I	0		02-Oct-19*
[KD-3f] Stage 3f Achievement - NLS/NAR - provide access	0		02-Oct-19*
[KD-3g] Stage 3g Completion - SVS Tunnel	0		30-Sep-19*
[KD-3i] Stage 3i Completion - South Approach Ramp	0		15-Oct-19*
[KD-10] Section 3A Completion - SVB	0		20-Jul-19*
[KD-10a] Stage 5 Completion - SVB BL2	0		11-May-19*
Portion Handover Dates			
N5 - Handover	0		30-Apr-19*
N10 (excl Tunnel) - Handover	0		30-Sep-19*
N11A - Handover	0		15-Feb-19*
N11B - Handover	0		15-Feb-19*
N13Ji, Jii, Ki & Kii - Handover for E&M Contract scope	0		15-Feb-19*
N13B - Handover	0		12-Apr-19*
North Approach Ramp			
[KD-3f] Stage 3f Achievement - NAR - provide access	0		02-Oct-19*
Access Ramp Section			
Pipe Pile Wall Section - Excavation Start	0	30-Nov-18	
Excavation to S1 - 7,200 m3	12	30-Nov-18	13-Dec-18
Strut & Waling Installtaion - S1 - 7 struts	14	07-Dec-18	22-Dec-18
Excavation to S2 - 9,650 m3	16	14-Dec-18	04-Jan-19
Strut & Waling Installtaion - S2 - 7 struts	15	24-Dec-18	12-Jan-19
Excavation to FEL - 7,600 m3	14	05-Jan-19	21-Jan-19
NAR Pipe Pile Section - Base Slab	48	22-Jan-19	25-Mar-19
NAR Pipe Pile Section - Strut S2 Removal	24	12-Mar-19	09-Apr-19
NAR Pipe Pile Section - Wall up to S1	48	26-Mar-19	27-May-19
NAR Pipe Pile Section - Strut S1 Removal	24	14-May-19	11-Jun-19
NAR Pipe Pile Section - Wall Remaining	48	28-May-19	24-Jul-19
NLS Interface (OAP-NAR-DWG-10442-B)			
NLS Cell 3 Dwall removal (down to +2.5mPD) - 90m3	15	14-Dec-18	03-Jan-19
Strut Installation and Excavation down to S2	12	04-Jan-19	17-Jan-19
NLS Cell 3 Dwall removal (down to -3.0mPD) - 188m3	18	18-Jan-19	14-Feb-19
Strut Installation and Excavation down to FWL	12	15-Feb-19	28-Feb-19
NLS Cell 3 Dwall removal (down to -6.0mPD) - 134m3	18	01-Mar-19	21-Mar-19
NLS/NAR Stitch structure - Base Slab & S2 removed	36	19-Mar-19	04-May-19
Resume Tunnel Ramp Access	0	06-May-19	
NLS/NAR Stitch structure - Remaining Wall Structure & Stru	48	06-May-19	03-Jul-19
NAR Parapet, Cable Trough	58	25-Jul-19	02-Oct-19*
North Launching Shaft			
[KD-3f] Stage 3f Achievement - NLS - provide access	0		02-Oct-19*
NLS Cell 1-3 Remaining Structure			
Availability of NAR Access to Tunnel	0		06-May-19
Cell 1& 2 Top Slab Closing	24	22-May-19	19-Jun-19
ML02			
ML02 Cell 1 & 2 OHVD Slab	24	16-Jan-19	19-Feb-19
ML03			
ML03 Cell 1 & 2 Preparation for BRL structure	24	16-Jan-19	19-Feb-19
ML03 Cell 1 & 2 BRL Structure	48	20-Feb-19	17-Apr-19
NLS W6 & W7 - Wall opening - closing	24	03-Apr-19	06-May-19
ML03 Cell 1 & 2 OHVD Slab	24	18-Apr-19	21-May-19
NLF Demobilization & At-grade works			
[KD-7] Section 1C Completion - Portion N7 Handover	0		29-Nov-18*
[KD-4] Section 1A1 Completion - N12 Reclamation & Seawall	0		11-Jan-19*
[KD-3b] Stage 3b Completion - NLF Provision for CLP, LV & I	0		02-Oct-19*
Portion N12 & Portion N6B			
CLP Substation - Prepare for CLP Consent for de-energizat	96	01-Jun-19	24-Sep-19
CLP Substation - De-energization	24	25-Sep-19	24-Oct-19
CLP Substation - Dismantling & Removal	178	25-Oct-19	01-Jun-20
VO-009 Temporary Protection Barrier - Dismantling & Remc	48	25-Oct-19	19-Dec-19
Drainages & Watermain - Portion N12 & N6B	144	17-Jan-19	19-Jul-19
Provision for Utilities - Portion N12 & N6B	72	23-May-19	16-Aug-19
Utilities parties coordination & Remaining Civil Provision - N	117	17-Aug-19	07-Jan-20
North Launching Shaft			
NLS Gantry Crane removal	48	06-May-19	03-Jul-19



Planned Milestone

Planned Bar

TMCLK - Northern Connection Sub-sea Tunnel Section

Detailed Works Programme Rev. J

Three Months Rolling Programme Progress as of 26 May 2019

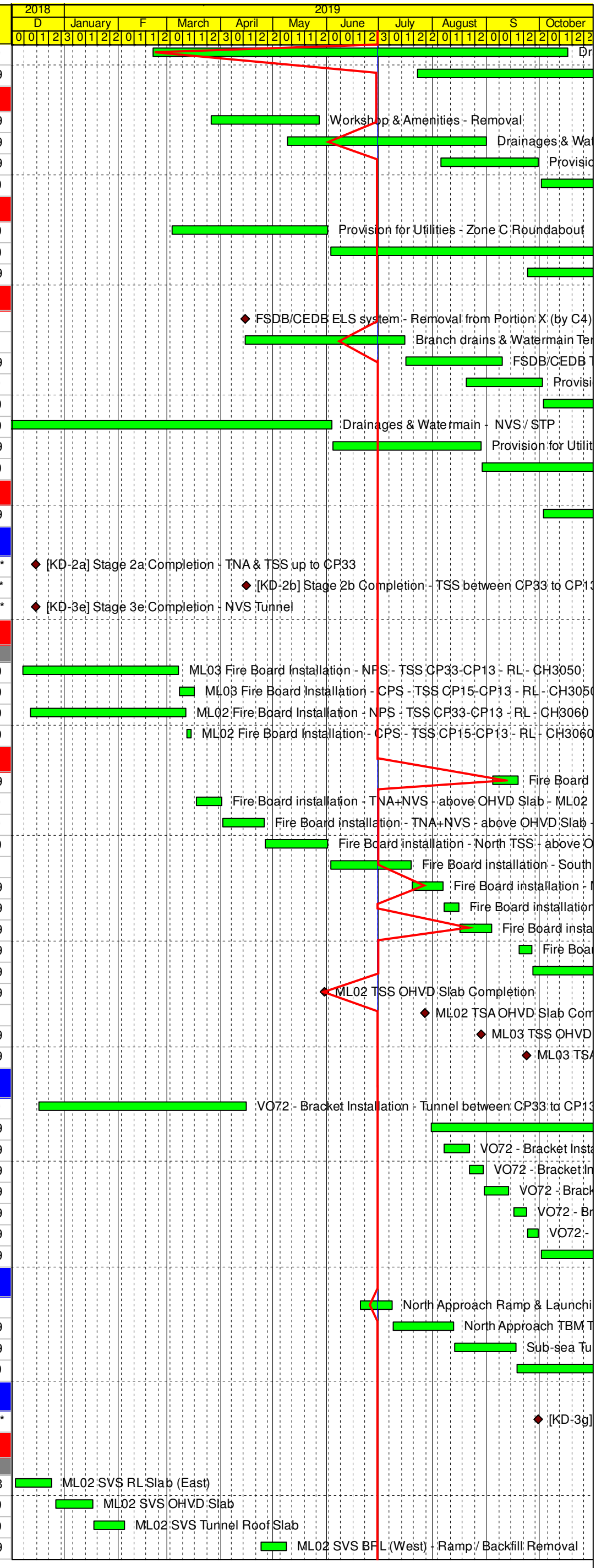
香港寶嘉 Dragages HongKong

A member of the Bouygues Construction group

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22-Dec-17	Rev. H	WYu	
05-Feb-18	Rev. I AC	WYu	
07-Mar-18	Rev. I	WYu	
18-Jul-18	Rev. J	WYu	

Activity Name	Orig Dur	Start	Finish
Drainages & Watermain - NLS	194	21-Feb-19	17-Oct-19
Provision for Utilities - NLS	96	23-Jul-19	14-Nov-19
Sloping Seawall			
Workshop & Amenities - Removal	48	26-Mar-19	27-May-19
Drainages & Watermain - Workshop & Amenities	96	09-May-19	31-Aug-19
Provision for Utilities - Workshop & Amenities	48	05-Aug-19	30-Sep-19
Utilities parties coordination & Remaining Civil Provision - \	80	02-Oct-19	07-Jan-20
Precast Segment Yard			
Provision for Utilities - Zone C Roundabout	72	04-Mar-19	01-Jun-19
Utilities parties coordination & Remaining Civil Provision - Z	180	03-Jun-19	07-Jan-20
Gantry Crane 2 & 3 - Dismantling	48	24-Sep-19	20-Nov-19
NVS & STP (Portion N7 Interface)			
FSDB/CEDB ELS system - Removal from Portion X (by C4)	0	15-Apr-19*	
Branch drains & Watermain Terminal Manholes - FSDB/CEI	72	15-Apr-19	15-Jul-19
FSDB/CEDB Termainal Manholes	48	16-Jul-19	09-Sep-19
Provision for Utilities - Portion N7 Interface	36	20-Aug-19	02-Oct-19
Utilities parties coordination & Remaining Civil Provision - N7	79	03-Oct-19	07-Jan-20
Drainages & Watermain - NVS / STP	144	30-Nov-18	03-Jun-19
Provision for Utilities - NVS / STP	72	04-Jun-19	28-Aug-19
Utilities parties coordination & Remaining Civil Provision - N	107	29-Aug-19	07-Jan-20
Northern Landfall - Overall			
Road Kerb Installation & Sub-base - NLF At-grade	48	03-Oct-19	28-Nov-19
Tunnel - Thermal Barrier			
[KD-2a] Stage 2a Completion - TNA & TSS up to CP33	0		15-Dec-18*
[KD-2b] Stage 2b Completion - TSS between CP33 to CP13	0		15-Apr-19*
[KD-3e] Stage 3e Completion - NVS Tunnel	0		15-Dec-18*
Fire board Installation below OHVD			
Fire Board between CP33 and CP13			
ML03 Fire Board Installation - NPS - TSS CP33-CP13 - RL	68	08-Dec-18	07-Mar-19
ML03 Fire Board Installation - CPS - TSS CP15-CP13 - RL	8	08-Mar-19	16-Mar-19
ML02 Fire Board Installation - NPS - TSS CP33-CP13 - RL	68	12-Dec-18	11-Mar-19
ML02 Fire Board Installation - CPS - TSS CP15-CP13 - RL	3	12-Mar-19	14-Mar-19
Fire board Installation above OHVD			
Fire Board Installation - NLS	12	04-Sep-19	18-Sep-19
Fire Board installation - TNA+NVS - above OHVD Slab - ML	13	18-Mar-19	01-Apr-19
Fire Board installation - TNA+NVS - above OHVD Slab - ML	17	02-Apr-19	25-Apr-19
Fire Board installation - North TSS - above OHVD Slab	30	26-Apr-19	01-Jun-19
Fire Board installation - South TSS - above OHVD Slab	39	03-Jun-19	19-Jul-19
Fire Board installation - ML02 TSS CP13 to SVS	15	20-Jul-19	06-Aug-19
Fire Board installation - ML02 TSA	8	07-Aug-19	15-Aug-19
Fire Board installation - ML03 TSS CP13 to SVS	16	16-Aug-19	03-Sep-19
Fire Board installation - ML03 TSA	7	19-Sep-19	26-Sep-19
Fire Board installation - MHS C&C below OHVD	30	27-Sep-19	02-Nov-19
ML02 TSS OHVD Slab Completion	0		30-May-19
ML02 TSA OHVD Slab Completion	0		27-Jul-19
ML03 TSS OHVD Slab Completion	0		28-Aug-19
ML03 TSA OHVD Slab Completion	0		23-Sep-19
Tunnel - Anchor / E&M Bracket (VO72)			
VO72 - Bracket Installation - Tunnel between CP33 to CP13	93	17-Dec-18	15-Apr-19
VO72 - Drilling & Anchor Installation - Remaining Tunnel	84	31-Jul-19	08-Nov-19
VO72 - Bracket Installation - Tunnel between CP13 to SVS M	13	07-Aug-19	21-Aug-19
VO72 - Bracket Installation - MHS TBM Tunnel ML02 (20R/d)	7	22-Aug-19	29-Aug-19
VO72 - Bracket Installation - Tunnel between CP13 to SVS M	13	30-Aug-19	13-Sep-19
VO72 - Bracket Installation - NLS	7	16-Sep-19	23-Sep-19
VO72 - Bracket Installation - MHS TBM Tunnel ML03 (20R/d)	6	24-Sep-19	30-Sep-19
VO72 - Bracket Installation - MHS C&C Tunnel	38	02-Oct-19	15-Nov-19
Tunnel Roadworks			
North Approach Ramp & Launching Shaft	15	20-Jun-19	08-Jul-19
North Approach TBM Tunnel and NVS Tunnel	30	09-Jul-19	12-Aug-19
Sub-sea Tunnel from NVS to CP33	30	13-Aug-19	17-Sep-19
Sub-sea Tunnel from CP33 to CP13	45	18-Sep-19	11-Nov-19
ML02 South Ventilation Shaft			
[KD-3g] Stage 3g Completion - SVS Tunnel	0		30-Sep-19*
ML02 SVS Structure			
Tunnel Box			
ML02 SVS RL Slab (East)	18	04-Dec-18	24-Dec-18
ML02 SVS OHVD Slab	18	27-Dec-18	17-Jan-19
ML02 SVS Tunnel Roof Slab	15	18-Jan-19	04-Feb-19
ML02 SVS BRL (West) - Ramp / Backfill Removal	12	24-Apr-19	08-May-19



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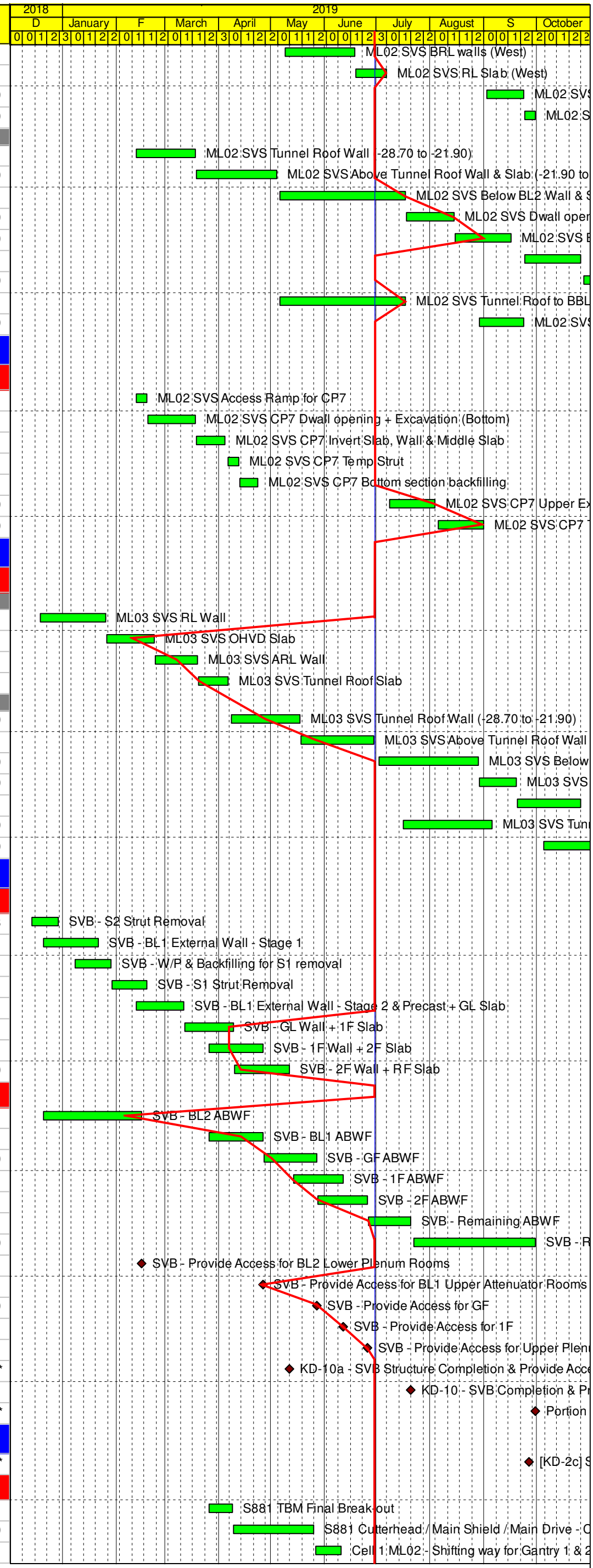
Activity Name	Orig Dur	Start	Finish
ML02 SVS BRL walls (West)	33	09-May-19	18-Jun-19
ML02 SVS RL Slab (West)	15	19-Jun-19	06-Jul-19
ML02 SVS West wall remaining after CP7	18	02-Sep-19	23-Sep-19
ML02 SVS Tunnel - Prepare for E&M Contractor Access	6	24-Sep-19	30-Sep-19
Above Tunnel Vent Duct			
ML02 SVS Tunnel Roof Wall (-28.70 to -21.90)	30	12-Feb-19	18-Mar-19
ML02 SVS Above Tunnel Roof Wall & Slab (-21.90 to -18.7	36	19-Mar-19	04-May-19
ML02 SVS Below BL2 Wall & Slab + Backfill (-18.70 to -6.9	60	06-May-19	17-Jul-19
ML02 SVS Dwall opening for Duct connection to SVB S1	24	18-Jul-19	14-Aug-19
ML02 SVS BL2 Wall & Slab (-6.95 to -0.45)	27	15-Aug-19	16-Sep-19
ML02 SVS Dwall opening for Duct connection to SVB S2	27	24-Sep-19	26-Oct-19
ML02 SVS BL1 Wall & Slab (-0.45 to +1.80)	30	28-Oct-19	30-Nov-19
ML02 SVS Tunnel Roof to BBL2 W/P & Backfill (-21.90 to -	60	06-May-19	17-Jul-19
ML02 SVS BL2 W/P & Backfill (-8.00 to -0.65)	21	29-Aug-19	23-Sep-19
CP7 South Ventilation Shaft			
ML02 SVS			
ML02 SVS Access Ramp for CP7	6	12-Feb-19	18-Feb-19
ML02 SVS CP7 Dwall opening + Excavation (Bottom)	24	19-Feb-19	18-Mar-19
ML02 SVS CP7 Invert Slab, Wall & Middle Slab	15	19-Mar-19	04-Apr-19
ML02 SVS CP7 Temp Strut	6	06-Apr-19	12-Apr-19
ML02 SVS CP7 Bottom section backfilling	6	13-Apr-19	23-Apr-19
ML02 SVS CP7 Upper Excavation & modify arches	24	08-Jul-19	03-Aug-19
ML02 SVS CP7 Top section - Structure	24	05-Aug-19	31-Aug-19
ML03 South Ventilation Shaft			
ML03 SVS Structure			
Tunnel Box			
ML03 SVS RL Wall	30	19-Dec-18	25-Jan-19
ML03 SVS OHVD Slab	18	26-Jan-19	22-Feb-19
ML03 SVS ARL Wall	21	23-Feb-19	19-Mar-19
ML03 SVS Tunnel Roof Slab	15	20-Mar-19	06-Apr-19
Above Tunnel Vent Duct			
ML03 SVS Tunnel Roof Wall (-28.70 to -21.90)	30	08-Apr-19	17-May-19
ML03 SVS Above Tunnel Roof Wall & Slab	36	18-May-19	29-Jun-19
ML03 SVS Below BL2 Wall & Slab (-18.70 to -6.95)	50	02-Jul-19	28-Aug-19
ML03 SVS Dwall opening for Duct connection to SVB	18	29-Aug-19	19-Sep-19
ML03 SVS BL2 Duct Connection to SVB	30	20-Sep-19	26-Oct-19
ML03 SVS Tunnel Roof to BBL2 W/P & Backfilli(-21.90 to -	45	16-Jul-19	05-Sep-19
ML03 SVS BL2 W/P & Backfill (-8.00 to -0.65)	24	05-Oct-19	02-Nov-19
South Ventilation Building			
Structure			
SVB - S2 Strut Removal	12	14-Dec-18	29-Dec-18
SVB - BL1 External Wall - Stage 1	24	21-Dec-18	21-Jan-19
SVB - W/P & Backfilling for S1 removal	18	08-Jan-19	28-Jan-19
SVB - S1 Strut Removal	12	29-Jan-19	18-Feb-19
SVB - BL1 External Wall - Stage 2 & Precast + GL Slab	24	12-Feb-19	11-Mar-19
SVB - GL Wall + 1F Slab	24	12-Mar-19	09-Apr-19
SVB - 1F Wall + 2F Slab	24	26-Mar-19	26-Apr-19
SVB - 2F Wall + RF Slab	24	10-Apr-19	11-May-19
ABWF			
SVB - BL2 ABWF	40	21-Dec-18	15-Feb-19
SVB - BL1 ABWF	24	26-Mar-19	26-Apr-19
SVB - GF ABWF	24	27-Apr-19	27-May-19
SVB - 1F ABWF	24	14-May-19	11-Jun-19
SVB - 2F ABWF	24	28-May-19	25-Jun-19
SVB - Remaining ABWF	21	26-Jun-19	20-Jul-19
SVB - Roof Structure	60	22-Jul-19	30-Sep-19
SVB - Provide Access for BL2 Lower Plenum Rooms	0		15-Feb-19
SVB - Provide Access for BL1 Upper Attenuator Rooms	0		26-Apr-19
SVB - Provide Access for GF	0		27-May-19
SVB - Provide Access for 1F	0		11-Jun-19
SVB - Provide Access for Upper Plenum Rooms	0		25-Jun-19
KD-10a - SVB Structure Completion & Provide Access to BL2	0		11-May-19*
KD-10 - SVB Completion & Provide Access	0		20-Jul-19*
Portion N10 - Handover	0		30-Sep-19*
South Approach TBM Tunnel			
[KD-2c] Stage 2c Completion - Remaining TSS & TSA	0		26-Sep-19*
S881 TBM			
S881 TBM Final Break-out	14	26-Mar-19	08-Apr-19
S881 Cutterhead / Main Shield / Main Drive - Cut & remove	36	09-Apr-19	25-May-19
Cell 1 ML02 - Shifting way for Gantry 1 & 2 Removal	12	27-May-19	10-Jun-19



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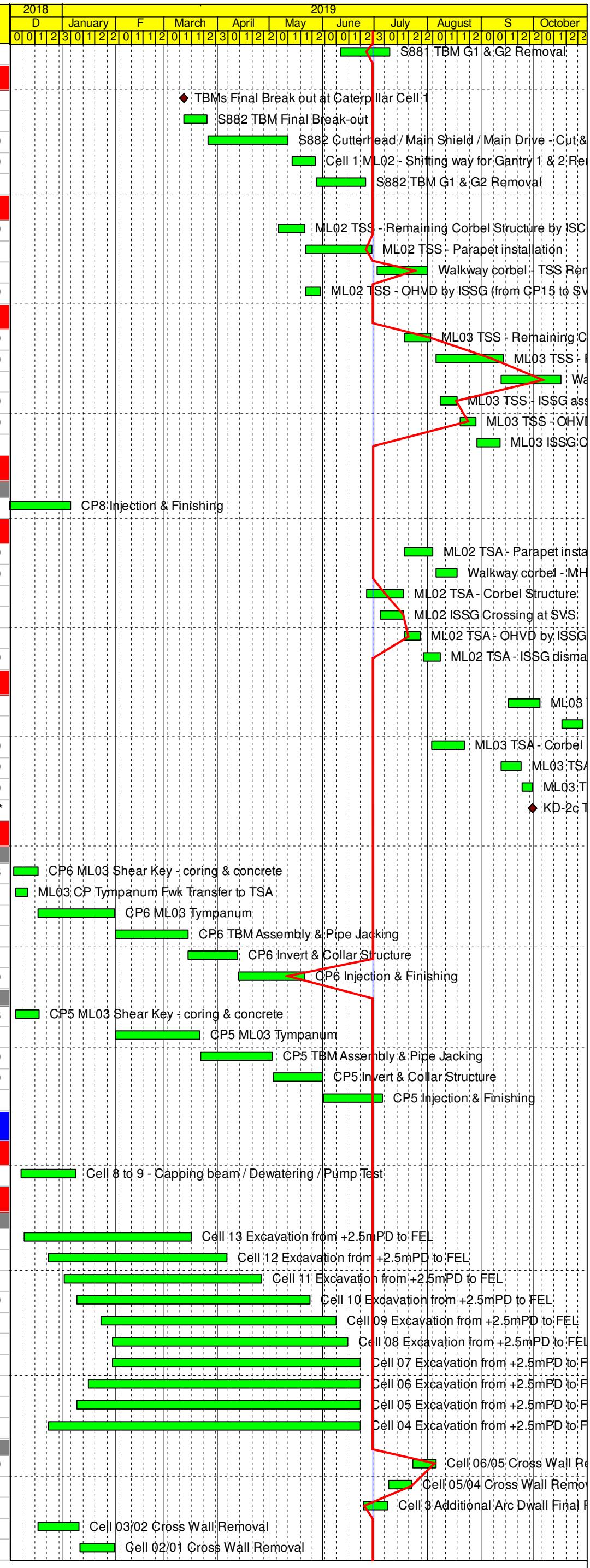
Activity Name	Orig Dur	Start	Finish
S881 TBM G1 & G2 Removal	24	11-Jun-19	09-Jul-19
S882 TBM			
TBMs Final Break out at Caterpillar Cell 1	0	12-Mar-19	
S882 TBM Final Break-out	14	12-Mar-19	25-Mar-19
S882 Cutterhead / Main Shield / Main Drive - Cut & remove	36	26-Mar-19	11-May-19
Cell 1 ML02 - Shifting way for Gantry 1 & 2 Removal	12	14-May-19	27-May-19
S882 TBM G1 & G2 Removal	24	28-May-19	25-Jun-19
ML02 TSS Internal Structure			
ML02 TSS - Remaining Corbel Structure by ISCG	13	06-May-19	21-May-19
ML02 TSS - Parapet installation	33	22-May-19	29-Jun-19
Walkway corbel - TSS Remaining & SVS ML02 both side	26	02-Jul-19	31-Jul-19
ML02 TSS - OHVD by ISSG (from CP15 to SVS)	8	22-May-19	30-May-19
ML03 TSS Internal Structure			
ML03 TSS - Remaining Corbel Structure by ISCG	14	18-Jul-19	02-Aug-19
ML03 TSS - Parapet installation	35	05-Aug-19	13-Sep-19
Walkway corbel - TSS Remaining & SVS ML03 both side	27	12-Sep-19	16-Oct-19
ML03 TSS - ISSG assembly at CP15	9	08-Aug-19	17-Aug-19
ML03 TSS - OHVD by ISSG (from CP15 to SVS)	9	19-Aug-19	28-Aug-19
ML03 ISSG Crossing at SVS	12	29-Aug-19	11-Sep-19
TSS Cross Passage			
CP8			
CP8 Injection & Finishing	28	01-Dec-18	05-Jan-19
ML02 TSA Internal Structure			
ML02 TSA - Parapet installation	15	18-Jul-19	03-Aug-19
Walkway corbel - MHS TBM ML02 both sides	12	05-Aug-19	17-Aug-19
ML02 TSA - Corbel Structure	18	26-Jun-19	17-Jul-19
ML02 ISSG Crossing at SVS	12	04-Jul-19	17-Jul-19
ML02 TSA - OHVD by ISSG	9	18-Jul-19	27-Jul-19
ML02 TSA - ISSG dismantling	9	29-Jul-19	07-Aug-19
ML03 TSA Internal Structure			
ML03 TSA - Parapet installation	16	16-Sep-19	04-Oct-19
Walkway corbel - MHS TBM ML03 both sides	11	17-Oct-19	29-Oct-19
ML03 TSA - Corbel Structure	16	03-Aug-19	21-Aug-19
ML03 TSA - OHVD by ISSG	9	12-Sep-19	23-Sep-19
ML03 TSA - Lead time for Fire Proofing	6	24-Sep-19	30-Sep-19
KD-2c TSS CP15>SVS, MHS TBM Tunnel - Provide Access	0		30-Sep-19*
TSA Cross Passage			
CP6			
CP6 ML03 Shear Key - coring & concrete	12	04-Dec-18	17-Dec-18
ML03 CP Tympanum Fwk Transfer to TSA	6	05-Dec-18	11-Dec-18
CP6 ML03 Tympanum	36	18-Dec-18	31-Jan-19
CP6 TBM Assembly & Pipe Jacking	42	01-Feb-19	14-Mar-19
CP6 Invert & Collar Structure	24	15-Mar-19	12-Apr-19
CP6 Injection & Finishing	28	13-Apr-19	21-May-19
CP5			
CP5 ML03 Shear Key - coring & concrete	12	05-Dec-18	18-Dec-18
CP5 ML03 Tympanum	36	01-Feb-19	21-Mar-19
CP5 TBM Assembly & Pipe Jacking	42	22-Mar-19	02-May-19
CP5 Invert & Collar Structure	24	03-May-19	31-May-19
CP5 Injection & Finishing	28	01-Jun-19	05-Jul-19
MHS Cut-and-cover Tunnel			
N MHS C&C Preparation for Excavation			
Cell 8 to 9 - Capping beam / Dewatering / Pump Test	24	08-Dec-18	08-Jan-19
N MHS C&C Caterpillar Excavation			
MHS C&C Cell 12 to 04			
Cell 13 Excavation from +2.5mPD to FEL	75	10-Dec-18	16-Mar-19
Cell 12 Excavation from +2.5mPD to FEL	80	24-Dec-18	06-Apr-19
Cell 11 Excavation from +2.5mPD to FEL	89	02-Jan-19	26-Apr-19
Cell 10 Excavation from +2.5mPD to FEL	105	09-Jan-19	24-May-19
Cell 09 Excavation from +2.5mPD to FEL	105	23-Jan-19	08-Jun-19
Cell 08 Excavation from +2.5mPD to FEL	105	30-Jan-19	15-Jun-19
Cell 07 Excavation from +2.5mPD to FEL	111	30-Jan-19	22-Jun-19
Cell 06 Excavation from +2.5mPD to FEL	123	16-Jan-19	22-Jun-19
Cell 05 Excavation from +2.5mPD to FEL	129	09-Jan-19	22-Jun-19
Cell 04 Excavation from +2.5mPD to FEL	140	24-Dec-18	22-Jun-19
Cross Wall Removal			
Cell 06/05 Cross Wall Removal	12	23-Jul-19	05-Aug-19
Cell 05/04 Cross Wall Removal	12	09-Jul-19	22-Jul-19
Cell 3 Additional Arc Dwall Final Removal	12	24-Jun-19	08-Jul-19
Cell 03/02 Cross Wall Removal	18	18-Dec-18	10-Jan-19
Cell 02/01 Cross Wall Removal	18	11-Jan-19	31-Jan-19



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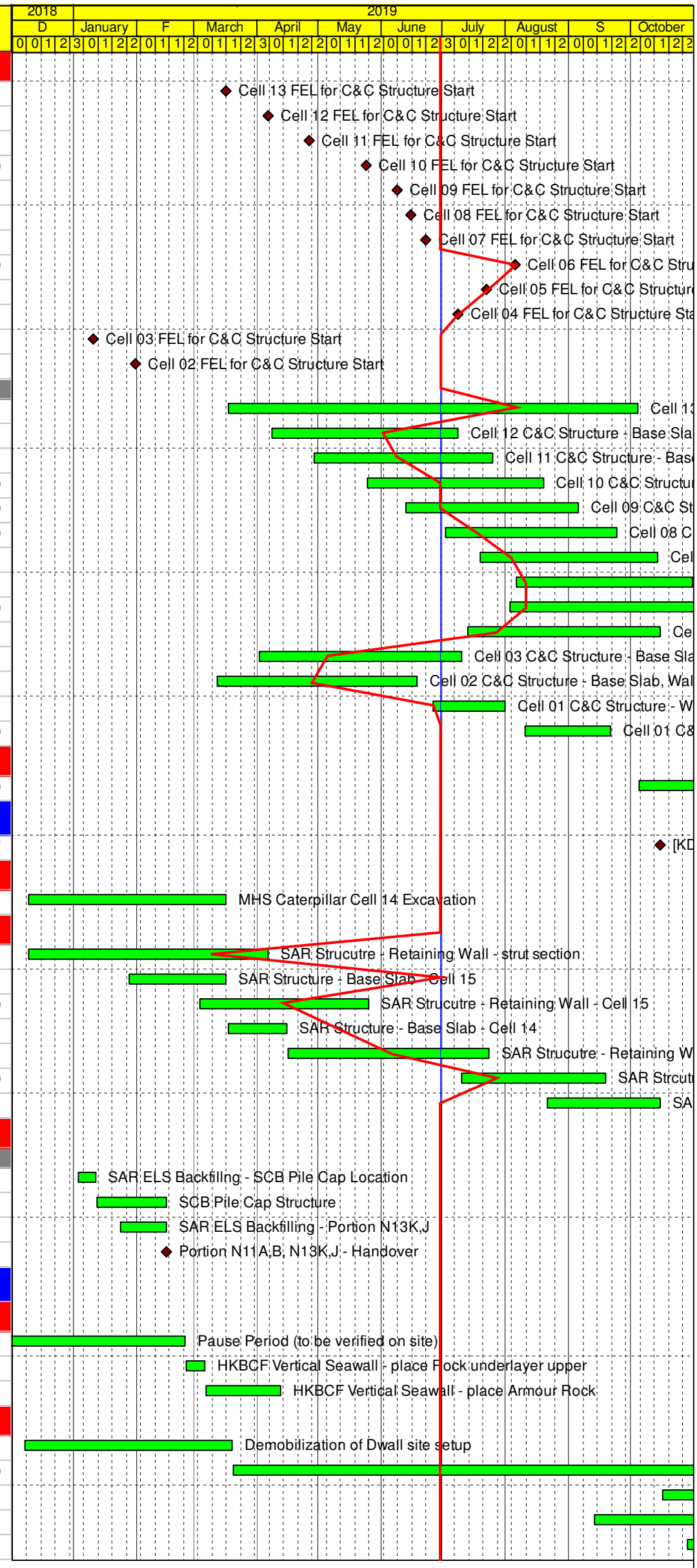
Activity Name	Orig Dur	Start	Finish
N MHS C&C Caterpillar Structure			
Cell 13 FEL for C&C Structure Start	0		16-Mar-19
Cell 12 FEL for C&C Structure Start	0		06-Apr-19
Cell 11 FEL for C&C Structure Start	0		26-Apr-19
Cell 10 FEL for C&C Structure Start	0		24-May-19
Cell 09 FEL for C&C Structure Start	0		08-Jun-19
Cell 08 FEL for C&C Structure Start	0		15-Jun-19
Cell 07 FEL for C&C Structure Start	0		22-Jun-19
Cell 06 FEL for C&C Structure Start	0		05-Aug-19
Cell 05 FEL for C&C Structure Start	0		22-Jul-19
Cell 04 FEL for C&C Structure Start	0		08-Jul-19
Cell 03 FEL for C&C Structure Start	0		10-Jan-19
Cell 02 FEL for C&C Structure Start	0		31-Jan-19
Main Box Structure			
Cell 13 C&C Sturcture (In-situ) & system fwk assembly	163	18-Mar-19	04-Oct-19
Cell 12 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	08-Apr-19	08-Jul-19
Cell 11 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	29-Apr-19	25-Jul-19
Cell 10 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	25-May-19	19-Aug-19
Cell 09 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	13-Jun-19	05-Sep-19
Cell 08 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	02-Jul-19	24-Sep-19
Cell 07 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	19-Jul-19	14-Oct-19
Cell 06 C&C Structure - Base Slab, Wall & Top Slab & OH\	72	06-Aug-19	31-Oct-19
Cell 05 C&C Structure - Base Slab, Wall & Top Slab & OH\	78	03-Aug-19	05-Nov-19
Cell 04 C&C Structure - Base Slab, Wall & Top Slab & OH\	78	13-Jul-19	15-Oct-19
Cell 03 C&C Structure - Base Slab, Wall & Top Slab & OH\	78	02-Apr-19	10-Jul-19
Cell 02 C&C Structure - Base Slab, Wall & Top Slab & OH\	78	12-Mar-19	18-Jun-19
Cell 01 C&C Structure - Wall Structure	30	26-Jun-19	31-Jul-19
Cell 01 C&C Stucture - Top Slab and OHVD Slab	36	10-Aug-19	21-Sep-19
MHS C&C Tunnel Backfilling			
MHS C&C Tunnel - Backfilling - Cell 13 to Cell 01	170	05-Oct-19	04-May-20
MHS Approach Ramp			
[KD-3i] Stage 3i Completion - South Approach Ramp	0		15-Oct-19*
MHS Approach Ramp Excavation			
MHS Caterpillar Cell 14 Excavation	75	10-Dec-18	16-Mar-19
MHS Approach Ramp Structure			
SAR Strucutre - Retaining Wall - strut section	92	10-Dec-18	06-Apr-19
SAR Structure - Base Slab - Cell 15	36	28-Jan-19	16-Mar-19
SAR Strucutre - Retaining Wall - Cell 15	66	04-Mar-19	25-May-19
SAR Structure - Base Slab - Cell 14	24	18-Mar-19	15-Apr-19
SAR Strucutre - Retaining Wall - Cell 14	78	16-Apr-19	23-Jul-19
SAR Strcutrure - Mass Concrete	60	10-Jul-19	18-Sep-19
SAR Structure - Parapet & Walkway	45	21-Aug-19	15-Oct-19
VO73 SCB Foundation & Substructure			
Foundation			
SAR ELS Backfillng - SCB Pile Cap Location	8	03-Jan-19	11-Jan-19
SCB Pile Cap Structure	24	12-Jan-19	15-Feb-19
SAR ELS Backfilling - Portion N13K,J	14	24-Jan-19	15-Feb-19
Portion N11A,B, N13K,J - Handover	0		15-Feb-19
Southern Landfall - Surface			
HKBCF Seawall Modification (schedule TBC)			
Pause Period (to be verified on site)	90	27-Nov-18	24-Feb-19
HKBCF Vertical Seawall - place Rock underlayer upper	9	25-Feb-19	06-Mar-19
HKBCF Vertical Seawall - place Armour Rock	31	07-Mar-19	12-Apr-19
UU / At-grade works			
Demobilization of Dwall site setup	78	08-Dec-18	19-Mar-19
Drainage & Watermain - SLF	216	20-Mar-19	09-Dec-19
Drainage & Watermain - SLF Portion N13Ji, Jii, Ki & Kii	82	16-Oct-19	23-Jan-20
Provision for Utilities - SLF West	110	13-Sep-19	29-Jan-20
Provision for Utilities - SLF East	110	29-Oct-19	11-Mar-20



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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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
Air Quality									
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		✓
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		✓

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

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	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 any earthworks excavation activity on the site.	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		✓
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		✓
WATER QUALITY									
Marine Works (Sequence A)									
6.1 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		✓
6.1	-	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		✓

Legend: D=Design, C=Construction, O=Operation

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.1	-	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
6.1	-	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		✓
6.1	-	Use of cage type silt curtains round allgrab dredgers during the HKBCF, HKLR and TM-CLKL southern reclamation works.	All areas dredging works	Contractor	TM-EIAO		Y		✓
	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		✓
6.1	-	Trailer suction hopper dredgers shall not allow mud to overflow.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1	-	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		✓
6.1 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	TM-CLKL northern landfall, Portion D of HKBCF and HKLR	Contractor	TM-EIAO		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
		- Reclamation dredging and filling for Portion 1 of HKLR;							
6.1	-	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
6.1	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		✓
6.1	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		✓
6.1	-	TM-CLKL northern landfall: - Reclamation filling shall not proceed until at least 200m section of leading seawall at both the east and west sides of the reclamation are formed above +2.5 mPD, except for 100m gaps for marine access;	All areas/ through out marine works	Contractor	TM-EIAO		Y		✓
General Marine Works									
6.1	-	Use of TBM for the construction of the submarine tunnel.	Tunnel works / Construction phase	Contractor	TM-EIAO		Y		N/A
6.1	-	Export dredged spoils from NWWCZ.	All areas as much as possible / dredging activities	Contractor	DASO Permit conditions		Y		✓
6.1	-	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
6.1	-	Where sand fill is proposed for filling below +2.5mPD, the fine content in the sand fill will be controlled to 5%.	All areas/ backfilling works	Contractor	TM-EIAO		Y		N/A
6.1	-	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		✓
6.1	-	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		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
					Guidelines. DASO permit conditions.				
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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
6.1	-	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
6.1	-	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		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
					conditions.				
6.1	5.2	Silt curtain shall have proved effectiveness from the producer and shall be fully maintained throughout the works by the contractor.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	The daily maximum production rates shall not exceed those assumed in the water quality assessment.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	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									
6.1	-	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		✓
6.1	-	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		✓
6.1	-	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	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		✓
6.1	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	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		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.1	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	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		✓
6.1	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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
6.1	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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	✓
6.1	Section 5	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
Water Quality Monitoring									
6.1	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	✓
ECOLOGY									
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		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
8.15	6.3, 6.5	Specification and deployment of an artificial reef of an area of 3,600m2 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	N/A. To be implemented by AFCD.
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		✓
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		N/A
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		✓
LANDSCAPE AND VISUAL									
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

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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	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
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		✓
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	N/A
WASTE									
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		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
					Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.				
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.	Contract Mobilisation	Contractor	TMEIA		Y		✓
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		✓
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		✓

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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	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		✓
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 be considered for segregation and storage activities.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
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: *f* suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed;	All areas / throughout construction period	Contractor	TMEIA		Y		<>

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
		f Having a capacity of <450L unless the specifications have been approved by the EPD; and w Chinese according to the instructions prescribed in Schedule 2 of the Regulations. *f* Clearly labelled and used solely for the storage of chemical wastes; *f* Enclosed with at least 3 sides; *f* Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; *f* Adequate ventilation; *f* Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and *f* 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

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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	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 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.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
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		✓
CULTURAL HERITAGE									
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		N/A

*** Remarks:**

✓	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

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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 ASR6 = 238 ASR10 = 214	260
1 Hour TSP Level in µg /m³	ASR1 = 331 ASR5 = 340 AQMS1 = 335 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.

(f) The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

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

Copies of Calibration Certificates for Air and Water Quality Monitoring

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 5
Calibrated by	:	P.F.Yeung
Date	:	08/04/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0816

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1011
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.2	3.332	1.630	54	53.77
2	13 holes	9.6	3.085	1.510	48	47.791
3	10 holes	6.9	2.615	1.281	42	41.82
4	7 holes	4.5	2.112	1.036	35	34.85
5	5 holes	2.8	1.666	0.819	28	27.88

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):30.603 Intercept(b):2.811 Correlation Coefficient(r): 0.9967

Checked by: Magnum Fan Date: 11/04/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR10
Calibrated by	:	P.F.Yeung
Date	:	08/04/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 8162

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1011
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.0	3.302	1.616	59	58.74
2	13 holes	9.3	3.036	1.486	53	52.77
3	10 holes	6.7	2.577	1.262	46	45.80
4	7 holes	4.3	2.065	1.013	38	37.84
5	5 holes	2.9	1.696	0.833	30	29.87

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):35.465 Intercept(b): 0.958 Correlation Coefficient(r): 0.9978

Checked by: Magnum Fan Date: 11/04/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AQMS1
Calibrated by	:	P.F.Yeung
Date	:	08/04/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 1253

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1011
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.449	1.680	50	49.78
2	13 holes	9.6	3.085	1.504	45	44.81
3	10 holes	7.4	2.709	1.322	40	39.83
4	7 holes	4.3	2.065	1.011	34	33.85
5	5 holes	2.8	1.666	0.819	28	27.88

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):24.547 Intercept(b):8.126 Correlation Coefficient(r): 0.9971

Checked by: Magnum Fan Date: 11/04/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 1
Calibrated by	:	P.F.Yeung
Date	:	08/04/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0146

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1011
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	10.0	3.149	1.541	54	53.77
2	13 holes	8.5	2.903	1.421	48	47.79
3	10 holes	6.5	2.538	1.244	42	41.82
4	7 holes	4.0	1.991	0.977	34	33.85
5	5 holes	2.9	1.696	0.833	28	27.88

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.999 Intercept(b):-1.084 Correlation Coefficient(r): 0.9971

Checked by: Magnum Fan Date: 11/04/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 6
Calibrated by	:	P.F.Yeung
Date	:	08/04/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3957

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1011
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.7	3.406	1.666	59	58.74
2	13 holes	9.3	3.036	1.486	53	52.77
3	10 holes	7.4	2.709	1.326	45	44.81
4	7 holes	4.6	2.135	1.047	38	37.84
5	5 holes	3.0	1.725	0.847	30	29.87

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.722 Intercept(b): 0.549 Correlation Coefficient(r): 0.9956

Checked by: Magnum Fan Date: 11/04/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 5
Calibrated by	:	P.F.Yeung
Date	:	08/06/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0816

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	304

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.450	1.680	56	55.31
2	13 holes	9.2	2.996	1.461	50	49.38
3	10 holes	7.0	2.613	1.276	45	44.44
4	7 holes	4.8	2.164	1.059	38	37.53
5	5 holes	2.5	1.562	0.768	28	27.65

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.547 Intercept(b):8.230 Correlation Coefficient(r): 0.9952

Checked by: Magnum Fan Date: 12/06/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR10
Calibrated by	:	P.F.Yeung
Date	:	08/06/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 8162

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	304

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.2	3.305	1.610	55	54.32
2	13 holes	9.4	3.028	1.476	50	49.38
3	10 holes	6.6	2.537	1.239	45	44.44
4	7 holes	4.2	2.024	0.992	38	37.53
5	5 holes	2.6	1.593	0.783	30	29.63

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.547 Intercept(b): 8.230 Correlation Coefficient(r): 0.9952

Checked by: Magnum Fan Date: 12/06/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AQMS1
Calibrated by	:	P.F.Yeung
Date	:	08/06/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 1253

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	304

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.421	1.666	55	54.32
2	13 holes	9.2	2.996	1.461	50	49.38
3	10 holes	6.6	2.537	1.239	44	43.46
4	7 holes	4.5	2.095	1.026	37	36.54
5	5 holes	2.4	1.530	0.753	28	27.65

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):29.345 Intercept(b):6.205 Correlation Coefficient(r): 0.9978

Checked by: Magnum Fan Date: 12/06/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 1
Calibrated by	:	P.F.Yeung
Date	:	08/06/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0146

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	304

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.0	3.276	1.596	54	53.33
2	13 holes	9.0	2.963	1.445	49	48.39
3	10 holes	6.8	2.575	1.258	43	42.47
4	7 holes	4.2	2.024	0.992	36	35.55
5	5 holes	2.8	1.653	0.812	28	27.65

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):31.662 Intercept(b):2.838 Correlation Coefficient(r): 0.9969

Checked by: Magnum Fan Date: 12/06/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 6
Calibrated by	:	P.F.Yeung
Date	:	08/06/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3957

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	304

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.421	1.666	56	55.31
2	13 holes	9.2	2.996	1.461	51	50.37
3	10 holes	7.6	2.723	1.329	45	44.44
4	7 holes	4.5	2.095	1.026	37	36.54
5	5 holes	2.8	1.653	0.812	30	29.63

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship (Linear Regression)

Slope(m):30.250 Intercept(b): 5.181 Correlation Coefficient(r): 0.9976

Checked by: Magnum Fan Date: 12/06/2019

TISCH Environmental

RECALIBRATION DUE DATE:
February 25, 2020

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 25, 2019	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 762.0	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2454**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4400	3.2	2.00
2	3	4	1	1.0200	6.4	4.00
3	5	6	1	0.9120	7.9	5.00
4	7	8	1	0.8700	8.8	5.50
5	9	10	1	0.7180	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0120	0.7028	1.4257	0.9958	0.6915	0.8784
1.0077	0.9880	2.0162	0.9916	0.9722	1.2423
1.0057	1.1028	2.2542	0.9896	1.0851	1.3889
1.0045	1.1546	2.3642	0.9885	1.1362	1.4567
0.9992	1.3916	2.8513	0.9832	1.3694	1.7569
QSTD	**m=**	**2.07076**	**QA**	**m=**	**1.29667**
	b=	**-0.02917**		**b=**	**-0.01797**
	r=	**1.00000**		**r=**	**1.00000**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C184960
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-1761) Date of Receipt / 收件日期 : 23 August 2018

Description / 儀器名稱 : Anemometer
Manufacturer / 製造商 : Lutron
Model No. / 型號 : AM-4201
Serial No. / 編號 : AF.27513
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 5 September 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- Testo Industrial Services GmbH, Germany

Tested By / 測試 : T L Shek, Assistant Engineer

Certified By / 核證 : H C Chan, Engineer

Date of Issue / 簽發日期 : 6 September 2018

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C184960
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 10 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL386	Multi-function Measuring Instrument	S16493

4. Test procedure : MA130N.

5. Results :

Air Velocity

Applied Value (m/s)	UUT Reading (m/s)	Measured Correction		
		Value (m/s)	Measurement Uncertainty	
			Expanded Uncertainty (m/s)	Coverage Factor
2.0	1.7	+0.3	0.2	2.0
4.0	3.8	+0.2	0.3	2.0
6.0	5.8	+0.2	0.3	2.0
8.0	7.9	+0.1	0.3	2.0
10.0	10.0	0.0	0.4	2.0

Remarks : - The Measured Corrections are defined as :
Value = Applied Value - UUT Reading

- The expanded uncertainties are for a level of confidence of 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

ENVIROTECH SERVICES CO.

Calibration Report of Wind Meter

Date of Calibration : 19 February 2019

Brand of Test Meter: Davis

Model: Vantage Pro 2 (s/n: AS160104014)

Location : Roof of Tuen Mun Firestation

Procedures :

1. Wind Still Test: The wind speed sensor was hold by hand until it keep still

2.Wind Speed Test: The wind meter was on-site calibrated against the Anemometer

3.Wind Direction Test : The wind meter was on-site calibrated against the marine compass at four directions

Results:

Wind Still Test

Wind Speed (m/s)
0.00

Wind Speed Test

Davis (m/s)	Anemometer (m/s)
1.5	1.3
2.6	2.9
3.3	3.5

Wind Direction Test

Davis (o)	Marine Compass (o)
271	270
0	0
91	90
180	180

Calibrated by: Ho

Yeung Ping Fai
(Technical Officer)

Checked by : Fat

Ho Kam Fat
(Senior Technical Officer)

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI050004
Date of Issue : 02 May, 2019

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	16H104234
Date of Received	:	Apr 30, 2019
Date of Calibration	:	Apr 30, 2019
Date of Next Calibration[a]	:	Jul 30, 2019

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.02	0.02	Satisfactory
7.42	7.42	0.00	Satisfactory
10.01	10.00	-0.01	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
14.5	14.6	0.1	Satisfactory
25.0	25.1	0.1	Satisfactory
62.0	62.1	0.1	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

[a] *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
[b] *The results relate only to the calibrated equipment as received*
[c] *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
[d] *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
[e] *The "Tolerance Limit" mentioned is referenced to YSI product specifications.*

APPROVED SIGNATORY: _____

LAM Ho-yee, Emma
Assistant Laboratory Manager

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QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI050004
Date of Issue : 02 May, 2019

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.02	0.29	0.27	Satisfactory
2.74	2.33	-0.41	Satisfactory
5.37	5.03	-0.34	Satisfactory
8.14	8.41	0.27	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.50 (mg/L)

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)	Results
0.001	146.9	140.2	-4.6	Satisfactory
0.01	1412	1437	1.8	Satisfactory
0.1	12890	12789	-0.8	Satisfactory
0.5	58670	58362	-0.5	Satisfactory
1.0	111900	111714	-0.2	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.96	-0.4	Satisfactory
20	19.84	-0.8	Satisfactory
30	30.00	0.0	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.00	--	--
10	10.10	1.0	Satisfactory
20	19.88	-0.6	Satisfactory
100	99.04	-1.0	Satisfactory
800	778.05	-2.7	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

[f] *"Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.*

[g] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI030103
Date of Issue : 01 April, 2019

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	17E100747
Date of Received	:	Mar 27, 2019
Date of Calibration	:	Mar 27, 2019
Date of Next Calibration[a]	:	Jun 27, 2019

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	3.97	-0.03	Satisfactory
7.42	7.41	-0.01	Satisfactory
10.01	10.01	0.00	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
19.5	19.7	0.2	Satisfactory
41.0	41.9	0.9	Satisfactory
65.0	66.3	1.3	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

(a) The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
(b) The results relate only to the calibrated equipment as received
(c) The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
(d) "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
(e) The "Tolerance Limit" mentioned is referenced to YSI product specifications.

APPROVED SIGNATORY: _____

LAM Ho-yee, Emma
Assistant Laboratory Manager

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI030103
Date of Issue : 01 April, 2019

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
1.76	1.68	-0.08	Satisfactory
4.51	4.32	-0.19	Satisfactory
6.26	6.31	0.05	Satisfactory
8.39	8.44	0.05	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.20 (mg/L)

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)	Results
0.001	146.9	140.0	-4.7	Satisfactory
0.01	1412	1404	-0.6	Satisfactory
0.1	12890	12825	-0.5	Satisfactory
0.5	58670	58940	0.5	Satisfactory
1.0	111900	111734	-0.1	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	10.99	9.9	Satisfactory
20	20.82	4.1	Satisfactory
30	30.18	0.6	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.00	--	--
10	10.00	0.0	Satisfactory
20	20.00	0.0	Satisfactory
100	101.77	1.8	Satisfactory
800	810.42	1.3	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

(f) "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

(g) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI050005
Date of Issue : 02 May, 2019

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	17H105557
Date of Received	:	Apr 30, 2019
Date of Calibration	:	Apr 30, 2019
Date of Next Calibration[a]	:	Jul 30, 2019

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.01	0.01	Satisfactory
7.42	7.42	0.00	Satisfactory
10.01	10.01	0.00	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
14.5	14.8	0.3	Satisfactory
25.0	25.1	0.1	Satisfactory
62.0	62.0	0.0	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

[a] The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
[b] The results relate only to the calibrated equipment as received
[c] The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
[d] "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
[e] The "Tolerance Limit" mentioned is referenced to YSI product specifications.

APPROVED SIGNATORY: _____

LAM Ho-yee, Emma
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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI050005
Date of Issue : 02 May, 2019

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.02	0.28	0.26	Satisfactory
2.74	2.35	-0.39	Satisfactory
5.37	5.19	-0.18	Satisfactory
8.14	8.44	0.30	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.50 (mg/L)

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)	Results
0.001	146.9	156.3	6.4	Satisfactory
0.01	1412	1388	-1.7	Satisfactory
0.1	12890	12767	-1.0	Satisfactory
0.5	58670	58538	-0.2	Satisfactory
1.0	111900	111855	0.0	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.95	-0.5	Satisfactory
20	19.93	-0.4	Satisfactory
30	30.33	1.1	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.02	--	--
10	10.01	0.1	Satisfactory
20	19.78	-1.1	Satisfactory
100	99.29	-0.7	Satisfactory
800	784.87	-1.9	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

[f] "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

[g] The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

Appendix F

EM&A Monitoring Schedules

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Air Quality Impact Monitoring Schedule - June 2019

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

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

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Air Quality Impact Monitoring Schedule - July 2019

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Public Holiday 1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
	1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM		
7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
		1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
	1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM		
28-Jul	29-Jul	30-Jul	31-Jul			
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 Landfall
Impact Marine Water Quality Monitoring (WQM) Schedule (June 2019)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1/Jun
2/Jun	3/Jun	4/Jun	5/Jun	6/Jun	7/Jun	8/Jun
	ebb tide 11:15 - 14:45 flood tide 4:27 - 7:57		ebb tide 12:34 - 16:04 flood tide 5:36 - 9:06			
9/Jun	10/Jun	11/Jun	12/Jun	13/Jun	14/Jun	15/Jun
	ebb tide 5:10 - 8:40 flood tide 10:15 - 13:45		ebb tide 7:38 - 11:08 flood tide 13:23 - 16:53		ebb tide 9:16 - 12:46 flood tide 15:46 - 19:16	
16/Jun	17/Jun	18/Jun	19/Jun	20/Jun	21/Jun	22/Jun
	ebb tide 11:18 - 14:48 flood tide 4:24 - 7:54		ebb tide 12:35 - 16:05 flood tide 5:33 - 9:03		ebb tide 13:51 - 17:21 flood tide 6:45 - 10:15	
23/Jun	24/Jun	25/Jun	26/Jun	27/Jun	28/Jun	29/Jun
	ebb tide 15:49 - 19:00 flood tide 9:02 - 12:32					
30/Jun						

HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Landfall
Impact Marine Water Quality Monitoring (WQM) Schedule (July 2019)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1/Jul	2/Jul	3/Jul	4/Jul	5/Jul	6/Jul
			ebb tide 11:39 - 15:09 flood tide 4:36 - 8:06		ebb tide 13:11 - 16:41 flood tide 6:07 - 9:37	
7/Jul	8/Jul	9/Jul	10/Jul	11/Jul	12/Jul	13/Jul
	ebb tide 15:43 - 18:45 flood tide 8:53 - 12:23		ebb tide 6:45 - 9:25 flood tide 11:46 - 15:16		ebb tide 8:05 - 11:35 flood tide 14:45 - 18:15	
14/Jul	15/Jul	16/Jul	17/Jul	18/Jul	19/Jul	20/Jul
	ebb tide 10:23 - 13:53 flood tide 3:20 - 6:50		ebb tide 11:42 - 15:12 flood tide 4:38 - 8:08		ebb tide 12:53 - 16:23 flood tide 5:54 - 9:24	
21/Jul	22/Jul	23/Jul	24/Jul	25/Jul	26/Jul	27/Jul
	ebb tide 14:32 - 18:02 flood tide 7:52 - 11:22		ebb tide 15:50 - 18:50 flood tide 9:41 - 13:11		ebb tide 6:50 - 9:49 flood tide 12:22 - 15:52	
28/Jul	29/Jul	30/Jul	31/Jul			
	ebb tide 9:05 - 12:35 flood tide 1:49 - 5:19		ebb tide 10:39 - 14:09 flood tide 3:32 - 7:02			

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - June 2019

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

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Impact Dolphin Monitoring Survey Monitoring Schedule - July 2019

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

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 G

Impact Air Quality Monitoring Results

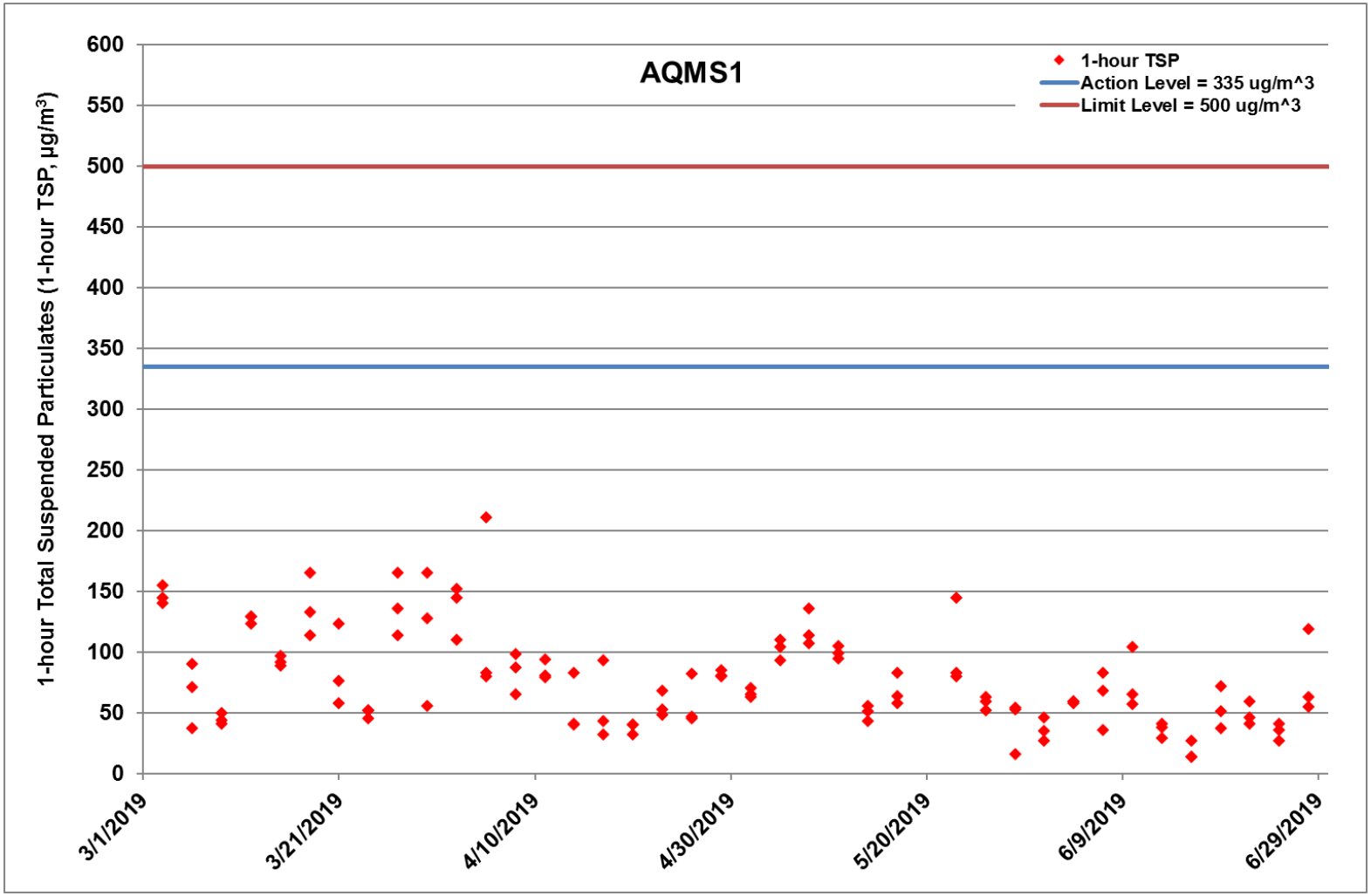


Figure G.1 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

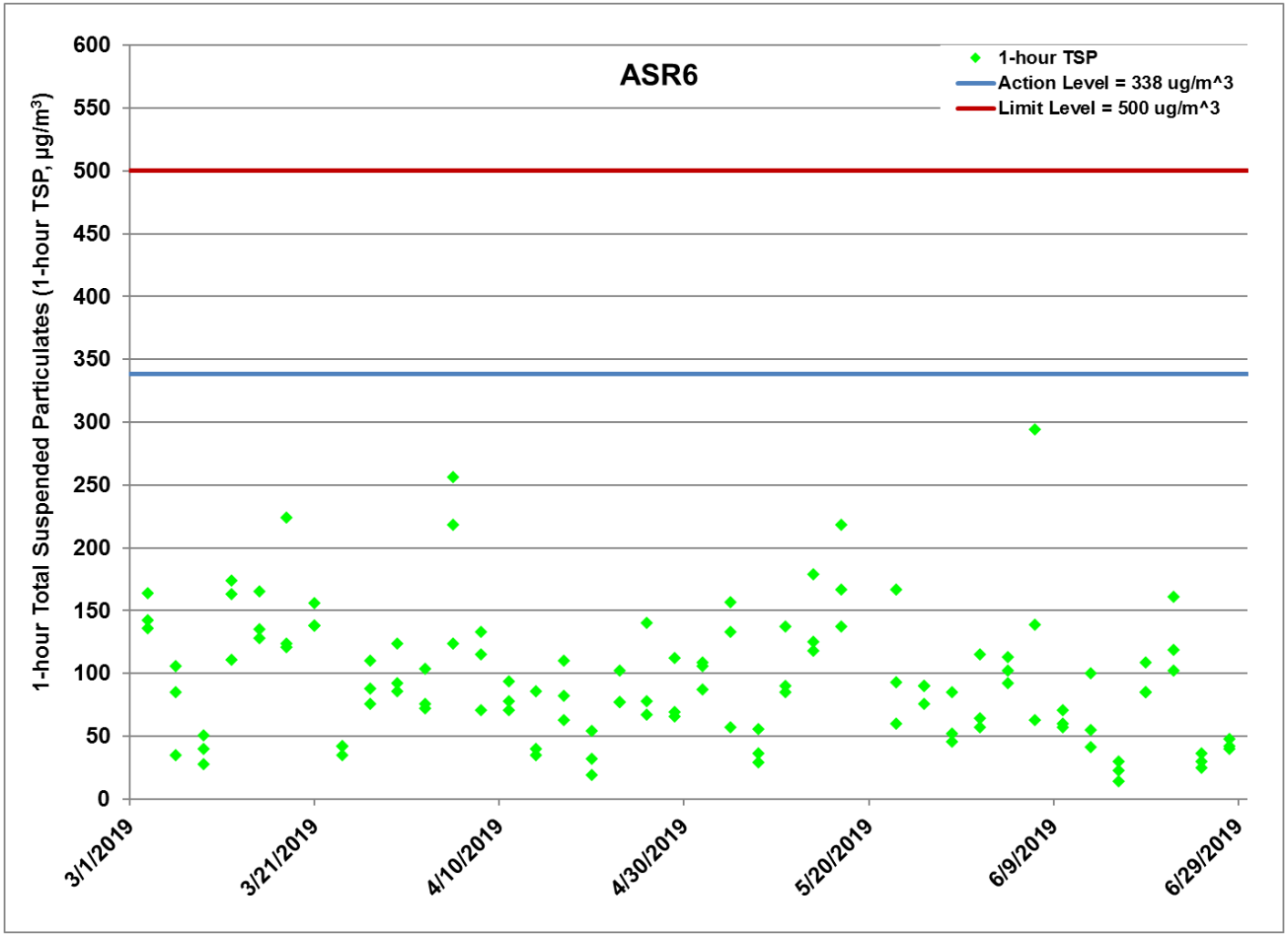


Figure G.2 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

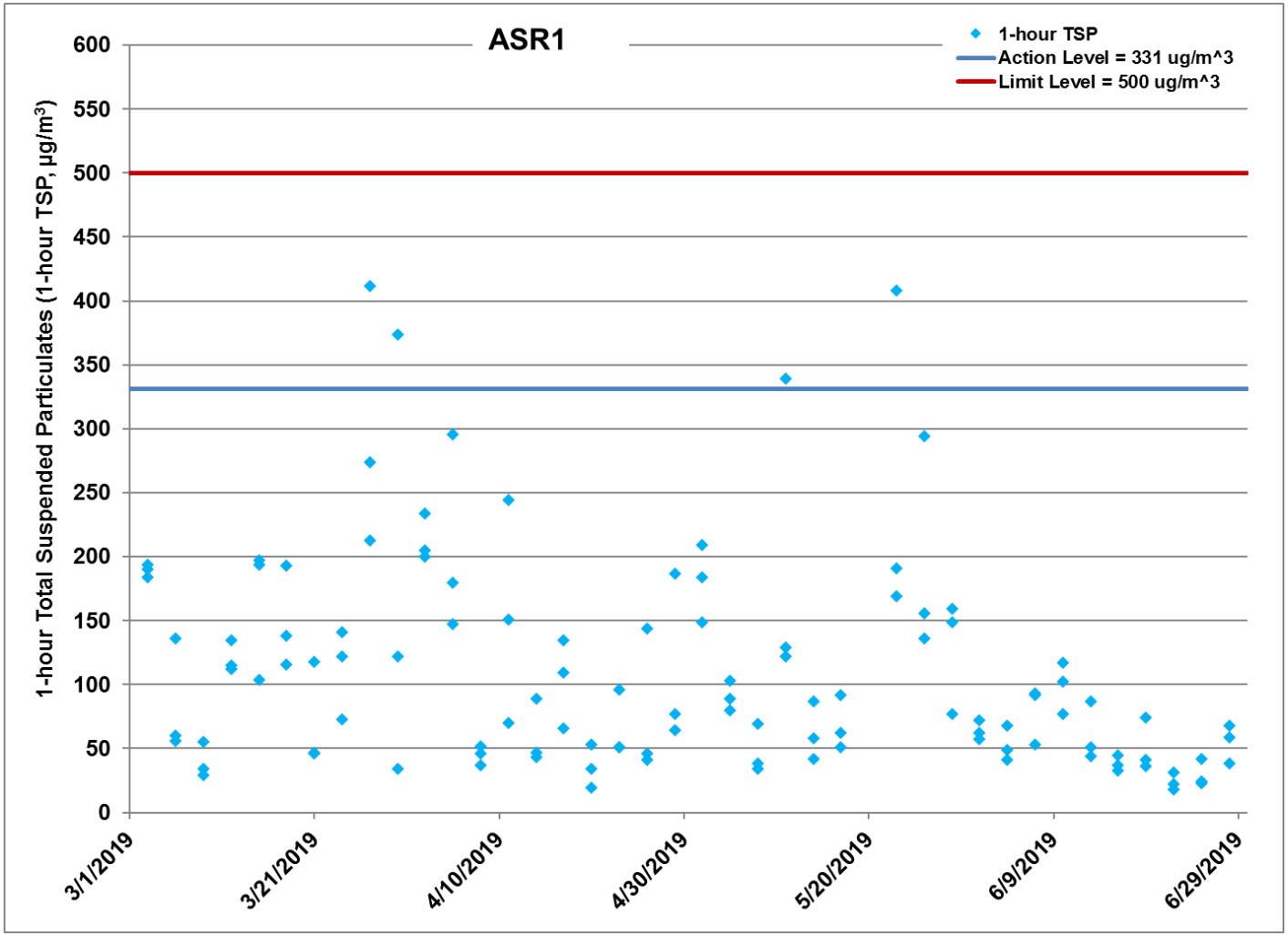


Figure G.3 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

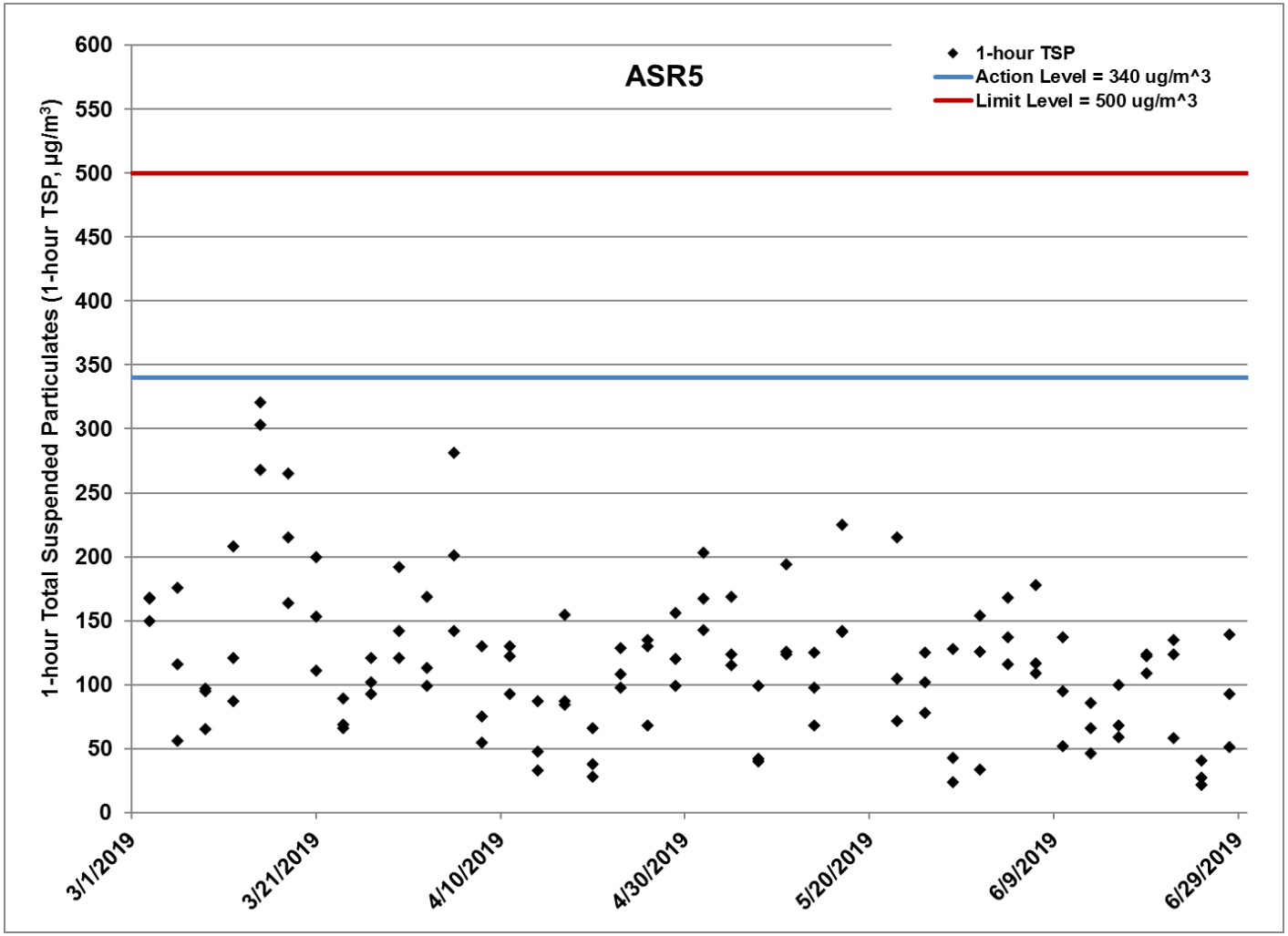


Figure G.4 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

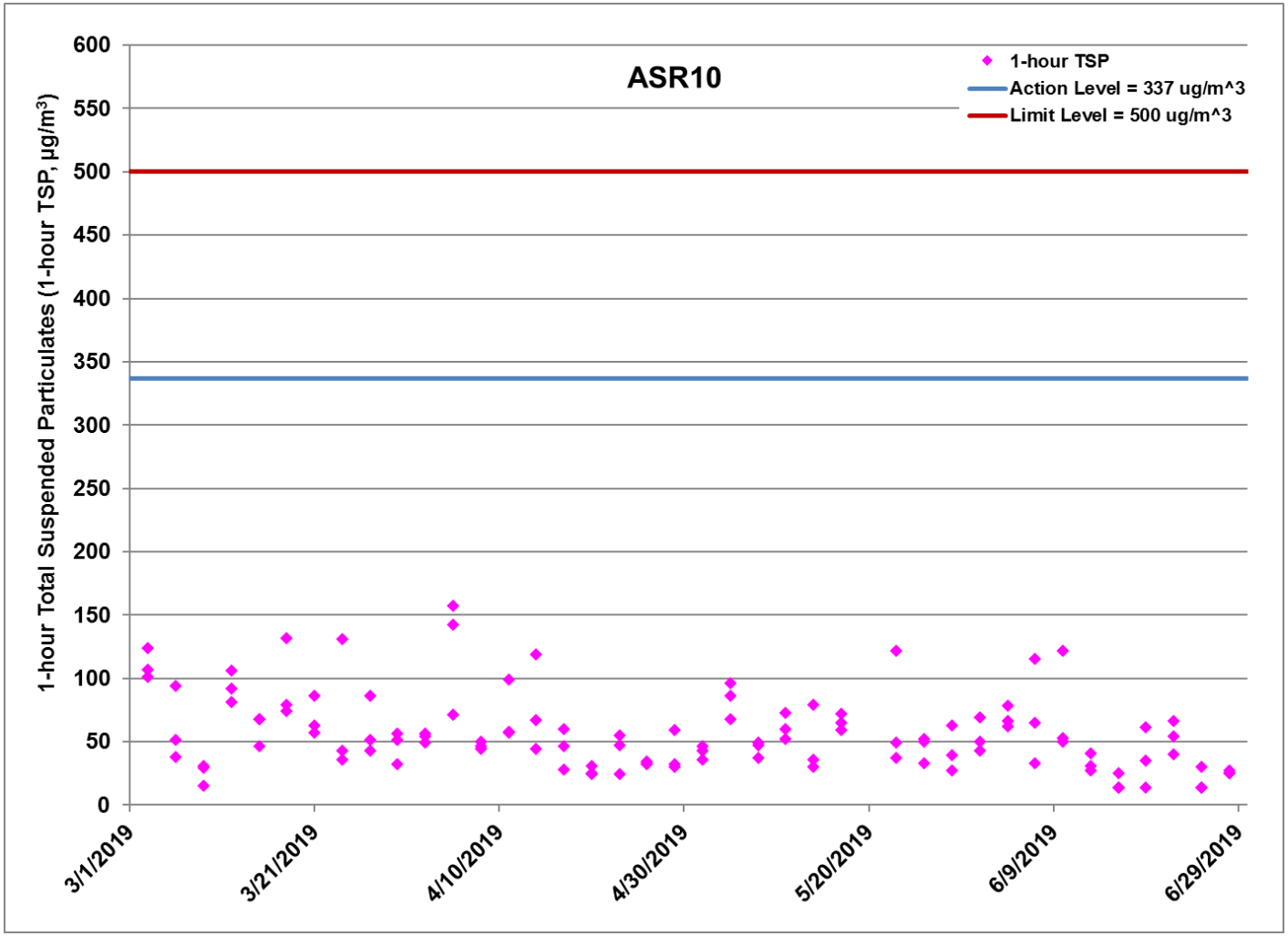


Figure G.5 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

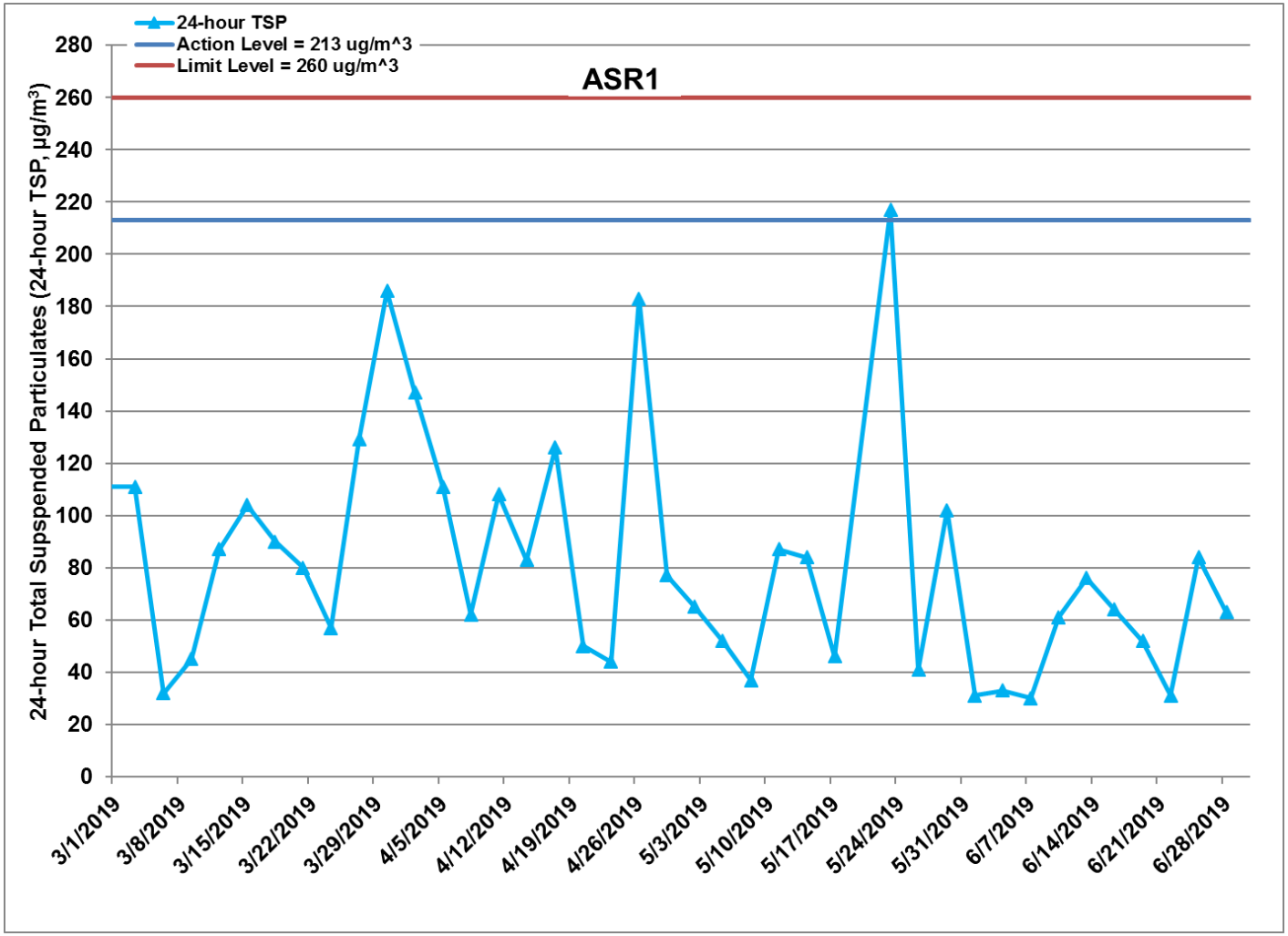


Figure G.6 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

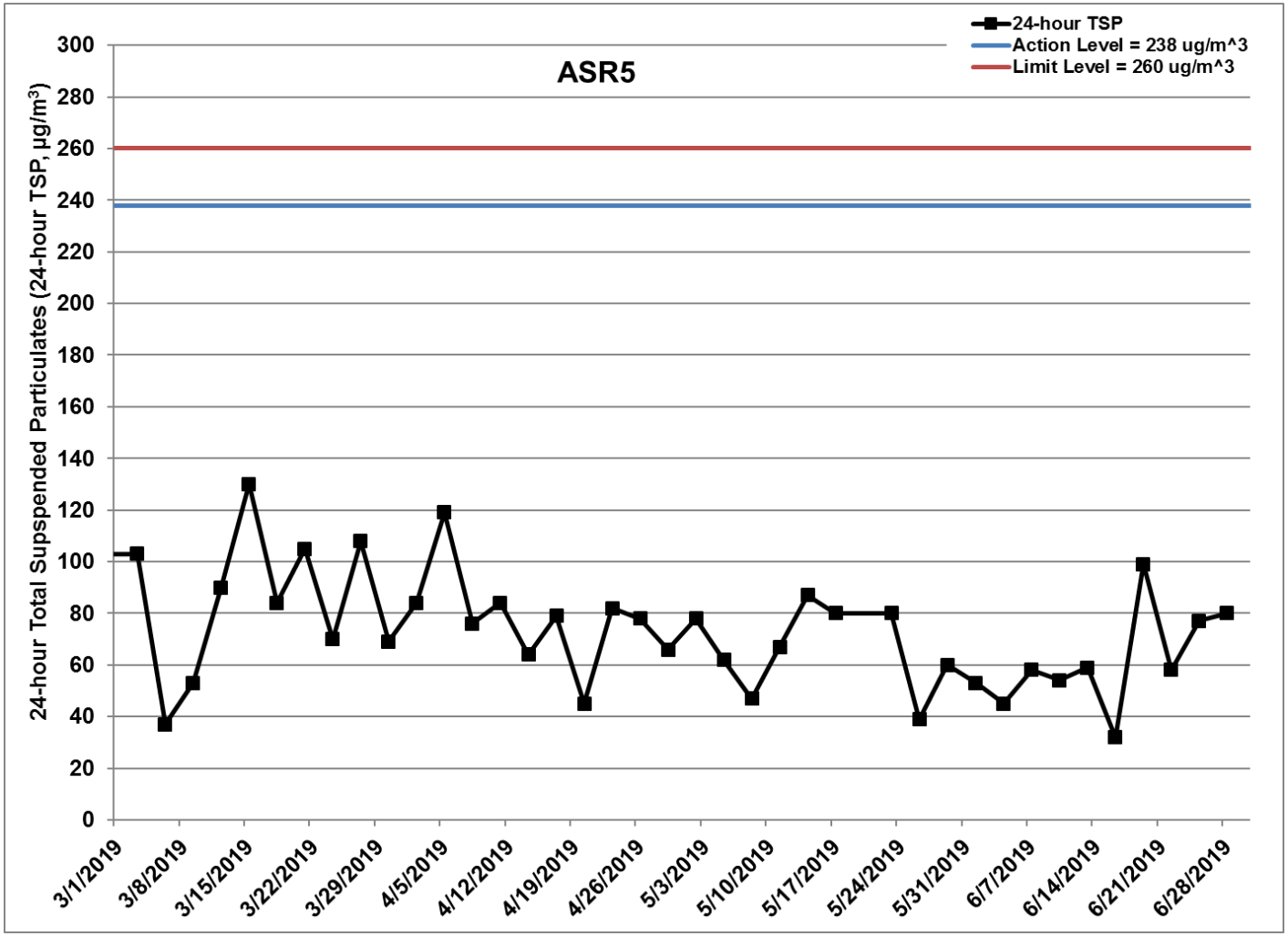


Figure G.7 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

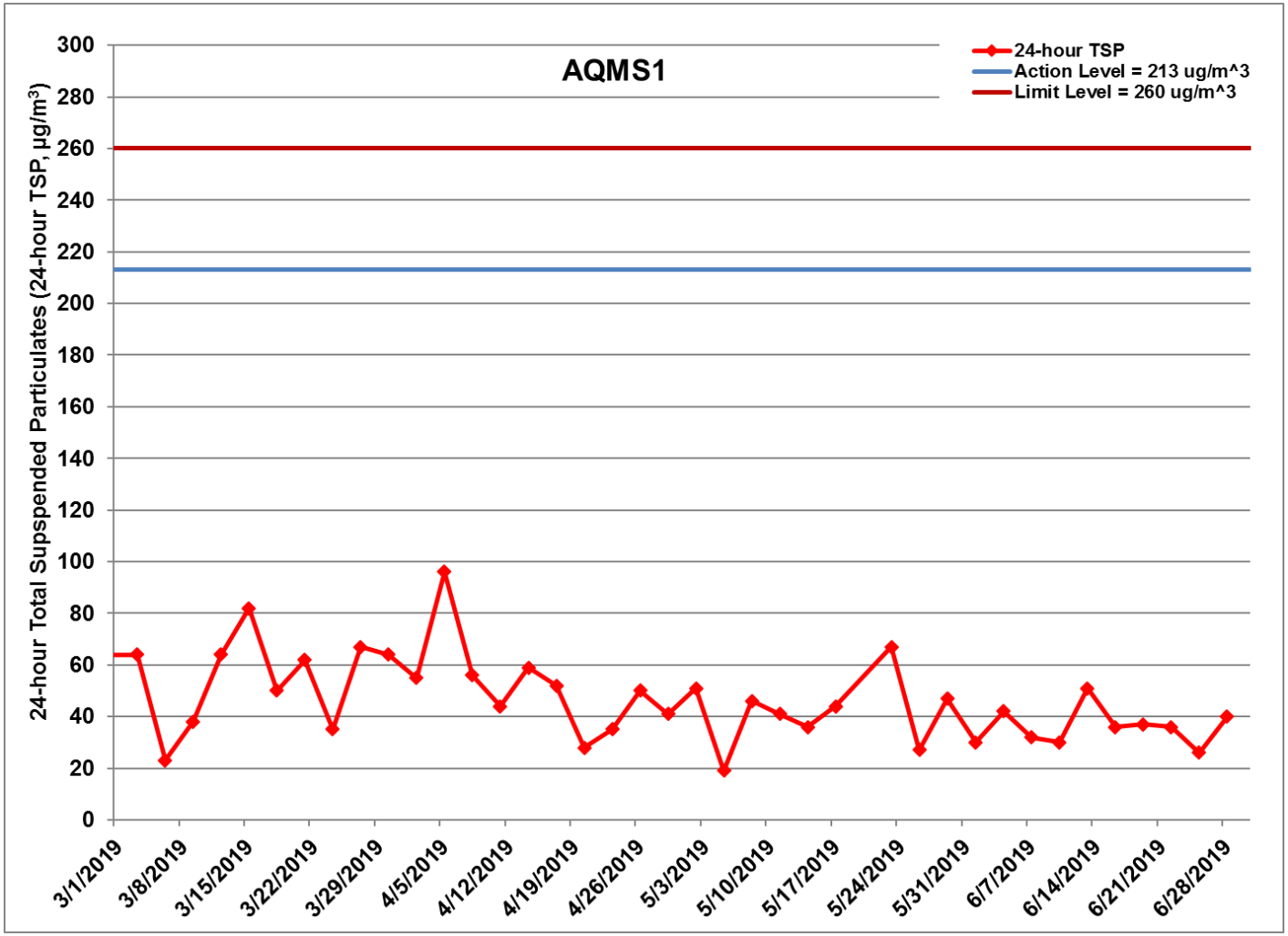


Figure G.8 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

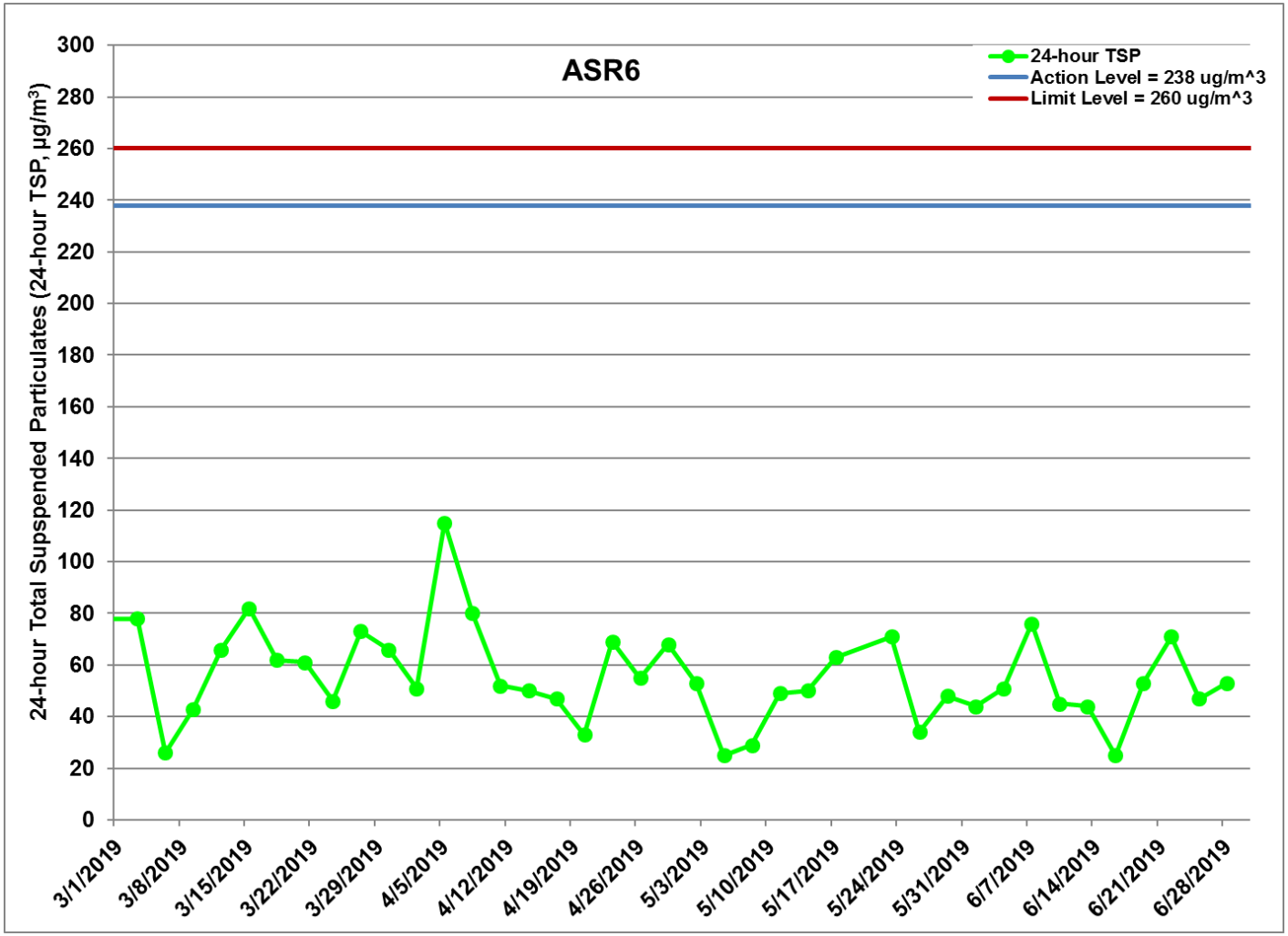


Figure G.9 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

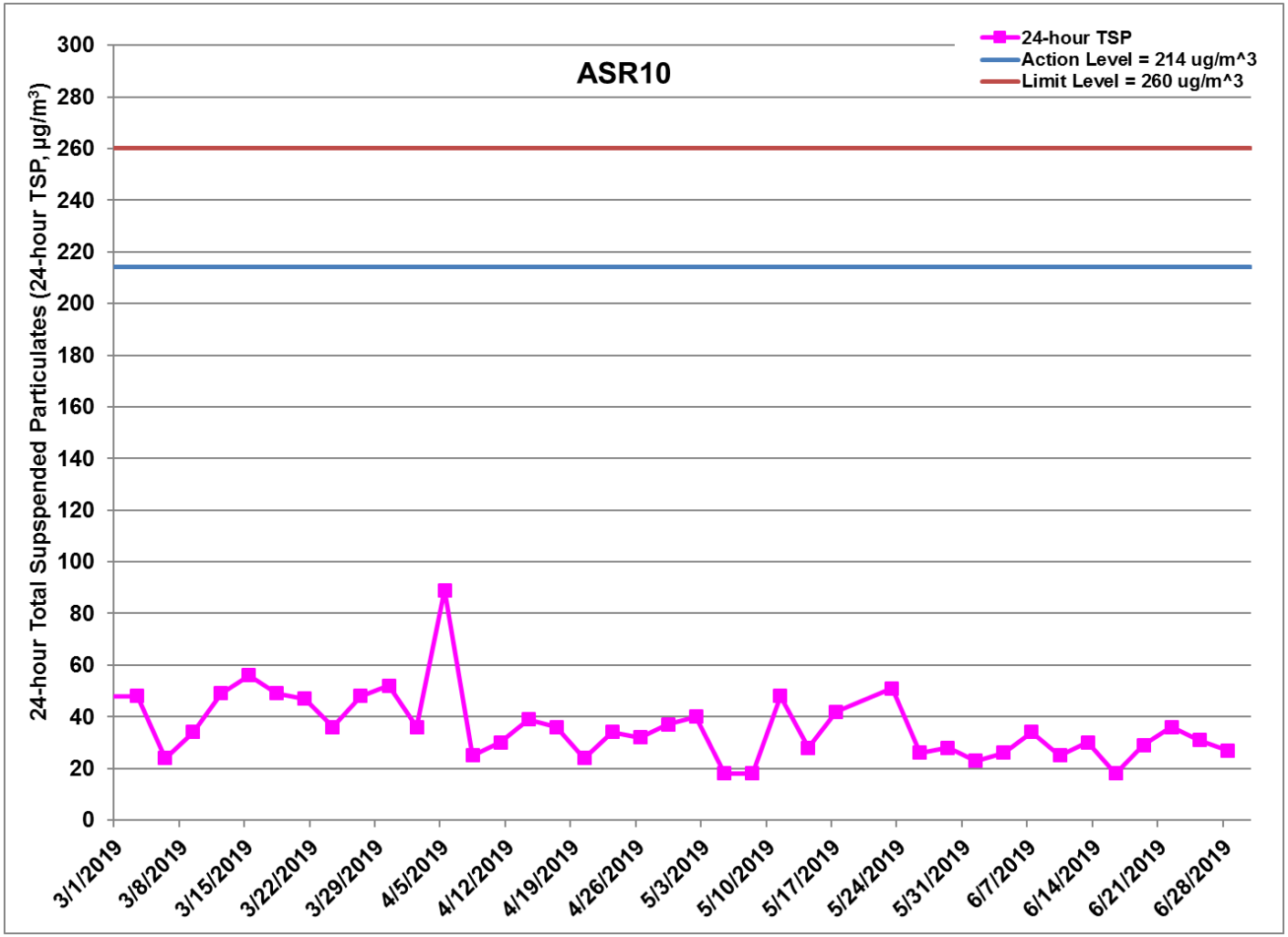


Figure G.10 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 March 2019 and 30 June 2019 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: RC structure, Demolition of Amenities and Workshop (1/3/2019 – 30/6/2019)

Ref: 0212330_Impact AQM graphs_June 2019_REV a.xlsx

ERM

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-01	AQMS1	Sunny	08:57	1-hour TSP	35	ug/m3
TMCLKL	HY/2012/08	2019-06-01	AQMS1	Sunny	09:59	1-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-01	AQMS1	Sunny	11:01	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR1	Sunny	08:46	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR1	Sunny	09:48	1-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR1	Sunny	10:50	1-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR10	Sunny	08:11	1-hour TSP	50	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR10	Sunny	09:13	1-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR10	Sunny	10:15	1-hour TSP	69	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR5	Sunny	08:34	1-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR5	Sunny	09:36	1-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR5	Sunny	10:38	1-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR6	Sunny	08:22	1-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR6	Sunny	09:24	1-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR6	Sunny	10:26	1-hour TSP	115	ug/m3
TMCLKL	HY/2012/08	2019-06-04	AQMS1	Cloudy	15:00	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2019-06-04	AQMS1	Cloudy	16:02	1-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2019-06-04	AQMS1	Cloudy	17:04	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR1	Cloudy	14:49	1-hour TSP	49	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR1	Cloudy	15:51	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR1	Cloudy	16:53	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR10	Cloudy	14:17	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR10	Cloudy	15:19	1-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR10	Cloudy	16:21	1-hour TSP	78	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR5	Cloudy	14:38	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR5	Cloudy	15:40	1-hour TSP	116	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR5	Cloudy	16:42	1-hour TSP	168	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR6	Cloudy	14:27	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR6	Cloudy	15:29	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR6	Cloudy	16:31	1-hour TSP	113	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-07	AQMS1	Sunny	13:42	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2019-06-07	AQMS1	Sunny	14:44	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2019-06-07	AQMS1	Sunny	15:46	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR1	Sunny	13:31	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR1	Sunny	14:33	1-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR1	Sunny	15:35	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR10	Sunny	13:00	1-hour TSP	115	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR10	Sunny	14:02	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR10	Sunny	15:04	1-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR5	Sunny	13:20	1-hour TSP	178	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR5	Sunny	14:22	1-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR5	Sunny	15:24	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR6	Sunny	13:10	1-hour TSP	294	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR6	Sunny	14:12	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR6	Sunny	15:14	1-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	2019-06-10	AQMS1	Sunny	14:14	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2019-06-10	AQMS1	Sunny	15:16	1-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2019-06-10	AQMS1	Sunny	16:18	1-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR1	Sunny	14:03	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR1	Sunny	15:05	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR1	Sunny	16:07	1-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR10	Sunny	13:29	1-hour TSP	50	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR10	Sunny	14:31	1-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR10	Sunny	15:33	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR5	Sunny	13:52	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR5	Sunny	14:54	1-hour TSP	95	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR5	Sunny	15:56	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR6	Sunny	13:40	1-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR6	Sunny	14:42	1-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR6	Sunny	15:44	1-hour TSP	71	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-13	AQMS1	Cloudy	13:56	1-hour TSP	29	ug/m3
TMCLKL	HY/2012/08	2019-06-13	AQMS1	Cloudy	14:58	1-hour TSP	38	ug/m3
TMCLKL	HY/2012/08	2019-06-13	AQMS1	Cloudy	16:00	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR1	Cloudy	13:45	1-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR1	Cloudy	14:47	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR1	Cloudy	15:49	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR10	Cloudy	13:11	1-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR10	Cloudy	14:13	1-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR10	Cloudy	15:15	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR5	Cloudy	13:34	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR5	Cloudy	14:36	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR5	Cloudy	15:38	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR6	Cloudy	13:22	1-hour TSP	100	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR6	Cloudy	14:24	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR6	Cloudy	15:26	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-16	AQMS1	Sunny	08:47	1-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-16	AQMS1	Sunny	09:49	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-16	AQMS1	Sunny	10:51	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR1	Sunny	08:35	1-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR1	Sunny	09:37	1-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR1	Sunny	10:39	1-hour TSP	37	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR10	Sunny	08:00	1-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR10	Sunny	09:02	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR10	Sunny	10:04	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR5	Sunny	08:24	1-hour TSP	100	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR5	Sunny	09:26	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR5	Sunny	10:28	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR6	Sunny	08:12	1-hour TSP	23	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR6	Sunny	09:14	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR6	Sunny	10:16	1-hour TSP	30	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-19	AQMS1	Sunny	13:42	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-06-19	AQMS1	Sunny	14:44	1-hour TSP	37	ug/m3
TMCLKL	HY/2012/08	2019-06-19	AQMS1	Sunny	15:46	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR1	Sunny	13:31	1-hour TSP	74	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR1	Sunny	14:33	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR1	Sunny	15:35	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR10	Sunny	13:00	1-hour TSP	61	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR10	Sunny	14:02	1-hour TSP	35	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR10	Sunny	15:04	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR5	Sunny	13:21	1-hour TSP	124	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR5	Sunny	14:23	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR5	Sunny	15:25	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR6	Sunny	13:10	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR6	Sunny	14:12	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR6	Sunny	15:14	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2019-06-22	AQMS1	Sunny	08:52	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2019-06-22	AQMS1	Sunny	09:54	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-22	AQMS1	Sunny	10:56	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR1	Sunny	09:43	1-hour TSP	22	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR1	Sunny	10:45	1-hour TSP	18	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR1	Sunny	11:47	1-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR10	Sunny	08:06	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR10	Sunny	09:08	1-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR10	Sunny	10:10	1-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR5	Sunny	08:30	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR5	Sunny	10:34	1-hour TSP	124	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR5	Sunny	11:36	1-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR6	Sunny	08:18	1-hour TSP	161	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR6	Sunny	09:20	1-hour TSP	119	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR6	Sunny	10:22	1-hour TSP	102	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-25	AQMS1	Rainy	14:01	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-25	AQMS1	Rainy	15:03	1-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-25	AQMS1	Rainy	16:05	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR1	Rainy	13:50	1-hour TSP	24	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR1	Rainy	14:52	1-hour TSP	23	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR1	Rainy	15:54	1-hour TSP	42	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR10	Rainy	13:16	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR10	Rainy	14:18	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR10	Rainy	15:20	1-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR5	Rainy	13:37	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR5	Rainy	14:39	1-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR5	Rainy	15:41	1-hour TSP	22	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR6	Rainy	13:27	1-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR6	Rainy	14:29	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR6	Rainy	15:31	1-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2019-06-28	AQMS1	Sunny	13:48	1-hour TSP	119	ug/m3
TMCLKL	HY/2012/08	2019-06-28	AQMS1	Sunny	14:50	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2019-06-28	AQMS1	Sunny	15:52	1-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR1	Sunny	13:37	1-hour TSP	38	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR1	Sunny	14:39	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR1	Sunny	15:41	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR10	Sunny	13:02	1-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR10	Sunny	14:04	1-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR10	Sunny	15:06	1-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR5	Sunny	13:25	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR5	Sunny	14:27	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR5	Sunny	15:29	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR6	Sunny	13:14	1-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR6	Sunny	14:16	1-hour TSP	42	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR6	Sunny	15:18	1-hour TSP	48	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-01	AQMS1	Sunny	12:03	24-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR1	Sunny	11:52	24-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR10	Sunny	11:17	24-hour TSP	23	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR5	Sunny	11:40	24-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2019-06-01	ASR6	Sunny	11:28	24-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2019-06-04	AQMS1	Cloudy	18:06	24-hour TSP	42	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR1	Cloudy	17:55	24-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR10	Cloudy	17:23	24-hour TSP	26	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR5	Cloudy	17:44	24-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2019-06-04	ASR6	Cloudy	17:33	24-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-06-07	AQMS1	Sunny	16:48	24-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR1	Sunny	16:37	24-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR10	Sunny	16:06	24-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR5	Sunny	16:26	24-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2019-06-07	ASR6	Sunny	16:16	24-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2019-06-10	AQMS1	Sunny	17:20	24-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR1	Sunny	17:09	24-hour TSP	61	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR10	Sunny	16:35	24-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR5	Sunny	16:58	24-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2019-06-10	ASR6	Sunny	16:46	24-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2019-06-13	AQMS1	Cloudy	17:02	24-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR1	Cloudy	16:51	24-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR10	Cloudy	16:17	24-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR5	Cloudy	16:40	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2019-06-13	ASR6	Cloudy	16:28	24-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2019-06-16	AQMS1	Sunny	11:53	24-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR1	Sunny	11:41	24-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR10	Sunny	11:06	24-hour TSP	18	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR5	Sunny	11:30	24-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2019-06-16	ASR6	Sunny	11:18	24-hour TSP	25	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2019-06-19	AQMS1	Sunny	16:48	24-hour TSP	37	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR1	Sunny	16:37	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR10	Sunny	16:06	24-hour TSP	29	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR5	Sunny	16:27	24-hour TSP	99	ug/m3
TMCLKL	HY/2012/08	2019-06-19	ASR6	Sunny	16:16	24-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2019-06-22	AQMS1	Sunny	11:58	24-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR1	Sunny	11:47	24-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR10	Sunny	11:12	24-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR5	Sunny	11:36	24-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2019-06-22	ASR6	Sunny	11:24	24-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2019-06-25	AQMS1	Rainy	17:01	24-hour TSP	26	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR1	Rainy	16:56	24-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR10	Rainy	16:22	24-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR5	Rainy	16:43	24-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2019-06-25	ASR6	Rainy	16:33	24-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2019-06-28	AQMS1	Sunny	16:54	24-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR1	Sunny	16:43	24-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR10	Sunny	16:08	24-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR5	Sunny	16:31	24-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2019-06-28	ASR6	Sunny	16:20	24-hour TSP	53	ug/m3

Appendix H

Meteorological Data

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/01	1:00	0.4	56
19/06/01	2:00	0.9	267
19/06/01	3:00	0.4	285
19/06/01	4:00	0.4	90
19/06/01	5:00	0.4	36
19/06/01	6:00	0.4	41
19/06/01	7:00	1.3	41
19/06/01	8:00	0.9	35
19/06/01	9:00	0.9	68
19/06/01	10:00	1.3	115
19/06/01	11:00	1.8	202
19/06/01	12:00	1.8	230
19/06/01	13:00	1.8	199
19/06/01	14:00	1.3	229
19/06/01	15:00	3.1	200
19/06/01	16:00	3.6	205
19/06/01	17:00	2.7	208
19/06/01	18:00	0.9	258
19/06/01	19:00	1.8	213
19/06/01	20:00	1.8	197
19/06/01	21:00	1.8	211
19/06/01	22:00	3.1	197
19/06/01	23:00	0.9	281
19/06/02	0:00	0.9	259
19/06/02	1:00	0.4	266
19/06/02	2:00	0	-
19/06/02	3:00	0	-
19/06/02	4:00	0.4	78
19/06/02	5:00	0.9	11
19/06/02	6:00	0.4	305
19/06/02	7:00	0	-
19/06/02	8:00	0	-
19/06/02	9:00	0.4	261
19/06/02	10:00	0.4	260
19/06/02	11:00	1.3	259
19/06/02	12:00	1.3	224
19/06/02	13:00	2.2	214
19/06/02	14:00	0.9	311
19/06/02	15:00	2.7	213
19/06/02	16:00	1.3	228
19/06/02	17:00	0.4	272
19/06/02	18:00	0	-
19/06/02	19:00	0.4	99
19/06/02	20:00	1.3	40
19/06/02	21:00	1.3	62
19/06/02	22:00	1.3	57
19/06/02	23:00	0.9	52
19/06/04	0:00	0.4	60
19/06/04	1:00	0.5	61
19/06/04	2:00	0.3	59
19/06/04	3:00	0.4	71
19/06/04	4:00	0.4	75
19/06/04	5:00	0.4	62
19/06/04	6:00	0.4	67
19/06/04	7:00	0.4	71

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/04	8:00	0.9	79
19/06/04	9:00	1.3	70
19/06/04	10:00	0.4	69
19/06/04	11:00	0.4	68
19/06/04	12:00	0.9	95
19/06/04	13:00	1.3	167
19/06/04	14:00	0.9	153
19/06/04	15:00	0.9	159
19/06/04	16:00	0.4	151
19/06/04	17:00	0.4	72
19/06/04	18:00	0.4	171
19/06/04	19:00	0.4	190
19/06/04	20:00	0.9	85
19/06/04	21:00	0.9	70
19/06/04	22:00	0	-
19/06/04	23:00	0	-
19/06/05	0:00	0	-
19/06/05	1:00	0.4	349
19/06/05	2:00	0.4	5
19/06/05	3:00	0.4	358
19/06/05	4:00	0.4	170
19/06/05	5:00	0	-
19/06/05	6:00	0	-
19/06/05	7:00	0.4	3
19/06/05	8:00	0.4	40
19/06/05	9:00	0.9	317
19/06/05	10:00	0.9	39
19/06/05	11:00	0.9	158
19/06/05	12:00	0.9	1
19/06/05	13:00	1.3	44
19/06/05	14:00	1.3	355
19/06/05	15:00	0.9	161
19/06/05	16:00	0.9	150
19/06/05	17:00	0.9	310
19/06/05	18:00	0.9	179
19/06/05	19:00	0.4	137
19/06/05	20:00	0.4	179
19/06/05	21:00	0.9	349
19/06/05	22:00	0.4	24
19/06/05	23:00	0.4	88
19/06/07	0:00	0.4	70
19/06/07	1:00	0.4	180
19/06/07	2:00	0.9	155
19/06/07	3:00	0.9	185
19/06/07	4:00	0.9	185
19/06/07	5:00	0.9	164
19/06/07	6:00	0.9	340
19/06/07	7:00	1.3	145
19/06/07	8:00	1.3	177
19/06/07	9:00	1.3	155
19/06/07	10:00	1.3	183
19/06/07	11:00	0.9	4
19/06/07	12:00	1.3	322
19/06/07	13:00	0.9	160
19/06/07	14:00	1.3	307

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/07	15:00	1.3	183
19/06/07	16:00	1.3	181
19/06/07	17:00	1.8	166
19/06/07	18:00	1.8	148
19/06/07	19:00	1.8	177
19/06/07	20:00	1.3	190
19/06/07	21:00	1.3	30
19/06/07	22:00	1.3	159
19/06/07	23:00	1.3	186
19/06/08	0:00	1.3	164
19/06/08	1:00	1.3	182
19/06/08	2:00	0.9	181
19/06/08	3:00	1.3	187
19/06/08	4:00	0.9	177
19/06/08	5:00	0.9	177
19/06/08	6:00	0.4	299
19/06/08	7:00	0.9	304
19/06/08	8:00	1.3	158
19/06/08	9:00	1.3	189
19/06/08	10:00	2.7	195
19/06/08	11:00	3.1	201
19/06/08	12:00	2.7	199
19/06/08	13:00	1.8	222
19/06/08	14:00	2.7	228
19/06/08	15:00	2.7	214
19/06/08	16:00	2.2	217
19/06/08	17:00	1.8	201
19/06/08	18:00	1.8	224
19/06/08	19:00	1.8	195
19/06/08	20:00	1.3	198
19/06/08	21:00	1.3	191
19/06/08	22:00	0.9	146
19/06/08	23:00	1.3	147
19/06/10	0:00	1.8	217
19/06/10	1:00	0.9	264
19/06/10	2:00	0.9	203
19/06/10	3:00	2.2	214
19/06/10	4:00	1.8	211
19/06/10	5:00	2.2	205
19/06/10	6:00	2.2	192
19/06/10	7:00	3.1	198
19/06/10	8:00	3.1	192
19/06/10	9:00	3.6	202
19/06/10	10:00	3.6	213
19/06/10	11:00	4	195
19/06/10	12:00	4	199
19/06/10	13:00	5.4	206
19/06/10	14:00	4.9	204
19/06/10	15:00	4	193
19/06/10	16:00	4.5	205
19/06/10	17:00	4	211
19/06/10	18:00	3.1	191
19/06/10	19:00	1.3	351
19/06/10	20:00	0	-
19/06/10	21:00	0.4	19

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/10	22:00	0.4	53
19/06/10	23:00	0.4	53
19/06/11	0:00	0.4	358
19/06/11	1:00	0	-
19/06/11	2:00	0	-
19/06/11	3:00	0.9	281
19/06/11	4:00	1.3	231
19/06/11	5:00	1.8	272
19/06/11	6:00	2.2	284
19/06/11	7:00	0.9	262
19/06/11	8:00	0.4	355
19/06/11	9:00	0.4	79
19/06/11	10:00	0.4	68
19/06/11	11:00	2.2	315
19/06/11	12:00	0.4	349
19/06/11	13:00	0.9	35
19/06/11	14:00	1.3	85
19/06/11	15:00	1.3	64
19/06/11	16:00	1.3	41
19/06/11	17:00	1.3	62
19/06/11	18:00	1.8	96
19/06/11	19:00	0.9	57
19/06/11	20:00	0.4	96
19/06/11	21:00	0.4	99
19/06/11	22:00	0	-
19/06/11	23:00	0.4	355
19/06/13	0:00	2.2	79
19/06/13	1:00	2.2	74
19/06/13	2:00	0.9	72
19/06/13	3:00	0.9	20
19/06/13	4:00	0.9	18
19/06/13	5:00	0.9	16
19/06/13	6:00	0.9	21
19/06/13	7:00	0.9	45
19/06/13	8:00	0.4	128
19/06/13	9:00	1.8	307
19/06/13	10:00	0.4	351
19/06/13	11:00	1.3	71
19/06/13	12:00	1.8	44
19/06/13	13:00	0.9	171
19/06/13	14:00	1.8	99
19/06/13	15:00	1.8	95
19/06/13	16:00	1.8	277
19/06/13	17:00	0.9	262
19/06/13	18:00	1.8	195
19/06/13	19:00	0.4	263
19/06/13	20:00	1.3	280
19/06/13	21:00	1.8	272
19/06/13	22:00	1.3	278
19/06/13	23:00	1.3	274
19/06/14	0:00	2.2	288
19/06/14	1:00	3.1	318
19/06/14	2:00	2.7	304
19/06/14	3:00	1.3	309
19/06/14	4:00	0.4	295

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/14	5:00	0	-
19/06/14	6:00	0.4	13
19/06/14	7:00	1.3	52
19/06/14	8:00	1.8	15
19/06/14	9:00	1.3	19
19/06/14	10:00	1.8	351
19/06/14	11:00	1.3	281
19/06/14	12:00	1.3	261
19/06/14	13:00	2.7	261
19/06/14	14:00	2.7	262
19/06/14	15:00	2.2	262
19/06/14	16:00	2.2	266
19/06/14	17:00	1.8	260
19/06/14	18:00	1.8	279
19/06/14	19:00	0.9	315
19/06/14	20:00	1.8	311
19/06/14	21:00	0.9	323
19/06/14	22:00	0.4	4
19/06/14	23:00	0	-
19/06/16	0:00	4	82
19/06/16	1:00	3.1	87
19/06/16	2:00	2.7	99
19/06/16	3:00	2.2	59
19/06/16	4:00	2.2	40
19/06/16	5:00	2.7	94
19/06/16	6:00	4	86
19/06/16	7:00	4	67
19/06/16	8:00	3.6	66
19/06/16	9:00	4	79
19/06/16	10:00	4	89
19/06/16	11:00	4	85
19/06/16	12:00	4.9	86
19/06/16	13:00	4.9	91
19/06/16	14:00	4.9	87
19/06/16	15:00	4	90
19/06/16	16:00	4	94
19/06/16	17:00	4.9	101
19/06/16	18:00	4	84
19/06/16	19:00	4	97
19/06/16	20:00	3.6	66
19/06/16	21:00	3.6	68
19/06/16	22:00	4.5	87
19/06/16	23:00	4.5	57
19/06/17	0:00	4	72
19/06/17	1:00	4.9	61
19/06/17	2:00	3.1	76
19/06/17	3:00	3.1	63
19/06/17	4:00	1.3	39
19/06/17	5:00	0.9	77
19/06/17	6:00	2.2	67
19/06/17	7:00	2.2	68
19/06/17	8:00	3.1	60
19/06/17	9:00	4	87
19/06/17	10:00	4.5	89
19/06/17	11:00	4	95
19/06/17	12:00	4	99

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/17	13:00	4.5	101
19/06/17	14:00	4	93
19/06/17	15:00	4.5	82
19/06/17	16:00	4	95
19/06/17	17:00	3.6	82
19/06/17	18:00	3.1	95
19/06/17	19:00	2.7	91
19/06/17	20:00	2.7	94
19/06/17	21:00	2.7	101
19/06/17	22:00	2.7	88
19/06/17	23:00	2.2	97
19/06/20	0:00	0.9	48
19/06/20	1:00	0.4	41
19/06/20	2:00	0	-
19/06/20	3:00	0	-
19/06/20	4:00	0	-
19/06/20	5:00	0	-
19/06/20	6:00	0.4	322
19/06/20	7:00	0	-
19/06/20	8:00	0.9	88
19/06/20	9:00	0.9	119
19/06/20	10:00	0.9	211
19/06/20	11:00	0.9	275
19/06/20	12:00	1.8	224
19/06/20	13:00	1.3	261
19/06/20	14:00	1.3	262
19/06/20	15:00	1.3	215
19/06/20	16:00	2.2	235
19/06/20	17:00	2.2	235
19/06/20	18:00	1.8	219
19/06/20	19:00	1.8	226
19/06/20	20:00	1.8	194
19/06/20	21:00	0.9	197
19/06/20	22:00	0	-
19/06/20	23:00	0.4	131
19/06/21	0:00	0.4	147
19/06/21	1:00	0.9	152
19/06/21	2:00	0.9	196
19/06/21	3:00	0.9	221
19/06/21	4:00	0.9	207
19/06/21	5:00	0.9	219
19/06/21	6:00	0.9	179
19/06/21	7:00	1.3	200
19/06/21	8:00	1.8	212
19/06/21	9:00	1.3	226
19/06/21	10:00	1.3	271
19/06/21	11:00	1.3	269
19/06/21	12:00	2.2	215
19/06/21	13:00	1.8	274
19/06/21	14:00	1.8	225
19/06/21	15:00	1.8	224
19/06/21	16:00	1.8	231
19/06/21	17:00	1.8	220
19/06/21	18:00	1.8	194
19/06/21	19:00	2.2	192
19/06/21	20:00	1.8	198
19/06/21	21:00	1.3	213

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/21	22:00	1.3	192
19/06/21	23:00	1.8	208
19/06/22	0:00	1.8	207
19/06/22	1:00	0.9	192
19/06/22	2:00	0.9	266
19/06/22	3:00	0.4	252
19/06/22	4:00	1.3	205
19/06/22	5:00	0.9	259
19/06/22	6:00	0.4	280
19/06/22	7:00	0.4	236
19/06/22	8:00	0.4	270
19/06/22	9:00	1.8	228
19/06/22	10:00	1.3	255
19/06/22	11:00	1.8	235
19/06/22	12:00	3.1	197
19/06/22	13:00	2.7	199
19/06/22	14:00	2.2	214
19/06/22	15:00	2.7	223
19/06/22	16:00	2.2	228
19/06/22	17:00	2.7	204
19/06/22	18:00	2.7	203
19/06/22	19:00	2.2	195
19/06/22	20:00	2.7	204
19/06/22	21:00	2.2	201
19/06/22	22:00	0.9	247
19/06/22	23:00	1.3	227
19/06/23	0:00	1.3	222
19/06/23	1:00	0.9	248
19/06/23	2:00	1.8	192
19/06/23	3:00	0.9	233
19/06/23	4:00	2.7	204
19/06/23	5:00	1.8	199
19/06/23	6:00	1.8	230
19/06/23	7:00	0.9	268
19/06/23	8:00	1.3	204
19/06/23	9:00	2.7	201
19/06/23	10:00	3.1	210
19/06/23	11:00	3.6	204
19/06/23	12:00	3.1	192
19/06/23	13:00	1.8	192
19/06/23	14:00	1.3	216
19/06/23	15:00	1.3	246
19/06/23	16:00	1.3	216
19/06/23	17:00	1.3	214
19/06/23	18:00	1.3	230
19/06/23	19:00	1.3	204
19/06/23	20:00	1.3	193
19/06/23	21:00	0.9	133
19/06/23	22:00	0	-
19/06/23	23:00	0.4	160
19/06/25	0:00	0.9	55
19/06/25	1:00	1.3	19
19/06/25	2:00	0.9	11
19/06/25	3:00	0	-
19/06/25	4:00	0.9	322
19/06/25	5:00	1.3	278
19/06/25	6:00	0.4	259

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/25	7:00	0	-
19/06/25	8:00	0.9	66
19/06/25	9:00	1.3	39
19/06/25	10:00	0.9	83
19/06/25	11:00	1.8	136
19/06/25	12:00	1.3	91
19/06/25	13:00	1.3	139
19/06/25	14:00	1.3	142
19/06/25	15:00	0.4	138
19/06/25	16:00	0	-
19/06/25	17:00	0.4	276
19/06/25	18:00	0.4	280
19/06/25	19:00	0.9	29
19/06/25	20:00	0.9	12
19/06/25	21:00	0.9	60
19/06/25	22:00	0.9	53
19/06/25	23:00	1.3	47
19/06/26	0:00	0.9	43
19/06/26	1:00	0.9	46
19/06/26	2:00	0.4	311
19/06/26	3:00	0.4	344
19/06/26	4:00	0.4	26
19/06/26	5:00	0.4	30
19/06/26	6:00	0.4	234
19/06/26	7:00	0.4	274
19/06/26	8:00	0.4	60
19/06/26	9:00	1.3	42
19/06/26	10:00	1.3	98
19/06/26	11:00	0.9	95
19/06/26	12:00	1.3	232
19/06/26	13:00	0.9	260
19/06/26	14:00	0.4	258
19/06/26	15:00	1.3	191
19/06/26	16:00	1.3	92
19/06/26	17:00	1.8	113
19/06/26	18:00	0.9	214
19/06/26	19:00	0.9	91
19/06/26	20:00	1.8	72
19/06/26	21:00	1.3	58
19/06/26	22:00	0.4	51
19/06/26	23:00	0	-
19/06/28	0:00	0.4	148
19/06/28	1:00	0.9	163
19/06/28	2:00	0.9	148
19/06/28	3:00	0	-
19/06/28	4:00	0	-
19/06/28	5:00	0	-
19/06/28	6:00	0.4	347
19/06/28	7:00	0.4	50
19/06/28	8:00	0.4	301
19/06/28	9:00	0.9	84
19/06/28	10:00	1.3	127
19/06/28	11:00	1.8	140
19/06/28	12:00	1.8	119
19/06/28	13:00	1.8	133
19/06/28	14:00	1.8	137
19/06/28	15:00	1.8	83

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
19/06/28	16:00	1.8	89
19/06/28	17:00	1.3	142
19/06/28	18:00	0.9	172
19/06/28	19:00	0.9	172
19/06/28	20:00	1.8	134
19/06/28	21:00	1.8	145
19/06/28	22:00	0.4	143
19/06/28	23:00	1.3	135
19/06/29	0:00	0.9	145
19/06/29	1:00	0.4	142
19/06/29	2:00	0.4	162
19/06/29	3:00	0	-
19/06/29	4:00	0	-
19/06/29	5:00	0	-
19/06/29	6:00	0.4	287
19/06/29	7:00	0.4	69
19/06/29	8:00	0.4	40
19/06/29	9:00	1.3	199
19/06/29	10:00	0.9	280
19/06/29	11:00	1.3	206
19/06/29	12:00	1.8	272
19/06/29	13:00	1.3	279
19/06/29	14:00	1.3	207
19/06/29	15:00	1.3	93
19/06/29	16:00	1.3	269
19/06/29	17:00	0.9	208
19/06/29	18:00	1.8	80
19/06/29	19:00	1.3	135
19/06/29	20:00	2.2	95
19/06/29	21:00	0.9	79
19/06/29	22:00	0.9	100
19/06/29	23:00	0.9	89

Appendix I

Impact Dolphin Monitoring Survey

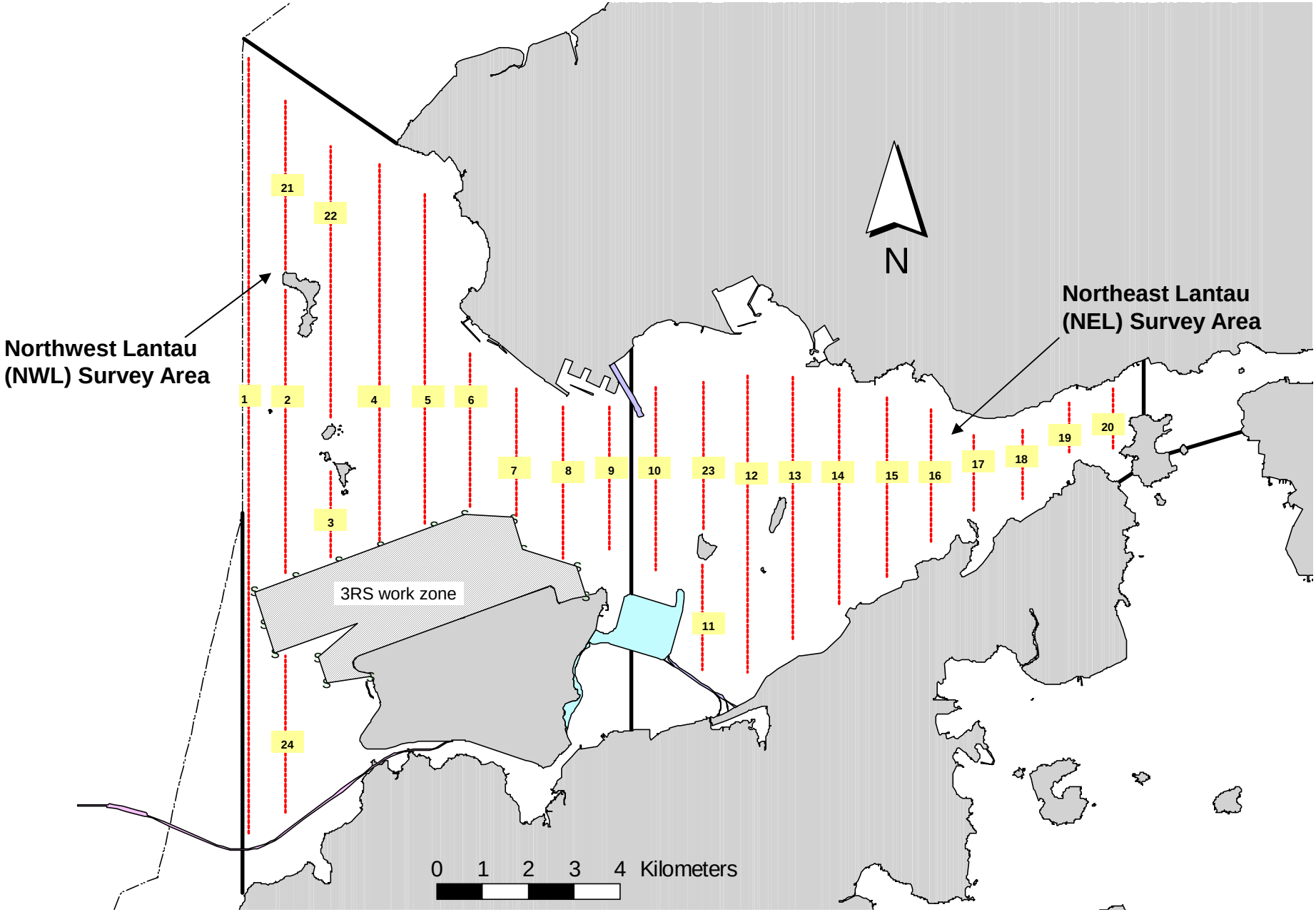


Figure 1. Transect Line Layout in Northwest and Northeast Lantau Survey Areas

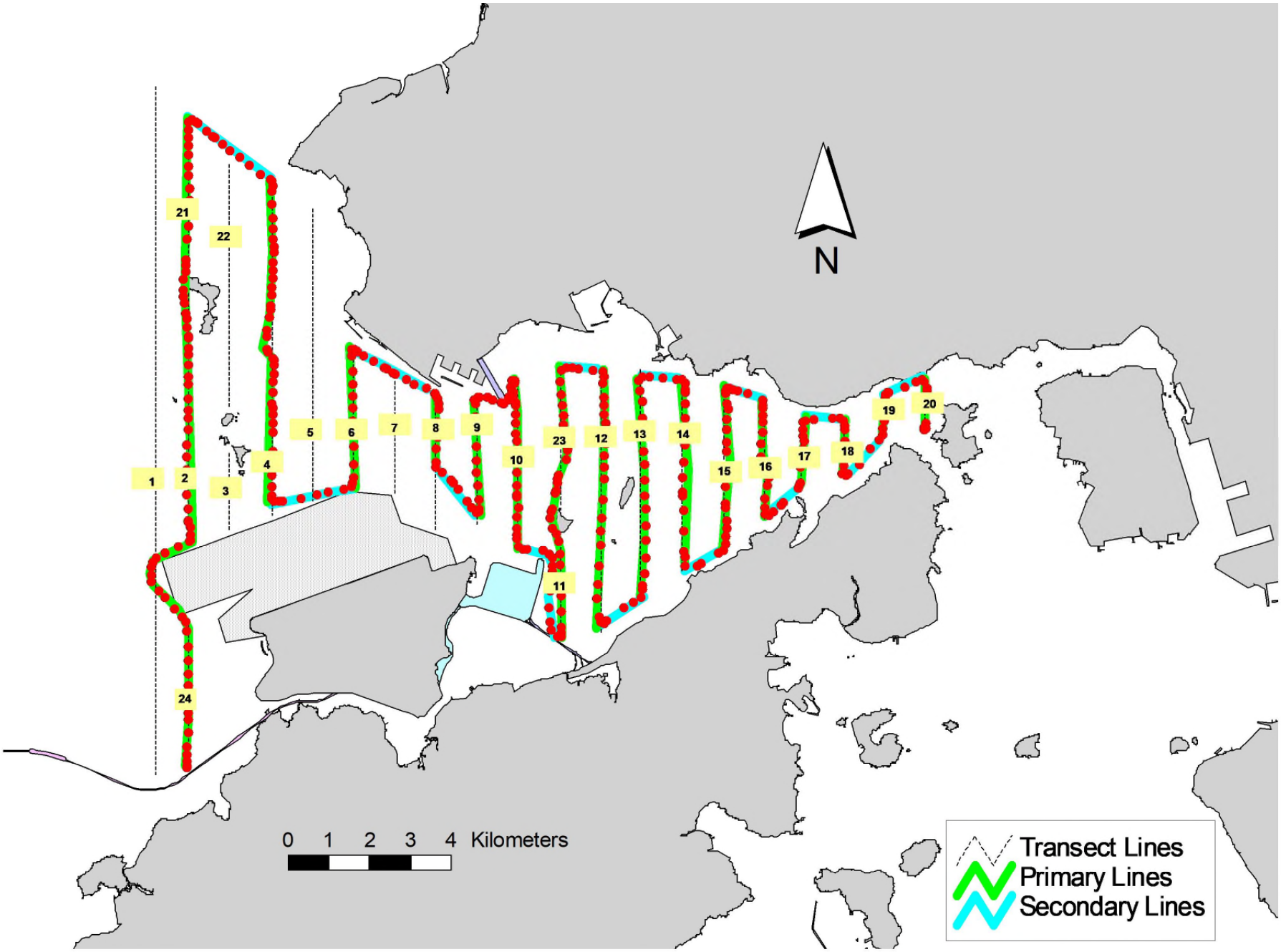


Figure 2. Survey Route on June 3rd, 2019 (from HKLR03 project)

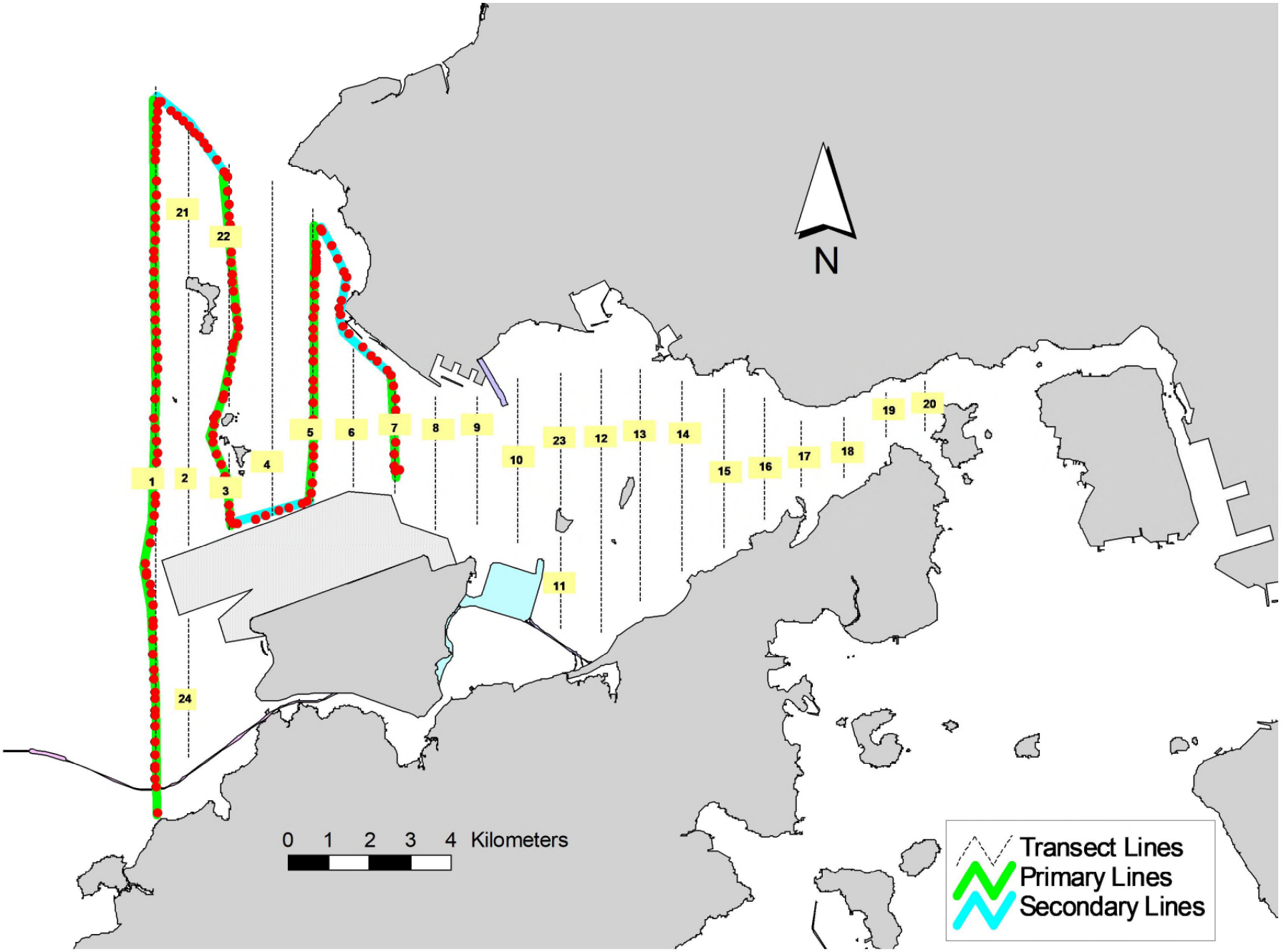


Figure 3. Survey Route on June 6th, 2019 (from HKLR03 project)

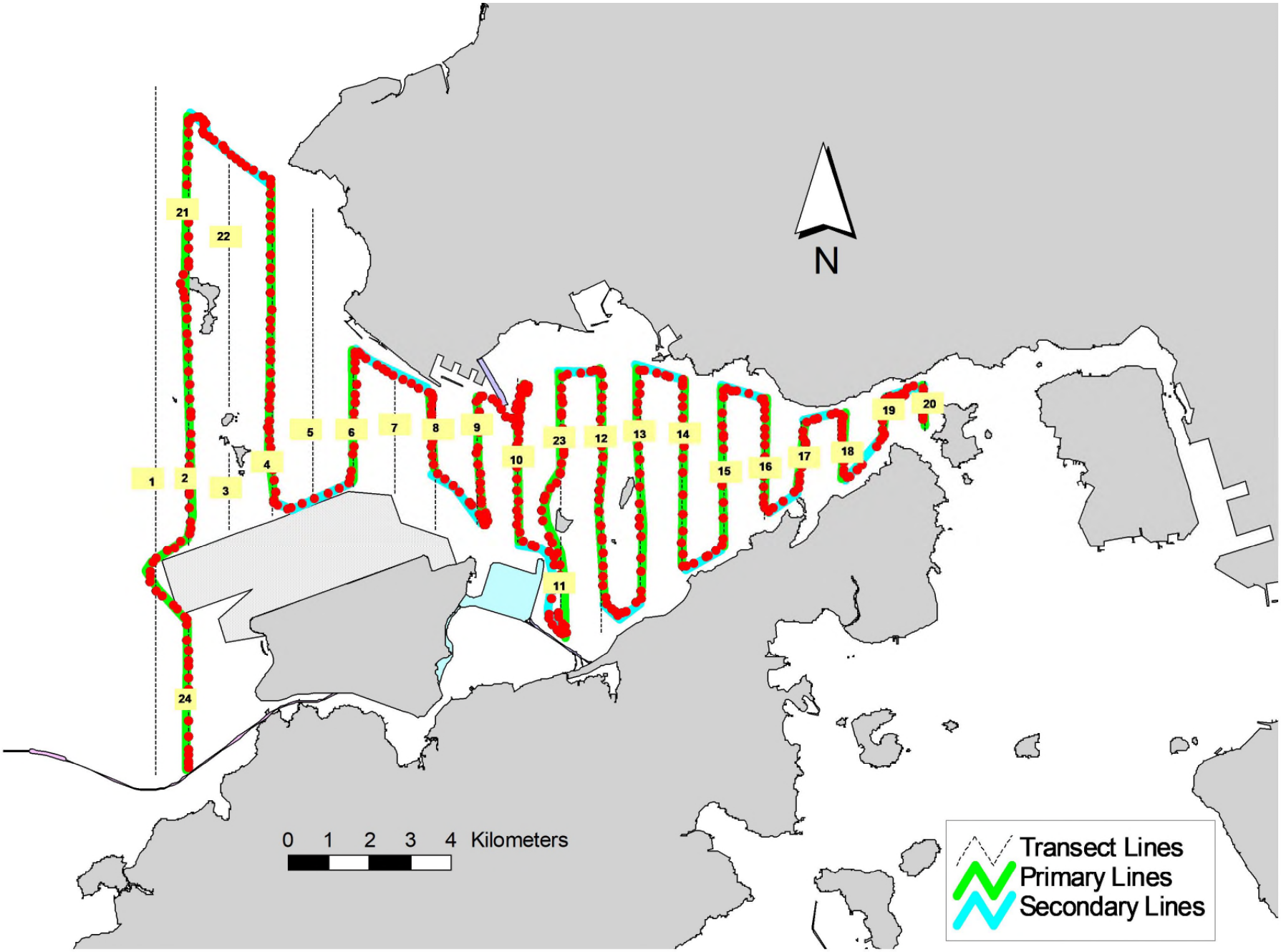


Figure 4. Survey Route on June 10th, 2019 (from HKLR03 project)

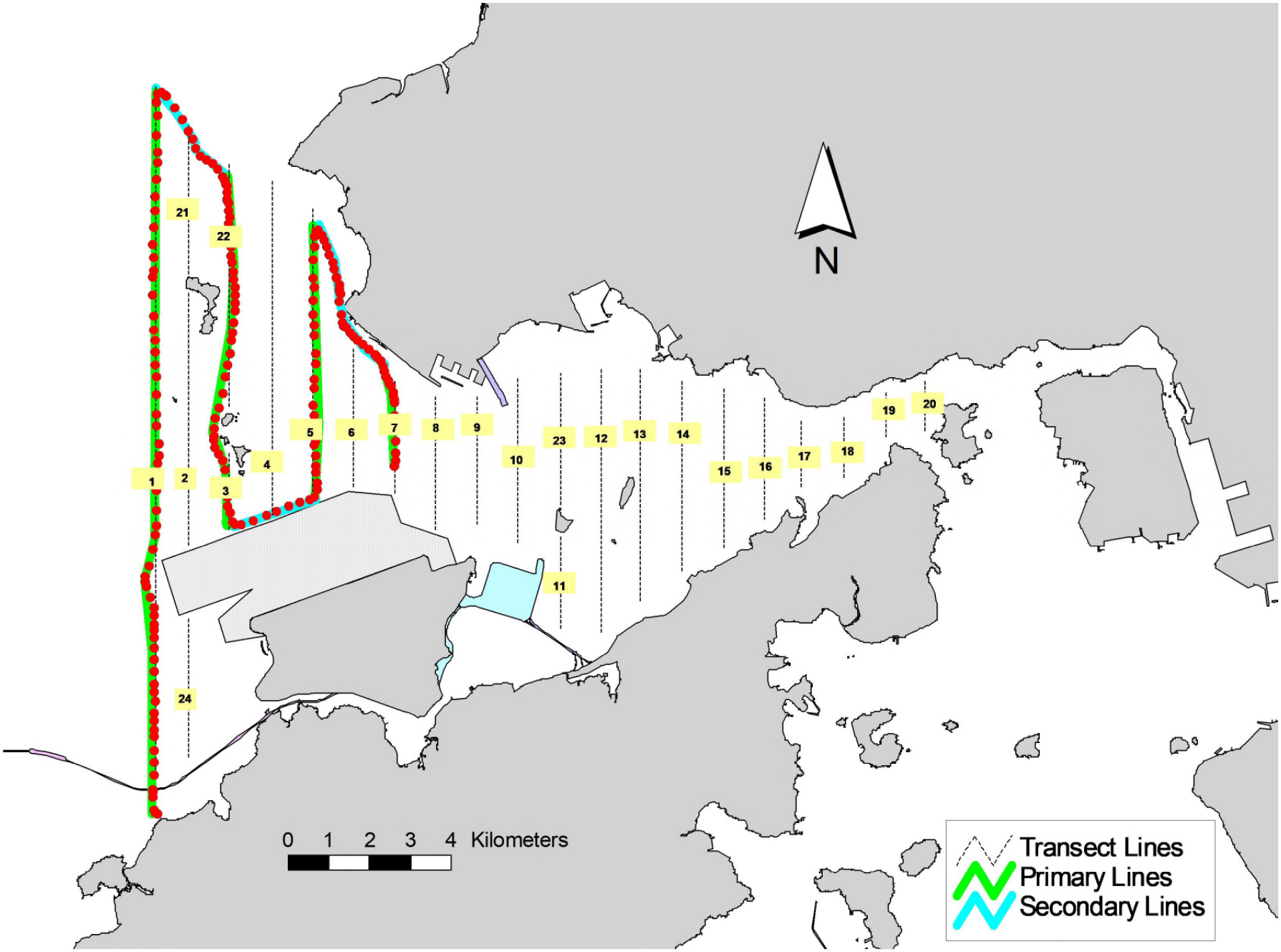


Figure 5. Survey Route on June 13th, 2019 (from HKLR03 project)

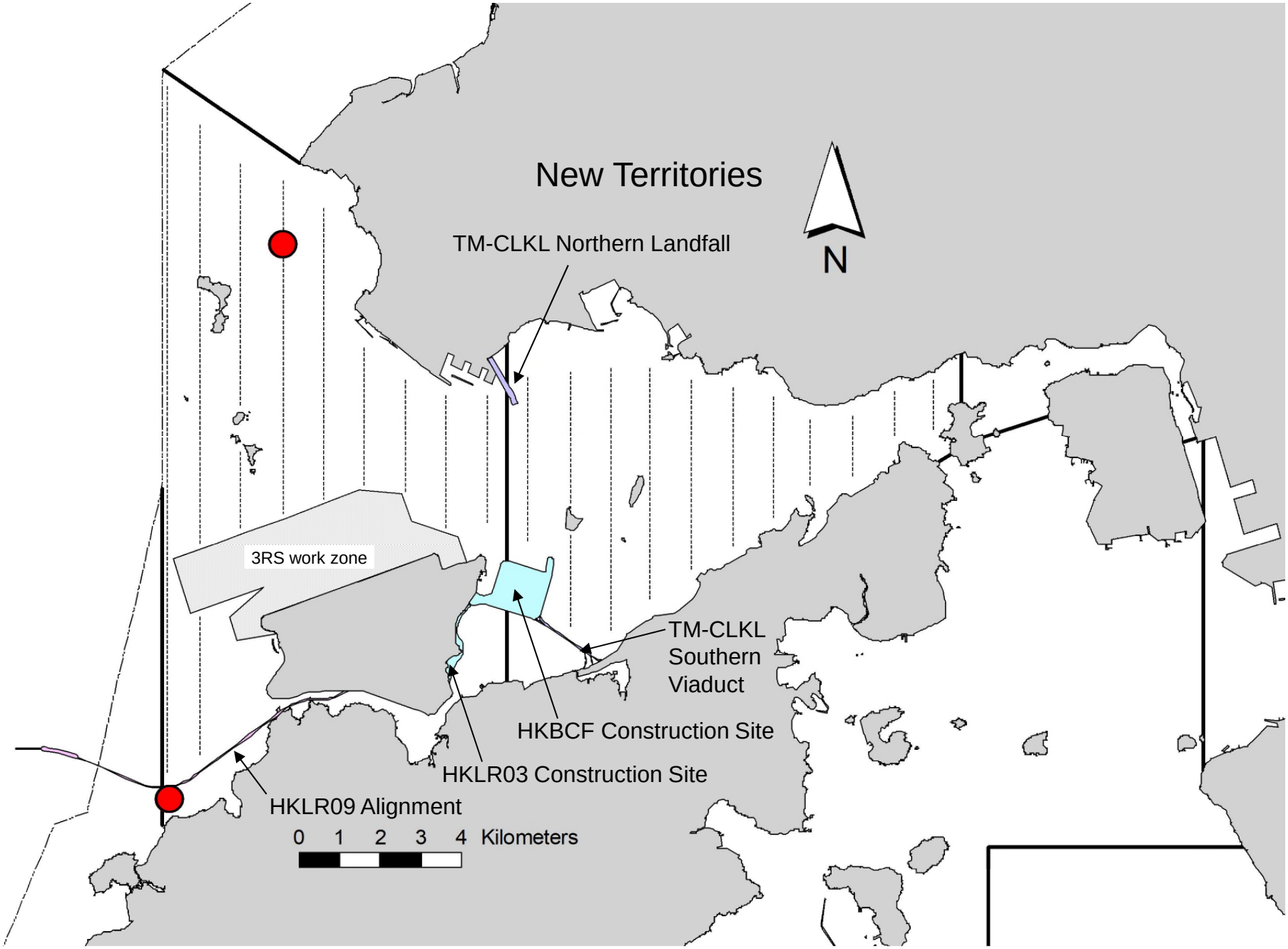


Figure 6. Distribution of Chinese White Dolphin Sightings during June 2019 HKLR03 Monitoring Surveys

Appendix I. HKLR03 Survey Effort Database (June 2019)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
3-Jun-19	NW LANTAU	3	25.81	SUMMER	STANDARD36826	HKLR	P
3-Jun-19	NW LANTAU	4	1.66	SUMMER	STANDARD36826	HKLR	P
3-Jun-19	NW LANTAU	3	11.38	SUMMER	STANDARD36826	HKLR	S
3-Jun-19	NW LANTAU	4	0.55	SUMMER	STANDARD36826	HKLR	S
3-Jun-19	NE LANTAU	2	24.60	SUMMER	STANDARD36826	HKLR	P
3-Jun-19	NE LANTAU	3	11.37	SUMMER	STANDARD36826	HKLR	P
3-Jun-19	NE LANTAU	2	11.83	SUMMER	STANDARD36826	HKLR	S
3-Jun-19	NE LANTAU	3	2.10	SUMMER	STANDARD36826	HKLR	S
6-Jun-19	NW LANTAU	2	8.26	SUMMER	STANDARD36826	HKLR	P
6-Jun-19	NW LANTAU	3	19.60	SUMMER	STANDARD36826	HKLR	P
6-Jun-19	NW LANTAU	4	3.70	SUMMER	STANDARD36826	HKLR	P
6-Jun-19	NW LANTAU	2	5.99	SUMMER	STANDARD36826	HKLR	S
6-Jun-19	NW LANTAU	3	4.25	SUMMER	STANDARD36826	HKLR	S
10-Jun-19	NW LANTAU	3	17.00	SUMMER	STANDARD36826	HKLR	P
10-Jun-19	NW LANTAU	4	10.53	SUMMER	STANDARD36826	HKLR	P
10-Jun-19	NW LANTAU	5	0.60	SUMMER	STANDARD36826	HKLR	P
10-Jun-19	NW LANTAU	3	7.07	SUMMER	STANDARD36826	HKLR	S
10-Jun-19	NW LANTAU	4	4.80	SUMMER	STANDARD36826	HKLR	S
10-Jun-19	NE LANTAU	2	19.40	SUMMER	STANDARD36826	HKLR	P
10-Jun-19	NE LANTAU	3	15.46	SUMMER	STANDARD36826	HKLR	P
10-Jun-19	NE LANTAU	2	8.04	SUMMER	STANDARD36826	HKLR	S
10-Jun-19	NE LANTAU	3	5.72	SUMMER	STANDARD36826	HKLR	S
13-Jun-19	NW LANTAU	2	24.25	SUMMER	STANDARD36826	HKLR	P
13-Jun-19	NW LANTAU	3	8.10	SUMMER	STANDARD36826	HKLR	P
13-Jun-19	NW LANTAU	2	10.05	SUMMER	STANDARD36826	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (June 2019)

(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
3-Jun-19	1	1138	4	NW LANTAU	3	121	ON	HKLR	827734	807488	SUMMER	NONE	P
6-Jun-19	1	1312	1	NW LANTAU	3	77	ON	HKLR	814894	804681	SUMMER	NONE	P

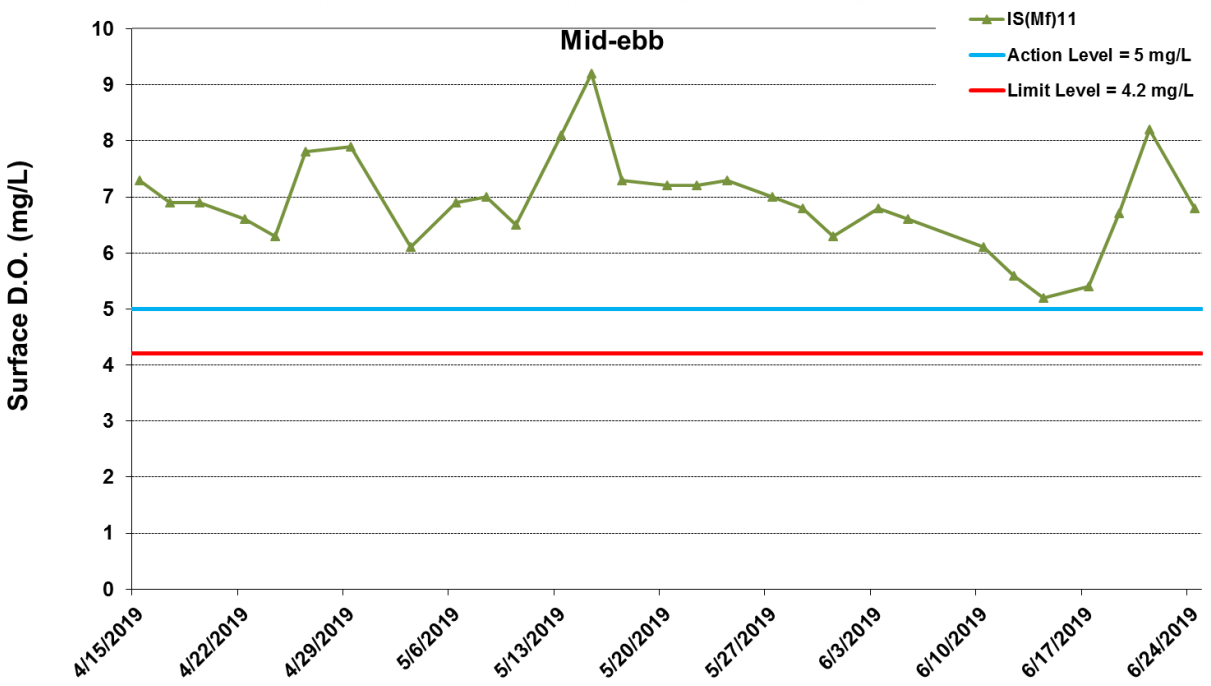
Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in (June 2019)

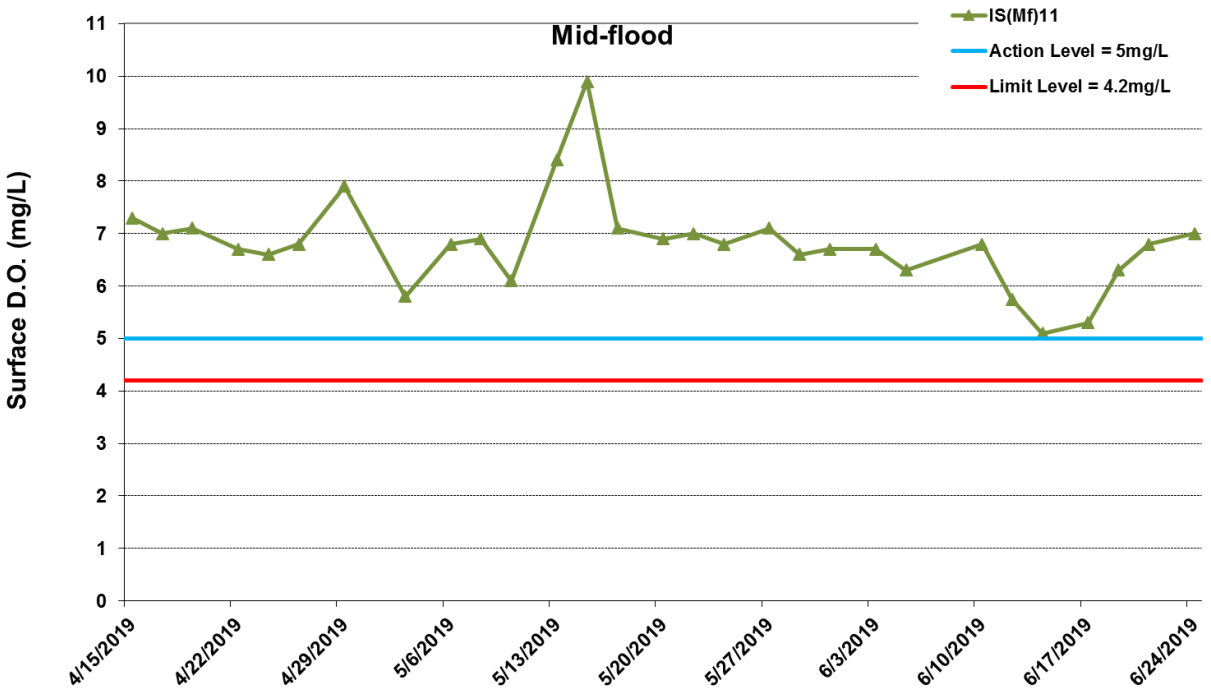
ID#	DATE	STG#	AREA
NL123	03/06/19	1	NW LANTAU
NL136	03/06/19	1	NW LANTAU
NL202	03/06/19	1	NW LANTAU
NL286	03/06/19	1	NW LANTAU
NL293	06/06/19	1	NW LANTAU

Appendix IV. Photographs of Identified Individual Dolphins in June 2019 (HKLR03)

Appendix J

Impact Water Quality Monitoring Results



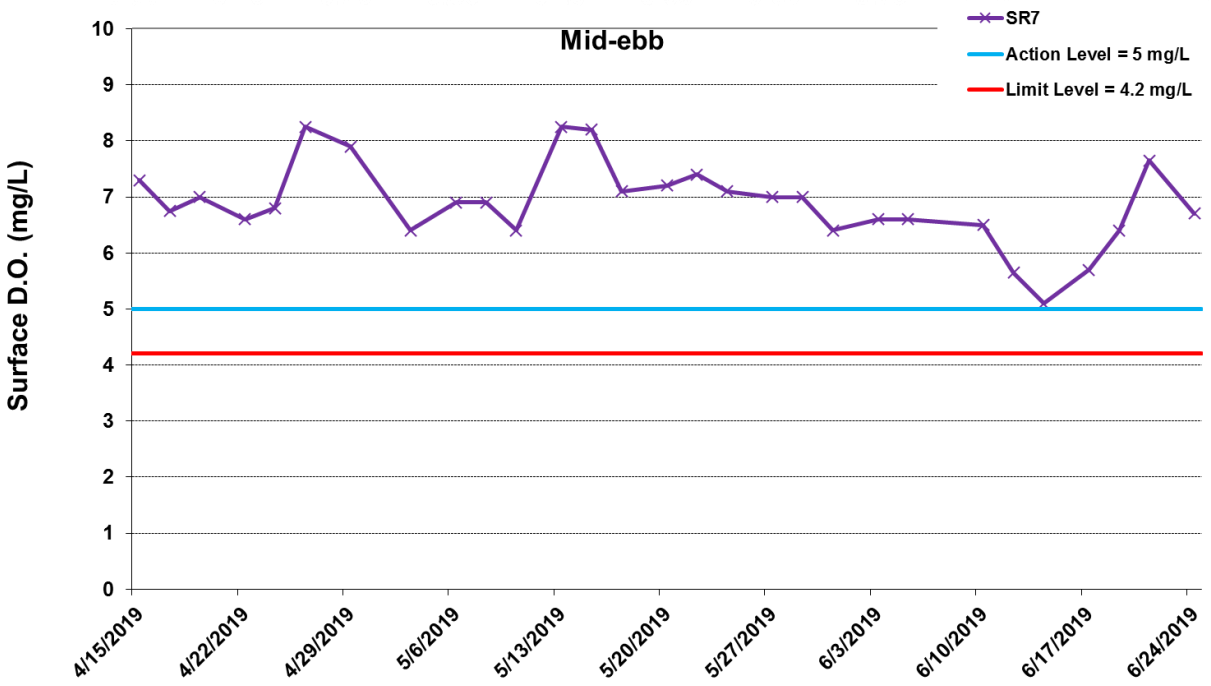


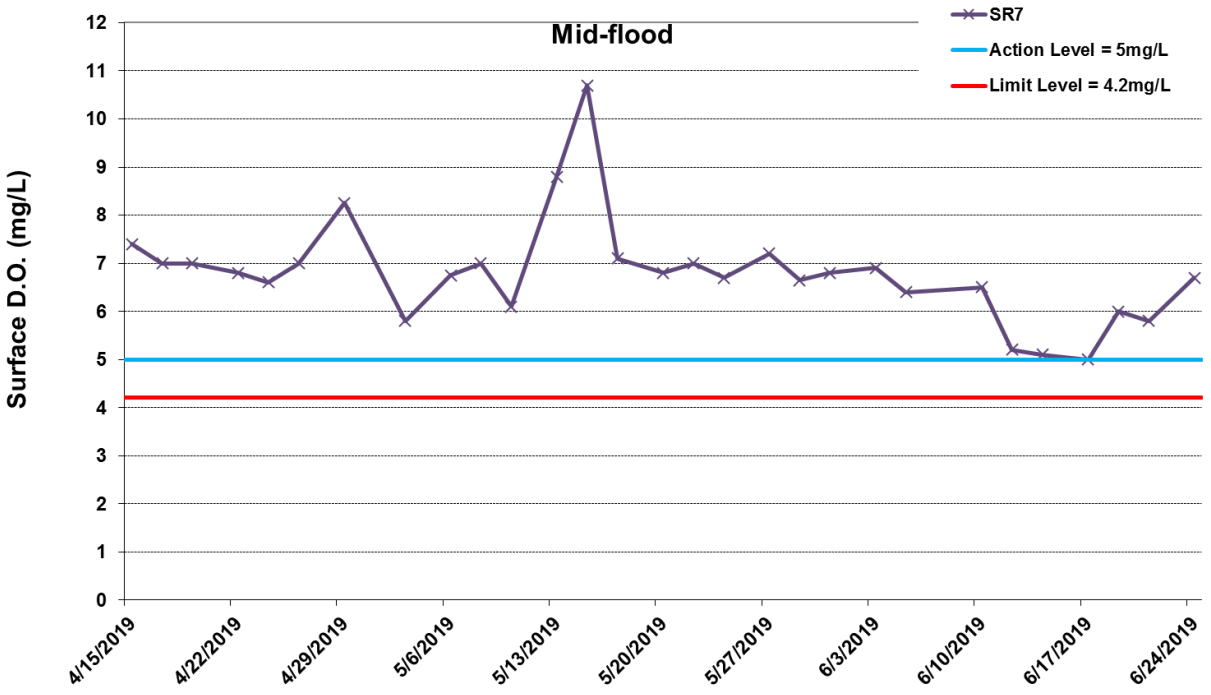
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J1 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 15 April 2019 and 30 June 2019 at IS(Mf)11. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls



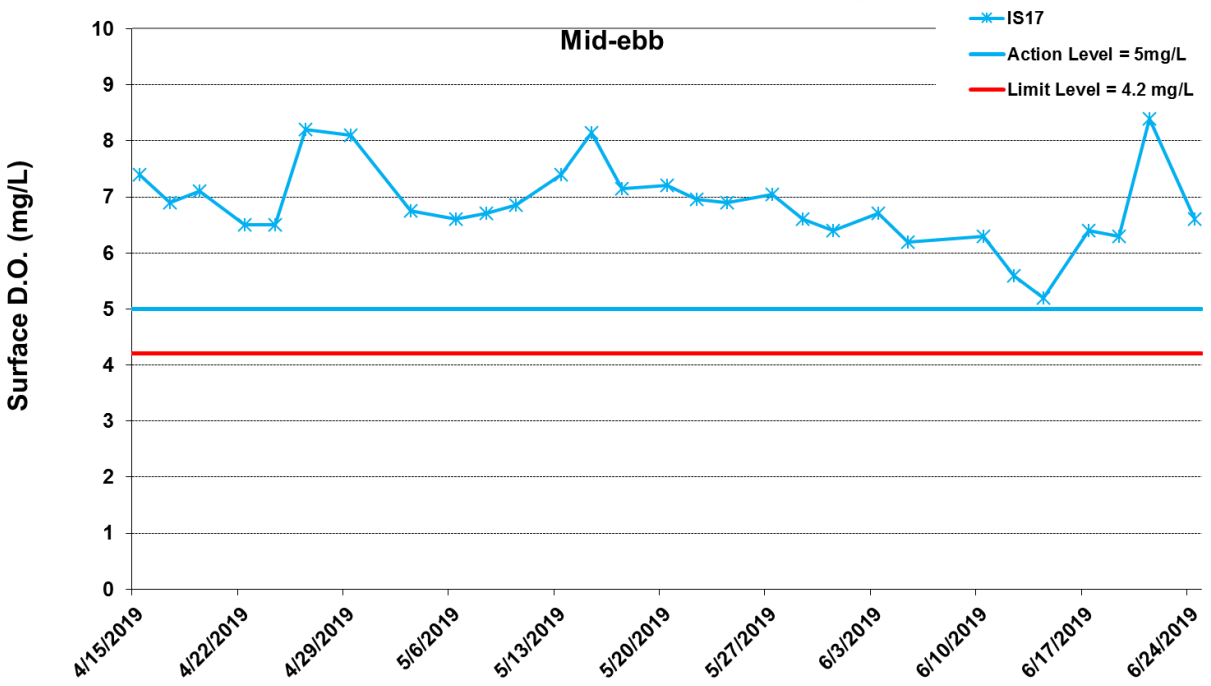


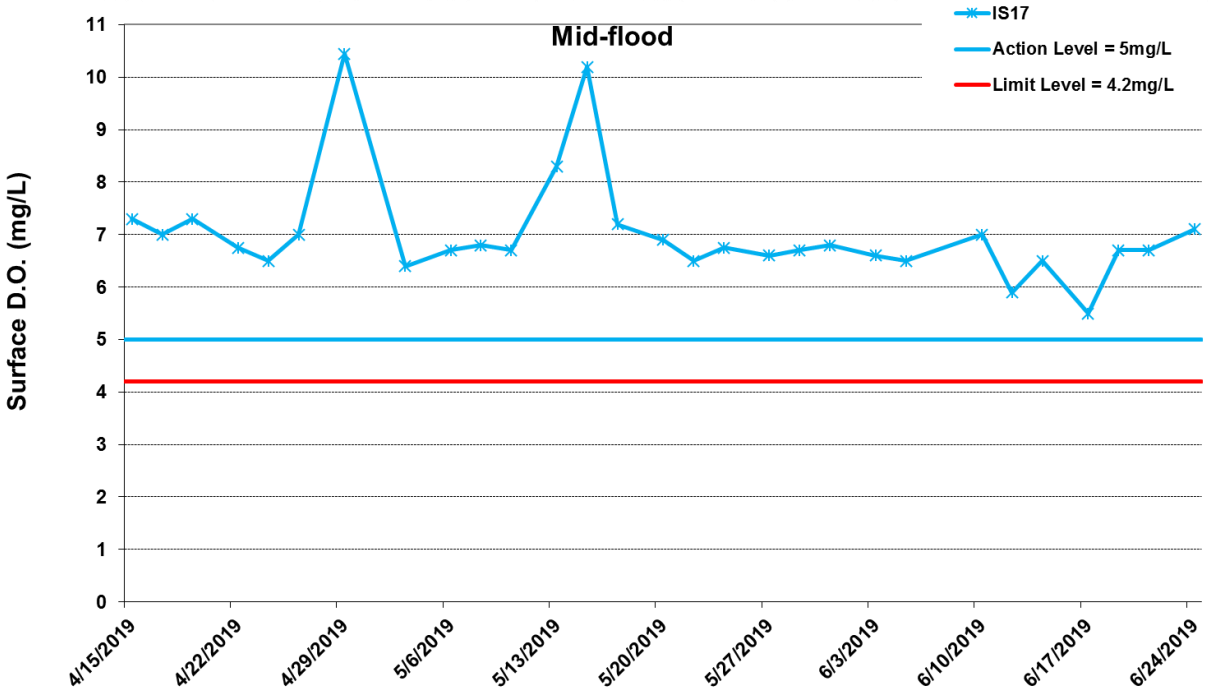
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J2 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 15 April 2019 and 30 June 2019 at SR7. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls



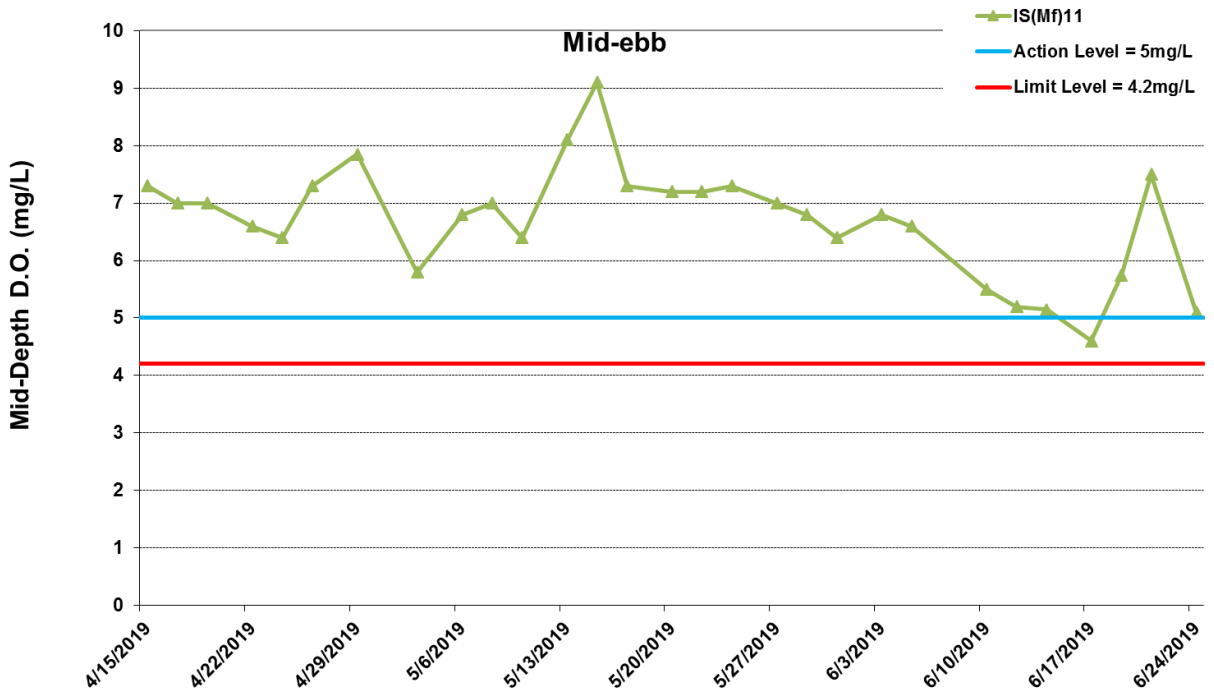


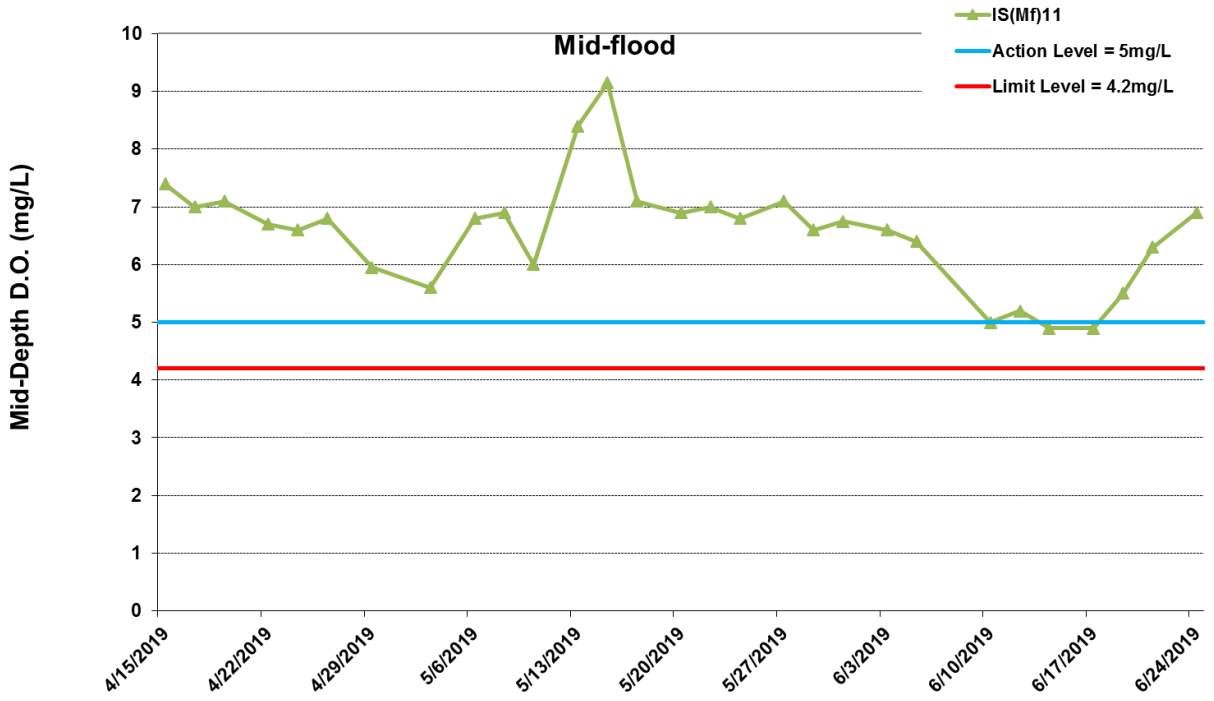
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J3 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 15 April 2019 and 30 June 2019 at IS17. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls





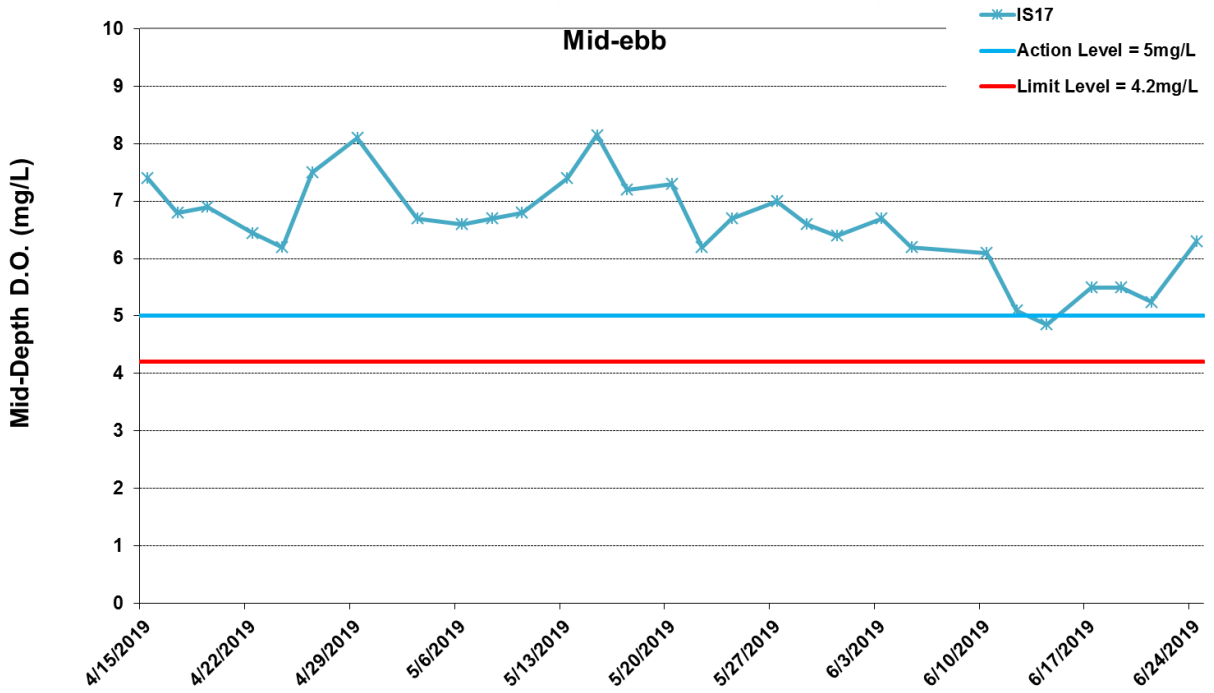
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

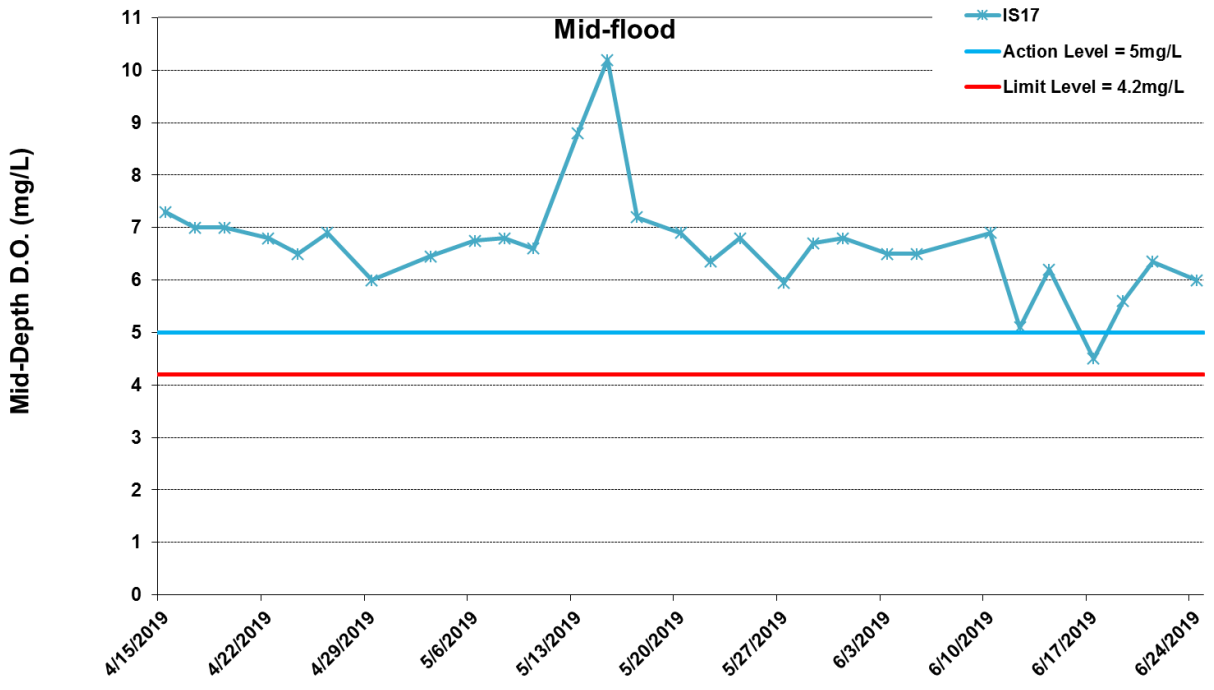
*No data for Stations SR7 due to shallow water depth (< 6m).

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J4 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 15 April 2019 and 30 June 2019 at IS(Mf)11. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls





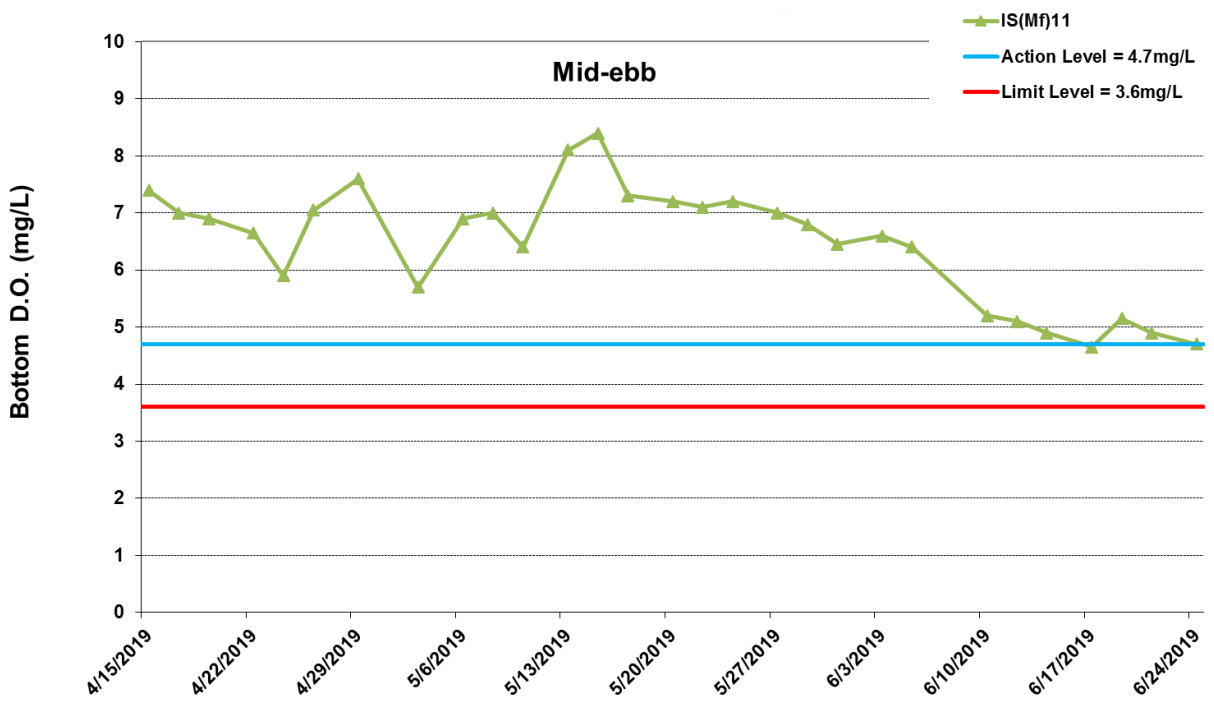
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

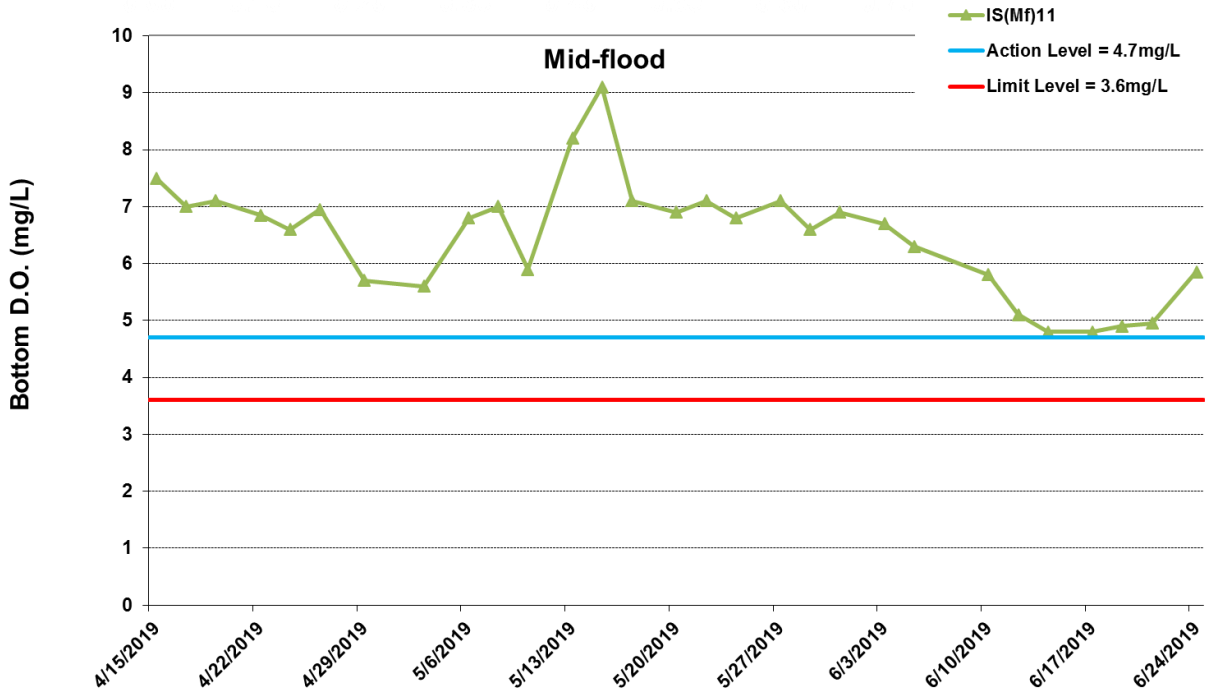
*No data for Stations SR7 due to shallow water depth (< 6m).

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J5 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 15 April 2019 and 30 June 2019 at IS17. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls



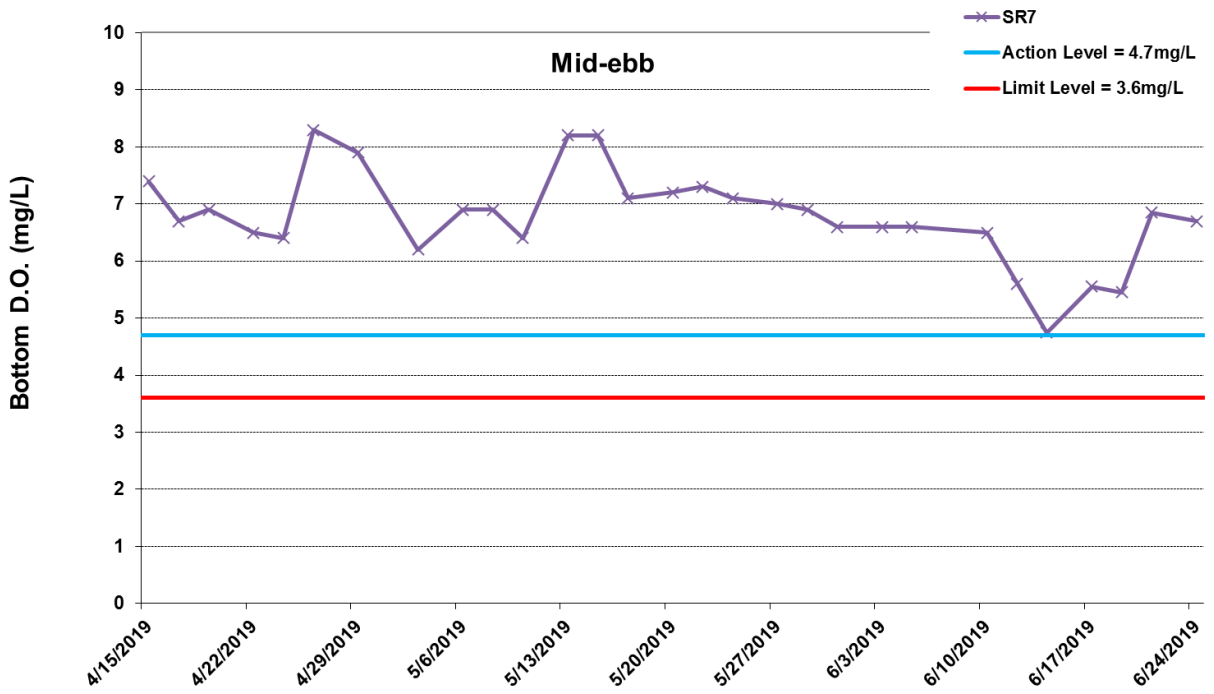


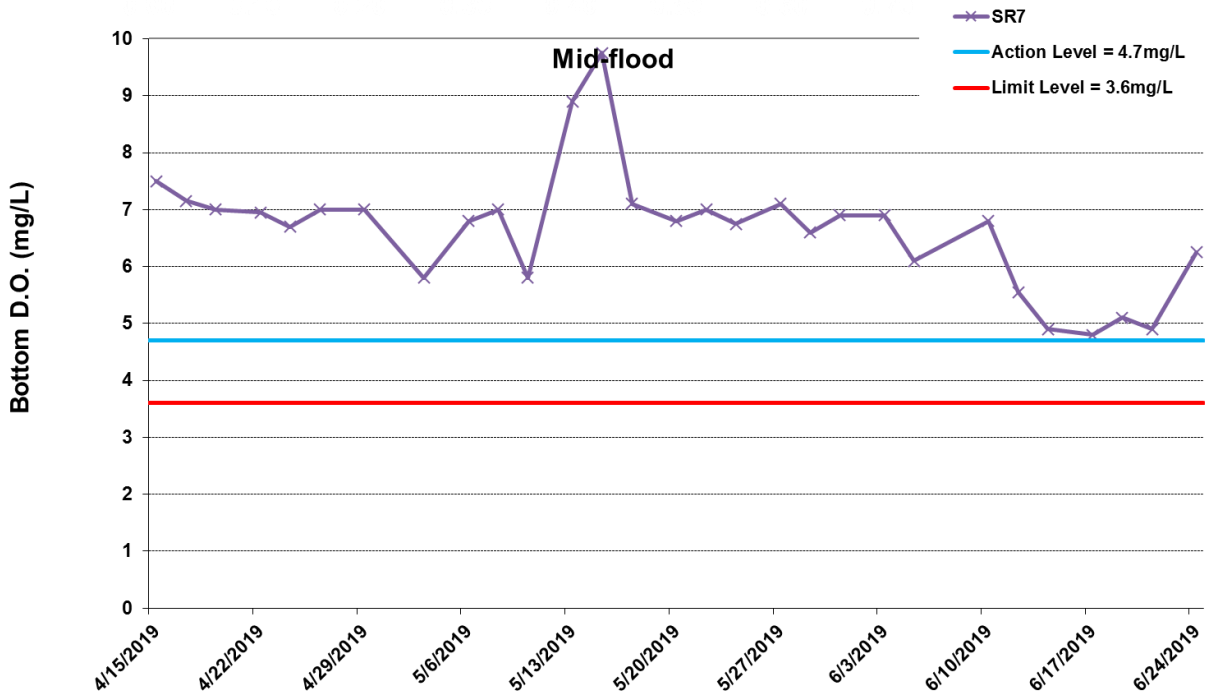
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J6 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom water between 15 April 2019 and 30 June 2019 at IS(Mf)11. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls



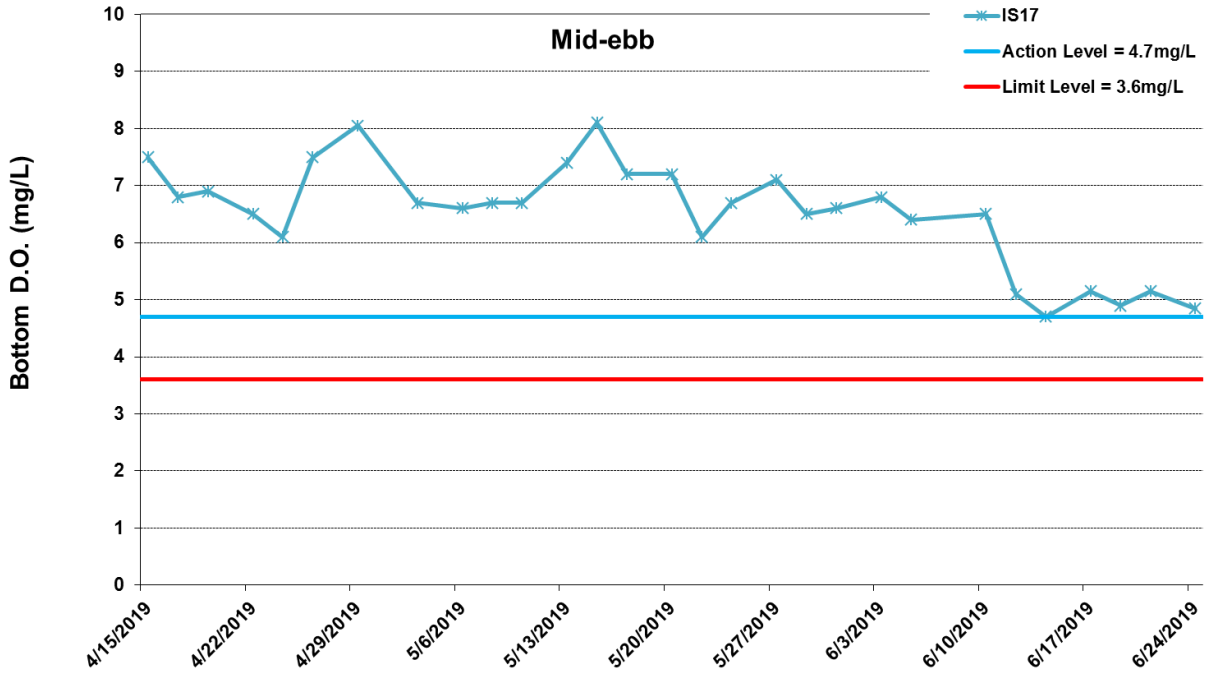


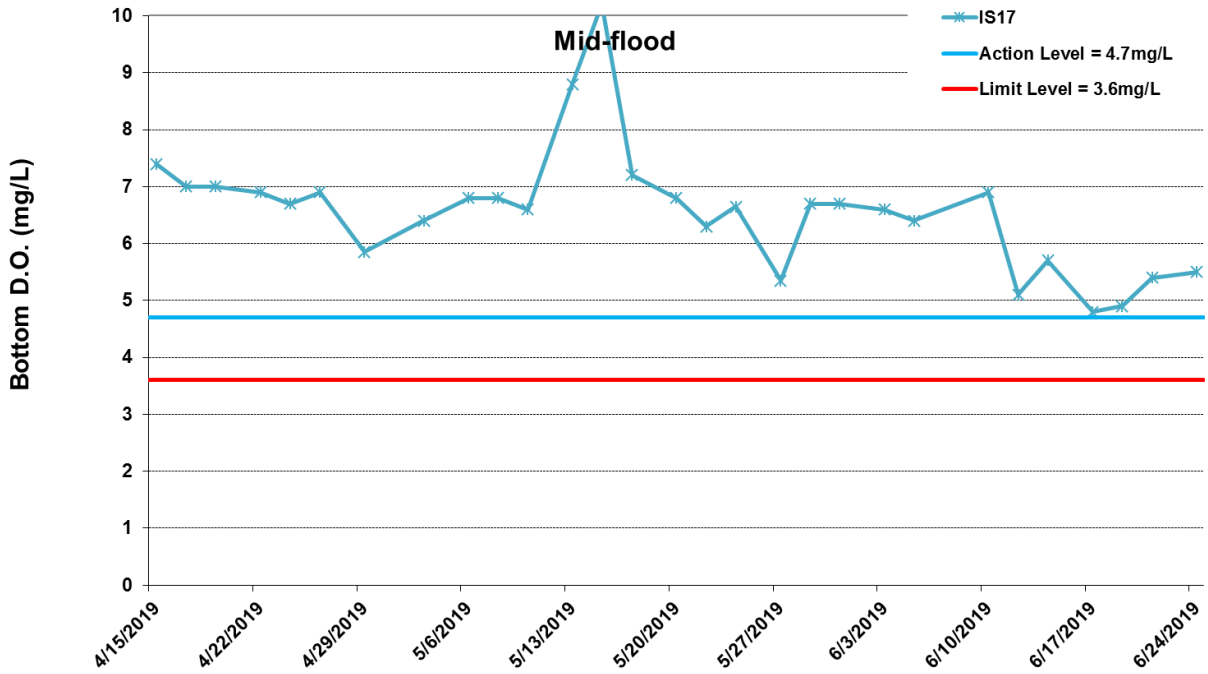
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J7 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom water between 15 April 2019 and 30 June 2019 at SR7. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls



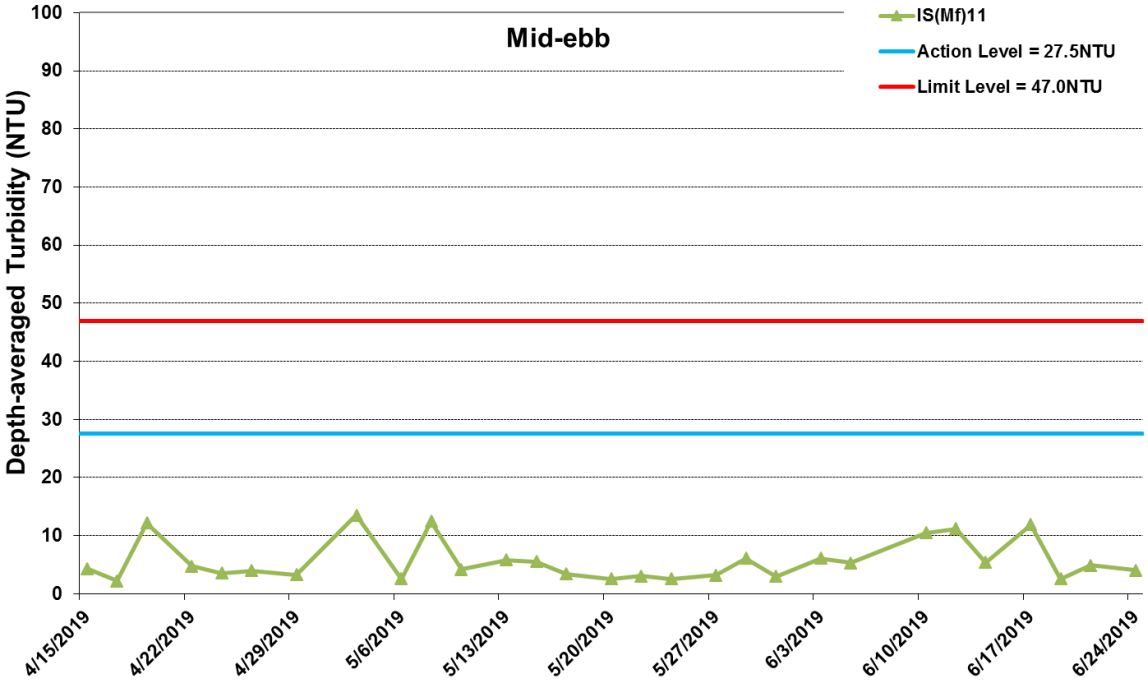


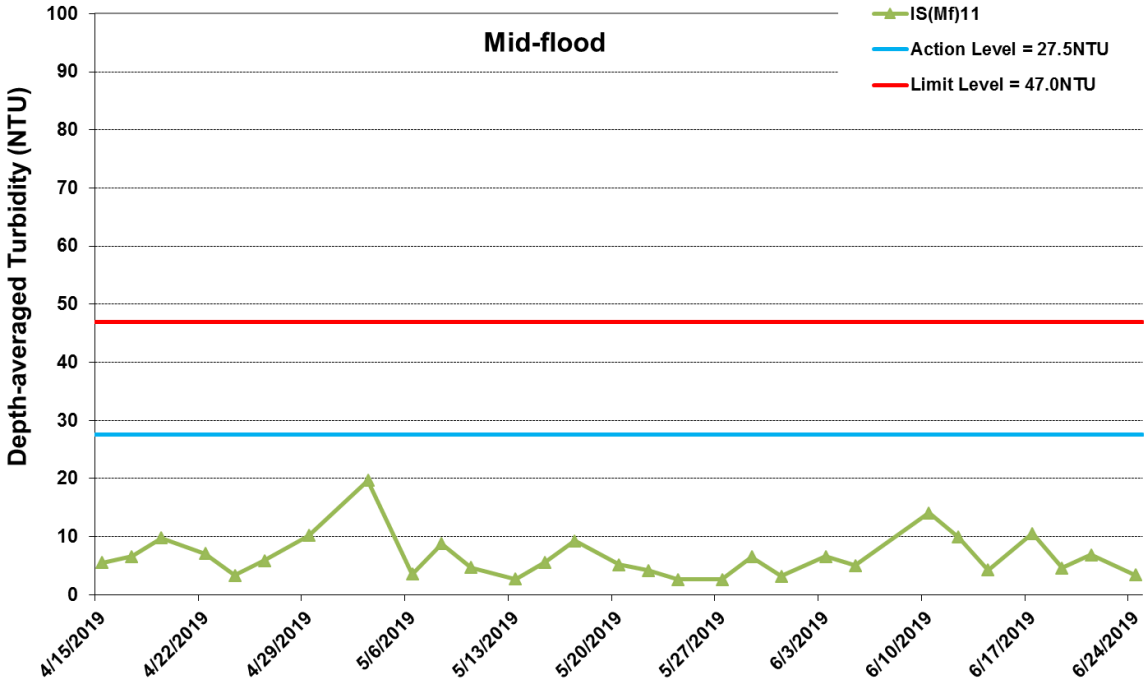
* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

*Exceedances of Dissolved oxygen level are calculated based on average value of data from both Surface and Middle level, and bottom level separately.

Figure J8 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom water between 15 April 2019 and 30 June 2019 at IS17. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls

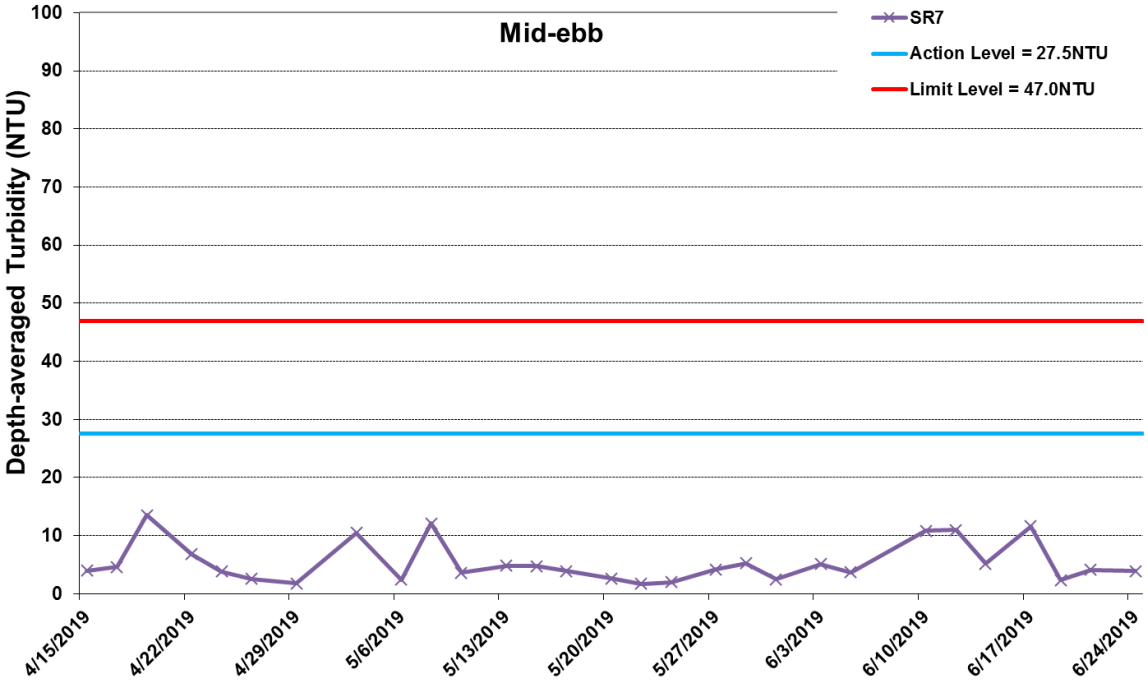


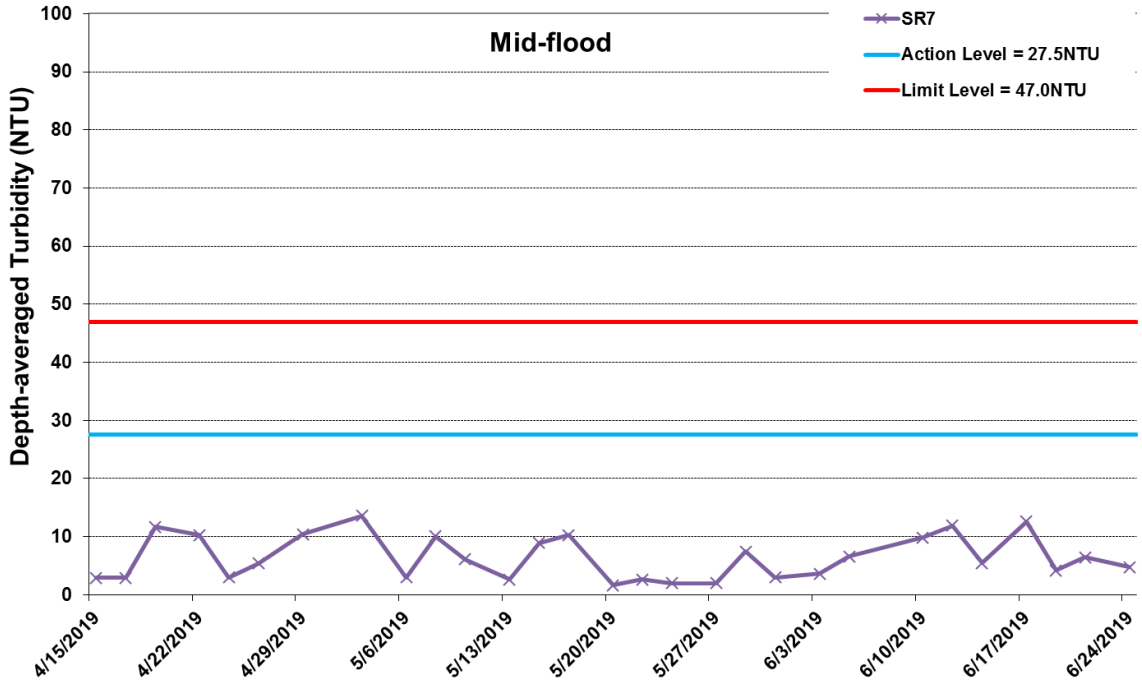


* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

Figure J9 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 15 April 2019 and 30 June 2019 at IS(Mf)11. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls

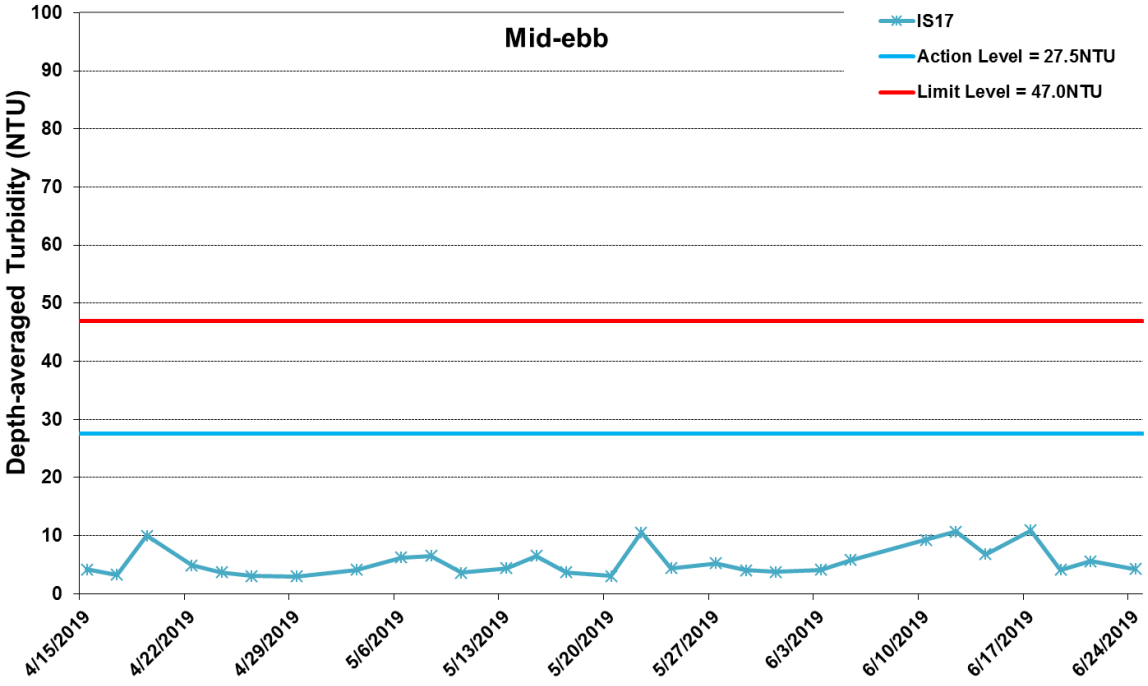


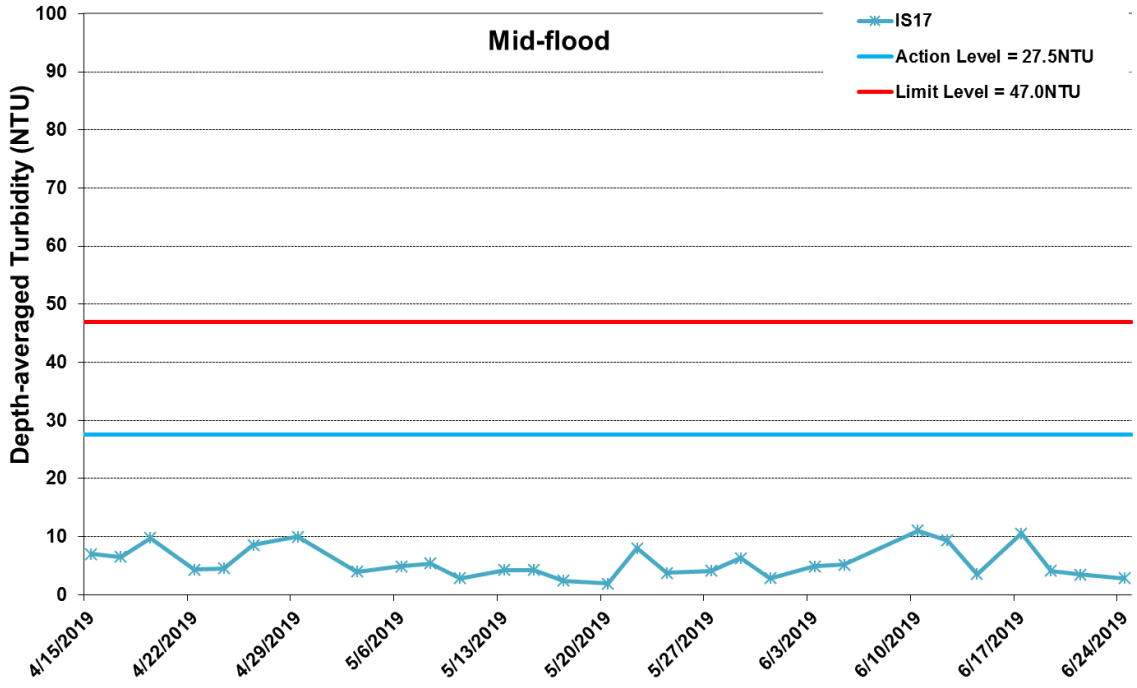


* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

Figure J10 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 15 April 2019 and 30 June 2019 at SR7. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls

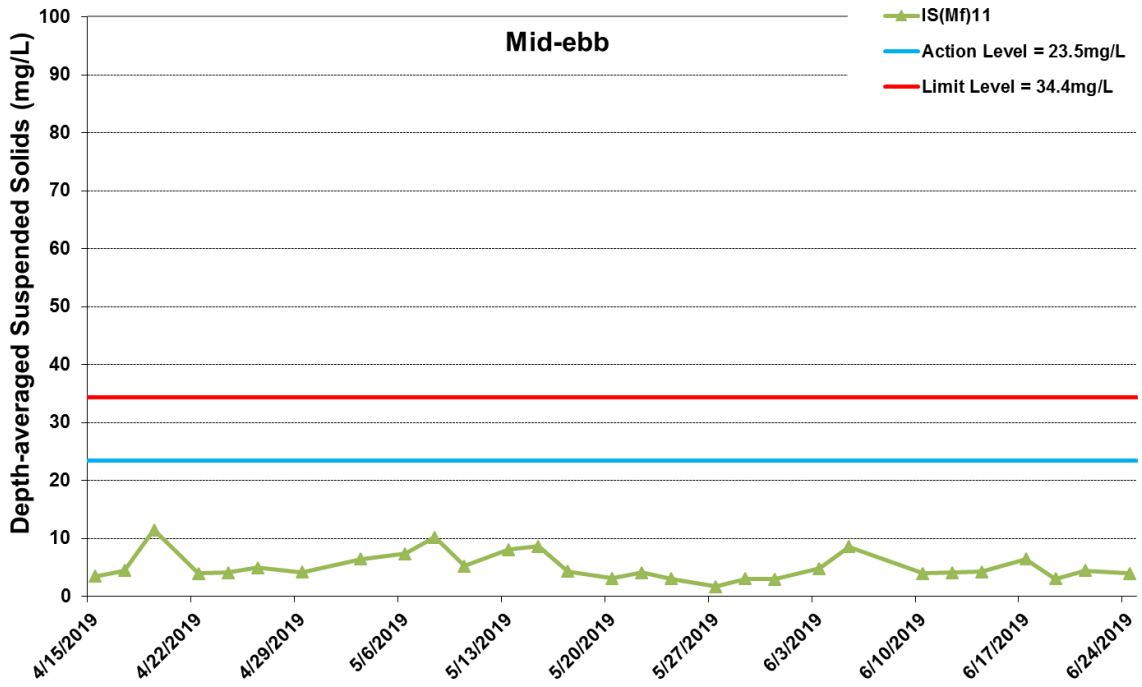


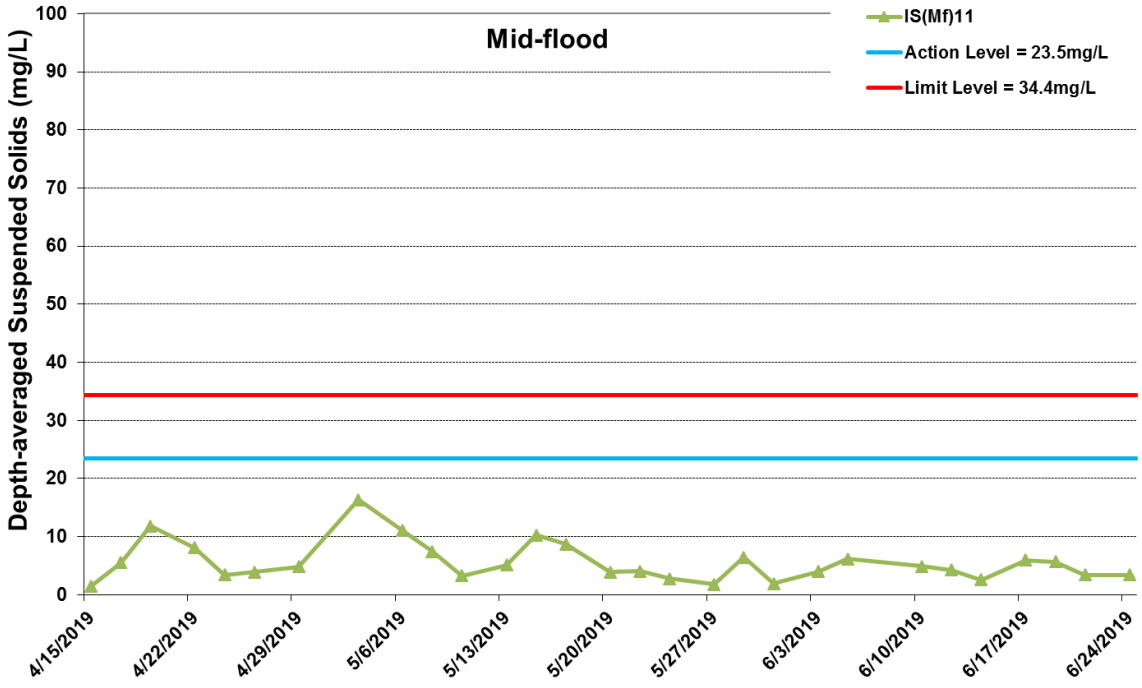


* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

Figure J11 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 15 April 2019 and 30 June 2019 at IS17. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls

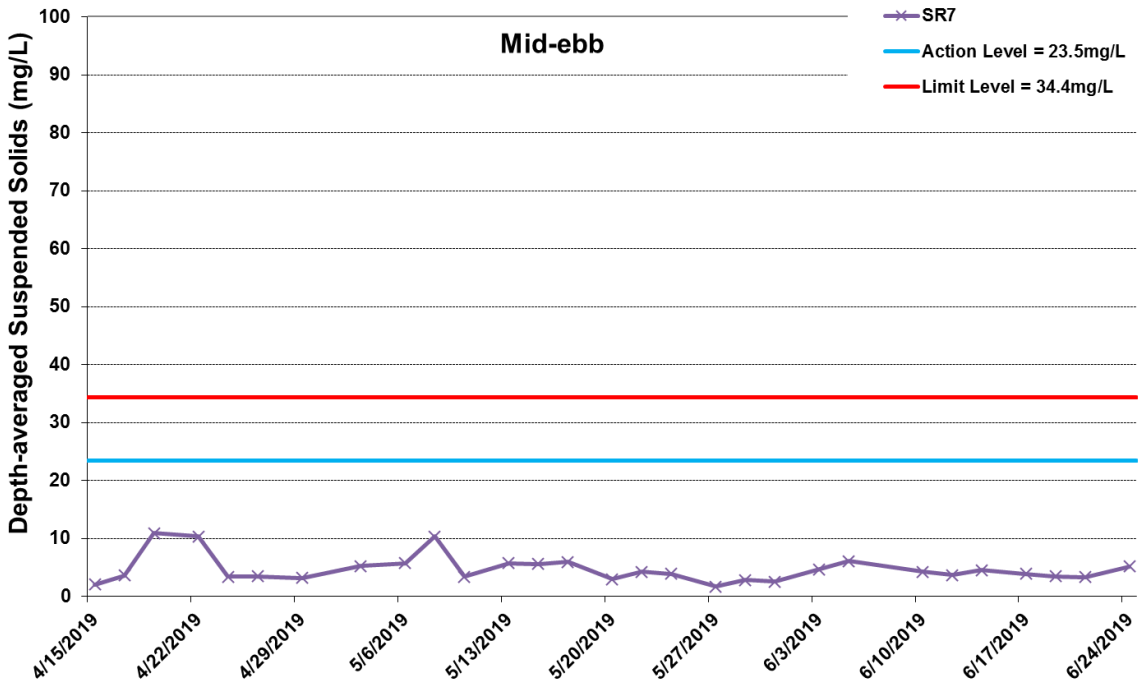


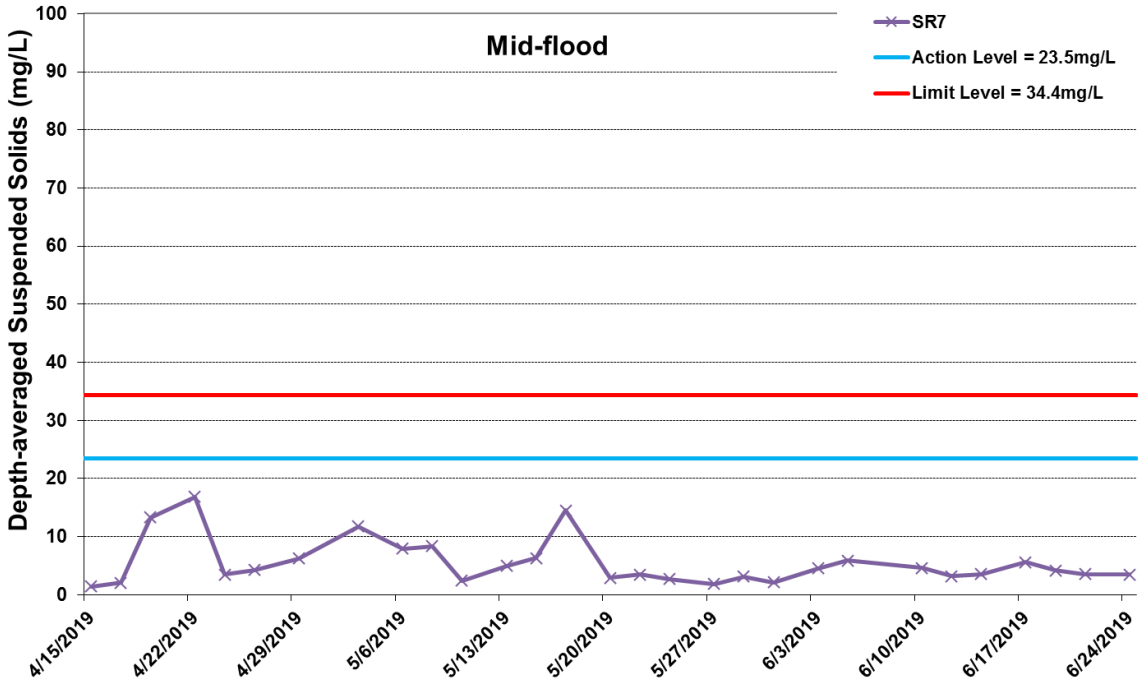


* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

Figure J12 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 15 April 2019 and 30 June 2019 at IS(Mf)11. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls

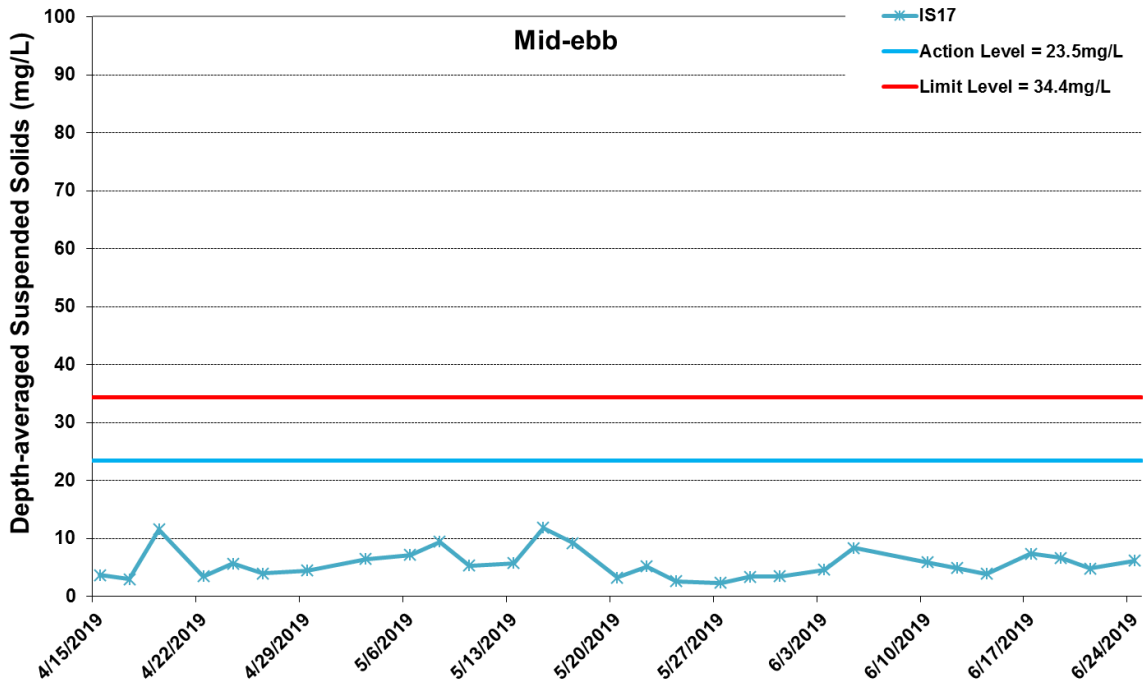


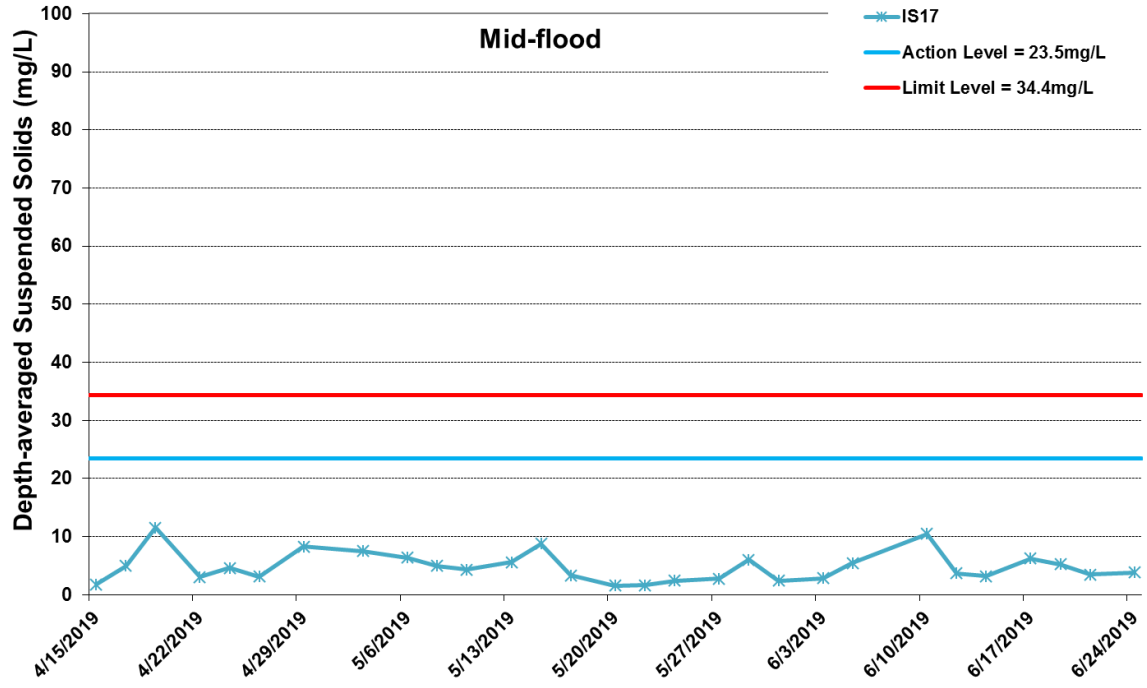


* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

Figure J13 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 15 April 2019 and 30 June 2019 at SR7. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls





* The AL/LL for WQM stations, IS(Mf)11, IS17 and SR7, are adopted from HZMB HKBCF project.

Figure J14 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 15 April 2019 and 30 June 2019 at IS17. The weather conditions during the monitoring period varied mostly from sunny to cloudy. Major marine works included: Seawall Modification works at Portion S-B, Jetty Removal at Portion S-C (15/4/2019 – 24/6/2019).

Ref: 0212330_Impact-WQM_June2019_graphs_Rev a.xls

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS(Mf)11	12:47	Surface	1	1	27.5	7.9	15.5	6.8	6.8	5.9	6.1	5.2	4.9
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS(Mf)11	12:47	Surface	1	2	27.5	7.9	15.4	6.8		6.0		6.2	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS(Mf)11	12:47	Middle	2	1	27.1		15.5	6.8		6.4		4.0	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS(Mf)11	12:47	Middle	2	2	27.1	7.9	15.5	6.8		6.4		3.9	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS(Mf)11	12:47	Bottom	3	1	27.2	7.9	16.0	6.6	6.6	6.0		5.0	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS(Mf)11	12:47	Bottom	3	2	27.2	7.9	16.0	6.6		6.0		4.8	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	SR7	12:52	Surface	1	1	27.1	7.9	16.2	6.6	6.6	5.5	5.1	5.2	4.7
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	SR7	12:52	Surface	1	2	27.1	7.9	16.2	6.6		5.4		4.7	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	SR7	12:52	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	SR7	12:52	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	SR7	12:52	Bottom	3	1	27.0	7.9	16.7	6.6	6.6	4.4		4.2	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	SR7	12:52	Bottom	3	2	27.0	7.9	16.2	6.6		5.2		4.7	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS17	11:45	Surface	1	1	27.3	7.9	15.7	6.7	6.7	4.7	4.1	3.7	4.6
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS17	11:45	Surface	1	2	27.3	7.9	15.7	6.7		4.6		4.0	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS17	11:45	Middle	2	1	27.6	7.9	17.4	6.7		3.9		4.7	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS17	11:45	Middle	2	2	27.5	7.9	17.4	6.7		3.9		5.2	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS17	11:45	Bottom	3	1	27.9	8.0	16.7	6.8	6.8	3.8		4.8	
TMCLKL	HY/2012/08	2019/06/03	Mid-Ebb	IS17	11:45	Bottom	3	2	27.9	7.9	16.7	6.8		3.8		5.4	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS(Mf)11	6:05	Surface	1	1	26.5	7.9	16.6	6.7	6.7	4.6	6.6	3.7	4.0
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS(Mf)11	6:05	Surface	1	2	26.5	7.9	16.6	6.7		4.5		3.4	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS(Mf)11	6:05	Middle	2	1	26.7	7.9	16.6	6.6		5.4		3.4	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS(Mf)11	6:05	Middle	2	2	26.6	7.9	16.6	6.6		5.2		3.3	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS(Mf)11	6:05	Bottom	3	1	26.7	7.9	17.4	6.7	6.7	9.9		4.6	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS(Mf)11	6:05	Bottom	3	2	26.7	7.9	17.4	6.7		9.9		5.4	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	SR7	5:55	Surface	1	1	26.4	7.9	16.5	6.9	6.9	4.0	3.7	4.7	4.5
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	SR7	5:55	Surface	1	2	26.4	7.9	16.5	6.9		4.0		4.4	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	SR7	5:55	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	SR7	5:55	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	SR7	5:55	Bottom	3	1	26.4	7.9	16.5	6.9	6.9	3.3		4.1	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	SR7	5:55	Bottom	3	2	26.4	7.9	16.5	6.9		3.3		4.9	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS17	7:09	Surface	1	1	26.9	7.9	17.2	6.6	6.6	6.8	4.9	2.8	2.8
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS17	7:09	Surface	1	2	26.9	7.9	17.3	6.6		6.9		2.5	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS17	7:09	Middle	2	1	26.8	7.9	17.3	6.5		3.2		3.4	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS17	7:09	Middle	2	2	26.9	7.9	17.3	6.5		3.2		2.8	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS17	7:09	Bottom	3	1	26.6	7.9	16.5	6.6	6.6	4.6		2.7	
TMCLKL	HY/2012/08	2019/06/03	Mid-flood	IS17	7:09	Bottom	3	2	26.6	7.9	16.5	6.6		4.5		2.8	

Note:

Indicates Ex‹ 2017/11/01

Indicates Ex‹ 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS(Mf)11	14:11	Surface	1	1	28.1	8.0	15.7	6.6	6.6	4.6	5.3	5.8	8.6
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS(Mf)11	14:11	Surface	1	2	28.0	8.0	15.7	6.6		4.7		6.0	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS(Mf)11	14:11	Middle	2	1	27.9	8.0	15.9	6.6		4.4		7.6	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS(Mf)11	14:11	Middle	2	2	27.9	8.0	15.9	6.6		4.5		7.9	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS(Mf)11	14:11	Bottom	3	1	27.7	8.0	17.5	6.4	6.4	6.7		11.8	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS(Mf)11	14:11	Bottom	3	2	27.7	8.0	17.5	6.4		6.8		12.2	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	SR7	14:17	Surface	1	1	28.4	8.0	15.7	6.6	6.6	3.7	3.7	6.3	6.1
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	SR7	14:17	Surface	1	2	28.3	8.0	15.7	6.6		3.7		6.0	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	SR7	14:17	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	SR7	14:17	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	SR7	14:17	Bottom	3	1	28.3	8.0	15.8	6.6	6.6	3.7		5.8	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	SR7	14:17	Bottom	3	2	28.3	8.0	15.8	6.6		3.7		6.3	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS17	13:12	Surface	1	1	27.7	8.0	17.5	6.2	6.2	5.9	5.8	9.3	8.3
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS17	13:12	Surface	1	2	27.7	8.0	17.5	6.2		6.0		8.9	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS17	13:12	Middle	2	1	27.7	8.0	17.6	6.2		6.5		8.1	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS17	13:12	Middle	2	2	27.7	8.0	17.6	6.2		6.4		8.4	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS17	13:12	Bottom	3	1	27.8	8.0	17.4	6.4	6.4	4.8		7.7	
TMCLKL	HY/2012/08	2019/06/05	Mid-Ebb	IS17	13:12	Bottom	3	2	27.8	8.0	17.4	6.4		5.1		7.6	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS(Mf)11	7:09	Surface	1	1	27.3	8.0	16.3	6.3	6.4	4.1	5.0	5.0	6.2
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS(Mf)11	7:09	Surface	1	2	27.3	8.0	16.3	6.3		4.1		5.4	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS(Mf)11	7:09	Middle	2	1	27.2	8.0	17.0	6.4		5.7		6.5	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS(Mf)11	7:09	Middle	2	2	27.2	8.0	17.0	6.4		5.9		6.7	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS(Mf)11	7:09	Bottom	3	1	27.2	8.0	17.2	6.3	6.3	5.2		6.8	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS(Mf)11	7:09	Bottom	3	2	27.2	8.0	17.2	6.3		5.2		6.6	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	SR7	6:59	Surface	1	1	27.2	8.0	15.5	6.4	6.4	7.8	6.6	5.7	5.9
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	SR7	6:59	Surface	1	2	27.2	8.0	15.5	6.4		7.5		5.8	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	SR7	6:59	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	SR7	6:59	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	SR7	6:59	Bottom	3	1	27.2	8.0	16.0	6.1	6.1	5.5		5.8	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	SR7	6:59	Bottom	3	2	27.2	8.0	16.0	6.1		5.5		6.2	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS17	8:13	Surface	1	1	28.5	8.0	15.4	6.5	6.5	6.2	5.2	5.1	5.5
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS17	8:13	Surface	1	2	28.6	8.0	15.4	6.5		6.1		5.4	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS17	8:13	Middle	2	1	27.6	8.1	15.4	6.5		4.1		5.3	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS17	8:13	Middle	2	2	27.6	8.1	15.5	6.5		4.0		5.1	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS17	8:13	Bottom	3	1	27.5	8.1	17.6	6.4	6.4	5.3		5.9	
TMCLKL	HY/2012/08	2019/06/05	Mid-flood	IS17	8:13	Bottom	3	2	27.5	8.1	17.6	6.4		5.3		5.9	

Note:

Indicates Ex 2017/11/01

Indicates Ex 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS(Mf)11	7:06	Surface	1	1	28.8	7.9	11.5	6.1	5.8	10.5	10.5	3.5	4.0
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS(Mf)11	7:06	Surface	1	2	28.8	7.9	11.5	6.1		10.5		4.0	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS(Mf)11	7:06	Middle	2	1	28.3	7.9	13.5	5.5		10.6		3.5	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS(Mf)11	7:06	Middle	2	2	28.3	7.9	13.5	5.5		10.6		4.3	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS(Mf)11	7:06	Bottom	3	1	27.4	7.9	23.9	5.2	5.2	10.3		3.9	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS(Mf)11	7:06	Bottom	3	2	27.4	7.9	23.9	5.2		10.3		4.6	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	SR7	6:57	Surface	1	1	28.9	8.0	10.8	6.5	6.5	10.3	10.9	5.0	4.3
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	SR7	6:57	Surface	1	2	28.9	8.0	10.8	6.5		10.3		4.4	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	SR7	6:57	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	SR7	6:57	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	SR7	6:57	Bottom	3	1	28.9	8.1	11.6	6.5	6.5	11.4		3.4	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	SR7	6:57	Bottom	3	2	28.9	8.1	11.6	6.5		11.4		4.2	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS17	8:02	Surface	1	1	28.4	8.0	16.7	6.3	6.2	9.6	9.3	6.6	5.9
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS17	8:02	Surface	1	2	28.4	8.0	16.7	6.3		9.5		5.5	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS17	8:02	Middle	2	1	28.2	8.0	18.4	6.1		8.5		5.1	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS17	8:02	Middle	2	2	28.2	8.0	18.4	6.1		8.2		6.0	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS17	8:02	Bottom	3	1	28.3	7.9	21.7	6.5	6.5	9.9		6.9	
TMCLKL	HY/2012/08	2019/06/10	Mid-Ebb	IS17	8:02	Bottom	3	2	28.3	7.9	21.7	6.5		10.1		5.0	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS(Mf)11	12:05	Surface	1	1	28.9	7.8	13.7	6.8	5.9	11.2	14.1	5.1	4.9
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS(Mf)11	12:05	Surface	1	2	28.9	7.8	13.7	6.8		11.2		4.1	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS(Mf)11	12:05	Middle	2	1	27.3	7.7	22.1	5.0		15.2		5.3	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS(Mf)11	12:05	Middle	2	2	27.3	7.7	22.1	5.0		15.1		4.8	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS(Mf)11	12:05	Bottom	3	1	27.5	7.8	24.5	5.8	5.8	16.0		4.8	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS(Mf)11	12:05	Bottom	3	2	27.5	7.8	24.5	5.8		16.0		5.3	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	SR7	12:12	Surface	1	1	28.9	7.8	13.6	6.5	6.5	10.1	9.9	4.3	4.6
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	SR7	12:12	Surface	1	2	28.9	7.8	13.6	6.5		10.1		5.7	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	SR7	12:12	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	SR7	12:12	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	SR7	12:12	Bottom	3	1	29.1	7.8	13.6	6.8	6.8	9.6		3.6	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	SR7	12:12	Bottom	3	2	29.1	7.8	13.6	6.8		9.6		4.7	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS17	11:04	Surface	1	1	28.7	7.9	15.1	7.0	7.0	10.8	11.1	11.2	10.5
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS17	11:04	Surface	1	2	28.7	7.9	15.1	7.0		10.8		12.1	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS17	11:04	Middle	2	1	28.6	7.9	15.6	6.9		11.3		11.2	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS17	11:04	Middle	2	2	28.6	7.9	15.6	6.9		11.3		11.8	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS17	11:04	Bottom	3	1	28.6	7.8	16.6	6.9	6.9	11.1		8.2	
TMCLKL	HY/2012/08	2019/06/10	Mid-flood	IS17	11:04	Bottom	3	2	28.6	7.8	16.6	6.9		11.1		8.5	

Note:

Indicates Ex‹ 2017/11/01

Indicates Ex‹ 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS(Mf)11	9:09	Surface	1	1	28.2	7.7	12.9	5.6	5.4	10.5	11.2	3.7	4.1
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS(Mf)11	9:09	Surface	1	2	28.2	7.7	13.1	5.6		10.6		4.0	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS(Mf)11	9:09	Middle	2	1	27.8	7.7	18.5	5.2		11.4		4.1	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS(Mf)11	9:09	Middle	2	2	27.8	7.7	18.3	5.2		11.5		4.4	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS(Mf)11	9:09	Bottom	3	1	27.6	7.7	20.4	5.1	5.1	11.5		4.2	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS(Mf)11	9:09	Bottom	3	2	27.7	7.7	20.4	5.1		11.6		4.3	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	SR7	9:01	Surface	1	1	28.4	7.7	11.9	5.7	5.7	10.6	11.0	3.0	3.7
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	SR7	9:01	Surface	1	2	28.3	7.7	11.9	5.6		10.7		3.2	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	SR7	9:01	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	SR7	9:01	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	SR7	9:01	Bottom	3	1	27.9	7.7	17.9	5.6	5.6	11.4		4.3	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	SR7	9:01	Bottom	3	2	27.9	7.7	17.9	5.6		11.2		4.3	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS17	10:12	Surface	1	1	28.1	7.8	17.0	5.6	5.4	10.6	10.7	4.4	4.9
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS17	10:12	Surface	1	2	28.1	7.8	17.1	5.6		10.6		4.4	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS17	10:12	Middle	2	1	27.5	7.8	20.5	5.1		11.3		4.7	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS17	10:12	Middle	2	2	27.5	7.8	21.3	5.1		11.2		5.1	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS17	10:12	Bottom	3	1	27.0	7.8	25.8	5.1	5.1	10.3		5.3	
TMCLKL	HY/2012/08	2019/06/12	Mid-Ebb	IS17	10:12	Bottom	3	2	27.0	7.8	25.8	5.1		10.3		5.5	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS(Mf)11	15:07	Surface	1	1	28.5	7.8	17.2	5.8	5.5	9.0	9.9	3.6	4.3
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS(Mf)11	15:07	Surface	1	2	28.5	7.8	17.2	5.7		9.0		4.2	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS(Mf)11	15:07	Middle	2	1	27.9	7.8	19.1	5.2		9.8		4.0	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS(Mf)11	15:07	Middle	2	2	27.9	7.8	19.0	5.2		9.9		4.1	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS(Mf)11	15:07	Bottom	3	1	27.3	7.8	23.3	5.1	5.1	10.9		4.6	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS(Mf)11	15:07	Bottom	3	2	27.3	7.8	23.3	5.1		10.9		5.1	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	SR7	15:14	Surface	1	1	27.8	7.7	21.0	5.2	5.2	10.9	11.9	3.0	3.2
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	SR7	15:14	Surface	1	2	27.8	7.7	20.9	5.2		10.9		2.9	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	SR7	15:14	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	SR7	15:14	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	SR7	15:14	Bottom	3	1	27.6	7.7	22.3	5.5	5.6	12.9		3.5	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	SR7	15:14	Bottom	3	2	27.5	7.7	22.5	5.6		12.9		3.5	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS17	14:07	Surface	1	1	28.5	7.8	17.0	5.9	5.5	9.7	9.3	2.8	3.7
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS17	14:07	Surface	1	2	28.5	7.8	17.0	5.9		9.7		3.0	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS17	14:07	Middle	2	1	27.6	7.7	20.0	5.1		9.0		3.3	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS17	14:07	Middle	2	2	27.6	7.7	20.0	5.1		9.0		3.5	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS17	14:07	Bottom	3	1	27.3	7.7	23.8	5.1	5.1	9.3		4.6	
TMCLKL	HY/2012/08	2019/06/12	Mid-flood	IS17	14:07	Bottom	3	2	27.3	7.7	23.8	5.1		9.3		4.8	

Note:

Indicates Ex‹ 2017/11/01

Indicates Ex‹ 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS(Mf)11	11:10	Surface	1	1	28.4	7.7	9.2	5.2	5.2	6.4	5.4	4.8	4.2
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS(Mf)11	11:10	Surface	1	2	28.4	7.7	9.2	5.2		6.4		4.5	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS(Mf)11	11:10	Middle	2	1	28.3	7.7	9.2	5.1		4.8		4.6	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS(Mf)11	11:10	Middle	2	2	28.3	7.7	9.2	5.2		4.8		3.7	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS(Mf)11	11:10	Bottom	3	1	28.3	7.7	9.2	4.9	4.9	4.8		3.8	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS(Mf)11	11:10	Bottom	3	2	28.3	7.7	9.2	4.9		4.9		4.0	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	SR7	11:02	Surface	1	1	28.4	7.8	9.7	5.1	5.1	6.2	5.2	3.8	4.6
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	SR7	11:02	Surface	1	2	28.4	7.8	9.7	5.1		6.3		4.6	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	SR7	11:02	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	SR7	11:02	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	SR7	11:02	Bottom	3	1	28.4	7.8	10.1	4.7	4.8	4.1		5.4	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	SR7	11:02	Bottom	3	2	28.4	7.8	10.1	4.8		4.1		4.4	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS17	12:12	Surface	1	1	28.5	7.8	11.1	5.2	5.0	5.0	6.8	3.5	3.9
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS17	12:12	Surface	1	2	28.5	7.8	11.1	5.2		4.9		4.0	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS17	12:12	Middle	2	1	28.5	7.8	11.1	4.8		5.3		4.0	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS17	12:12	Middle	2	2	28.5	7.8	11.1	4.9		5.3		2.8	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS17	12:12	Bottom	3	1	28.6	7.8	11.2	4.7	4.7	10.2		5.1	
TMCLKL	HY/2012/08	2019/06/14	Mid-Ebb	IS17	12:12	Bottom	3	2	28.6	7.8	11.2	4.7		10.1		3.9	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS(Mf)11	17:18	Surface	1	1	28.4	7.9	13.7	5.1	5.0	3.9	4.3	2.4	2.6
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS(Mf)11	17:18	Surface	1	2	28.5	7.9	13.7	5.1		4.0		3.4	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS(Mf)11	17:18	Middle	2	1	29.0	7.9	13.1	4.9		4.3		1.6	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS(Mf)11	17:18	Middle	2	2	29.0	7.9	13.1	4.9		4.3		1.9	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS(Mf)11	17:18	Bottom	3	1	29.5	7.9	12.7	4.8	4.8	4.5		3.6	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS(Mf)11	17:18	Bottom	3	2	29.4	7.9	12.7	4.8		4.5		2.5	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	SR7	17:25	Surface	1	1	28.5	7.8	12.0	5.1	5.1	4.3	5.5	3.3	3.5
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	SR7	17:25	Surface	1	2	28.5	7.8	12.0	5.1		4.3		4.0	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	SR7	17:25	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	SR7	17:25	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	SR7	17:25	Bottom	3	1	28.5	7.9	11.6	4.9	4.9	6.6		2.6	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	SR7	17:25	Bottom	3	2	28.5	7.9	11.6	4.9		6.7		4.2	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS17	16:19	Surface	1	1	28.5	7.9	13.9	6.5	6.4	3.8	3.6	2.4	3.2
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS17	16:19	Surface	1	2	28.6	7.9	13.8	6.5		4.0		2.3	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS17	16:19	Middle	2	1	29.1	7.9	12.7	6.2		3.9		4.8	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS17	16:19	Middle	2	2	29.1	7.9	12.7	6.2		3.7		4.3	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS17	16:19	Bottom	3	1	29.0	7.9	12.8	5.7	5.7	3.0		2.1	
TMCLKL	HY/2012/08	2019/06/14	Mid-flood	IS17	16:19	Bottom	3	2	29.0	7.9	12.8	5.7		3.0		3.3	

Note:

Indicates Ex 2017/11/01

Indicates Ex 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS(Mf)11	11:56	Surface	1	1	27.9	7.6	16.0	5.4		10.6		6.0	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS(Mf)11	11:56	Surface	1	2	27.9	7.7	16.0	5.4	5.0	10.6		6.0	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS(Mf)11	11:56	Middle	2	1	27.5	7.7	18.9	4.6		12.7	11.9	5.8	6.5
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS(Mf)11	11:56	Middle	2	2	27.5	7.7	18.8	4.6		12.8		6.4	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS(Mf)11	11:56	Bottom	3	1	27.3	7.7	22.4	4.7	4.7	12.4		6.7	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS(Mf)11	11:56	Bottom	3	2	27.3	7.7	22.4	4.6		12.4		7.9	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	SR7	12:50	Surface	1	1	28.0	7.7	15.3	5.7		10.1		3.1	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	SR7	12:50	Surface	1	2	28.0	7.7	15.3	5.7	5.7	9.9		3.3	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	SR7	12:50	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	SR7	12:50	Middle	2	2							11.6		3.9
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	SR7	12:50	Bottom	3	1	27.5	7.7	19.4	5.6	5.6	13.2		4.6	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	SR7	12:50	Bottom	3	2	27.5	7.7	19.4	5.5		13.1		4.7	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS17	11:47	Surface	1	1	27.9	7.8	18.0	6.4		10.0		7.5	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS17	11:47	Surface	1	2	27.9	7.8	18.1	6.4	6.0	10.0		6.9	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS17	11:47	Middle	2	1	27.6	7.8	19.3	5.5		11.2	10.9	7.7	7.4
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS17	11:47	Middle	2	2	27.6	7.8	19.3	5.5		11.2		7.2	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS17	11:47	Bottom	3	1	26.9	7.7	26.2	5.2	5.2	11.6		8.0	
TMCLKL	HY/2012/08	2019/06/17	Mid-Ebb	IS17	11:47	Bottom	3	2	26.9	7.7	26.2	5.1		11.6		7.1	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS(Mf)11	6:46	Surface	1	1	27.6	7.7	16.7	5.3		9.9		7.0	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS(Mf)11	6:46	Surface	1	2	27.6	7.7	16.8	5.3	5.1	10.0		6.3	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS(Mf)11	6:46	Middle	2	1	27.4	7.7	19.9	4.9		10.8	10.6	5.5	6.0
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS(Mf)11	6:46	Middle	2	2	27.4	7.7	19.6	4.9		10.8		4.8	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS(Mf)11	6:46	Bottom	3	1	27.4	7.7	19.8	4.8	4.8	10.9		6.1	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS(Mf)11	6:46	Bottom	3	2	27.4	7.7	19.7	4.8		10.9		6.1	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	SR7	6:54	Surface	1	1	27.4	7.7	19.2	5.0		11.5		5.6	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	SR7	6:54	Surface	1	2	27.4	7.7	19.1	5.0	5.0	11.6		5.7	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	SR7	6:54	Middle	2	1							12.6		5.6
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	SR7	6:54	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	SR7	6:54	Bottom	3	1	27.3	7.7	22.3	4.8	4.8	13.7		5.8	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	SR7	6:54	Bottom	3	2	27.3	7.7	22.3	4.8		13.6		5.3	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS17	7:02	Surface	1	1	27.6	7.8	18.7	5.5		9.8		6.9	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS17	7:02	Surface	1	2	27.6	7.8	18.8	5.5	5.0	9.8		7.2	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS17	7:02	Middle	2	1	27.5	7.7	20.1	4.5		10.3	10.6	5.6	6.3
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS17	7:02	Middle	2	2	27.4	7.7	20.1	4.5		10.4		6.4	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS17	7:02	Bottom	3	1	27.0	7.7	22.0	4.8	4.8	11.4		5.8	
TMCLKL	HY/2012/08	2019/06/17	Mid-flood	IS17	7:02	Bottom	3	2	27.0	7.7	21.4	4.8		11.8		5.7	

Note:

Indicates Ex 2017/11/01

Indicates Ex 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS(Mf)11	14:10	Surface	1	1	29.0	7.8	13.9	6.7	6.2	2.0	2.6	2.8	3.1
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS(Mf)11	14:10	Surface	1	2	29.0	7.8	13.9	6.7		2.0		2.9	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS(Mf)11	14:10	Middle	2	1	28.3	7.8	23.1	5.8		2.1		3.4	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS(Mf)11	14:10	Middle	2	2	28.3	7.8	23.1	5.7		2.1		2.9	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS(Mf)11	14:10	Bottom	3	1	27.1	7.7	27.3	5.1	5.2	3.7		3.1	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS(Mf)11	14:10	Bottom	3	2	27.1	7.7	27.4	5.2		3.6		3.3	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	SR7	14:17	Surface	1	1	28.7	7.8	15.1	6.4	6.4	2.2	2.3	3.3	3.5
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	SR7	14:17	Surface	1	2	28.7	7.8	15.3	6.4		2.2		3.1	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	SR7	14:17	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	SR7	14:17	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	SR7	14:17	Bottom	3	1	27.9	7.9	18.2	5.5	5.5	2.5		3.6	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	SR7	14:17	Bottom	3	2	27.9	7.9	18.2	5.4		2.4		3.9	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS17	13:14	Surface	1	1	28.5	7.9	14.7	6.3	5.9	3.6	4.1	6.5	6.7
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS17	13:14	Surface	1	2	28.5	7.9	14.9	6.3		3.6		6.9	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS17	13:14	Middle	2	1	28.2	8.0	21.8	5.5		3.9		6.8	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS17	13:14	Middle	2	2	28.2	8.0	21.6	5.5		3.8		7.3	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS17	13:14	Bottom	3	1	28.0	8.0	26.9	4.9	4.9	4.9		6.1	
TMCLKL	HY/2012/08	2019/06/19	Mid-Ebb	IS17	13:14	Bottom	3	2	28.0	8.0	26.8	4.9		4.9		6.4	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS(Mf)11	7:12	Surface	1	1	27.7	7.7	12.7	6.3	5.9	3.1	4.6	5.0	5.7
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS(Mf)11	7:12	Surface	1	2	27.7	7.7	12.3	6.3		3.1		5.2	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS(Mf)11	7:12	Middle	2	1	27.5	7.7	22.2	5.5		3.9		6.0	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS(Mf)11	7:12	Middle	2	2	27.5	7.7	22.8	5.5		3.9		5.6	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS(Mf)11	7:12	Bottom	3	1	27.3	7.7	26.9	4.9	4.9	6.7		5.9	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS(Mf)11	7:12	Bottom	3	2	27.3	7.7	26.9	4.9		6.8		6.4	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	SR7	7:06	Surface	1	1	27.7	7.7	12.8	6.0	6.0	4.3	4.2	4.2	4.2
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	SR7	7:06	Surface	1	2	27.7	7.7	12.9	6.0		4.2		3.9	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	SR7	7:06	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	SR7	7:06	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	SR7	7:06	Bottom	3	1	27.1	7.7	16.0	5.1	5.1	4.1		4.1	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	SR7	7:06	Bottom	3	2	27.1	7.7	16.0	5.1		4.1		4.4	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS17	8:10	Surface	1	1	27.7	7.9	14.4	6.7	6.2	3.9	4.1	4.6	5.2
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS17	8:10	Surface	1	2	27.7	7.9	14.4	6.7		3.9		5.1	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS17	8:10	Middle	2	1	27.5	7.9	23.9	5.6		4.2		4.7	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS17	8:10	Middle	2	2	27.5	7.9	23.9	5.6		4.1		5.0	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS17	8:10	Bottom	3	1	27.4	7.8	27.0	4.9	4.9	4.3		5.8	
TMCLKL	HY/2012/08	2019/06/19	Mid-flood	IS17	8:10	Bottom	3	2	27.4	7.8	27.2	4.9		4.3		6.2	

Note:

Indicates Ex‹ 2017/11/01

Indicates Ex‹ 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS(Mf)11	14:49	Surface	1	1	28.7	8.0	13.1	8.2	7.9	3.2	4.9	3.0	4.5
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS(Mf)11	14:49	Surface	1	2	28.6	7.9	13.1	8.2		3.4		3.3	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS(Mf)11	14:49	Middle	2	1	28.3	7.9	15.1	7.5		4.7		4.5	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS(Mf)11	14:49	Middle	2	2	28.3	7.9	15.2	7.5		4.9		4.3	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS(Mf)11	14:49	Bottom	3	1	27.1	7.7	23.7	4.9	4.9	6.4		6.1	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS(Mf)11	14:49	Bottom	3	2	27.1	7.7	22.8	4.9		6.7		5.8	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	SR7	14:41	Surface	1	1	28.4	7.8	12.7	7.6	7.7	3.9	4.1	2.4	3.4
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	SR7	14:41	Surface	1	2	28.7	7.8	12.2	7.7		3.5		2.2	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	SR7	14:41	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	SR7	14:41	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	SR7	14:41	Bottom	3	1	28.2	7.8	15.1	6.9	6.9	4.4		4.4	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	SR7	14:41	Bottom	3	2	28.1	7.8	15.6	6.8		4.6		4.4	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS17	14:28	Surface	1	1	28.6	8.0	13.6	8.4	6.8	4.8	5.6	4.6	4.9
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS17	14:28	Surface	1	2	28.6	8.0	14.5	8.4		5.2		4.9	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS17	14:28	Middle	2	1	27.4	7.7	20.2	5.3		5.3		4.7	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS17	14:28	Middle	2	2	27.4	7.7	21.6	5.2		5.6		4.6	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS17	14:28	Bottom	3	1	27.3	7.7	22.4	5.2	5.2	6.3		5.0	
TMCLKL	HY/2012/08	2019/06/21	Mid-Ebb	IS17	14:28	Bottom	3	2	27.3	7.7	22.7	5.1		6.4		5.3	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS(Mf)11	8:33	Surface	1	1	28.0	8.0	15.1	6.8	6.6	4.2	6.9	2.3	3.4
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS(Mf)11	8:33	Surface	1	2	28.0	8.0	15.1	6.8		4.2		2.5	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS(Mf)11	8:33	Middle	2	1	27.7	8.0	18.3	6.3		5.3		2.9	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS(Mf)11	8:33	Middle	2	2	27.8	8.0	18.2	6.3		5.1		3.3	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS(Mf)11	8:33	Bottom	3	1	27.4	7.9	24.2	4.9	5.0	11.2		4.5	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS(Mf)11	8:33	Bottom	3	2	27.5	7.9	24.1	5.0		11.2		5.0	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	SR7	8:26	Surface	1	1	28.0	7.8	14.7	5.8	5.8	4.1	6.5	3.1	3.5
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	SR7	8:26	Surface	1	2	28.0	7.8	14.7	5.8		4.0		3.4	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	SR7	8:26	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	SR7	8:26	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	SR7	8:26	Bottom	3	1	27.7	7.8	20.9	4.9	4.9	8.9		3.6	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	SR7	8:26	Bottom	3	2	27.7	7.8	20.9	4.9		8.8		4.0	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS17	9:30	Surface	1	1	28.2	8.0	14.8	6.7	6.5	3.2	3.5	2.6	3.5
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS17	9:30	Surface	1	2	28.2	7.9	14.7	6.7		3.1		2.7	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS17	9:30	Middle	2	1	28.1	7.9	15.2	6.4		3.3		3.6	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS17	9:30	Middle	2	2	27.9	7.9	16.0	6.3		3.3		3.8	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS17	9:30	Bottom	3	1	27.4	7.9	20.3	5.4	5.4	4.0		3.9	
TMCLKL	HY/2012/08	2019/06/21	Mid-flood	IS17	9:30	Bottom	3	2	27.5	7.9	19.3	5.4		3.9		4.2	

Note:

Indicates Ex‹ 2017/11/01

Indicates Ex‹ 2017/11/01

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS(Mf)11	17:29	Surface	1	1	28.3	7.9	13.1	6.8	6.0	3.6	4.1	3.6	4.0
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS(Mf)11	17:29	Surface	1	2	28.3	7.8	13.1	6.8		3.6		4.0	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS(Mf)11	17:29	Middle	2	1	27.9	7.7	19.1	5.1		4.6		3.7	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS(Mf)11	17:29	Middle	2	2	27.9	7.7	18.0	5.1		4.9		4.0	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS(Mf)11	17:29	Bottom	3	1	27.7	7.7	22.2	4.7	4.7	3.7		4.4	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS(Mf)11	17:29	Bottom	3	2	28.0	7.6	23.5	4.7		3.9		4.0	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	SR7	17:38	Surface	1	1	28.2	7.8	13.2	6.7	6.7	4.0	3.9	4.6	5.2
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	SR7	17:38	Surface	1	2	28.2	7.8	13.0	6.7		3.8		4.7	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	SR7	17:38	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	SR7	17:38	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	SR7	17:38	Bottom	3	1	28.2	7.8	13.1	6.7	6.7	3.9		5.6	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	SR7	17:38	Bottom	3	2	28.2	7.8	13.1	6.7		3.8		5.9	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS17	16:25	Surface	1	1	28.3	7.8	14.3	6.6	6.5	3.7	4.2	4.7	6.2
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS17	16:25	Surface	1	2	28.3	7.8	14.4	6.6		3.7		5.2	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS17	16:25	Middle	2	1	28.3	7.8	14.5	6.3		5.0		6.4	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS17	16:25	Middle	2	2	28.2	7.8	15.4	6.3		4.7		6.1	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS17	16:25	Bottom	3	1	27.6	7.7	23.0	4.8	4.9	4.2		7.1	
TMCLKL	HY/2012/08	2019/06/24	Mid-Ebb	IS17	16:25	Bottom	3	2	27.8	7.7	22.9	4.9		4.1		7.7	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS(Mf)11	10:34	Surface	1	1	28.5	7.9	12.5	7.0	7.0	3.2	3.4	2.9	3.4
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS(Mf)11	10:34	Surface	1	2	28.5	7.9	12.4	7.0		3.1		2.9	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS(Mf)11	10:34	Middle	2	1	28.5	7.8	12.5	6.9		3.2		3.3	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS(Mf)11	10:34	Middle	2	2	28.5	7.8	12.6	6.9		3.1		3.1	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS(Mf)11	10:34	Bottom	3	1	28.1	7.8	15.2	5.9	5.9	3.9		4.2	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS(Mf)11	10:34	Bottom	3	2	28.2	7.7	15.7	5.8		3.8		4.0	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	SR7	10:26	Surface	1	1	28.5	7.8	12.2	6.7	6.7	3.7	4.8	3.3	3.5
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	SR7	10:26	Surface	1	2	28.5	7.8	12.2	6.7		3.7		3.2	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	SR7	10:26	Middle	2	1									
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	SR7	10:26	Middle	2	2									
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	SR7	10:26	Bottom	3	1	28.3	7.7	13.3	6.3	6.3	6.0		3.6	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	SR7	10:26	Bottom	3	2	28.3	7.7	13.7	6.2		5.6		3.9	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS17	11:37	Surface	1	1	28.4	7.9	13.6	7.1	6.6	3.3	2.8	2.7	3.8
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS17	11:37	Surface	1	2	28.4	7.9	13.8	7.1		3.2		3.1	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS17	11:37	Middle	2	1	28.0	7.8	17.0	6.0		2.5		3.6	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS17	11:37	Middle	2	2	28.0	7.8	17.3	6.0		2.6		3.7	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS17	11:37	Bottom	3	1	27.9	7.8	21.5	5.5	5.5	2.6		5.1	
TMCLKL	HY/2012/08	2019/06/24	Mid-flood	IS17	11:37	Bottom	3	2	27.6	7.8	21.5	5.5		2.8		4.8	

Note:

Indicates Ex 2017/11/01

Indicates Ex 2017/11/01

Appendix K

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 L

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

Table L1 Cumulative Statistics on Exceedances

Parameters	Level of Exceedance	Total No. recorded in this reporting month	Total No. recorded since Contract commencement
1-hr TSP	Action	0	91
	Limit	0	6
24-hr TSP	Action	0	10
	Limit	0	4
Water Quality	Action	0	21
	Limit	0	1
Impact Dolphin Monitoring	Action	0	11
	Limit	0	15

Table L2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (June 2019)	0	0	0
Total No. received since Contract commencement	17	1	0

Appendix M

Waste Flow Table

Monthly Summary Waste Flow Table

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

Monthly Summary Waste Flow Table for June 2019 [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	Monthly Break-down of Inert Construction & Demolition Materials (i.e. Public Fill Materials)				
	(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
	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)
Sub-total	2224.407	0.000	76.754	585.369	1562.284
Jan-2019	299.831	0.000	53.419	215.427	30.985
Feb-2019	133.335	0.000	46.021	67.707	19.607
Mar-2019	120.224	0.000	50.455	20.964	48.805
Apr-2019	130.329	0.000	58.956	0.000	71.373
May-2019	67.355	0.000	51.297	0.000	16.058
Jun-2019	4.134	0.000	0.000	0.000	4.134
Half Year Sub-total	755.208	0.000	260.148	304.098	190.962
Jul-2019					
Aug-2019					
Sep-2019					
Oct-2019					
Nov-2019					
Dec-2019					
Project Total Quantities	2979.615	0.000	336.902	889.467	1753.246

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	Disposed	generated
Sub-total	6763.82	6763.82	7.74	7.74	8.70	8.70	60.35	60.35	13.989
Jan-2019	394.55	394.55	0.00	0.00	0.00	0.00	0.00	0.00	0.538
Feb-2019	103.72	103.72	0.62	0.62	0.00	0.00	1.672	1.672	0.578
Mar-2019	88.20	88.20	0.46	0.46	0.00	0.00	0.00	0.00	0.692
Apr-2019	260.89	260.89	0.00	0.00	3.90	3.90	1.045	1.045	0.707
May-2019	0.66	0.66	0.66	0.66	0.00	0.00	0.00	0.00	0.798
Jun-2019	0.14	0.14	0.80	0.80	0.00	0.00	4.00	4.00	0.751
Half Year Sub-total	848.16	848.16	2.54	2.54	3.90	3.90	6.717	6.717	4.064
Jul-2019									
Aug-2019									
Sep-2019									
Oct-2019									
Nov-2019									
Dec-2019									
Project Total Quantities	7611.98	7611.98	10.28	10.28	12.60	12.60	67.067	67.067	18.053

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
(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)
3200.000	0.000	300.000	1000.000	2000.000

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 '000 ton)
8000.00	10.00	15.00	65.00	20.000

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).