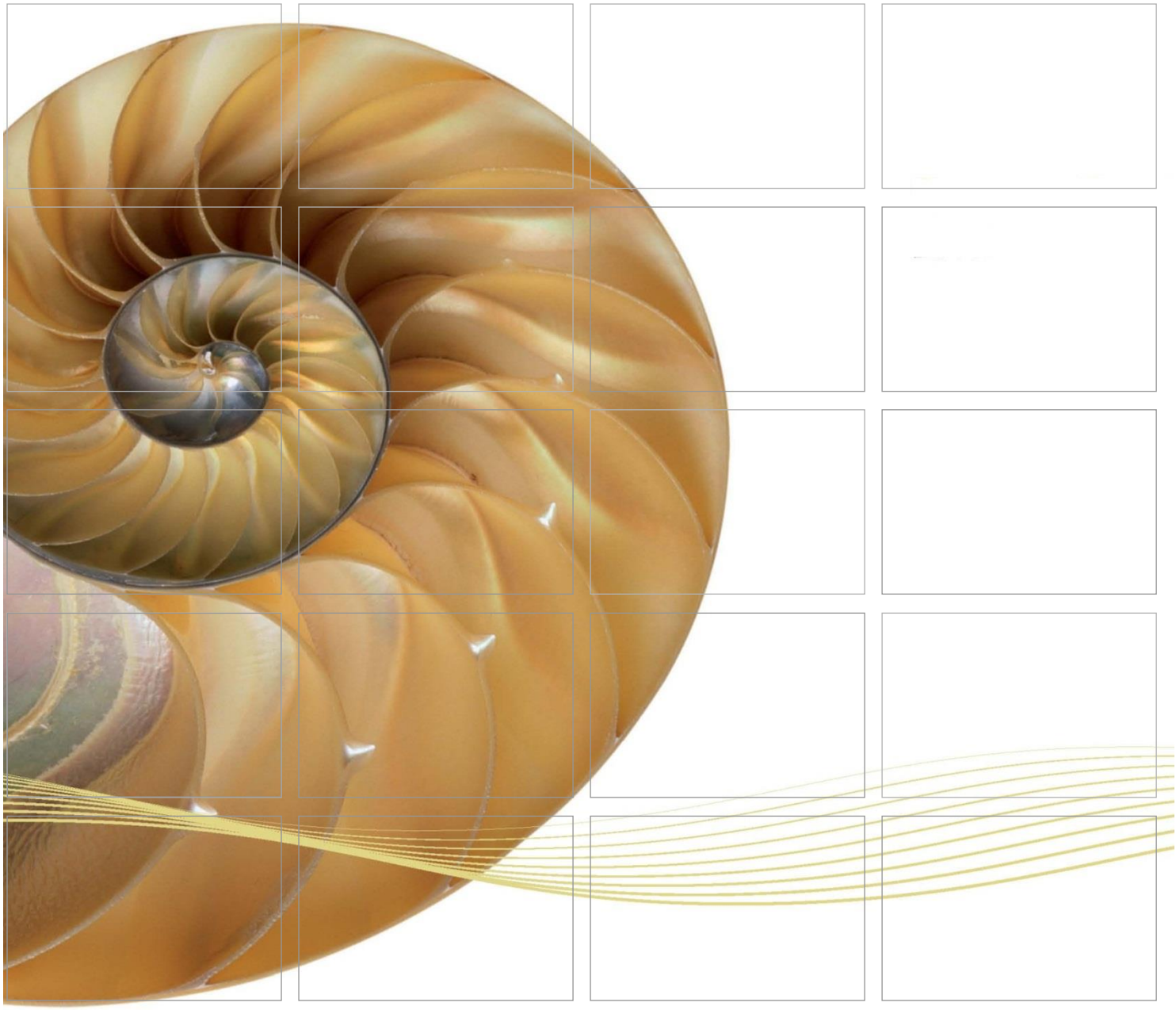
Report



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

Twenty-seventh Monthly Environmental Monitoring & Audit (EM&A) Report

15 February 2016

Environmental Resources Management
16/F, Berkshire House
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RAMBOLL ENVIRON

Ref.: HYDHZMBEEM00_0_3868L.16 16 February 2016

AECOM By Fax (2293 6300) and By Post
Supervising Officer Representative's Office
No.8 Mong Fat Street, Tuen Mun,
New Territories, Hong Kong

Attention: Messrs. Edwin Ching / Andy Westmoreland

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
Monthly EM&A Report for January 2016 (EP-354/2009/D)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report (Jan. 2016) (ET's ref.: "0212330_27th Monthly EM&A_20160215.doc" dated 15 Feb. 2016) certified by the ET Leader and provided to us via e-mail on 15 Feb. 2016.

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

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

Yours sincerely,

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

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
HyD – Mr. Matthew Fung (By Fax: 3188 6614)
AECOM – Mr. Conrad Ng (By Fax: 3922 9797)
ERM – Mr. Jovy Tam (By Fax: 2723 5660)
Dragages – Bouygues JV - Mr. C. F. Kwong (By Fax: 2293 7499)

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

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

Twenty-seventh Monthly Environmental Monitoring & Audit (EM&A) Report

Document Code: 0212330_27th Monthly EM&A_20160215.doc

Environmental Resources Management

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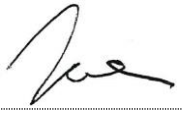
Client: DBJV	Project No: 0212330
Summary: This document presents the Twenty-seventh Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section.	Date: 15 February 2016 Approved by:  *Mr Craig Reid* *Partner* Certified by:  *Mr Jovy Tam* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	27th Monthly EM&A Report	VAR	JT	CAR	15/02/16

Distribution

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ISO 9001 : 2008
Certificate No. FS 32515

TABLE OF CONTENTS

Under *Contract No. HY/2012/08*, Dragages – Bouygues Joint Venture (DBJV) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Northern Connection Sub-sea Tunnel Section of the Tuen Mun – Chek Lap Kok Link Project (TM-CLK Link Project) while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET) in accordance with *Environmental Permit No. EP-354/2009/A*. Ramboll Environ 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 Project commenced on 1 November 2013 and will tentatively be completed by the end of 2018. The impact monitoring of the EM&A programme, including air quality, water quality, marine ecological monitoring and environmental site inspections, were commenced on 1 November 2013.

This is the Twenty-seventh Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 31 January 2016 for the *Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section* (the "Project") in accordance with the Updated EM&A Manual of the TM-CLK Link Project. As informed by the Contractor, major activities in the reporting period included:

Land-based Works

- Box Culvert Extension at Works Area – Portion N-A;
- Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C;
- TBM Tunnel Works at Works Area – Portion N-C; and
- Site preparation for Ventilation Shaft at Works Area – Portion S-C.

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
Impact Dolphin Monitoring	2 sessions
Joint Environmental Site Inspection	4 sessions

Implementation of Marine Mammal Exclusion Zone

There was no dredging, reclamation or marine sheet piling works in open waters during this reporting period. Thus, Passive Acoustic Monitoring (PAM) and the day-time monitoring of Dolphin Exclusion Zone (DEZ) by dolphin observers were not in effect during the reporting period.

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

No Action Level or Limit Level of air quality exceedances were recorded in the air quality monitoring of this reporting month.

Environmental Complaints, Non-compliance & Summons

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

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

Reporting Change

There was no reporting change required in the reporting period.

Upcoming Works for the Next Reporting Month

Works to be undertaken in the next monitoring period of February 2016 include the following:

Land-based Works

- Box Culvert Extension at Works Area – Portion N-A;
- Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C;
- Site preparation for Ventilation Shaft at Works Area – Portion S-C;
- TBM Tunnel Works at Works Area – Portion N-C;
- Construction of Cross Passage Tympanum – Portion N-A; and

- Steel Bell Assembly and Installation – Portion N-C

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of February 2016 are expected to be mainly associated with dust, marine ecology and waste management.

1 INTRODUCTION

1.1 BACKGROUND

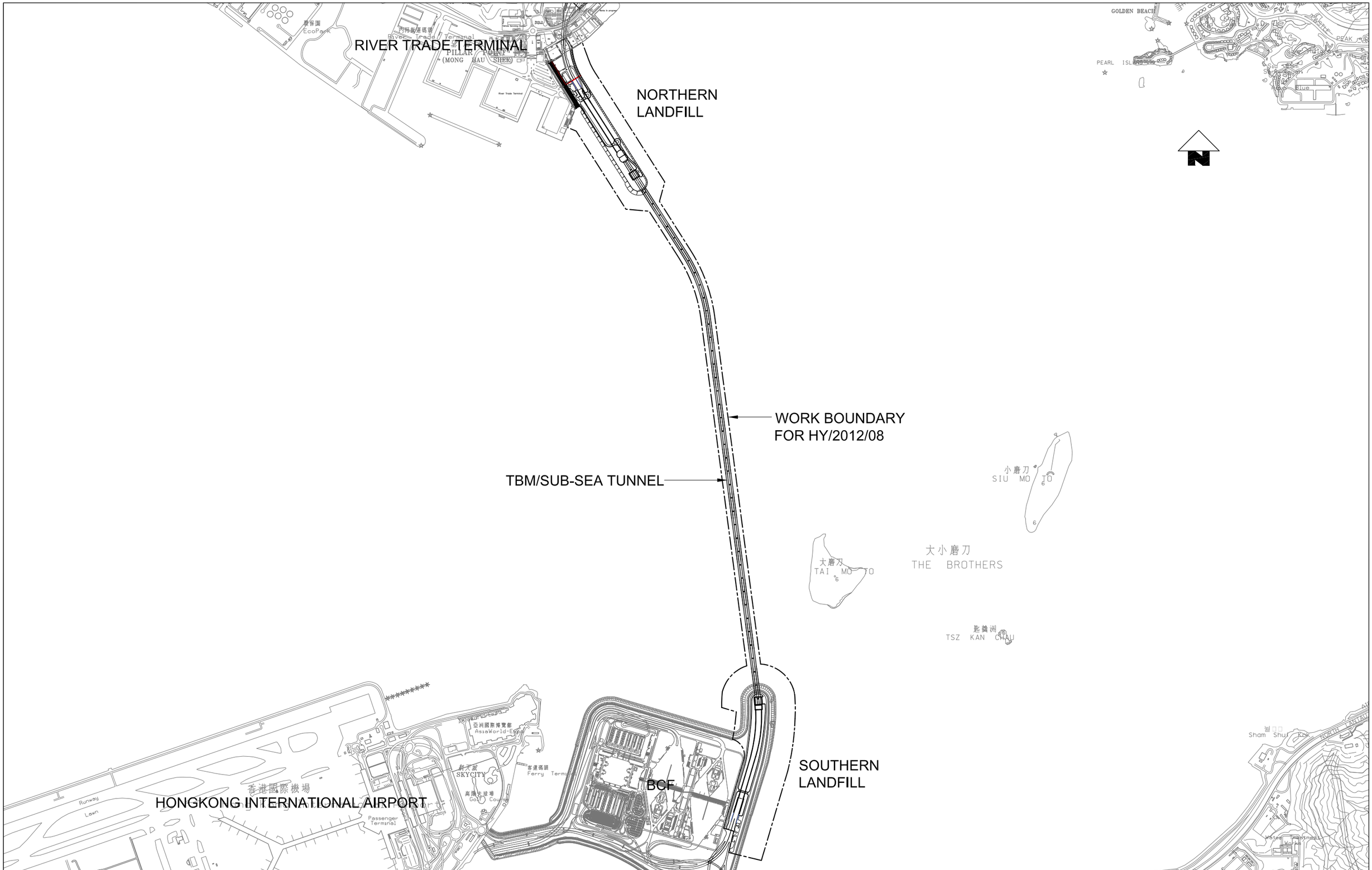
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated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

An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. ESB-175/2007) and the *Technical Memorandum of the Environmental Impact Assessment Process* (*EIAO-TM*). The EIA Report was submitted under the Environmental Impact Assessment Ordinance (EIAO) in August 2009. Subsequent to the approval of the EIA Report (EIAO Register Number AEIAR-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-354/2009A) 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 Environ Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO).

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

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



Rev.	Description	Date	Checked
A	FIRST ISSUE	11SEP13	PKV

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

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

Client: 路政署 HIGHWAYS DEPARTMENT

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

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

Drawing Title: **Figure 1.1**

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

1.2 SCOPE OF REPORT

This is the Twenty-seventh 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 January 2016.

1.3 ORGANIZATION STRUCTURE

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

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Highways Department	Engr 16/HZMB	Kenneth Lee	2762 4996	3188 6614
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Edwin Ching	2293 6388	2293 6300
		Andrew Westmoreland	2293 6360	2293 6300
ENPO / IEC (Ramboll Environ Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3547 2133	3465 2899
	IEC	Dr. F.C. Tsang	3547 2134	3465 2899
Contractor (Dragages – Bouygues Joint Venture)	Environmental Manager	C.F. Kwong	2293 7322	2293 7499
	Environmental Officer	Bryan Lee	2293 7323	2293 7499
	24-hour complaint hotline	Rachel Lam	2293 7330	
ET (ERM-HK)	ET Leader	Jovy Tam	2271 3113	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of this Contract was commenced on 1 November 2013. The 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*.

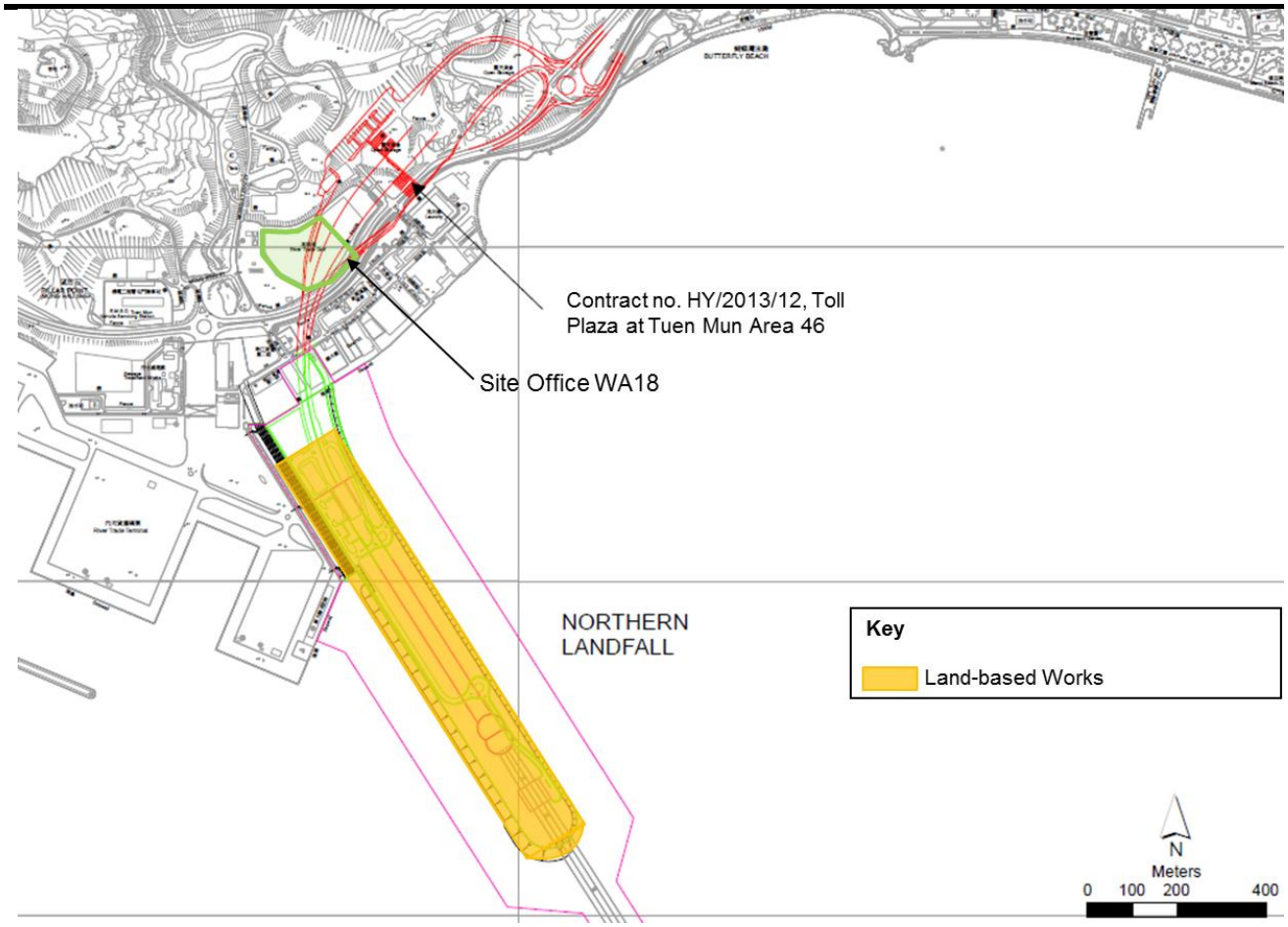
The general layout plan of the site showing the detailed works areas is shown in *Figure 1.2*. The Environmental Sensitive Receivers in the vicinity of the Project are shown in *Figure 1.3*.

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
• Box Culvert Extension at Works Area – Portion N-A; • Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C; • TBM Tunnel Works at Works Area – Portion N-C; and • Site preparation for Ventilation Shaft at Works Area – Portion S-C.

Figure 1.2 Locations of Construction Activities – January 2016



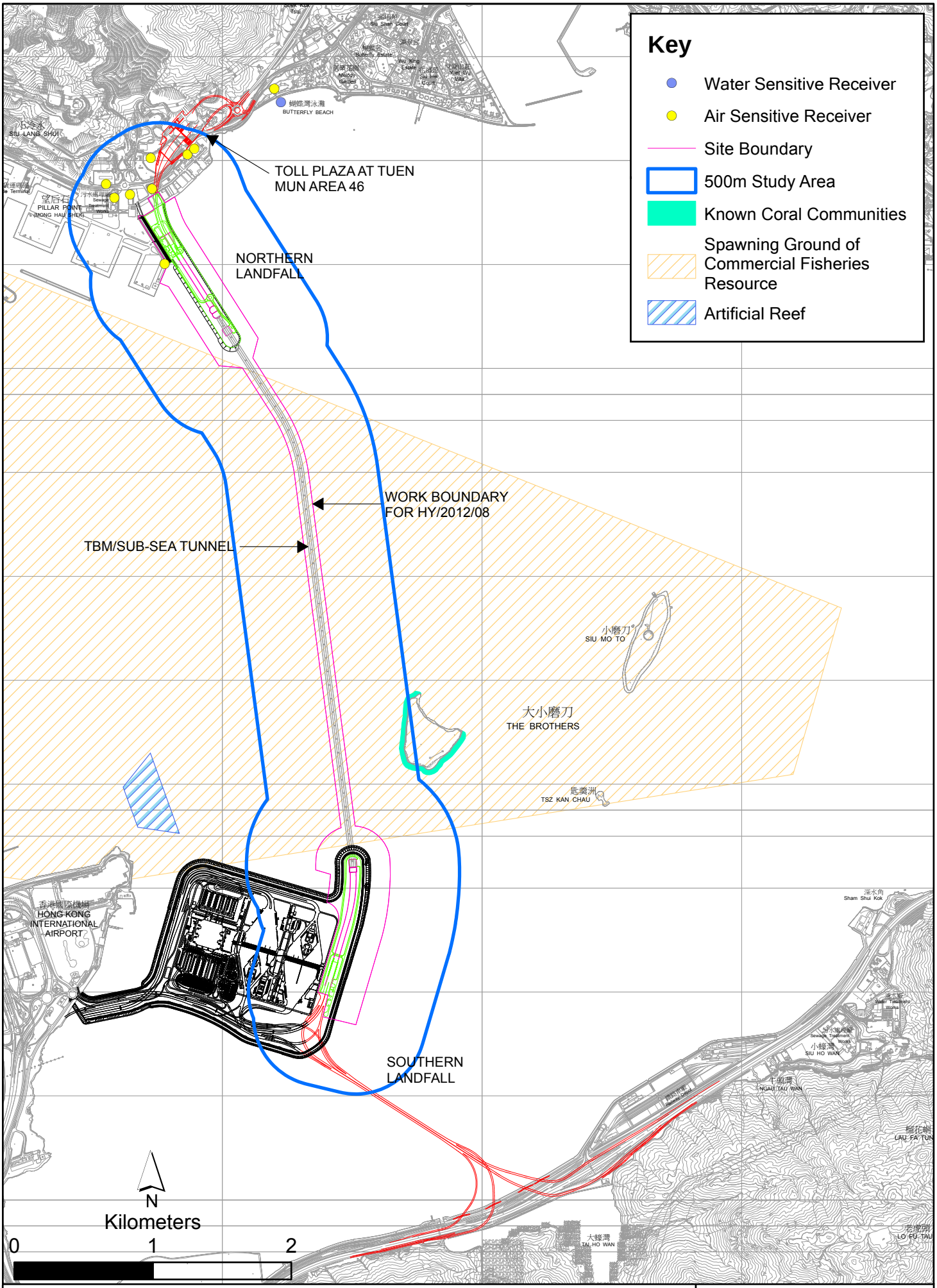


Figure 1.3 Environmental Sensitive Receivers in the vicinity of Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-Sea Tunnel Section

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Date: 15/4/2014

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2 EM&A RESULTS

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

2.1 AIR QUALITY

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 3, 6, 9, 12, 15, 18, 21, 24, 27 and 30 January 2016 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	3, 6, 9, 12, 15, 18, 21, 24, 27, 30 January 2016	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	

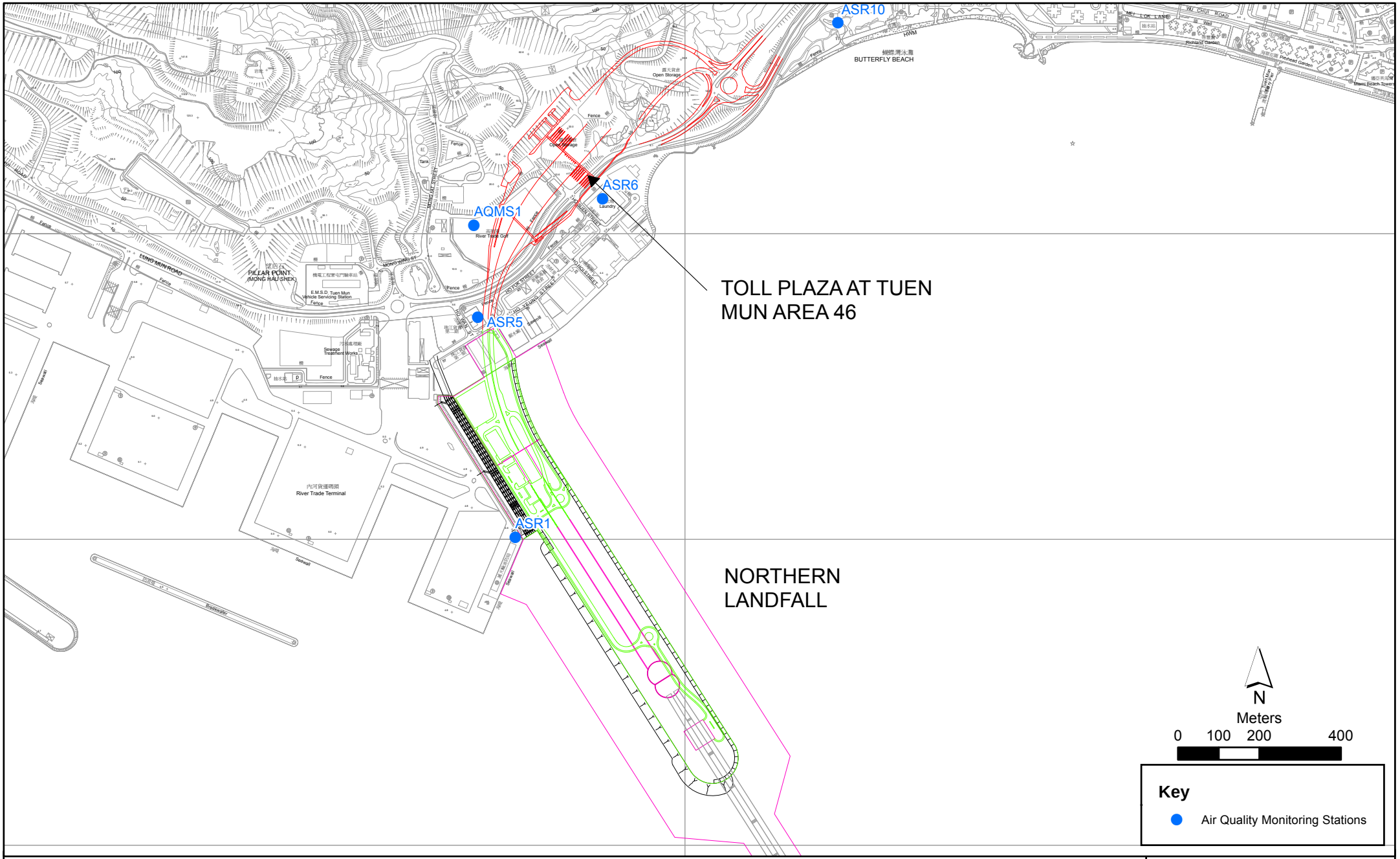

Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

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Date: 21/2/2014

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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: Weather Wizard III (S/N: WE90911A30)
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 J*.

2.1.3 Monitoring Schedule for the Reporting Month

The schedule for air quality monitoring in January 2016 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	143	54 - 283	331	500
ASR5	177	56 - 271	340	500
AQMS1	112	68 - 176	335	500
ASR6	126	59 - 219	338	500
ASR10	77	42 – 146	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	82	52 - 117	213	260
ASR5	88	52 - 114	238	260
AQMS1	65	53 - 88	213	260
ASR6	69	48 - 109	238	260
ASR10	58	45 - 70	214	260

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

A total of 10 monitoring events were undertaken in which no Action or Limit Level exceedances of 1-hr TSP were recorded in this reporting month. No Action or Limit Level exceedances for 24-hr TSP were record.

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

2.2 WATER QUALITY MONITORING

As informed by the Contractor, Phase I Reclamation works for the Northern Landfall was substantially completed in December 2014, a proposal letter was sent to EPD on 21 May 2015 to seek approval for the temporary suspension of Water Quality Monitoring. Subsequently, a letter from EPD on 5 June 2015 stated that they have no strong objection to the temporary suspension of the water quality monitoring. Water Quality Monitoring was suspended from 6 June 2015 effectively and will resume when Phase II Reclamation commences in the fourth quarter of 2016 tentatively.

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 2.5 summarises the equipment used for the impact dolphin monitoring.

Table 2.5 Dolphin Monitoring Equipment

Equipment	Model
Global Positioning System (GPS)	Garmin 18X-PC Geo One Phottix
Camera	Nikon D90 300m 2.8D fixed focus Nikon D90 20-300m zoom lens
Laser 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 2.2*. The co-ordinates of all transect lines are shown in *Table 2.6* below.

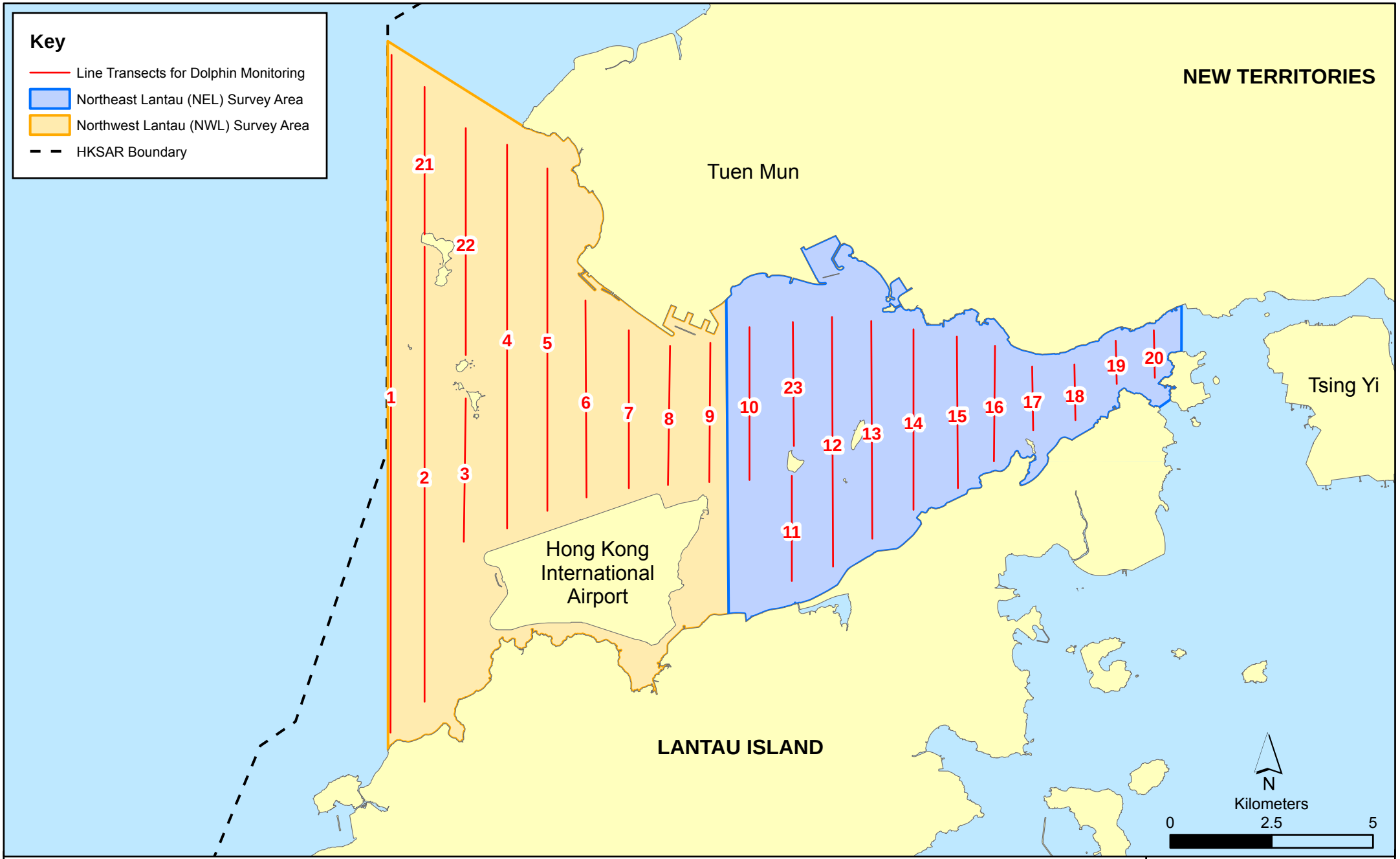

Figure 2.2

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 2.6 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	805475	815913	14	Start Point	817537	820220
2	End Point	805477	826654	14	End Point	817537	824613
3	Start Point	806464	819435	15	Start Point	818568	820735
3	End Point	806464	822911	15	End Point	818568	824433
4	Start Point	807518	819771	16	Start Point	819532	821420
4	End Point	807518	829230	16	End Point	819532	824209
5	Start Point	808504	820220	17	Start Point	820451	822125
5	End Point	808504	828602	17	End Point	820451	823671
6	Start Point	809490	820466	18	Start Point	821504	822371
6	End Point	809490	825352	18	End Point	821504	823761
7	Start Point	810499	820880	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	820872	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				
12	End Point	815542	824882				

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 J*.

2.3.6 Monitoring Schedule for the Reporting Month

Dolphin monitoring was carried out on 8, 11, 13 and 19 of January 2016. The dolphin monitoring schedule for the reporting month is shown in *Appendix F*.

2.3.7 Results & Observations

A total of 302.06 km of survey effort was collected, with 99.3% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) in January 2016. Among the two areas, 116.80 km and 185.26 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 218.06 km and 84.00 km respectively. The survey efforts are summarized in *Appendix I*.

A total of five groups of 18 Chinese White Dolphins sightings were recorded during the two sets of surveys in January 2016. All five dolphin sightings were made in NWL, while none was sighted in NEL. Three of the five dolphin sightings were made on primary lines during on-effort search. None of the dolphin groups was associated with an operating fishing vessel.

None of the five sightings was made in the proximity of the TM-CLKL alignment (including both northern landfall section and southern connection viaduct section) and HKLR09 alignment, as well as the HKBCF/HKLR03 reclamation sites. The distribution of dolphin sightings during the reporting month is shown in *Figure 2.3*.

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 January 2016 with the results present in *Tables 2.7* and *2.8*.

Table 2.7 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: January 8th / 11th	0.0	0.0
	Set 2: January 13th / 19th	0.0	0.0
NWL	Set 1: January 8th / 11th	2.8	9.8
	Set 2: January 13th / 19th	1.4	10.9

Note: Dolphin Encounter Rates are deduced from the Two Sets of Surveys (Two Surveys in Each Set) in January 2016 in Northeast (NEL) and Northwest Lantau (NWL)

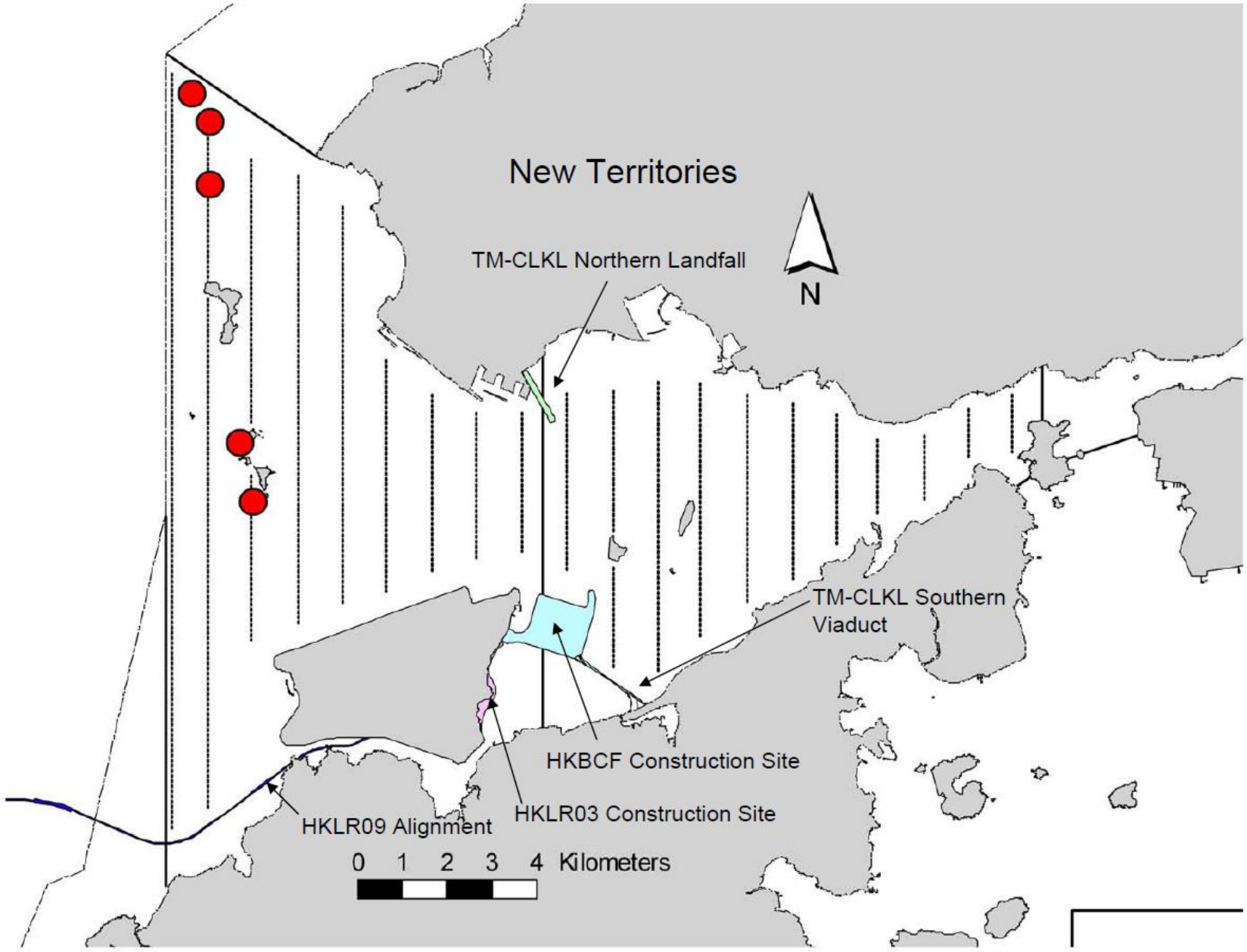

Figure 2.3

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 January 2016)

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Table 2.8 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	**2.1**	**2.7**	**10.3**	**9.8**

Note: Overall dolphin encounter rates (sightings per 100 km of survey effort) from all four surveys are conducted in January 2016 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 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.

2.3.8 Implementation of Marine Mammal Exclusion Zone

There was no dredging, reclamation or marine sheet piling works in open waters during this reporting period. Thus, Passive Acoustic Monitoring (PAM) and the day-time monitoring of Dolphin Exclusion Zone (DEZ) by dolphin observers were not in effect during the reporting period.

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 6, 13, 20 and 27 January 2016.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.9*.

Table 2.9 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Month

Inspection Date	Observations	Recommendations/ Remarks
6 January 2016	Works Area – Portion N-A • Muddy water on the ground should be cleared to prevent leakage to the sea.	Works Area – Portion N-A • The Contractor was reminded to clear the muddy water to prevent leakage to the sea.
13 January 2016	Works Area - Portion N-C • Oil drums should be placed in drip tray.	Works Area - Portion N-C • The Contractor was reminded to place the oil drums in drip tray.
20 January 2016	Works Area - Portion N-A • Oil drums should be placed in drip tray. Works Area - TBM tunnel • Chemical labels should be provided to the oil drum.	Works Area - Portion N-A • The Contractor was reminded to place the oil drums in drip tray. Works Area - TBM tunnel • The Contractor was reminded to provide chemical labels to the oil drum.
27 January 2016	Works Area - TBM tunnel • Chemical waste residue should be removed.	Works Area - TBM tunnel • The Contractor was reminded to remove the chemical waste residue.

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 include mainly construction wastes (inert and non-inert) Reference has been made to the waste flow table prepared by the Contractor (*Appendix L*). The quantities of different types of wastes are summarized in *Table 2.10*.

Table 2.10 Quantities of Different Waste Generated in the Reporting Month

Month/Year	Inert Construction Waste [a] (tonnes)	Imported Fill (tonnes)	Inert Construction Waste Re-used (tonnes)	Non-inert Construction Waste [b] (tonnes)	Recyclable Materials [c] (kg)	Chemical Wastes (kg)	Marine Sediment (m^3)	
							Category L	Category M (M_p & M_f)
January 2016	24,068	0	0	113	0	0	0	0

Notes:

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

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

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

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

For chemical waste containers, the Contractor was reminded to treat properly and store temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

2.6 ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.11* below.

Table 2.11 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	-
Chemical Waste Registration	5213-422-D2516-01	10 September 2013	Throughout the Contract	DBJV	-
Construction Waste Disposal Account	7018108	28 August 2013	Throughout the Contract	DBJV	Waste disposal in Contract No. HY/2012/08
Waste Disposal Billing Account (Vessel Disposal)	7021715	13 October 2015	31 January 2016	DBJV	Waste disposal in Contract No. HY/2012/08
Waste Water Discharge License	WT00017707-2013	18 November 2013	30 November 2018	DBJV	For site WA18
Waste Water Discharge License	WT00019248-2014	5 June 2014	30 June 2019	DBJV	For site Portion N6 and Reclamation Area E
Construction Noise Permit	GW-RW0018-16	20 January 2016	19 July 2016	DBJV	For Urmston Road in front of Pillar Point
Construction Noise Permit	GW-RW0638-15	14 December 2015	13 June 2016	DBJV	For site WA23
Construction Noise Permit	GW-RW0474-15	29 September 2015	28 March 2016	DBJV	For Portion N6
Construction Noise Permit	GW-RS1447-15	5 January 2016	4 June 2016	DBJV	For excavation works at Southern Landfall

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 Action Level or Limit Level exceedances were recorded in the air quality monitoring of this reporting month.

Cumulative statistics are provided in *Appendix K*.

2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

No environmental complaint was received in the reporting period.

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

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

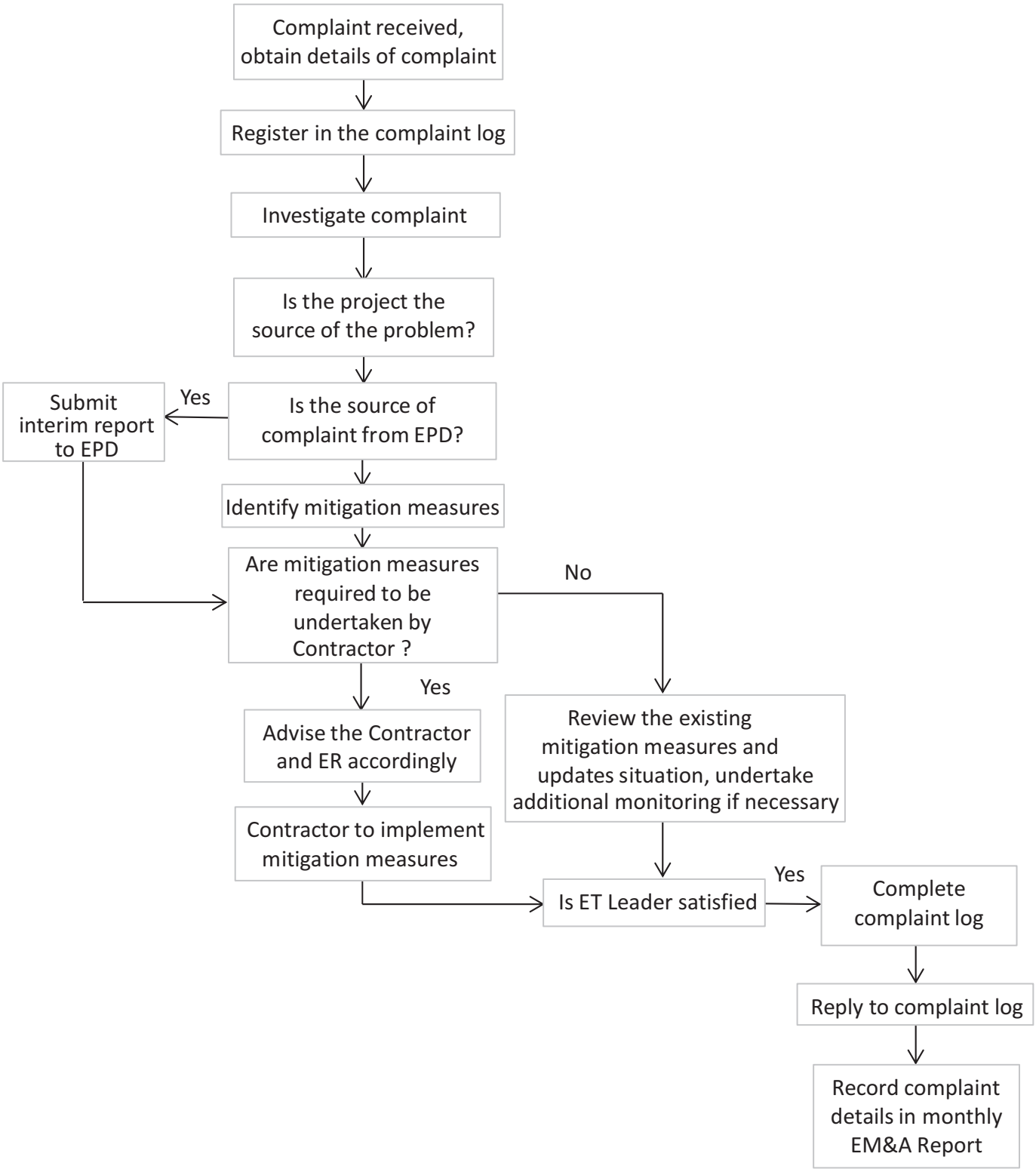

Figure 2.4 Environmental Complaint Handling Procedure

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DATE: 06/12/2013

Environmental Resources Management

ERM

3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

As informed by the Contractor, the major works for the Project in February 2016 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
• Box Culvert Extension at Works Area – Portion N-A; • Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C; • Site preparation for Ventilation Shaft at Works Area – Portion S-C; • TBM Tunnel Works at Works Area – Portion N-C • Construction of Cross Passage Tympanum – Portion N-A; and • Steel Bell Assembly & Installation – Portion N-C

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of February 2016 are mainly associated with dust, marine ecology and waste management issues.

3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedule for environmental monitoring in February 2016 is provided in *Appendix F*.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Twenty-seventh Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 31 January 2016, 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) and dolphin monitoring were carried out in this reporting month. No Action Level or Limit Level exceedances were recorded in the air quality monitoring of this reporting month.

A total of five groups of 18 Chinese White Dolphins sightings were recorded during the two sets of surveys in January 2016. All five dolphin sightings were made in NWL, while none was sighted in NEL in January 2016. Three of the five dolphin sightings were made on primary lines during on-effort search. None of the dolphin groups was associated with operating fishing vessels. No unacceptable impact from the construction activities of the TM-CLKL Northern Connection Sub-sea Tunnel Section on Chinese White Dolphins was noticeable from general observations during the dolphin monitoring in this reporting month.

Environmental site inspection was carried out four (4) times in January 2016. Recommendations on 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.

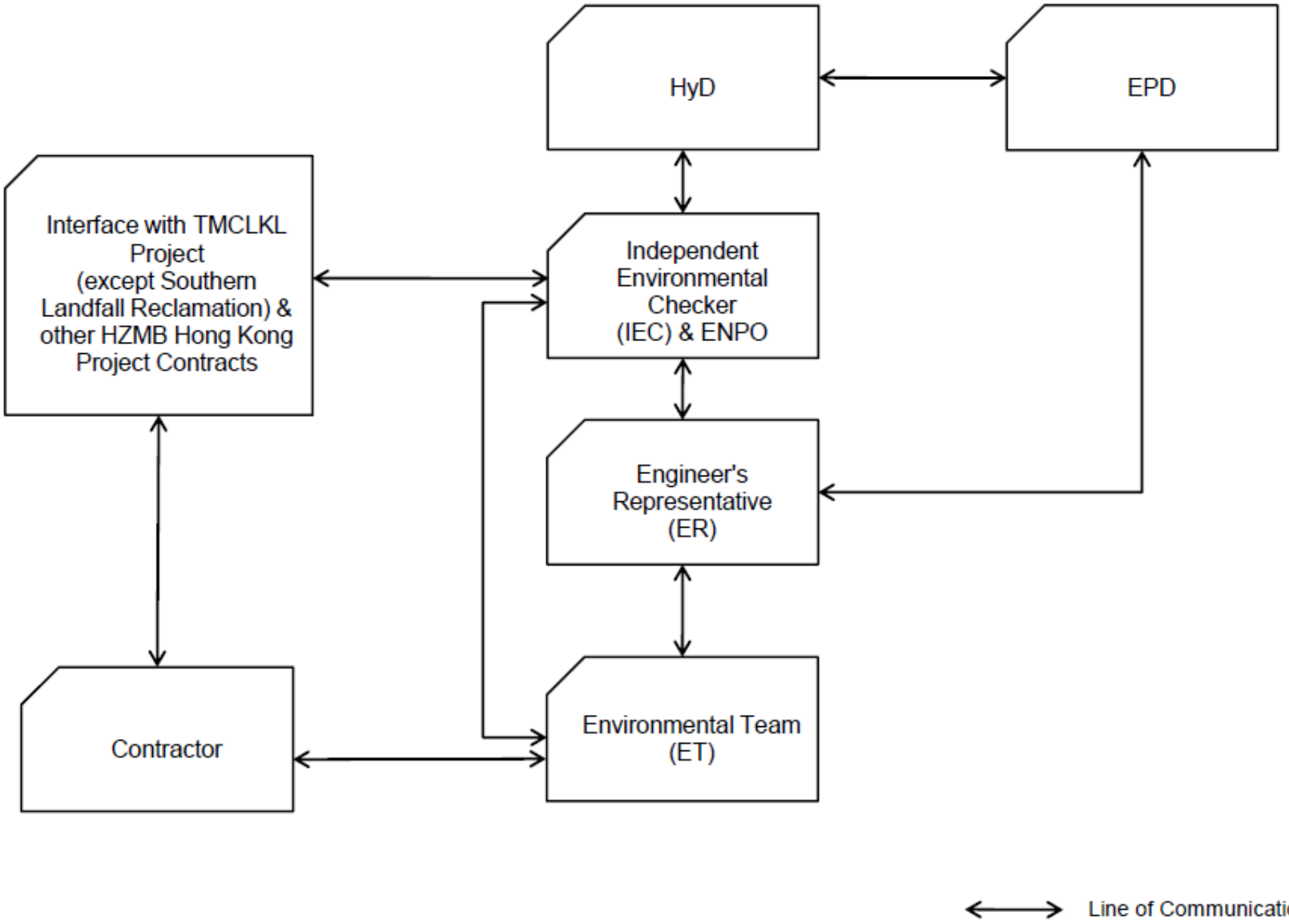
No environmental complaint was received during the reporting period.

No summons/ prosecution was received during the reporting period.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Project Organization for Environmental Works



Appendix A1

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

DATE: 06/03/2013

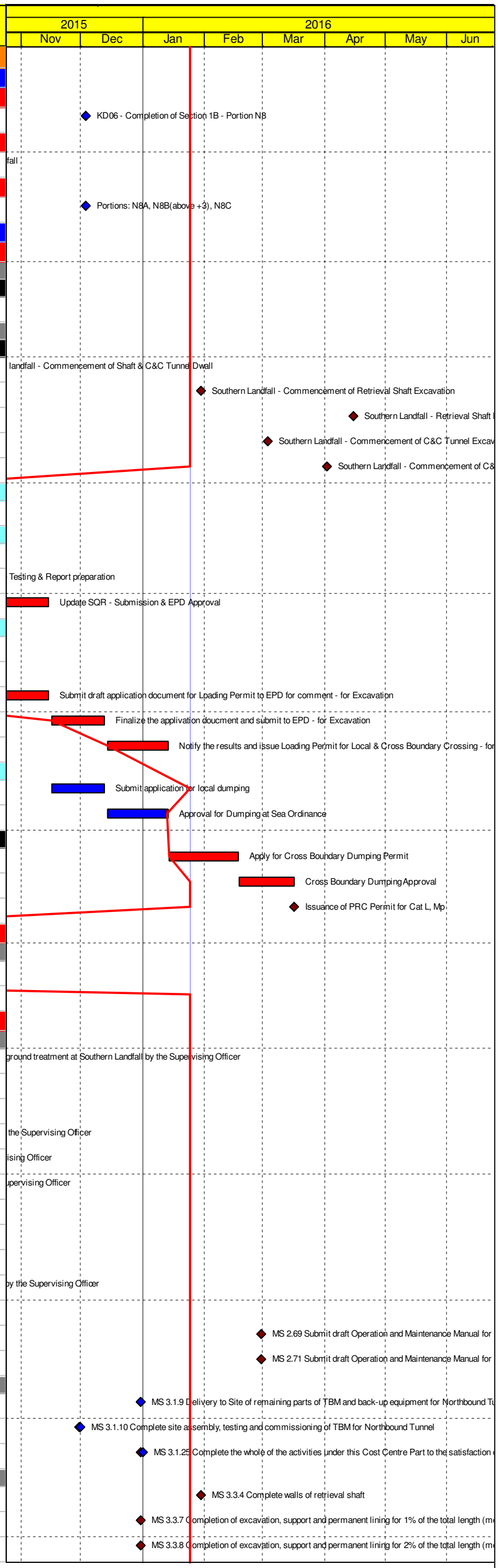
Environmental Resources Management

ERM

Appendix B

Construction Programme

Activity Name	Orig Dur	DWPF Start	DWPF Finish
TMCLK - Northern Connection Sub-Sea Tunnel Section			
Contract Dates			
Commencement and Completion Dates			
KD06 - Completion of Section 1B - Portion N8	0		03-Dec-15
Site Possession Date			
Portions: X1,(N10,11,13 & 14) - Sth Landfall	0	06-Aug-15	
Handover Date			
Portions: N8A, N8B(above +3), N8C	0		03-Dec-15
General Submissions			
Environmental			
Environmental Permit Submissions			
Supplementary WMP of C&C Tunnel at Sth.Landfall			
Supplementary WMP of C&C Tunnel at Sth.Landfall	0		28-Jun-14
Sediment Quality Report/Dumping Permit			
Southern Landfall			
Southern landfall - Commencement of Shaft & C&C Tunnel Dwall	0	03-Oct-15	
Southern Landfall - Commencement of Retrieval Shaft Excavation	0	30-Jan-16	
Southern Landfall - Retrieval Shaft Excavation to tentative MD layer	0	15-Apr-16	
Southern Landfall - Commencement of C&C Tunnel Excavation	0	03-Mar-16	
Southern Landfall - Commencement of C&C Tunnel to tentative MD layer	0	02-Apr-16	
Sediment Sampling & Testing Plan (SSTP) - if required			
Complete SSTP and Obtain EPD's approval	24	17-Feb-15	23-Mar-15
Sediment Quality Report (SQR) - if required			
Advance Ground Investigation works for Sediment sampling	24	24-Mar-15	24-Apr-15
Sediment Sample Testing & Report preparation	120	25-Apr-15	16-Sep-15
Update SQR - Submission & EPD Approval	48	17-Sep-15	14-Nov-15
Dumping Permit for Load Dumping (Loading Permit) - if required			
Finalize the applivation doucment and submit to EPD - for Dwall	24	20-Jan-15	16-Feb-15
Notify the results and issue Loading Permit for Local & Cross Boundary Crossing - for Dwall	24	17-Feb-15	23-Mar-15
Submit draft application document for Loading Permit to EPD for comment - for Excavation	96	23-Jul-15	14-Nov-15
Finalize the applivation doucment and submit to EPD - for Excavation	24	16-Nov-15	12-Dec-15
Notify the results and issue Loading Permit for Local & Cross Boundary Crossing - for Excavation	24	14-Dec-15	13-Jan-16
Dumping at Sea Ordinance (DASO)			
Submit application for local dumping	24	16-Nov-15	12-Dec-15
Approval for Dumping at Sea Ordinance	24	14-Dec-15	13-Jan-16
Cross Boundary Dumping Permit			
Apply for Cross Boundary Dumping Permit	24	14-Jan-16	17-Feb-16
Cross Boundary Dumping Approval	24	18-Feb-16	16-Mar-16
Issuance of PRC Permit for Cat L, Mp	0		16-Mar-16
General Design Submissions			
(G6) IFA for Tunnel GBP			
SO's Review	35	29-Apr-14	02-Jun-14
SO Approval with Condition Received	0		03-Jun-14
PAYMENT MILESTONE			
Design and Design Checking of the Works			
MS 2.12 Approve DDA for ground treatment at Southern Landfall by the Supervising Officer	0		31-Aug-15
MS 2.20.3 Approve DDA for Cross Passages by the Supervising Officer by the Supervising Officer	0		31-Mar-15
MS 2.23 Submit DDA for Cut- and-cover Tunnel and Cross Passages at Southern Landfall	0		31-Jan-15
MS 2.24 Approve DDA for Cut-and-cover Tunnel and Cross Passages at Southern Landfall by the Supervising Officer	0		30-Apr-15
MS 2.32 Approve DDA for Approach Ramp Structures to Cut-and-cover Tunnels by the Supervising Officer	0		30-Apr-15
MS 2.44 Approve DDA for South Ventilation Building by the Supervising Officer	0		30-Jun-15
MS 2.48 Approve DDA for North Ventilation Building by the Supervising Officer	0		31-Jan-15
MS 2.51 Submit DDA for Facilities Provision for TCSS	0		29-Nov-14
MS 2.52 Approve DDA for Facilities Provision for TCSS by the Supervising Officer	0		28-Feb-15
MS 2.56 Approve DDA for Drainage, Sewerage, Waterworks and Utilities at Southern Landfall by the Supervising Officer	0		30-Apr-15
MS 2.60 Approve DDA for Drainage, Sewerage, Waterworks and Utilities at Northern Landfall by the Supervising Officer	0		31-Dec-14
MS 2.69 Submit draft Operation and Maintenance Manual for all Tunnels and Cross Passgaes	0		29-Feb-16
MS 2.71 Submit draft Operation and Maintenance Manual for all works except Tunnels and Cross Passgaes	0		29-Feb-16
Tunnel Boring Machine (TBM) and Back-up Equipment for TBM Tunnel			
MS 3.1.9 Delivery to Site of remaining parts of TBM and back-up equipment for Northbound Tunnel	0		31-Dec-15
MS 3.1.10 Complete site assembly, testing and commissioning of TBM for Northbound Tunnel	0		30-Nov-15
MS 3.1.25 Complete the whole of the activities under this Cost Centre Part to the satisfaction of the Supervising Office	0		31-Dec-15
TBM Tunnel			
MS 3.3.4 Complete walls of retrieval shaft	0		30-Jan-16
MS 3.3.7 Completion of excavation, support and permanent lining for 1% of the total length (measured on plan) of the Nor	0		31-Dec-15
MS 3.3.8 Completion of excavation, support and permanent lining for 2% of the total length (measured on plan) of the Nor	0		31-Dec-15



Project ID: TMCLK DWPF3 16W04

Data Date: 24-Jan-16

Planned Bar
Planned Bar - Critical
Planned Milestone
Progress bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

Detailed Works Programme (Rev. F)

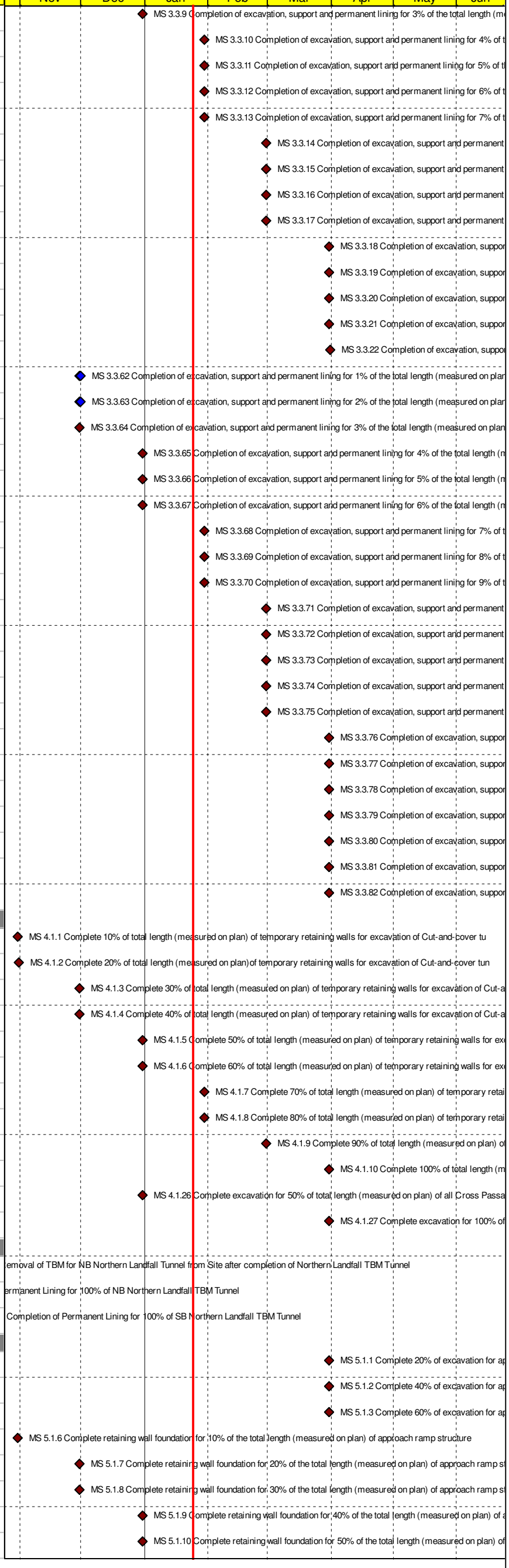
Three Months Rolling Programme

Progress as of 24-Jan-16

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

Date	Revision	Checked	Approved
12-Feb-14	TMCLK/DBJGEN/PRG/98507	WYu	SPo
08-Apr-14	TMCLK/DBJGEN/PRG/98507 Rev.B	SPa	WYu
28-Aug-14	TMCLK/DBJGEN/PRG/98507 Rev.C	CLa	WYu
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Activity Name	Orig Dur	DWPF Start	DWPF Finish
MS 3.3.9 Completion of excavation, support and permanent lining for 3% of the total length (measured on plan) of the Nor	0		31-Dec-15
MS 3.3.10 Completion of excavation, support and permanent lining for 4% of the total length (measured on plan) of the No	0		30-Jan-16
MS 3.3.11 Completion of excavation, support and permanent lining for 5% of the total length (measured on plan) of the No	0		30-Jan-16
MS 3.3.12 Completion of excavation, support and permanent lining for 6% of the total length (measured on plan) of the No	0		30-Jan-16
MS 3.3.13 Completion of excavation, support and permanent lining for 7% of the total length (measured on plan) of the No	0		30-Jan-16
MS 3.3.14 Completion of excavation, support and permanent lining for 8% of the total length (measured on plan) of the No	0		29-Feb-16
MS 3.3.15 Completion of excavation, support and permanent lining for 9% of the total length (measured on plan) of the No	0		29-Feb-16
MS 3.3.16 Completion of excavation, support and permanent lining for 10% of the total length (measured on plan) of the N	0		29-Feb-16
MS 3.3.17 Completion of excavation, support and permanent lining for 11% of the total length (measured on plan) of the N	0		29-Feb-16
MS 3.3.18 Completion of excavation, support and permanent lining for 12% of the total length (measured on plan) of the N	0		31-Mar-16
MS 3.3.19 Completion of excavation, support and permanent lining for 13% of the total length (measured on plan) of the N	0		31-Mar-16
MS 3.3.20 Completion of excavation, support and permanent lining for 14% of the total length (measured on plan) of the N	0		31-Mar-16
MS 3.3.21 Completion of excavation, support and permanent lining for 15% of the total length (measured on plan) of the N	0		31-Mar-16
MS 3.3.22 Completion of excavation, support and permanent lining for 16% of the total length (measured on plan) of the N	0		31-Mar-16
MS 3.3.62 Completion of excavation, support and permanent lining for 1% of the total length (measured on plan) of the So	0		30-Nov-15
MS 3.3.63 Completion of excavation, support and permanent lining for 2% of the total length (measured on plan) of the So	0		30-Nov-15
MS 3.3.64 Completion of excavation, support and permanent lining for 3% of the total length (measured on plan) of the So	0		30-Nov-15
MS 3.3.65 Completion of excavation, support and permanent lining for 4% of the total length (measured on plan) of the So	0		31-Dec-15
MS 3.3.66 Completion of excavation, support and permanent lining for 5% of the total length (measured on plan) of the So	0		31-Dec-15
MS 3.3.67 Completion of excavation, support and permanent lining for 6% of the total length (measured on plan) of the So	0		31-Dec-15
MS 3.3.68 Completion of excavation, support and permanent lining for 7% of the total length (measured on plan) of the So	0		30-Jan-16
MS 3.3.69 Completion of excavation, support and permanent lining for 8% of the total length (measured on plan) of the So	0		30-Jan-16
MS 3.3.70 Completion of excavation, support and permanent lining for 9% of the total length (measured on plan) of the So	0		30-Jan-16
MS 3.3.71 Completion of excavation, support and permanent lining for 10% of the total length (measured on plan) of the S	0		29-Feb-16
MS 3.3.72 Completion of excavation, support and permanent lining for 11% of the total length (measured on plan) of the S	0		29-Feb-16
MS 3.3.73 Completion of excavation, support and permanent lining for 12% of the total length (measured on plan) of the S	0		29-Feb-16
MS 3.3.74 Completion of excavation, support and permanent lining for 13% of the total length (measured on plan) of the S	0		29-Feb-16
MS 3.3.75 Completion of excavation, support and permanent lining for 14% of the total length (measured on plan) of the S	0		29-Feb-16
MS 3.3.76 Completion of excavation, support and permanent lining for 15% of the total length (measured on plan) of the S	0		31-Mar-16
MS 3.3.77 Completion of excavation, support and permanent lining for 16% of the total length (measured on plan) of the S	0		31-Mar-16
MS 3.3.78 Completion of excavation, support and permanent lining for 17% of the total length (measured on plan) of the S	0		31-Mar-16
MS 3.3.79 Completion of excavation, support and permanent lining for 18% of the total length (measured on plan) of the S	0		31-Mar-16
MS 3.3.80 Completion of excavation, support and permanent lining for 19% of the total length (measured on plan) of the S	0		31-Mar-16
MS 3.3.81 Completion of excavation, support and permanent lining for 20% of the total length (measured on plan) of the S	0		31-Mar-16
MS 3.3.82 Completion of excavation, support and permanent lining for 21% of the total length (measured on plan) of the S	0		31-Mar-16
Cut-and-cover Tunnels at Southern Landfalls			
MS 4.1.1 Complete 10% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		31-Oct-15
MS 4.1.2 Complete 20% of total length (measured on plan)of temporary retaining walls for excavation of Cut-and-cover tun	0		31-Oct-15
MS 4.1.3 Complete 30% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		30-Nov-15
MS 4.1.4 Complete 40% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		30-Nov-15
MS 4.1.5 Complete 50% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		31-Dec-15
MS 4.1.6 Complete 60% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		31-Dec-15
MS 4.1.7 Complete 70% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		30-Jan-16
MS 4.1.8 Complete 80% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		30-Jan-16
MS 4.1.9 Complete 90% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover tu	0		29-Feb-16
MS 4.1.10 Complete 100% of total length (measured on plan) of temporary retaining walls for excavation of Cut-and-cover	0		31-Mar-16
MS 4.1.26 Complete excavation for 50% of total length (measured on plan) of all Cross Passages	0		31-Dec-15
MS 4.1.27 Complete excavation for 100% of total length (measured on plan) of all Cross Passages	0		31-Mar-16
Cut-and-cover Tunnel at Northern Landfall			
MS 4.2.6 Removal of TBM for NB Northern Landfall Tunnel from Site after completion of Northern Landfall TBM Tunnel	0		30-Sep-15
MS 4.2.17 Completion of Permanent Lining for 100% of NB Northern Landfall TBM Tunnel	0		31-Aug-15
MS 4.2.21 Completion of Permanent Lining for 100% of SB Northern Landfall TBM Tunnel	0		30-Sep-15
Approach Ramp Structures to Cut-and-cover Tunnel at Southern Landfall			
MS 5.1.1 Complete 20% of excavation for approach ramp structures	0		31-Mar-16
MS 5.1.2 Complete 40% of excavation for approach ramp structures	0		31-Mar-16
MS 5.1.3 Complete 60% of excavation for approach ramp structures	0		31-Mar-16
MS 5.1.6 Complete retaining wall foundation for 10% of the total length (measured on plan) of approach ramp structure	0		31-Oct-15
MS 5.1.7 Complete retaining wall foundation for 20% of the total length (measured on plan) of approach ramp structure	0		30-Nov-15
MS 5.1.8 Complete retaining wall foundation for 30% of the total length (measured on plan) of approach ramp structure	0		30-Nov-15
MS 5.1.9 Complete retaining wall foundation for 40% of the total length (measured on plan) of approach ramp structure	0		31-Dec-15
MS 5.1.10 Complete retaining wall foundation for 50% of the total length (measured on plan) of approach ramp structure	0		31-Dec-15



Planned Bar
Planned Bar - Critical
Planned Milestone
Progress bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

Detailed Works Programme (Rev. F)

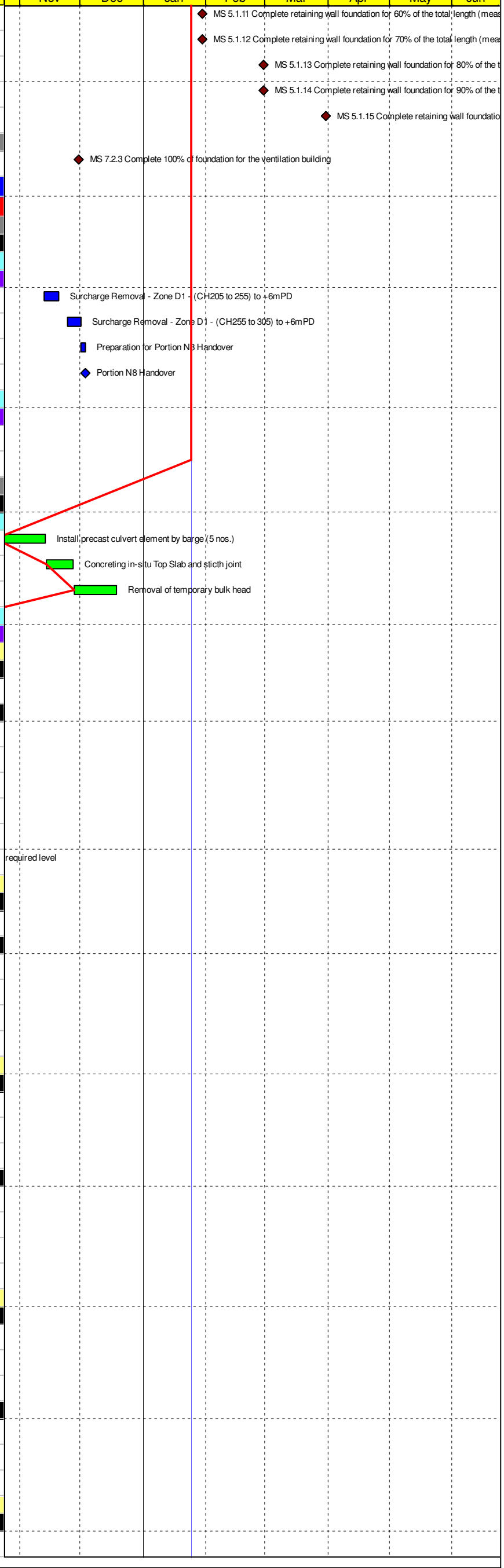
Three Months Rolling Programme

Progress as of 24-Jan-16

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
12-Feb-14	TMCLK/DBJGEN/PRG/98507	WYu	SPo
08-Apr-14	TMCLK/DBJGEN/PRG/98507 Rev.B	SPa	WYu
28-Aug-14	TMCLK/DBJGEN/PRG/98507 Rev.C	CLa	WYu
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Activity Name	Orig Dur	DWPF Start	DWPF Finish
MS 5.1.11 Complete retaining wall foundation for 60% of the total length (measured on plan) of approach ramp structure	0		30-Jan-16
MS 5.1.12 Complete retaining wall foundation for 70% of the total length (measured on plan) of approach ramp structure	0		30-Jan-16
MS 5.1.13 Complete retaining wall foundation for 80% of the total length (measured on plan) of approach ramp structure	0		29-Feb-16
MS 5.1.14 Complete retaining wall foundation for 90% of the total length (measured on plan) of approach ramp structure	0		29-Feb-16
MS 5.1.15 Complete retaining wall foundation for 100% of the total length (measured on plan) of approach ramp structure	0		31-Mar-16
North Ventilation Buildings			
MS 7.2.3 Complete 100% of foundation for the ventilation building	0		30-Nov-15
Construction			
Northern Landfall			
North Reclamation (Phase 1)			
Construction			
Zone D1			
Reclamation			
Surcharge Removal - Zone D1 - (CH205 to 255) to +6mPD	6	13-Nov-15	20-Nov-15
Surcharge Removal - Zone D1 - (CH255 to 305) to +6mPD	6	24-Nov-15	01-Dec-15
Preparation for Portion N8 Handover	2	01-Dec-15	03-Dec-15
Portion N8 Handover	0		03-Dec-15
Zone A2			
Sloping Seawall			
SS - Armour Rock - Zone A2 - (CH843 to 893)	4	14-Jun-14	19-Jun-14
SS - Armour Rock - Zone A2 - (CH893 to 956)	4	19-Jun-14	24-Jun-14
Box Culvert Extension			
Construction			
Ch000-010 Culvert Outfall			
Install precast culvert element by barge (5 nos.)	21	20-Oct-15	13-Nov-15
Concreting in-situ Top Slab and sticth joint	12	14-Nov-15	27-Nov-15
Removal of temporary bulk head	18	28-Nov-15	18-Dec-15
CH000-150 Land Section			
ELS & Structure			
Pile A43/A41 CJ to Pile A41/A39 CJ			
ELS			
Excavation to FEL	5	14-May-15	19-May-15
Box Culvert Structure			
Pile cap construction	10	27-May-15	06-Jun-15
Base slab construction including kicker	6	19-Jun-15	26-Jun-15
Removal of strut S1	4	27-Jun-15	02-Jul-15
System formworks delivery & setup	14	03-Jul-15	18-Jul-15
Walls & top slab construction	6	20-Jul-15	25-Jul-15
Removal of strut S2 & Backfilling up to required level	6	03-Aug-15	08-Aug-15
Pile A45/A43 CJ to Pile A43/A41 CJ			
ELS			
Excavation to FEL	5	20-May-15	26-May-15
Box Culvert Structure			
Pile cap construction	10	08-Jun-15	18-Jun-15
Base slab construction including kicker	6	27-Jun-15	04-Jul-15
Removal of strut S1	4	06-Jul-15	09-Jul-15
Walls & top slab construction	6	27-Jul-15	01-Aug-15
Pile A47/A45 CJ to Pile A45/A43 CJ			
ELS			
Excavation to 0.5m below strut S1	5	14-May-15	19-May-15
Installation of strut S1	5	20-May-15	26-May-15
Excavation to FEL	5	27-May-15	01-Jun-15
Box Culvert Structure			
Pile cap construction	10	19-Jun-15	02-Jul-15
Base slab construction including kicker	6	06-Jul-15	11-Jul-15
Removal of strut S1	4	13-Jul-15	16-Jul-15
Walls & top slab construction	6	03-Aug-15	08-Aug-15
Pile A49/A47 CJ to Pile A47/A45 CJ			
ELS			
Excavation to 0.5m below strut S1	5	20-May-15	26-May-15
Installation of strut S1	5	27-May-15	01-Jun-15
Excavation to FEL	5	02-Jun-15	06-Jun-15
Box Culvert Structure			
Pile cap construction	10	03-Jul-15	14-Jul-15
Base slab construction including kicker	6	15-Jul-15	21-Jul-15
Removal of strut S1	4	22-Jul-15	25-Jul-15
Pile A52/A49 CJ to Pile A49/A47 CJ			
ELS			
Excavation to 0.5m below strut S1	5	27-May-15	01-Jun-15



Project ID: TMCLK DWPF3 16W04

Data Date: 24-Jan-16

Planned Bar
Planned Bar - Critical
Planned Milestone
Progress bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

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Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

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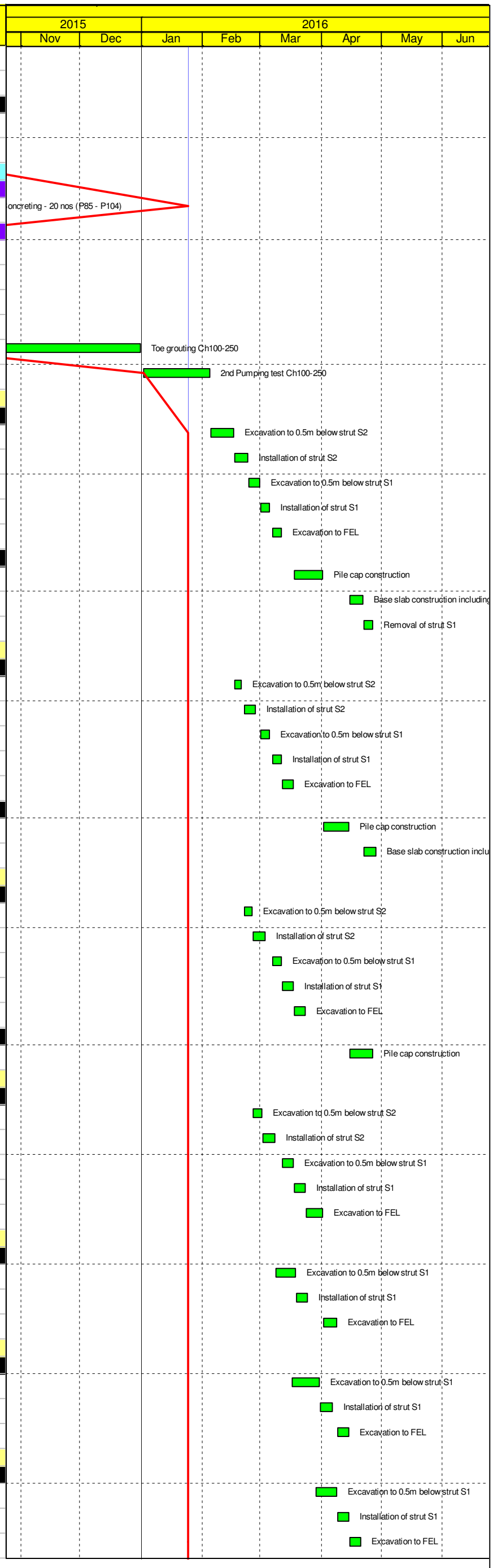
Activity Name	Orig Dur	DWPF Start	DWPF Finish
Installation of strut S1	5	02-Jun-15	06-Jun-15
Excavation to FEL	5	08-Jun-15	12-Jun-15
Box Culvert Structure			
Pile cap construction	10	22-Jul-15	01-Aug-15
Base slab construction including kicker	6	03-Aug-15	08-Aug-15
Ch150-250 Marine Section			
Foundation			
H-beam installation & Concreting - 20 nos (P85 - P104)	50	10-Jul-15	05-Sep-15
ELS & Structure			
Cofferdam closing of Ch100-250	28	01-Jun-15	04-Jul-15
Dewatering well installation Ch180-250	12	19-Jun-15	04-Jul-15
Dewatering well installation Ch100-180	12	06-Jul-15	18-Jul-15
1st Pumping test	18	20-Jul-15	08-Aug-15
Toe grouting Ch100-250	95	07-Sep-15	31-Dec-15
2nd Pumping test Ch100-250	29	02-Jan-16	04-Feb-16
Pile A41/A39 CJ to Pile A39/A37 CJ			
ELS			
Excavation to 0.5m below strut S2	4	05-Feb-16	16-Feb-16
Installation of strut S2	6	17-Feb-16	23-Feb-16
Excavation to 0.5m below strut S1	5	24-Feb-16	29-Feb-16
Installation of strut S1	5	01-Mar-16	05-Mar-16
Excavation to FEL	5	07-Mar-16	11-Mar-16
Box Culvert Structure			
Pile cap construction	10	18-Mar-16	01-Apr-16
Base slab construction including kicker	6	15-Apr-16	21-Apr-16
Removal of strut S1	4	22-Apr-16	26-Apr-16
Pile A39/A37 CJ to Pile A37/A35 CJ			
ELS			
Excavation to 0.5m below strut S2	4	17-Feb-16	20-Feb-16
Installation of strut S2	6	22-Feb-16	27-Feb-16
Excavation to 0.5m below strut S1	5	01-Mar-16	05-Mar-16
Installation of strut S1	5	07-Mar-16	11-Mar-16
Excavation to FEL	5	12-Mar-16	17-Mar-16
Box Culvert Structure			
Pile cap construction	10	02-Apr-16	14-Apr-16
Base slab construction including kicker	6	22-Apr-16	28-Apr-16
Pile A37/A35 CJ to Pile A35/A33 CJ			
ELS			
Excavation to 0.5m below strut S2	4	22-Feb-16	25-Feb-16
Installation of strut S2	6	26-Feb-16	03-Mar-16
Excavation to 0.5m below strut S1	5	07-Mar-16	11-Mar-16
Installation of strut S1	5	12-Mar-16	17-Mar-16
Excavation to FEL	5	18-Mar-16	23-Mar-16
Box Culvert Structure			
Pile cap construction	10	15-Apr-16	26-Apr-16
Pile A35/A33 CJ to Pile A33/P117 CJ			
ELS			
Excavation to 0.5m below strut S2	4	26-Feb-16	01-Mar-16
Installation of strut S2	6	02-Mar-16	08-Mar-16
Excavation to 0.5m below strut S1	5	12-Mar-16	17-Mar-16
Installation of strut S1	5	18-Mar-16	23-Mar-16
Excavation to FEL	5	24-Mar-16	01-Apr-16
Pile A33/P117 CJ to Pile P113/P109 CJ			
ELS			
Excavation to 0.5m below strut S1	9	09-Mar-16	18-Mar-16
Installation of strut S1	5	19-Mar-16	24-Mar-16
Excavation to FEL	5	02-Apr-16	08-Apr-16
Pile P113/P109 CJ to Pile P105/P101 CJ			
ELS			
Excavation to 0.5m below strut S1	9	17-Mar-16	30-Mar-16
Installation of strut S1	5	31-Mar-16	06-Apr-16
Excavation to FEL	5	09-Apr-16	14-Apr-16
Pile P105/P101 CJ to Pile P97/P93 CJ			
ELS			
Excavation to 0.5m below strut S1	9	29-Mar-16	08-Apr-16
Installation of strut S1	5	09-Apr-16	14-Apr-16
Excavation to FEL	5	15-Apr-16	20-Apr-16



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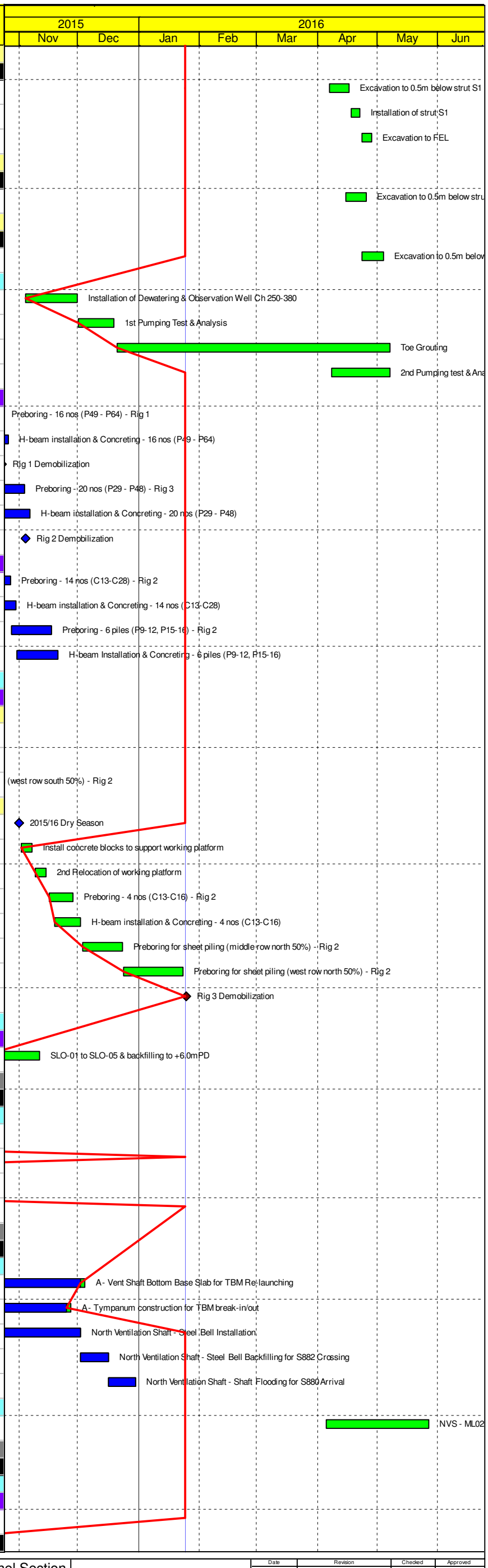
Activity Name	Orig Dur	DWPF Start	DWPF Finish
Pile P97/P93 CJ to Pile P89/P85 CJ			
ELS			
Excavation to 0.5m below strut S1	9	07-Apr-16	16-Apr-16
Installation of strut S1	5	18-Apr-16	22-Apr-16
Excavation to FEL	5	23-Apr-16	28-Apr-16
Pile P89/P85 CJ to Pile P81/P77 CJ			
ELS			
Excavation to 0.5m below strut S1	9	15-Apr-16	25-Apr-16
Pile P81/P77 CJ to Pile P73/P69 CJ			
ELS			
Excavation to 0.5m below strut S1	9	23-Apr-16	04-May-16
Ch250-380 Marine Section			
Installation of Dewatering & Observation Well Ch 250-380	23	04-Nov-15	30-Nov-15
1st Pumping Test & Analysis	17	01-Dec-15	19-Dec-15
Toe Grouting	106	21-Dec-15	07-May-16
2nd Pumping test & Analysis	25	08-Apr-16	07-May-16
Ch250-320 Prebored H-piles			
Preboring - 16 nos (P49 - P64) - Rig 1	40	03-Sep-15	22-Oct-15
H-beam installation & Concreting - 16 nos (P49 - P64)	40	07-Sep-15	26-Oct-15
Rig 1 Demobilization	0	23-Oct-15	
Preboring - 20 nos (P29 - P48) - Rig 3	50	03-Sep-15	03-Nov-15
H-beam installation & Concreting - 20 nos (P29 - P48)	50	07-Sep-15	06-Nov-15
Rig 2 Demobilization	0	04-Nov-15	
Ch320-360 Prebored H-piles			
Preboring - 14 nos (C13-C28) - Rig 2	35	14-Sep-15	27-Oct-15
H-beam installation & Concreting - 14 nos (C13-C28)	35	17-Sep-15	30-Oct-15
Preboring - 6 piles (P9-12, P15-16) - Rig 2	18	28-Oct-15	17-Nov-15
H-beam Installation & Concreting - 6 piles (P9-12, P15-16)	18	31-Oct-15	20-Nov-15
Ch380-399 Connection Section			
Foundation & ELS			
Stage 1			
Preboring - 9 nos (C1-7,C9-10) - Rig 2	27	30-May-15	02-Jul-15
H-beam installation & Concreting - 9 nos (C1-7,C9-10)	29	03-Jun-15	08-Jul-15
Preboring & sheet piling (west row south 50%) - Rig 2	24	10-Aug-15	05-Sep-15
Stage 2			
2015/16 Dry Season	0	01-Nov-15	
Install concrete blocks to support working platform	6	02-Nov-15	07-Nov-15
2nd Relocation of working platform	6	09-Nov-15	14-Nov-15
Preboring - 4 nos (C13-C16) - Rig 2	12	16-Nov-15	28-Nov-15
H-beam installation & Concreting - 4 nos (C13-C16)	12	19-Nov-15	02-Dec-15
Preboring for sheet piling (middle row north 50%) - Rig 2	18	03-Dec-15	23-Dec-15
Preboring for sheet piling (west row north 50%) - Rig 2	24	24-Dec-15	23-Jan-16
Rig 3 Demobilization	0	25-Jan-16	
Miscellaneous works			
Stop Log Opening (SLO)			
SLO-01 to SLO-05 & backfilling to +6.0mPD	24	14-Oct-15	11-Nov-15
North Launching Shaft			
Design Submission			
(C1) DDA for North Approach Ramp Permanent Structure			
IPs Review	28	23-Oct-14	19-Nov-14
IP's No Objection Received	0		19-Nov-14
SO's Review	35	23-Oct-14	26-Nov-14
SO Approval with Condition Received	0		26-Nov-14
North Ventilation Shaft			
Construction			
North Ventilation Shaft Excavation & Base Slab			
A- Vent Shaft Bottom Base Slab for TBM Re-launching	48	08-Oct-15	04-Dec-15
A- Tympanum construction for TBM break-in/out	36	15-Oct-15	27-Nov-15
North Ventilation Shaft - Steel Bell Installation	40	15-Oct-15	02-Dec-15
North Ventilation Shaft - Steel Bell Backfilling for S882 Crossing	12	02-Dec-15	16-Dec-15
North Ventilation Shaft - Shaft Flooding for S880 Arrival	10	16-Dec-15	30-Dec-15
North Ventilation Shaft Structure			
NVS - ML02 Tunnel Structure	44	05-Apr-16	27-May-16
TMCLK VO-008 - Construction of Viaduct Foundations at Portion N6A			
Viaduct Bored Pile Construction			
Bored Pile Construction			
G1c-6			
Pile 6 - RCD Socket Drilling	14	14-Jul-14	29-Jul-14
Viaduct Pile Cap			



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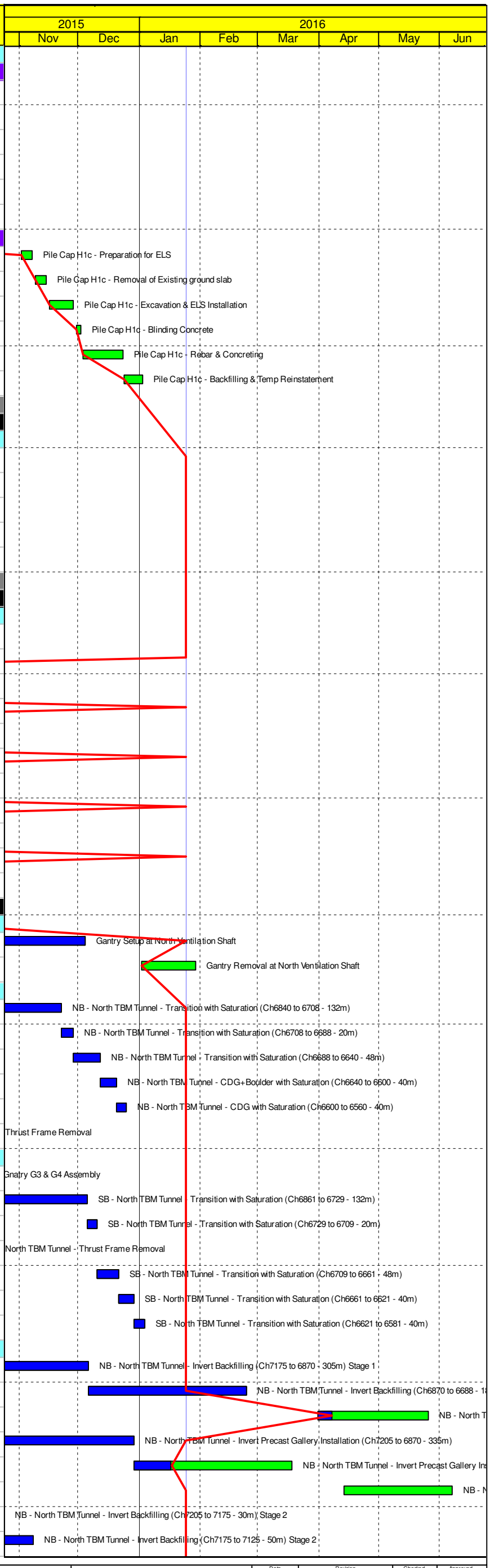
Activity Name	Orig Dur	DWPF Start	DWPF Finish
Construction			
Pier G1c			
Pile Cap G1c - Preparation for ELS	6	24-Oct-14	30-Oct-14
Pile Cap G1c - Removal of Existing ground slab	6	31-Oct-14	06-Nov-14
Pile Cap G1c - Excavation & ELS Installation	12	07-Nov-14	20-Nov-14
Pile Cap G1c - Blinding Concrete	3	21-Nov-14	24-Nov-14
Pile Cap G1c - Rebar & Concreting	18	25-Nov-14	15-Dec-14
Pile Cap G1c - Backfilling & Temp Reinstatement	6	16-Dec-14	22-Dec-14
Pier H1c			
Pile Cap H1c - Preparation for ELS	6	02-Nov-15	07-Nov-15
Pile Cap H1c - Removal of Existing ground slab	6	09-Nov-15	14-Nov-15
Pile Cap H1c - Excavation & ELS Installation	12	16-Nov-15	28-Nov-15
Pile Cap H1c - Blinding Concrete	3	30-Nov-15	02-Dec-15
Pile Cap H1c - Rebar & Concreting	18	03-Dec-15	23-Dec-15
Pile Cap H1c - Backfilling & Temp Reinstatement	6	24-Dec-15	02-Jan-16
North Surface works for TBM Tunnelling			
Design Submission			
(D1) IFA for Temp. Access to Portion N8A, N8B & N8C incl. Temp. Lighting			
ICE Approval & Issue of Design Check Cert.	18	02-May-14	23-May-14
Check Cert to SO	0		23-May-14
No Objection or Further Minor Comments from IPs Received	0		23-May-14
SO Review (35 Days)	35	02-May-14	05-Jun-14
SO Approval with Condition Received	0		05-Jun-14
North Approach TBM Tunnelling & Cross Passage			
Design Submission			
ETWB TCW No 15/2005 - Cross Passage Ground Treatment for TBM Tunnels in North Landfall			
Review Meeting with GEO - after AIP Approval	0	01-Apr-14	
1st Submission to GEO - ETWB TCW No 15/2005 - Cross Passage Ground Treatment for TBM Tunnels in North Landfall	0		04-Aug-14
1st Submission GEO Review	28	04-Aug-14	31-Aug-14
Received GEO Comment	0		01-Sep-14
Prepare Response to Comment	12	01-Sep-14	15-Sep-14
2nd Submission to GEO	0		15-Sep-14
2nd GEO Review	28	16-Sep-14	13-Oct-14
Received 2nd GEO Comment	0		13-Oct-14
Prepare Respond to 2nd Comment	12	14-Oct-14	27-Oct-14
3rd Submission to GEO	0		27-Oct-14
3rd GEO Review	28	28-Oct-14	24-Nov-14
Construction			
Northern Landfall Surface Setup for TBM operation			
Gantry Setup at North Ventilation Shaft	48	08-Oct-15	04-Dec-15
Gantry Removal at North Ventilation Shaft	24	02-Jan-16	29-Jan-16
North Approach TBM Tunnel - NB ID15.60m - S880			
NB - North TBM Tunnel - Transition with Saturation (Ch6840 to 6708 - 132m)	75	08-Sep-15	22-Nov-15
NB - North TBM Tunnel - Transition with Saturation (Ch6708 to 6688 - 20m)	6	22-Nov-15	28-Nov-15
NB - North TBM Tunnel - Transition with Saturation (Ch6688 to 6640 - 48m)	14	28-Nov-15	12-Dec-15
NB - North TBM Tunnel - CDG+Boulder with Saturation (Ch6640 to 6600 - 40m)	8	12-Dec-15	20-Dec-15
NB - North TBM Tunnel - CDG with Saturation (Ch6600 to 6560 - 40m)	5	20-Dec-15	25-Dec-15
NB - North TBM Tunnel - Thrust Frame Removal	12	19-Aug-15	02-Sep-15
North Approach TBM Tunnel - SB ID12.40m - S882			
SB - North TBM Tunnel - Back-up Gnatry G3 & G4 Assembly	17	29-Jul-15	16-Aug-15
SB - North TBM Tunnel - Transition with Saturation (Ch6861 to 6729 - 132m)	63	03-Oct-15	05-Dec-15
SB - North TBM Tunnel - Transition with Saturation (Ch6729 to 6709 - 20m)	5	05-Dec-15	10-Dec-15
SB - North TBM Tunnel - Thrust Frame Removal	12	24-Sep-15	10-Oct-15
SB - North TBM Tunnel - Transition with Saturation (Ch6709 to 6661 - 48m)	11	10-Dec-15	21-Dec-15
SB - North TBM Tunnel - Transition with Saturation (Ch6661 to 6621 - 40m)	8	21-Dec-15	29-Dec-15
SB - North TBM Tunnel - Transition with Saturation (Ch6621 to 6581 - 40m)	5	29-Dec-15	03-Jan-16
North Approach Tunnel Internal Structure - NB			
NB - North TBM Tunnel - Invert Backfilling (Ch7175 to 6870 - 305m) Stage 1	87	10-Sep-15	06-Dec-15
NB - North TBM Tunnel - Invert Backfilling (Ch6870 to 6688 - 182m) Stage 1	77	06-Dec-15	24-Feb-16
NB - North TBM Tunnel - Invert Backfilling (Ch6688 to 6560 - 128m) Stage 1	54	01-Apr-16	26-May-16
NB - North TBM Tunnel - Invert Precast Gallery Installation (Ch7205 to 6870 - 335m)	96	24-Sep-15	29-Dec-15
NB - North TBM Tunnel - Invert Precast Gallery Installation (Ch6870 to 6688 - 182m)	77	29-Dec-15	18-Mar-16
NB - North TBM Tunnel - Invert Precast Gallery Installation (Ch6688 to 6560 - 128m)	54	13-Apr-16	07-Jun-16
NB - North TBM Tunnel - Invert Backfilling (Ch7205 to 7175 - 30m) Stage 2	9	15-Oct-15	24-Oct-15
NB - North TBM Tunnel - Invert Backfilling (Ch7175 to 7125 - 50m) Stage 2	15	24-Oct-15	08-Nov-15



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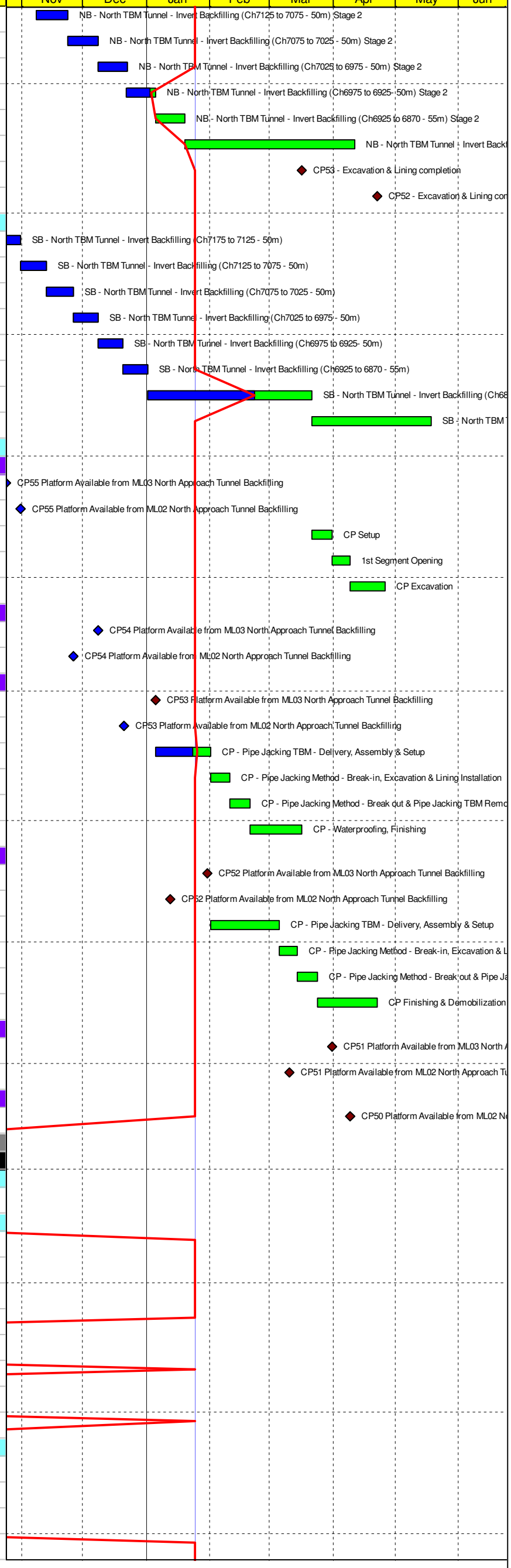
Activity Name	Orig Dur	DWPF Start	DWPF Finish
NB - North TBM Tunnel - Invert Backfilling (Ch7125 to 7075 - 50m) Stage 2	15	08-Nov-15	23-Nov-15
NB - North TBM Tunnel - Invert Backfilling (Ch7075 to 7025 - 50m) Stage 2	15	23-Nov-15	08-Dec-15
NB - North TBM Tunnel - Invert Backfilling (Ch7025 to 6975 - 50m) Stage 2	14	08-Dec-15	22-Dec-15
NB - North TBM Tunnel - Invert Backfilling (Ch6975 to 6925- 50m) Stage 2	14	22-Dec-15	05-Jan-16
NB - North TBM Tunnel - Invert Backfilling (Ch6925 to 6870 - 55m) Stage 2	14	05-Jan-16	19-Jan-16
NB - North TBM Tunnel - Invert Backfilling (Ch6870 to 6688 - 182m) Stage 2	77	19-Jan-16	11-Apr-16
CP53 - Excavation & Lining completion	0		16-Mar-16
CP52 - Excavation & Lining completion	0		22-Apr-16
North Approach Tunnel Internal Structure - SB			
SB - North TBM Tunnel - Invert Backfilling (Ch7175 to 7125 - 50m)	13	18-Oct-15	31-Oct-15
SB - North TBM Tunnel - Invert Backfilling (Ch7125 to 7075 - 50m)	13	31-Oct-15	13-Nov-15
SB - North TBM Tunnel - Invert Backfilling (Ch7075 to 7025 - 50m)	13	13-Nov-15	26-Nov-15
SB - North TBM Tunnel - Invert Backfilling (Ch7025 to 6975 - 50m)	12	26-Nov-15	08-Dec-15
SB - North TBM Tunnel - Invert Backfilling (Ch6975 to 6925- 50m)	12	08-Dec-15	20-Dec-15
SB - North TBM Tunnel - Invert Backfilling (Ch6925 to 6870 - 55m)	12	20-Dec-15	01-Jan-16
SB - North TBM Tunnel - Invert Backfilling (Ch6870 to 6688 - 182m)	77	01-Jan-16	21-Mar-16
SB - North TBM Tunnel - Invert Backfilling (Ch6688 to 6560 - 182m)	54	21-Mar-16	18-May-16
North Approach Cross Passage			
CP55 - Traditional Method			
CP55 Platform Available from ML03 North Approach Tunnel Backfilling	0	24-Oct-15	
CP55 Platform Available from ML02 North Approach Tunnel Backfilling	0	31-Oct-15	
CP Setup	6	21-Mar-16	31-Mar-16
1st Segment Opening	7	31-Mar-16	09-Apr-16
CP Excavation	14	09-Apr-16	26-Apr-16
CP54 - Traditional Method			
CP54 Platform Available from ML03 North Approach Tunnel Backfilling	0	08-Dec-15	
CP54 Platform Available from ML02 North Approach Tunnel Backfilling	0	26-Nov-15	
CP53 - Pipe Jacking Method			
CP53 Platform Available from ML03 North Approach Tunnel Backfilling	0	05-Jan-16	
CP53 Platform Available from ML02 North Approach Tunnel Backfilling	0	21-Dec-15	
CP - Pipe Jacking TBM - Delivery, Assembly & Setup	23	05-Jan-16	01-Feb-16
CP - Pipe Jacking Method - Break-in, Excavation & Lining Installation	9	01-Feb-16	10-Feb-16
CP - Pipe Jacking Method - Break out & Pipe Jacking TBM Removal	10	10-Feb-16	20-Feb-16
CP - Waterproofing, Finishing	21	20-Feb-16	16-Mar-16
CP52 - Pipe Jacking Method			
CP52 Platform Available from ML03 North Approach Tunnel Backfilling	0	30-Jan-16	
CP52 Platform Available from ML02 North Approach Tunnel Backfilling	0	12-Jan-16	
CP - Pipe Jacking TBM - Delivery, Assembly & Setup	23	01-Feb-16	05-Mar-16
CP - Pipe Jacking Method - Break-in, Excavation & Lining Installation	9	05-Mar-16	14-Mar-16
CP - Pipe Jacking Method - Break out & Pipe Jacking TBM Removal	10	14-Mar-16	24-Mar-16
CP Finishing & Demobilization	21	24-Mar-16	22-Apr-16
CP51 - Traditional Method			
CP51 Platform Available from ML03 North Approach Tunnel Backfilling	0	31-Mar-16	
CP51 Platform Available from ML02 North Approach Tunnel Backfilling	0	10-Mar-16	
CP50 - Pipe Jacking Method			
CP50 Platform Available from ML02 North Approach Tunnel Backfilling	0	09-Apr-16	
North Ventilation Building			
Design Submission			
(A11) Submissons to Design Advisory Panel of ArchSD			
ArchSD's comment	30	10-Jun-14	09-Jul-14
(I1) DDA for North Vent.Bldgs. GBP & Arch.Submission			
Designer to Reply RtC + Update Submission	21	28-Jul-14	20-Aug-14
Submit Updated DDA to SO/ ICE/ IPs	0	21-Aug-14	
ICE Approval & Issue Check Cert	12	21-Aug-14	03-Sep-14
Submit ICE Check Cert to SO	6	04-Sep-14	11-Sep-14
IPs Review	28	21-Aug-14	17-Sep-14
IP's No Objection Received	0		17-Sep-14
SO's Review	35	21-Aug-14	24-Sep-14
SO Approval with Condition Received	0		24-Sep-14
(I1) DDA for North & South Vent.Bldg. ABWF works			
Preparation of DDA North & South ABWF	18	25-Sep-14	17-Oct-14
Review & Comment by JV	24	18-Oct-14	14-Nov-14
Designer prepare DDA	15	15-Nov-14	02-Dec-14
Formal Submission of DDA to ICE/ IPs	0		02-Dec-14



Project ID: TMCLK DWPF3 16W04

Data Date: 24-Jan-16

Planned Bar
Planned Bar - Critical
Planned Milestone
Progress bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

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Three Months Rolling Programme

Progress as of 24-Jan-16

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

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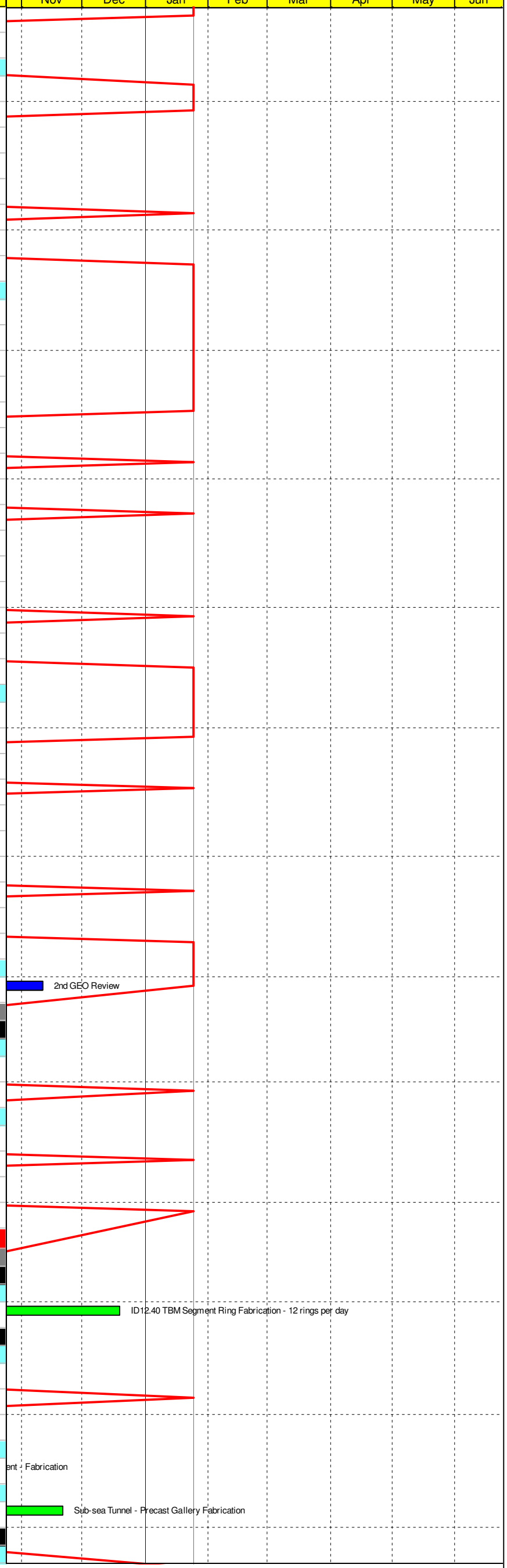
28-Aug-14	TMCLK/DBJGEN/PRG/98507 Rev.C	CLa	WYu
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Activity Name	Orig Dur	DWPF Start	DWPF Finish
Advanced Submission to SO	0		02-Dec-14
IPs/ SO's Advance Comments/ ICE Comments	28	03-Dec-14	30-Dec-14
(I2) DDA for North Vent.Bldgs.Structural Design incl.Vent.Connections			
Designer to Reply RtC + Update Submission	21	29-Nov-14	23-Dec-14
Submit Updated DDA to SO/ ICE/ IPs	0	24-Dec-14	
ICE Approval & Issue Check Cert	12	24-Dec-14	09-Jan-15
Submit ICE Check Cert to SO	6	10-Jan-15	16-Jan-15
IPs Review	28	24-Dec-14	20-Jan-15
IP's No Objection Received	0		20-Jan-15
SO's Review	35	24-Dec-14	27-Jan-15
SO Approval with Condition Received	0		27-Jan-15
(I3) DDA for North & South Vent.Bldgs. Service and E&M Provision			
Preparation of DDA Nth VB Service and E&MS Provision	18	12-Sep-14	04-Oct-14
Review & Comment by JV	24	06-Oct-14	01-Nov-14
Designer prepare DDA	15	03-Nov-14	19-Nov-14
Formal Submission of DDA to ICE/ IPs	0		19-Nov-14
Advanced Submission to SO	0		19-Nov-14
IPs/ SO's Advance Comments/ ICE Comments	28	20-Nov-14	17-Dec-14
Comments Received	0		17-Dec-14
Designer to Reply RtC + Update Submission	21	18-Dec-14	14-Jan-15
Submit Updated DDA to SO/ ICE/ IPs	0	15-Jan-15	
ICE Approval & Issue Check Cert	12	15-Jan-15	28-Jan-15
Submit ICE Check Cert to SO	6	29-Jan-15	04-Feb-15
IPs Review	28	15-Jan-15	11-Feb-15
IP's No Objection Received	0		11-Feb-15
SO's Review	35	15-Jan-15	18-Feb-15
SO Approval with Condition Received	0		18-Feb-15
(C3) DDA for North Vent Shaft & Duct Permanent Structure			
IPs/ SO's Advance Comments/ ICE Comments	28	01-Oct-14	28-Oct-14
Comments Received	0		28-Oct-14
Designer to Reply RtC + Update Submission	21	29-Oct-14	21-Nov-14
Submit Updated DDA to SO/ ICE/ IPs	0	22-Nov-14	
ICE Approval & Issue Check Cert	12	22-Nov-14	05-Dec-14
Submit ICE Check Cert to SO	6	06-Dec-14	12-Dec-14
IPs Review	28	22-Nov-14	19-Dec-14
IP's No Objection Received	0		19-Dec-14
SO's Review	35	22-Nov-14	26-Dec-14
SO Approval with Condition Received	0		27-Dec-14
ETWB TCW No 15/2005 - ELS design of ventilation duct and its connections with building and tunnel			
2nd GEO Review	28	15-Oct-15	11-Nov-15
North Surface Roadworks, Utility & Drainage works			
Design Submission			
(A20) DDA for Traffic Sign, Road Marking, Street Furnitures, Sign Gantry & etc			
SO's Review	35	11-Dec-14	14-Jan-15
SO Approval with Condition Received	0		14-Jan-15
(C2) DDA for Sewerage, Drainage, Waterworks & Utility works for North Landfall			
IPs Review	28	08-Nov-14	05-Dec-14
IP's No Objection Received	0		05-Dec-14
SO's Review	35	08-Nov-14	12-Dec-14
SO Approval with Condition Received	0		12-Dec-14
Sub-sea Tunnel			
Sub-sea TBM Tunnelling			
Major Procurement			
Precast Semgnet ID12.40 - Prodcution for Sub-sea TBM Tunnel			
ID12.40 TBM Segment Ring Fabrication - 12 rings per day	300	22-Nov-14	19-Dec-15
Design Submission			
(B6) Risk Assessment of Submarine Cable - Tunnelling Works			
CLP Review (4 weeks)	28	17-Mar-15	13-Apr-15
CLP Comment Received	0		13-Apr-15
SO's Condition Approval	35	12-Mar-15	15-Apr-15
(G1) DDA for TBM Tunnel Lining Structural Design - Sub-sea tunnel			
Sub-sea TBM Tunnel Segment - Fabrication	265	06-Oct-14	29-Aug-15
(G3) DDA for TBM Tunnel Internal Structures (Sub-sea)			
Sub-sea Tunnel - Precast Gallery Fabrication	244	22-Jan-15	21-Nov-15
Construction			
Sub-sea TBM Tunnel - NB ID12.2m - S881			



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Data Date: 24-Jan-16

Planned Bar
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Progress bar
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TMCLK - Northern Connection Sub-Sea Tunnel Section

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Dragages Hong Kong 香港寶嘉 — A member of the Bouygues Construction group
Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營
BOUYGUES TRAVAUX PUBLICS

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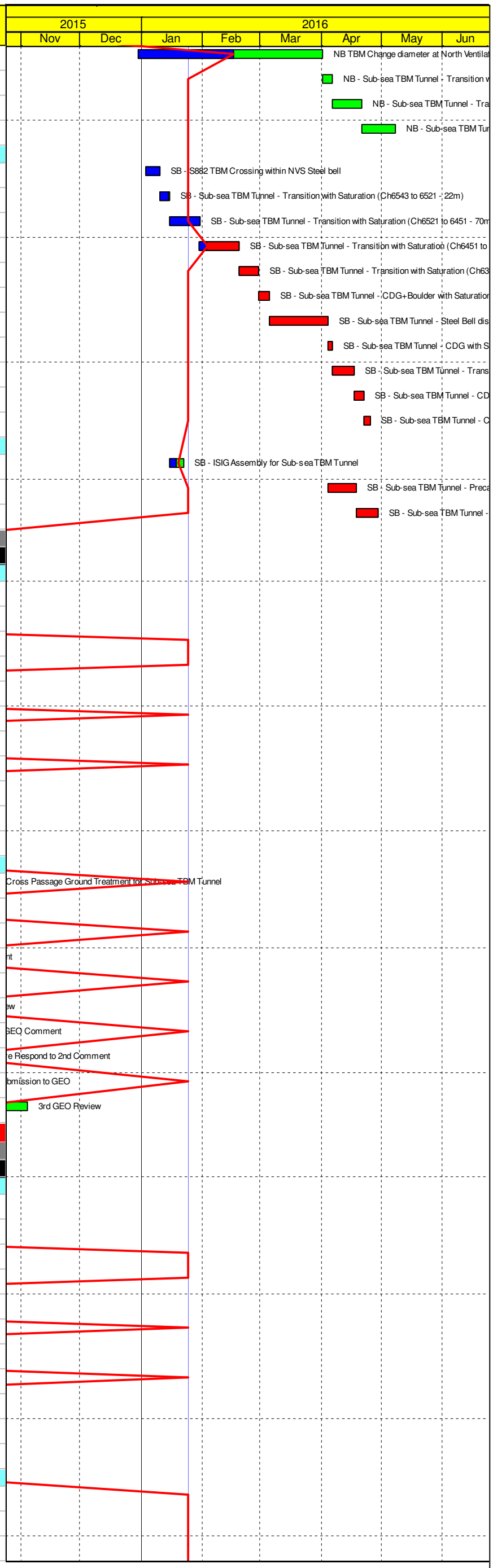
28-Aug-14	TMCLK/DBJGEN/PRG/98507 Rev.C	CLa	WYu
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Activity Name	Orig Dur	DWPF Start	DWPF Finish
NB TBM Change diameter at North Ventilation Shaft	87	30-Dec-15	01-Apr-16
NB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6522 to 6500 - 22m)	5	01-Apr-16	06-Apr-16
NB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6500 to 6430 - 70m)	15	06-Apr-16	21-Apr-16
NB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6430 to 6350 - 80m)	17	21-Apr-16	08-May-16
Sub-sea TBM Tunnel - SB ID12.2m - S882			
SB - S882 TBM Crossing within NVS Steel bell	7	03-Jan-16	10-Jan-16
SB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6543 to 6521 - 22m)	5	10-Jan-16	15-Jan-16
SB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6521 to 6451 - 70m)	15	15-Jan-16	30-Jan-16
SB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6451 to 6371 - 80m)	17	30-Jan-16	19-Feb-16
SB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6371 to 6321 - 50m)	10	19-Feb-16	29-Feb-16
SB - Sub-sea TBM Tunnel - CDG+Boulder with Saturation (Ch6321 to 6281 - 40m)	5	29-Feb-16	05-Mar-16
SB - Sub-sea TBM Tunnel - Steel Bell dismantling & Reconnect for NVS supply	27	05-Mar-16	04-Apr-16
SB - Sub-sea TBM Tunnel - CDG with Saturation (Ch6281 to 6261 - 20m)	2	04-Apr-16	06-Apr-16
SB - Sub-sea TBM Tunnel - Transition with Saturation (Ch6261 to 6196 - 65m)	11	06-Apr-16	17-Apr-16
SB - Sub-sea TBM Tunnel - CDG+Boulder with Saturation (Ch6196 to 6156 - 40m)	5	17-Apr-16	22-Apr-16
SB - Sub-sea TBM Tunnel - CDG with Saturation (Ch6156 to 6121 - 35m)	3	22-Apr-16	25-Apr-16
Sub-sea TBM Tunnel - SB - Precast Invert Gallery			
SB - ISIG Assembly for Sub-sea TBM Tunnel	7	15-Jan-16	22-Jan-16
SB - Sub-sea TBM Tunnel - Precast Invert Gallery - Completion to CP48	14	04-Apr-16	18-Apr-16
SB - Sub-sea TBM Tunnel - Precast Invert Gallery - Completion to CP47	11	18-Apr-16	29-Apr-16
Sub-sea Tunnel Cross Passage & Internal Structure			
Design Submission			
(G4) DDA for Cross Passage - Permanent works - incl. Geotechnical Assessment - Sub-sea tunnel			
Review & Comment by JV	6	01-Dec-14	06-Dec-14
Designer prepare DDA	12	08-Dec-14	20-Dec-14
Formal Submission of DDA to ICE/ IPs	0		20-Dec-14
Advanced Submission to SO	0		20-Dec-14
IPs/ SO's Advance Comments/ ICE Comments	28	21-Dec-14	17-Jan-15
Comments Received	0		17-Jan-15
Designer to Reply RtC + Update Submission	21	19-Jan-15	11-Feb-15
Submit Updated DDA to SO/ ICE/ IPs	0	12-Feb-15	
ICE Approval & Issue Check Cert	12	12-Feb-15	04-Mar-15
IPs Review	28	12-Feb-15	11-Mar-15
SO's Review	35	12-Feb-15	18-Mar-15
ETWB TCW No 15/2005 - Cross Passage Ground Treatment for Sub-sea TBM Tunnel			
1st Submission to GEO - ETWB TCW No 15/2005 - Cross Passage Ground Treatment for Sub-sea TBM Tunnel	0		13-Jul-15
1st Submission GEO Review	28	14-Jul-15	10-Aug-15
Received GEO Comment	0		10-Aug-15
Prepare Response to Comment	12	11-Aug-15	24-Aug-15
2nd Submission to GEO	0		24-Aug-15
2nd GEO Review	28	25-Aug-15	21-Sep-15
Received 2nd GEO Comment	0		21-Sep-15
Prepare Respond to 2nd Comment	12	22-Sep-15	07-Oct-15
3rd Submission to GEO	0		07-Oct-15
3rd GEO Review	28	08-Oct-15	04-Nov-15
Southern Landfall			
South Cut & Cover Tunnel			
Design Submission			
(E2) DDA for South C&C Box & Approach Ramp			
Review & Comment by JV	18	09-Dec-14	31-Dec-14
Designer prepare DDA	10	02-Jan-15	13-Jan-15
Formal Submission of DDA to ICE/ IPs	0		13-Jan-15
Advanced Submission to SO	0		13-Jan-15
IPs/ SO's Advance Comments/ ICE Comments	28	14-Jan-15	10-Feb-15
Comments Received	0		10-Feb-15
Designer to Reply RtC + Update Submission	21	11-Feb-15	13-Mar-15
Submit Updated DDA to SO/ ICE/ IPs	0	14-Mar-15	
ICE Approval & Issue Check Cert	18	14-Mar-15	08-Apr-15
IPs Review	28	14-Mar-15	10-Apr-15
SO's Review	35	14-Mar-15	17-Apr-15
(F3) AIP Temp.Support for South.C&C, Portal & ELS			
IPs Review	28	10-Jan-15	06-Feb-15
IP's No Objection Received	0		06-Feb-15
SO's Review	35	10-Jan-15	13-Feb-15



Project ID: TMCLK DWPF3 16W04

Data Date: 24-Jan-16

Planned Bar
Planned Bar - Critical
Planned Milestone
Progress bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

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Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

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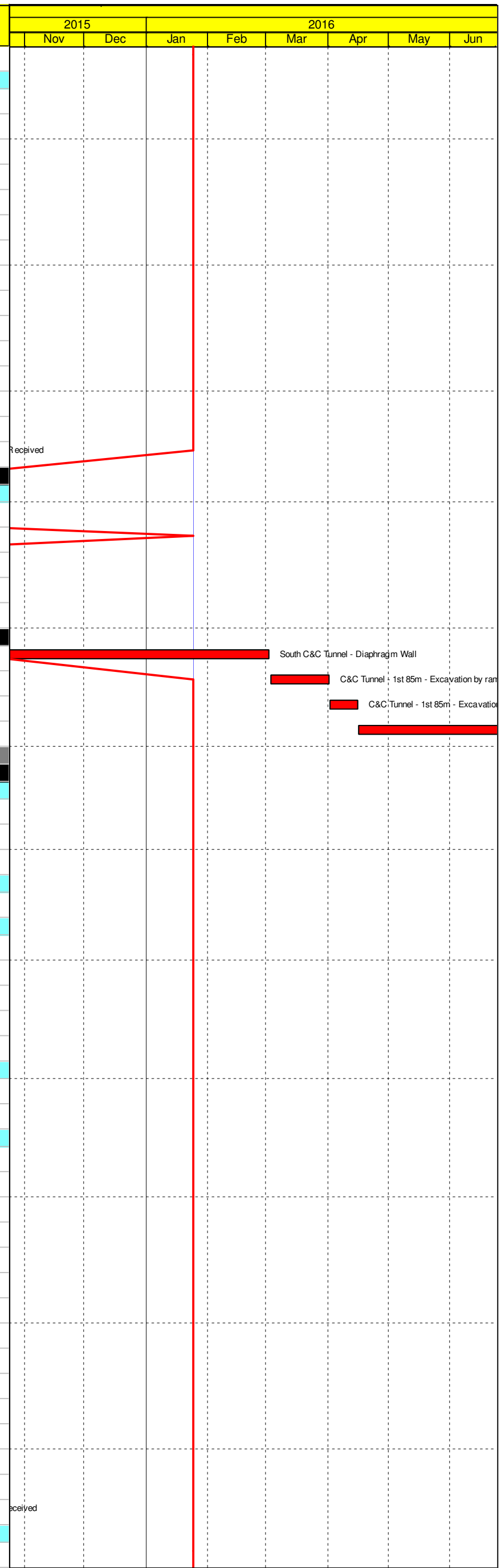
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Activity Name	Orig Dur	DWPF Start	DWPF Finish
SO Approval with Condition Received	0		13-Feb-15
(F3) DDA Temp.Support for South.C&C, Portal & ELS			
Preparation of DDA South C&C ELS	18	01-Apr-15	25-Apr-15
Review & Comment by JV	18	27-Apr-15	18-May-15
Designer prepare DDA	10	19-May-15	30-May-15
Formal Submission of DDA to ICE/ IPs	0		30-May-15
Advanced Submission to SO	0		30-May-15
IPs/ SO's Advance Comments/ ICE Comments	28	31-May-15	27-Jun-15
Comments Received	0		27-Jun-15
Designer to Reply RtC + Update Submission	21	29-Jun-15	23-Jul-15
Submit Updated DDA to SO/ ICE/ IPs	0	24-Jul-15	
ICE Approval & Issue Check Cert	12	24-Jul-15	06-Aug-15
Submit ICE Check Cert to SO	6	07-Aug-15	13-Aug-15
IPs Review	28	24-Jul-15	20-Aug-15
IP's No Objection Received	0		20-Aug-15
SO's Review	35	24-Jul-15	27-Aug-15
SO Approval with Condition Received	0		27-Aug-15
Method Statement Submission			
Method Statement of Construction Methodology of C&C Tunnels			
Preparation Method Statement for C&C Tunnels	25	28-Mar-15	30-Apr-15
Submit Method Statement to SO	0		30-Apr-15
SO Reviews & Comments	28	01-May-15	28-May-15
Re-submission	18	29-May-15	18-Jun-15
SO's Review	28	19-Jun-15	16-Jul-15
Construction			
South C&C Tunnel - Diaphragm Wall	120	03-Oct-15	02-Mar-16
C&C Tunnel - 1st 85m - Excavation by ramp	23	03-Mar-16	01-Apr-16
C&C Tunnel - 1st 85m - Excavation by vertical mean	11	02-Apr-16	15-Apr-16
C&C Tunnel - 1st 85m - Tunnel Structure	95	16-Apr-16	09-Aug-16
South Retrieval Shaft			
Design Submission			
(A5) Ground Investigation Report - Phase 3 - Southern Landfall			
Prepare Re-submission	10	23-Jun-15	04-Jul-15
*2nd Submission	0		04-Jul-15
SO's Condition Approval	35	05-Jul-15	08-Aug-15
(B5) AIP Construction Risk Assessment - Impact on South Landfall			
SO's Condition Approval	35	27-Jan-15	02-Mar-15
(B5) DDA Construction Risk Assessment - Impact on South Landfall			
SO's Comments for 1st Submission	35	18-Apr-15	22-May-15
Prepare Re-submission	10	23-May-15	04-Jun-15
2nd Submission	0		04-Jun-15
ICE Cert. Issue	6	05-Jun-15	11-Jun-15
SO's Condition Approval	35	05-Jun-15	09-Jul-15
(F1) AIP Temp.works - Retrieval Shaft on Southern Landfall inc. break-out			
SO Review (35 Days)	35	17-Dec-14	20-Jan-15
SO Approval with Condition Received	0		20-Jan-15
(F1) DDA Temp.works - Retrieval Shaft on Southern Landfall inc. break-out			
Preparation of DDA Temp Support for Sth Retrieval Shaft	18	01-Apr-15	25-Apr-15
Review & Comment by JV	18	27-Apr-15	18-May-15
Designer prepare DDA	6	19-May-15	26-May-15
Formal Submission of DDA to ICE/ IPs	0		26-May-15
Advanced Submission to SO	0		26-May-15
IPs/ SO's Advance Comments/ ICE Comments	28	27-May-15	23-Jun-15
Comments Received	0		23-Jun-15
Designer to Reply RtC + Update Submission	21	24-Jun-15	18-Jul-15
Submit Updated DDA to SO/ ICE/ IPs	0	20-Jul-15	
ICE Approval & Issue Check Cert	12	20-Jul-15	01-Aug-15
Submit ICE Check Cert to SO	6	03-Aug-15	08-Aug-15
IPs Review	28	20-Jul-15	16-Aug-15
IP's No Objection Received	0		16-Aug-15
SO's Review	35	20-Jul-15	23-Aug-15
SO Approval with Condition Received	0		24-Aug-15
(F2) AIP Temp works of Ground Treatment for TBMs passing under Southern Landfall			
Review & Comment by JV	18	23-Sep-14	15-Oct-14



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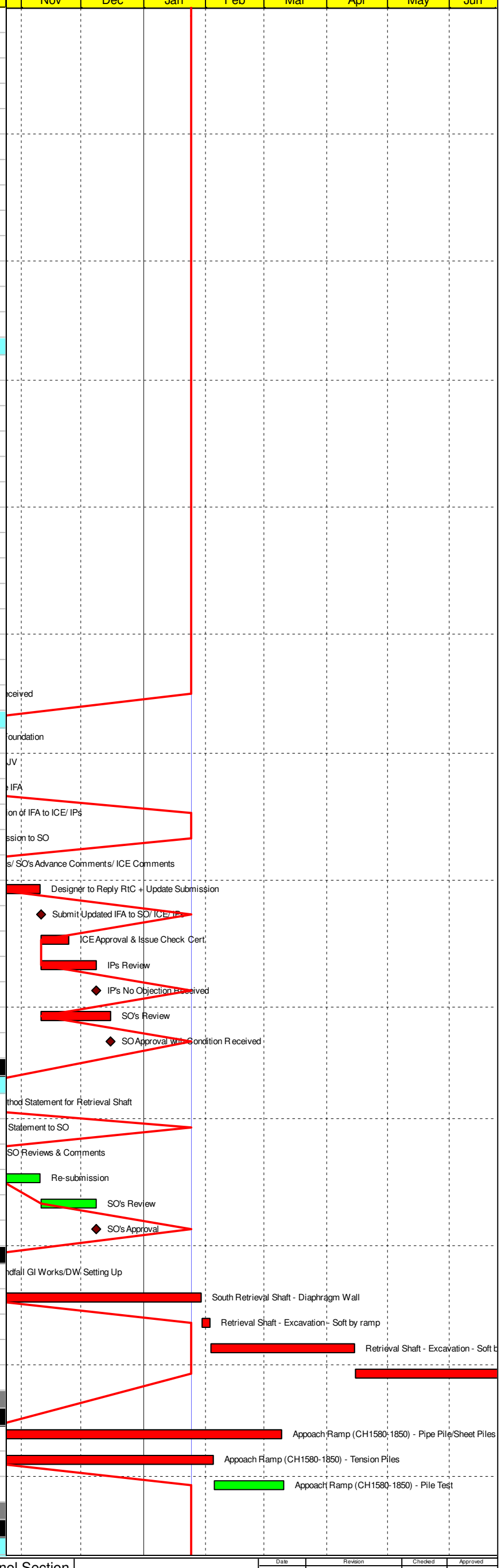
Activity Name	Orig Dur	DWPF Start	DWPF Finish
Designer Prepare AIP	12	16-Oct-14	29-Oct-14
Formal Submission of AIP to ICE/IPs	0		29-Oct-14
Advanced Submission of AIP to SO	0		29-Oct-14
Review & Comment by SO/ ICE/ IPs	28	30-Oct-14	26-Nov-14
Advance Commants from SO/ Comments from ICE/ IPs Received	0		26-Nov-14
Designer to Prepare RtC & Updated AIP	18	27-Nov-14	17-Dec-14
Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0		17-Dec-14
Reply to IPs Comments in RTC	0		17-Dec-14
ICE Approval & Issue of Design Check Cert.	18	18-Dec-14	10-Jan-15
Check Cert to SO	0		10-Jan-15
No Objection or Further Minor Comments from IPs Received	0		10-Jan-15
SO Review (35 Days)	35	19-Dec-14	22-Jan-15
SO Approval with Condition Received	0		22-Jan-15
(F2) DDA Temp works of Ground Treatment for TBMs passing under Southern Landfall			
Review & Comment by JV	18	27-Apr-15	18-May-15
Designer prepare DDA	6	19-May-15	26-May-15
Formal Submission of DDA to ICE/ IPs	0		26-May-15
Advanced Submission to SO	0		26-May-15
IPs/ SO's Advance Comments/ ICE Comments	28	27-May-15	23-Jun-15
Comments Received	0		23-Jun-15
Designer to Reply RtC + Update Submission	21	24-Jun-15	18-Jul-15
Submit Updated DDA to SO/ ICE/ IPs	0	20-Jul-15	
ICE Approval & Issue Check Cert	12	20-Jul-15	01-Aug-15
Submit ICE Check Cert to SO	6	03-Aug-15	08-Aug-15
IPs Review	28	20-Jul-15	16-Aug-15
IP's No Objection Received	0		16-Aug-15
SO's Review	35	20-Jul-15	23-Aug-15
SO Approval with Condition Received	0		24-Aug-15
(F4) Gantry Crane Support/Foundations in Southern Landfall			
Preparation of IFA Gantry Crane / Foundation	18	27-Jul-15	15-Aug-15
Review & Comment by JV	18	17-Aug-15	05-Sep-15
Designer prepare IFA	10	07-Sep-15	17-Sep-15
Formal Submission of IFA to ICE/ IPs	0		17-Sep-15
Advanced Submission to SO	0		17-Sep-15
IPs/ SO's Advance Comments/ ICE Comments	28	18-Sep-15	15-Oct-15
Designer to Reply RtC + Update Submission	21	16-Oct-15	10-Nov-15
Submit Updated IFA to SO/ ICE/ IPs	0	11-Nov-15	
ICE Approval & Issue Check Cert	12	11-Nov-15	24-Nov-15
IPs Review	28	11-Nov-15	08-Dec-15
IP's No Objection Received	0		08-Dec-15
SO's Review	35	11-Nov-15	15-Dec-15
SO Approval with Condition Received	0		15-Dec-15
Method Statement Submission			
Method Statement of Construction Methodology of Retrieval Shaft			
Preparation Method Statement for Retrieval Shaft	25	24-Aug-15	21-Sep-15
Submit Method Statement to SO	0		21-Sep-15
SO Reviews & Comments	28	22-Sep-15	19-Oct-15
Re-submission	18	20-Oct-15	10-Nov-15
SO's Review	28	11-Nov-15	08-Dec-15
SO's Approval	0		08-Dec-15
Construction			
South Landfall GI Works/DW Setting Up	48	06-Aug-15	02-Oct-15
South Retrieval Shaft - Diaphragm Wall	98	03-Oct-15	29-Jan-16
Retrieval Shaft - Excavation - Soft by ramp	3	30-Jan-16	02-Feb-16
Retrieval Shaft - Excavation - Soft by vertical mean (Fill material	52	03-Feb-16	14-Apr-16
Retrieval Shaft - Excavation - Soft (other than Fill)	140	15-Apr-16	30-Sep-16
South Approach Ramp			
Construction			
Appoach Ramp (CH1580-1850) - Pipe Pile/Sheet Piles Wall	126	03-Oct-15	09-Mar-16
Appoach Ramp (CH1580-1850) - Tension Piles	103	03-Oct-15	04-Feb-16
Appoach Ramp (CH1580-1850) - Pile Test	24	05-Feb-16	10-Mar-16
South Ventilation Building			
Design Submission			
(I1) DDA for South Vent.Bldg. GBP & Arch.Submission			



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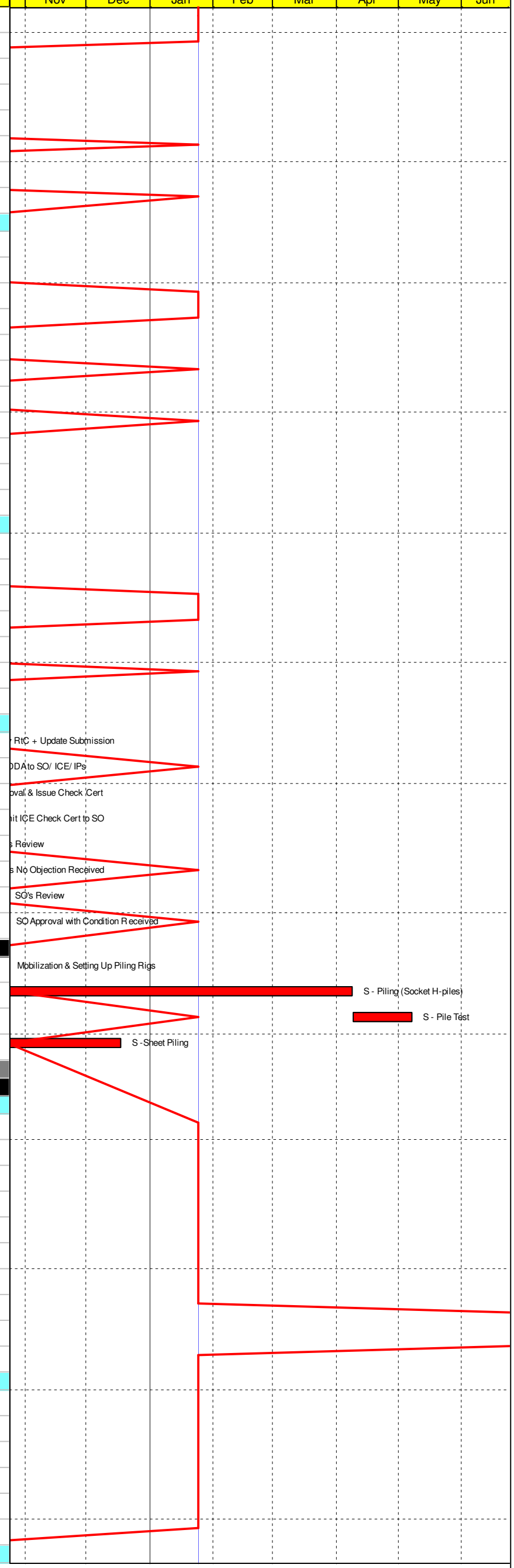
Activity Name	Orig Dur	DWPF Start	DWPF Finish
Designer to Reply RtC + Update Submission	21	27-Nov-14	20-Dec-14
Submit Updated DDA to SO/ ICE/ IPs	0	22-Dec-14	
ICE Approval & Issue Check Cert	18	22-Dec-14	14-Jan-15
Submit ICE Check Cert to SO	6	15-Jan-15	21-Jan-15
IPs Review	28	22-Dec-14	18-Jan-15
IP's No Objection Received	0		18-Jan-15
SO's Review	35	22-Dec-14	25-Jan-15
SO Approval with Condition Received	0		26-Jan-15
(I2) DDA for South Vent.Bldg. Foundation Design			
Review & Comment by JV	18	27-Apr-15	18-May-15
Designer prepare DDA	10	19-May-15	30-May-15
Formal Submission of DDA to ICE/ IPs	0		30-May-15
Advanced Submission to SO	0		30-May-15
IPs/ SO's Advance Comments/ ICE Comments	28	31-May-15	27-Jun-15
Comments Received	0		27-Jun-15
Designer to Reply RtC + Update Submission	21	29-Jun-15	23-Jul-15
Submit Updated DDA to SO/ ICE/ IPs	0	24-Jul-15	
ICE Approval & Issue Check Cert	18	24-Jul-15	13-Aug-15
IPs Review	28	24-Jul-15	20-Aug-15
SO's Review	35	24-Jul-15	27-Aug-15
(I2) DDA for South Vent.Bldg.Structural Design incl.Vent.Connections			
Review & Comment by JV	18	18-Feb-15	17-Mar-15
Designer prepare DDA	10	18-Mar-15	28-Mar-15
Formal Submission of DDA to ICE/ IPs	0		28-Mar-15
Advanced Submission to SO	0		28-Mar-15
IPs/ SO's Advance Comments/ ICE Comments	28	29-Mar-15	25-Apr-15
Comments Received	0		25-Apr-15
Designer to Reply RtC + Update Submission	21	27-Apr-15	21-May-15
(J1) DDA Temp.works for Construction of Sth.Vent.Bldg.			
Designer to Reply RtC + Update Submission	21	24-Aug-15	16-Sep-15
Submit Updated DDA to SO/ ICE/ IPs	0	17-Sep-15	
ICE Approval & Issue Check Cert	12	17-Sep-15	02-Oct-15
Submit ICE Check Cert to SO	6	03-Oct-15	09-Oct-15
IPs Review	28	17-Sep-15	14-Oct-15
IP's No Objection Received	0		14-Oct-15
SO's Review	35	17-Sep-15	21-Oct-15
SO Approval with Condition Received	0		22-Oct-15
Construction			
Mobilization & Setting Up Piling Rigs	64	06-Aug-15	22-Oct-15
S - Piling (Socket H-piles)	132	23-Oct-15	08-Apr-16
S - Pile Test	24	09-Apr-16	07-May-16
S - Sheet Piling	48	23-Oct-15	17-Dec-15
South Surface Roadworks, Utility & Drainage works			
Design Submission			
(E1) AIP - Southern Landfall Seawall Modification			
Review & Comment by SO/ ICE/ IPs	28	13-Jan-17	09-Feb-17
Advance Commants from SO/ Comments from ICE/ IPs Received	0		09-Feb-17
Designer to Prepare RtC & Updated AIP	18	10-Feb-17	02-Mar-17
Submisson of AIP to SO/ ICE together with Reply To Comment (RTC)	0		02-Mar-17
Reply to IPs Comments in RTC	0		02-Mar-17
ICE Approval & Issue of Design Check Cert.	18	03-Mar-17	23-Mar-17
Check Cert to SO	0		23-Mar-17
No Objection or Further Minor Comments from IPs Received	0		23-Mar-17
SO Review (35 Days)	35	03-Mar-17	06-Apr-17
SO Approval with Condition Received	0		06-Apr-17
(E1) DDA - Southern Landfall Seawall Modification			
Preparation of DDA Modification of Seawall at Sth Landfall	18	07-Apr-17	02-May-17
Review & Comment by JV	18	04-May-17	24-May-17
Designer prepare DDA	10	25-May-17	06-Jun-17
Formal Submission of DDA to ICE/ IPs	0		06-Jun-17
Advanced Submission to SO	0		06-Jun-17
IPs/ SO's Advance Comments/ ICE Comments	28	07-Jun-17	04-Jul-17
(E3) DDA for Sewerage, Drainage, Waterworks & Utility works for South Landfall			



Planned Bar
Planned Bar - Critical
Planned Milestone
Progress bar
Progress Milestone

TMCLK - Northern Connection Sub-Sea Tunnel Section

Detailed Works Programme (Rev. F)

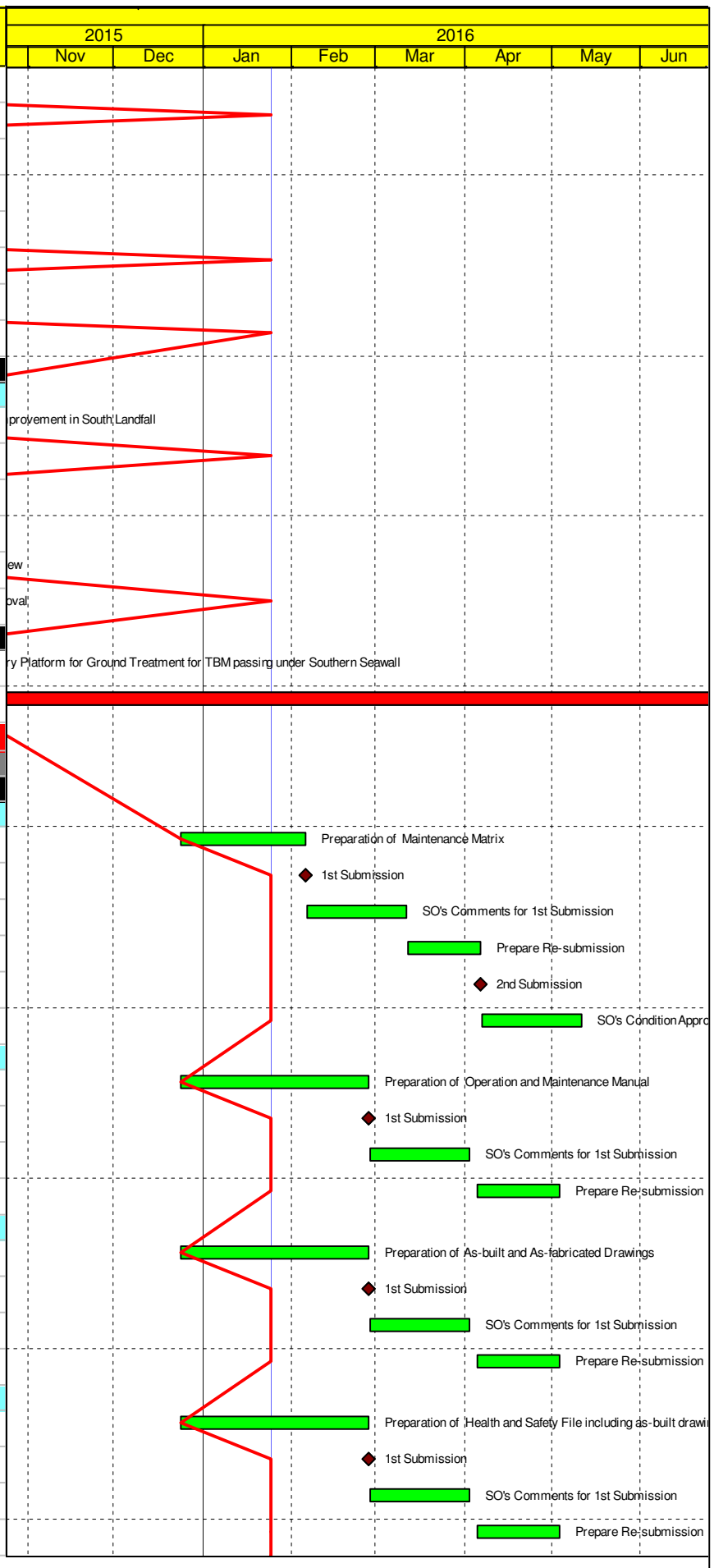
Three Months Rolling Programme

Progress as of 24-Jan-16

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
12-Feb-14	TMCLK/DBJGEN/PRG/98507	WYu	SPo
08-Apr-14	TMCLK/DBJGEN/PRG/98507 Rev.B	SPa	WYu
28-Aug-14	TMCLK/DBJGEN/PRG/98507 Rev.C	CLa	WYu
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Activity Name	Orig Dur	DWPF Start	DWPF Finish
Designer to Reply RtC + Update Submission	21	02-Feb-15	04-Mar-15
Submit Updated DDA to SO/ ICE/ IPs	0	05-Mar-15	
ICE Approval & Issue Check Cert	12	05-Mar-15	18-Mar-15
Submit ICE Check Cert to SO	6	19-Mar-15	25-Mar-15
IPs Review	28	05-Mar-15	01-Apr-15
IP's No Objection Received	0		01-Apr-15
SO's Review	35	05-Mar-15	08-Apr-15
SO Approval with Condition Received	0		08-Apr-15
Method Statement Submission			
Method Statement of Ground Treatment for TBMs Passing under Southern Landfall Seawall			
Preparation Method Statement for Ground Improvement in South Landfall	9	20-Jul-15	29-Jul-15
Submit Method Statement to SO	0		29-Jul-15
SO Reviews & Comments	28	30-Jul-15	26-Aug-15
Re-submission	6	27-Aug-15	02-Sep-15
SO's Review	28	03-Sep-15	30-Sep-15
SO's Approval	0		30-Sep-15
Construction			
Temporary Platform for Ground Treatment for TBM passing under Southern Seawall	48	06-Aug-15	02-Oct-15
Grouting Treatment for TBM passing under Southern Seawall	339	03-Oct-15	25-Nov-16
Testing & Commissioning/Inspection & Handover			
Final Inspection & Handover			
Design Submission			
(A12) Maintenance Matrix			
Preparation of Maintenance Matrix	35	24-Dec-15	05-Feb-16
1st Submission	0		05-Feb-16
SO's Comments for 1st Submission	35	06-Feb-16	11-Mar-16
Prepare Re-submission	18	12-Mar-16	06-Apr-16
2nd Submission	0		06-Apr-16
SO's Condition Approval	35	07-Apr-16	11-May-16
(A13) Operation & Maintenance Manual			
Preparation of Operation and Maintenance Manual	48	24-Dec-15	27-Feb-16
1st Submission	0		27-Feb-16
SO's Comments for 1st Submission	35	28-Feb-16	02-Apr-16
Prepare Re-submission	24	05-Apr-16	03-May-16
(A14) As-built & As-fabricated Drawings			
Preparation of As-built and As-fabricated Drawings	48	24-Dec-15	27-Feb-16
1st Submission	0		27-Feb-16
SO's Comments for 1st Submission	35	28-Feb-16	02-Apr-16
Prepare Re-submission	24	05-Apr-16	03-May-16
(A15) Health & Safety File incl.As-built Dwgs & Records,Maintenance Schedules,O&M Manual			
Preparation of Health and Safety File including as-built drawings and records, maintenance schedules, operation and mai	48	24-Dec-15	27-Feb-16
1st Submission	0		27-Feb-16
SO's Comments for 1st Submission	35	28-Feb-16	02-Apr-16
Prepare Re-submission	24	05-Apr-16	03-May-16



Planned Bar
Planned Bar - Critical
Planned Milestone
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TMCLK - Northern Connection Sub-Sea Tunnel Section

Detailed Works Programme (Rev. F)

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Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
12-Feb-14	TMCLK/DBJGEN/PRG/98507	WYu	SPo
08-Apr-14	TMCLK/DBJGEN/PRG/98507 Rev.B	SPa	WYu
28-Aug-14	TMCLK/DBJGEN/PRG/98507 Rev.C	CLa	WYu
10-Jun-15	TMCLK/DBJGEN/PRG/98507 Rev.F	WYu	

Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Environmental Mitigation and Enhancement Measure Implementation Schedule

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		✓

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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		✓

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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 Figure 6.2b Appendix D6b	Annex A	For other parts of the reclamation works construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2b and detailed in Appendices D6b. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: - TM-CLKL northern reclamation; - Reclamation filling for Portion D of HKBCF; Reclamation filling for FSD berth of HKBCF; and - Reclamation dredging and filling for Portion 1 of HKLR;	TM-CLKL northern landfall, Portion D of HKBCF and HKLR	Contractor	TM-EIAO		Y		✓
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		✓

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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	
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 Guidelines. DASO permit conditions.		Y		✓
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		✓

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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	-	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 conditions.		Y		✓
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		✓

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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	
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		✓
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		✓

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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	-	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		✓
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		✓

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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	-	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		✓
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		✓

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	
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
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		✓

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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	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		✓

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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		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures 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		✓

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	
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		<>

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	
		f Having a capacity of <450L unless the specifications have been approved by the EPD; and *f* Displaying a label in English and 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

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	
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

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

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 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 D3 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 Quality Monitoring

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 5
Calibrated by	:	P.F.Yeung
Date	:	10/12/2015

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.8	3.469	1.674	56	56.56
2	13 holes	9.7	3.146	1.519	51	51.51
3	10 holes	7.2	2.710	1.312	44	44.44
4	7 holes	4.8	2.213	1.074	37	37.37
5	5 holes	2.8	1.690	0.825	28	28.28

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):32.998 Intercept(b): 1.367 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 15/12/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR10
Calibrated by	:	P.F.Yeung
Date	:	10/12/2015

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.8	3.469	1.674	56	56.56
2	13 holes	9.5	3.113	1.504	50	50.50
3	10 holes	6.8	2.634	1.275	44	44.44
4	7 holes	4.5	2.143	1.041	37	37.37
5	5 holes	2.8	1.690	0.825	30	30.30

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):30.331 Intercept(b): 5.505 Correlation Coefficient(r): 0.9992

Checked by: Magnum Fan Date: 15/12/15

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AQMS1
Calibrated by	:	P.F.Yeung
Date	:	10/12/2015

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.7	3.454	1.667	55	55.55
2	13 holes	9.7	3.146	1.519	50	50.50
3	10 holes	7.2	2.710	1.312	44	44.44
4	7 holes	4.5	2.143	1.041	36	36.36
5	5 holes	2.7	1.660	0.810	28	28.28

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):31.314 Intercept(b):3.263 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan Date: 15/12/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 1
Calibrated by	:	P.F.Yeung
Date	:	10/12/2015

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.5	3.425	1.653	55	55.55
2	13 holes	9.0	3.030	1.465	48	48.48
3	10 holes	6.6	2.595	1.257	42	42.42
4	7 holes	4.6	2.166	1.052	34	34.34
5	5 holes	2.8	1.690	0.825	26	26.26

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):35.166 Intercept(b): -2.551 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 15/12/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 6
Calibrated by	:	P.F.Yeung
Date	:	10/12/2015

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.528	1.702	54	54.54
2	13 holes	9.2	3.063	1.480	48	48.48
3	10 holes	6.7	2.614	1.266	41	41.41
4	7 holes	4.4	2.119	1.029	34	34.34
5	5 holes	2.6	1.629	0.795	27	27.27

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):30.338 Intercept(b): 3.148 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 15/12/2015

ENVIROTECH SERVICES CO.

Calibration Report of Wind Meter

Date of Calibration : 10 November 2015

Brand of Test Meter: Davis

Model: Weather Wizard III (s/n: WE90911A30)

Location : ASR5

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)	Anemomete (m/s)
1.6	1.4
2.1	2.5
2.5	2.9

Wind Direction Test

Davis (o)	Marine Compass (o)
271	270
2	0
91	90
179	180

Calibrated by: Fai

Yeung Ping Fai
(Technical Officer)

Checked by : FAT

Ho Kam Fat
(Senior Technical Officer)

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2015 Rootsmeter S/N 0438320 Ta (K) - 292
Operator Tisch Orifice I.D. - 2454 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4460	3.2	2.00
2	NA	NA	1.00	1.0300	6.4	4.00
3	NA	NA	1.00	0.9180	7.9	5.00
4	NA	NA	1.00	0.8780	8.7	5.50
5	NA	NA	1.00	0.7240	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0121	0.6999	1.4258		0.9958	0.6886	0.8784
1.0078	0.9785	2.0163		0.9916	0.9627	1.2422
1.0057	1.0955	2.2543		0.9895	1.0779	1.3888
1.0047	1.1443	2.3644		0.9885	1.1258	1.4566
0.9994	1.3805	2.8515		0.9833	1.3582	1.7568
Qstd slope (m) =		2.09532		Qa slope (m) =		1.31205
intercept (b) =		-0.03812		intercept (b) =		-0.02349
coefficient (r) =		0.99994		coefficient (r) =		0.99994
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

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

Certificate of Calibration
校正證書

Certificate No. : C153422
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1330) Date of Receipt / 收件日期 : 10 June 2015

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.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 23 June 2015

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 : C F Leung
Project Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 23 June 2015

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

Certificate of Calibration
校正證書

Certificate No. : C153422
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	S12109

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
1.9	1.8	+0.1	0.2	2.0
4.0	3.9	+0.1	0.2	2.0
6.0	6.0	0.0	0.3	2.0
8.0	8.1	-0.1	0.3	2.0
10.0	10.3	-0.3	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 :
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, Tsing Shan Wan Exchange Building, 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青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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 - January 2016

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

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

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Air Quality Impact Monitoring Schedule - February 2016

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

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

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

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - January 2016

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

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Impact Dolphin Monitoring Survey Monitoring Schedule - February 2016

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

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

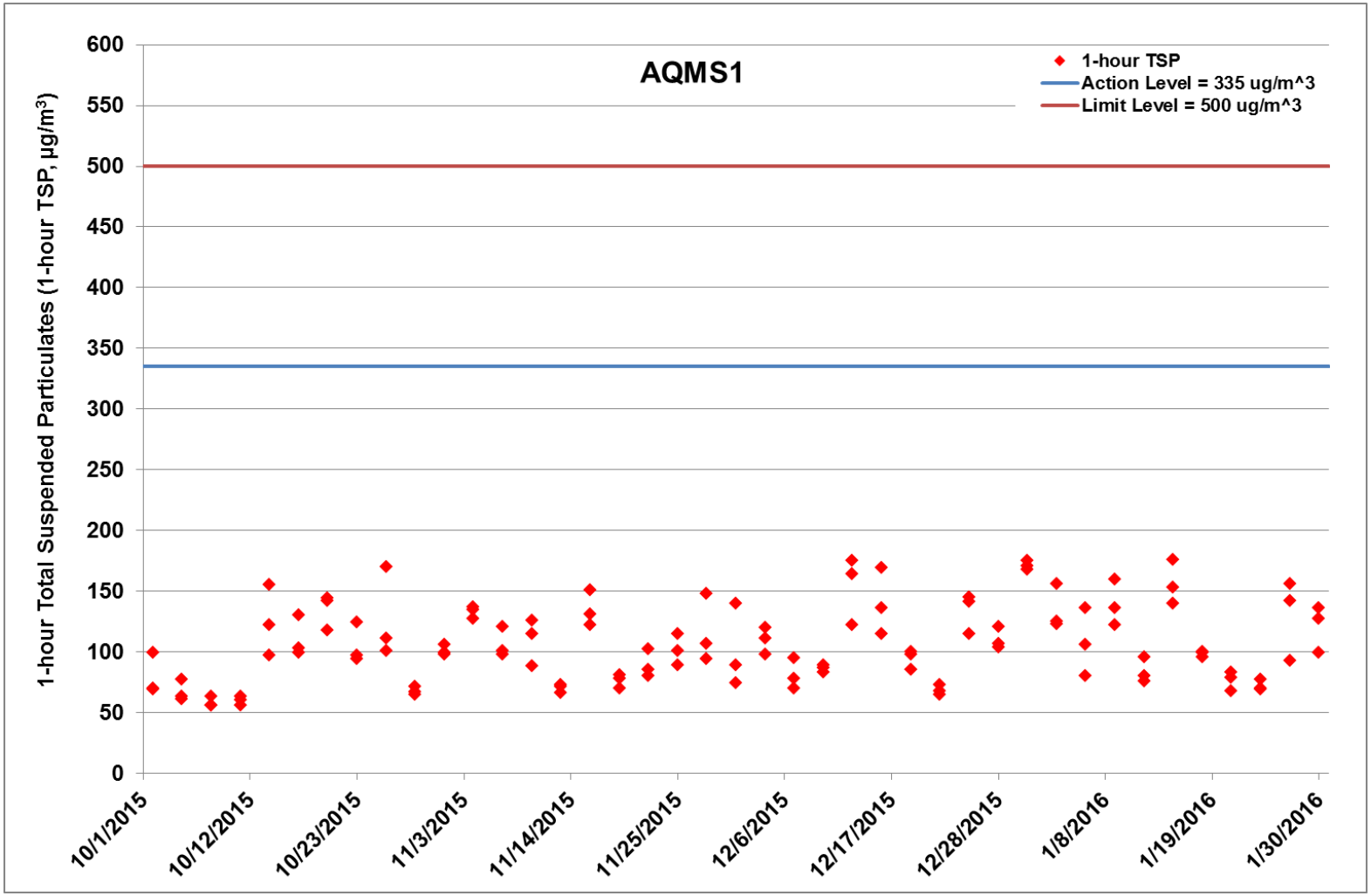

Figure G.1 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

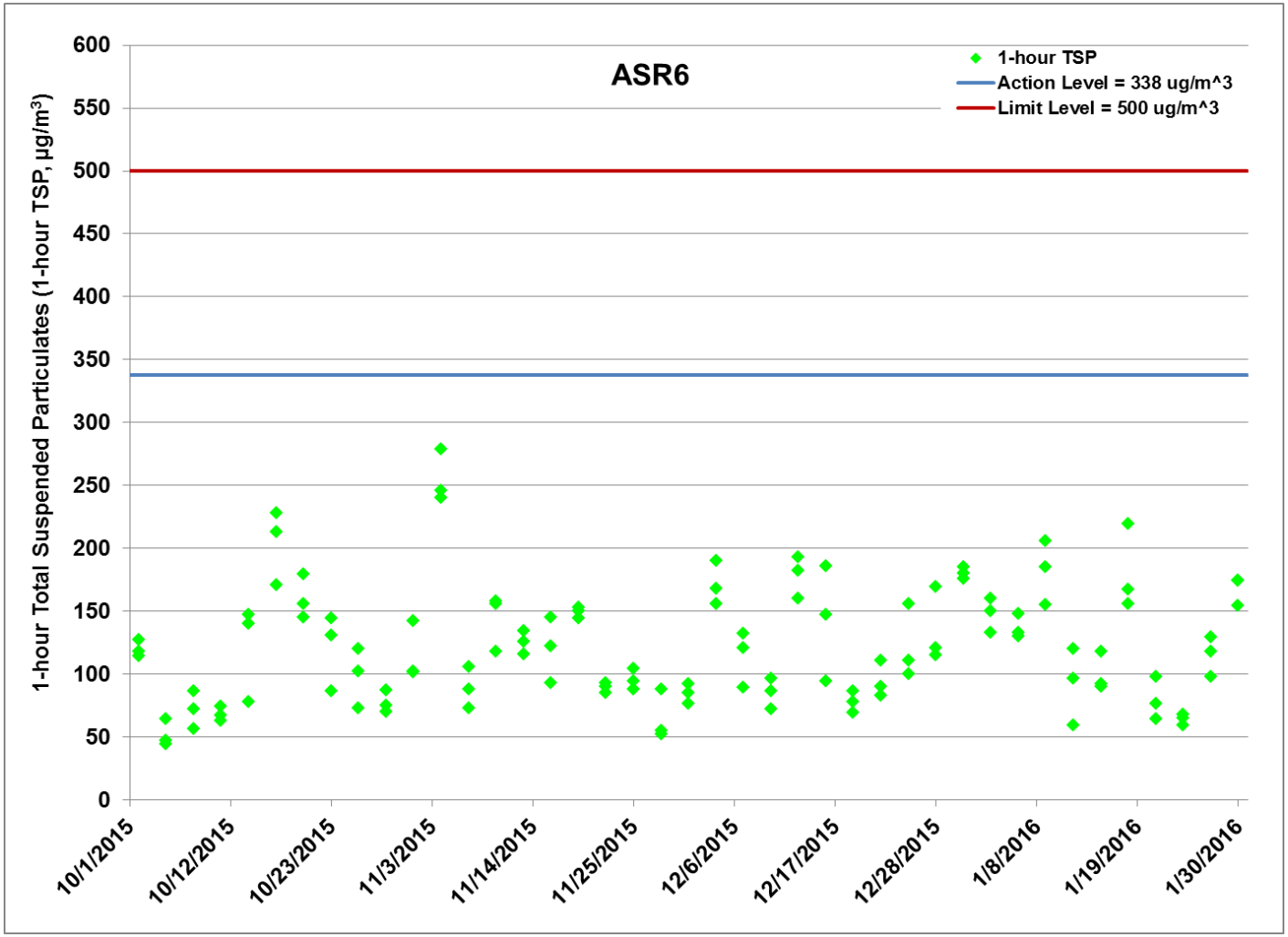

Figure G.2 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

ERM

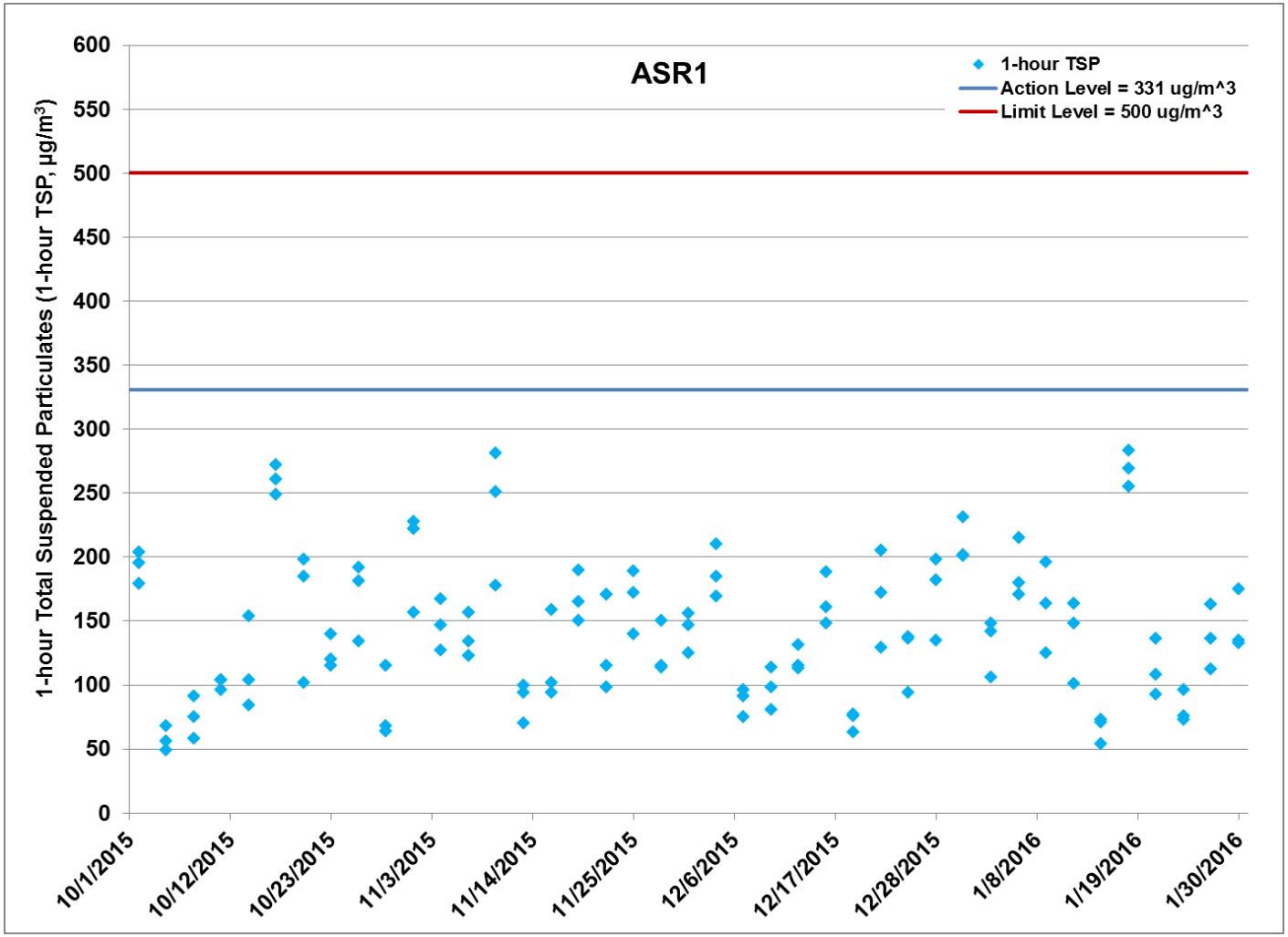

Figure G.3 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

ERM

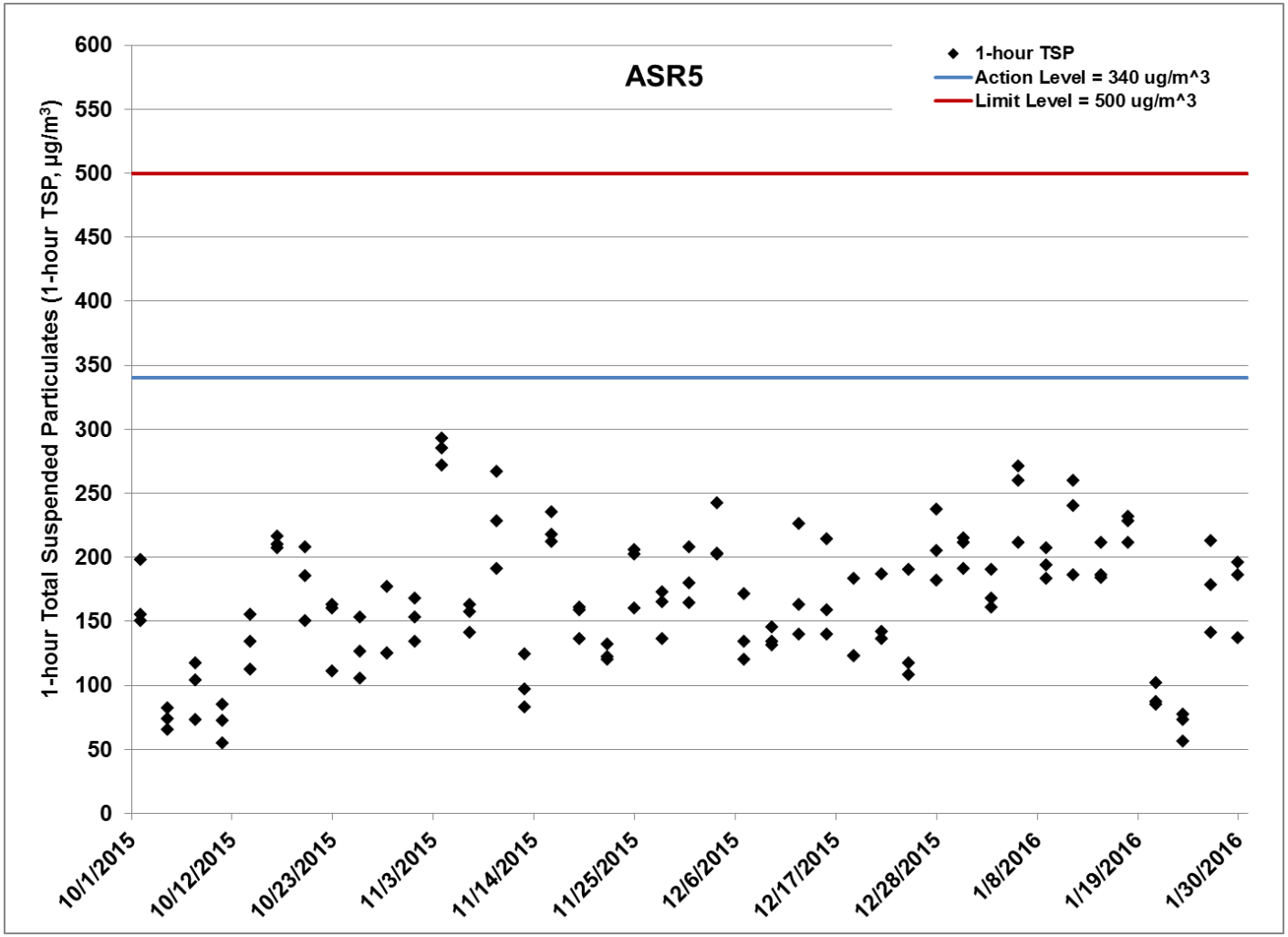

Figure G.4 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

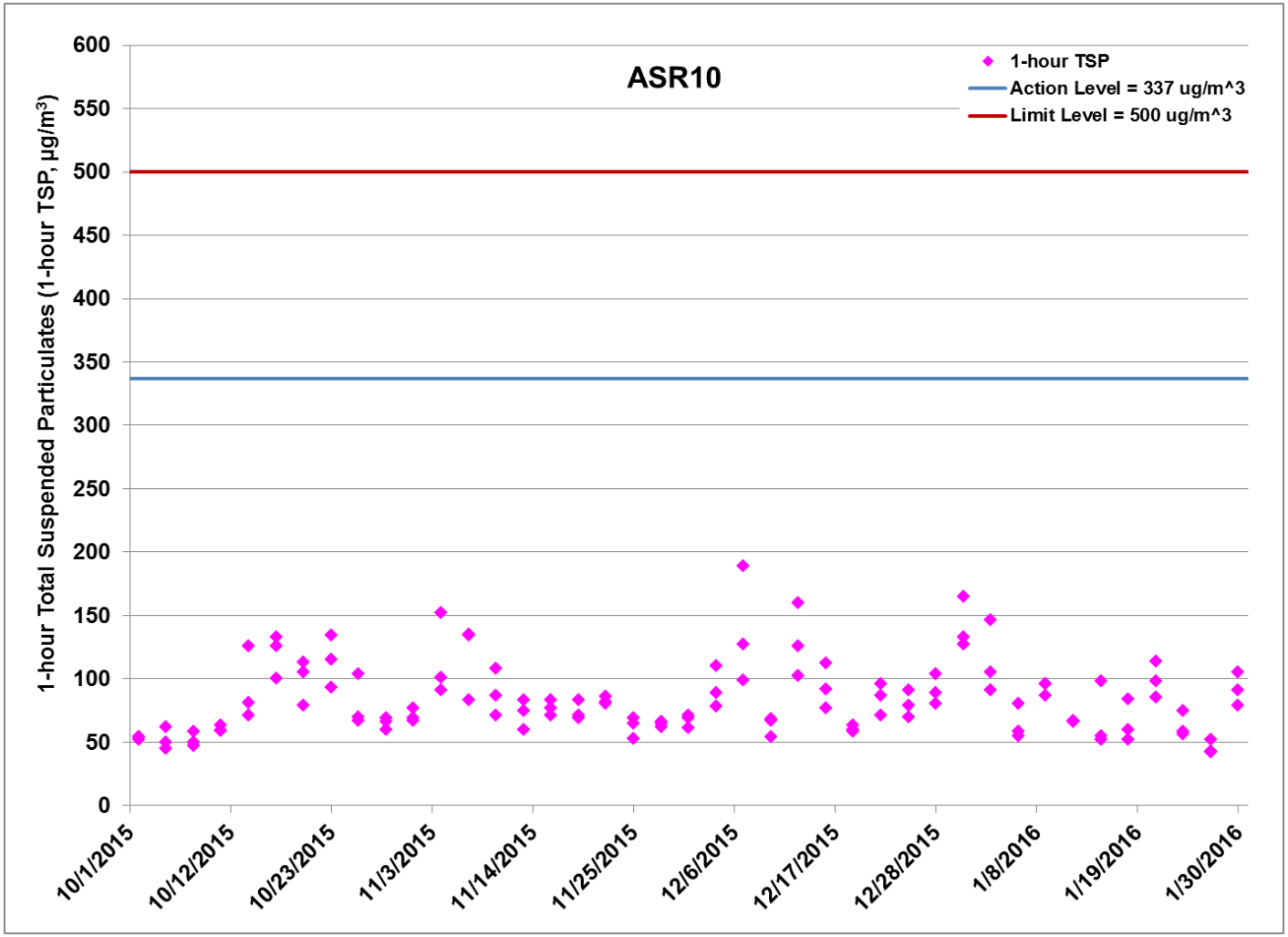

Figure G.5 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

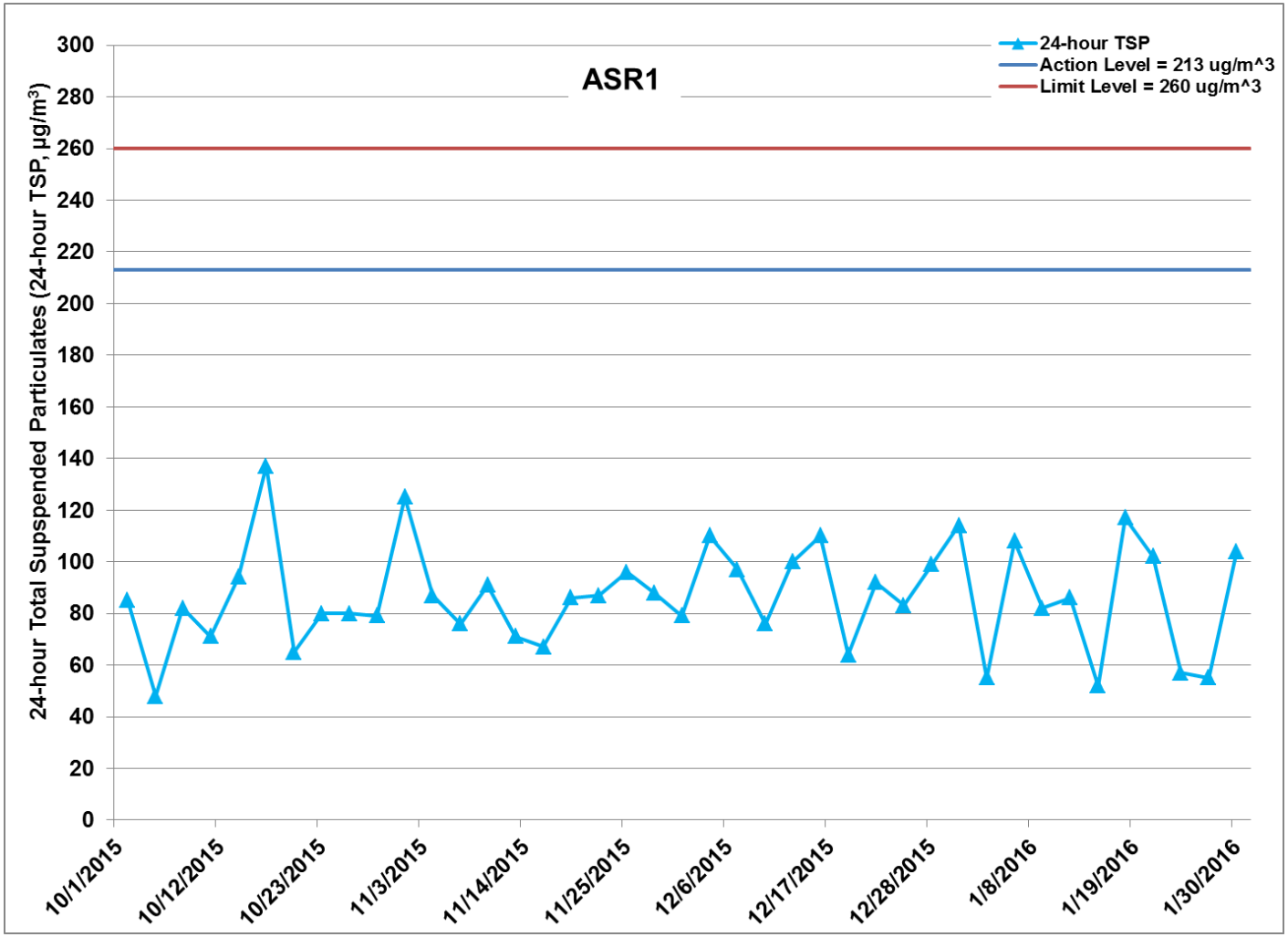

Figure G.6 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

ERM

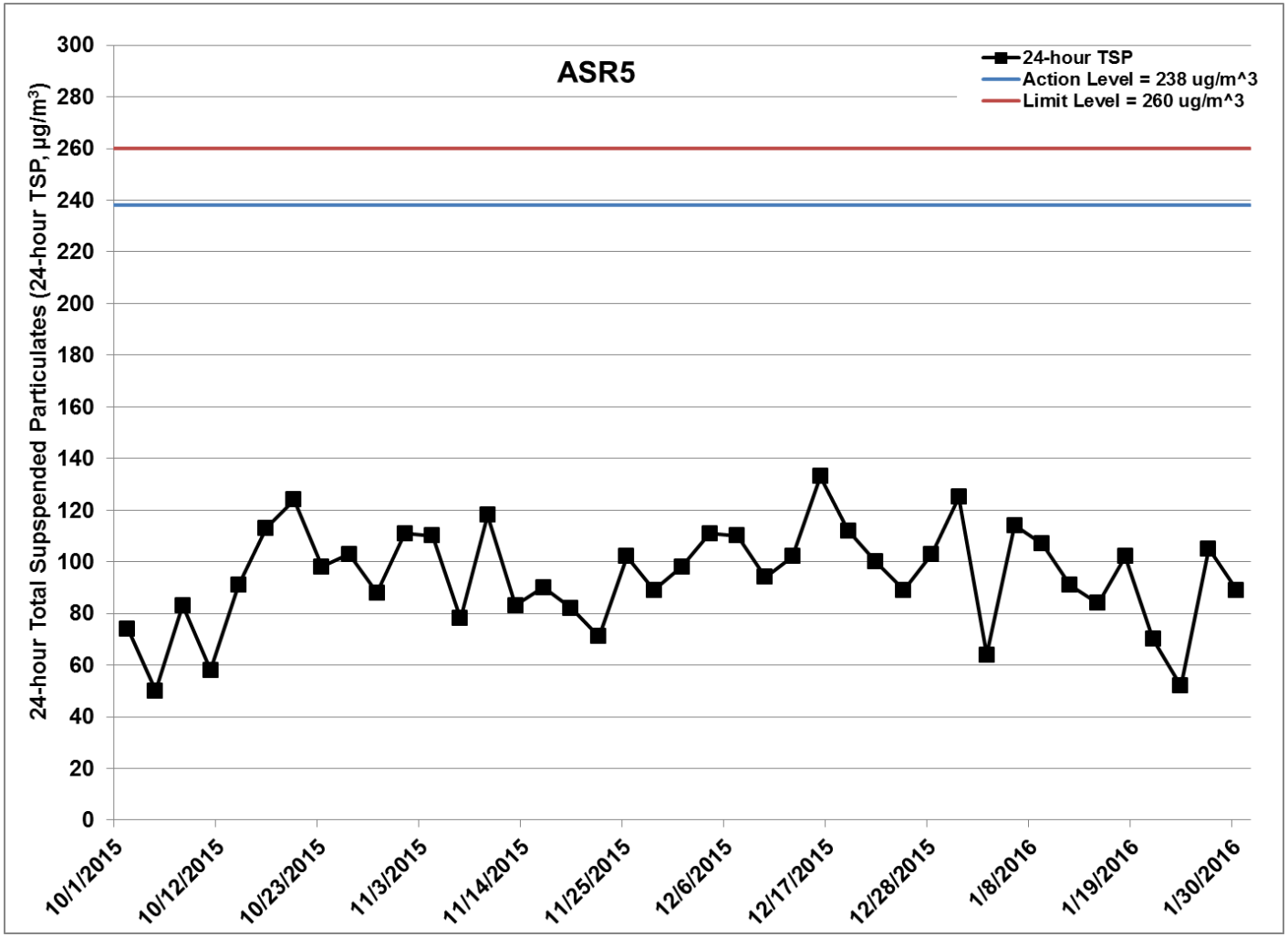

Figure G.7 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

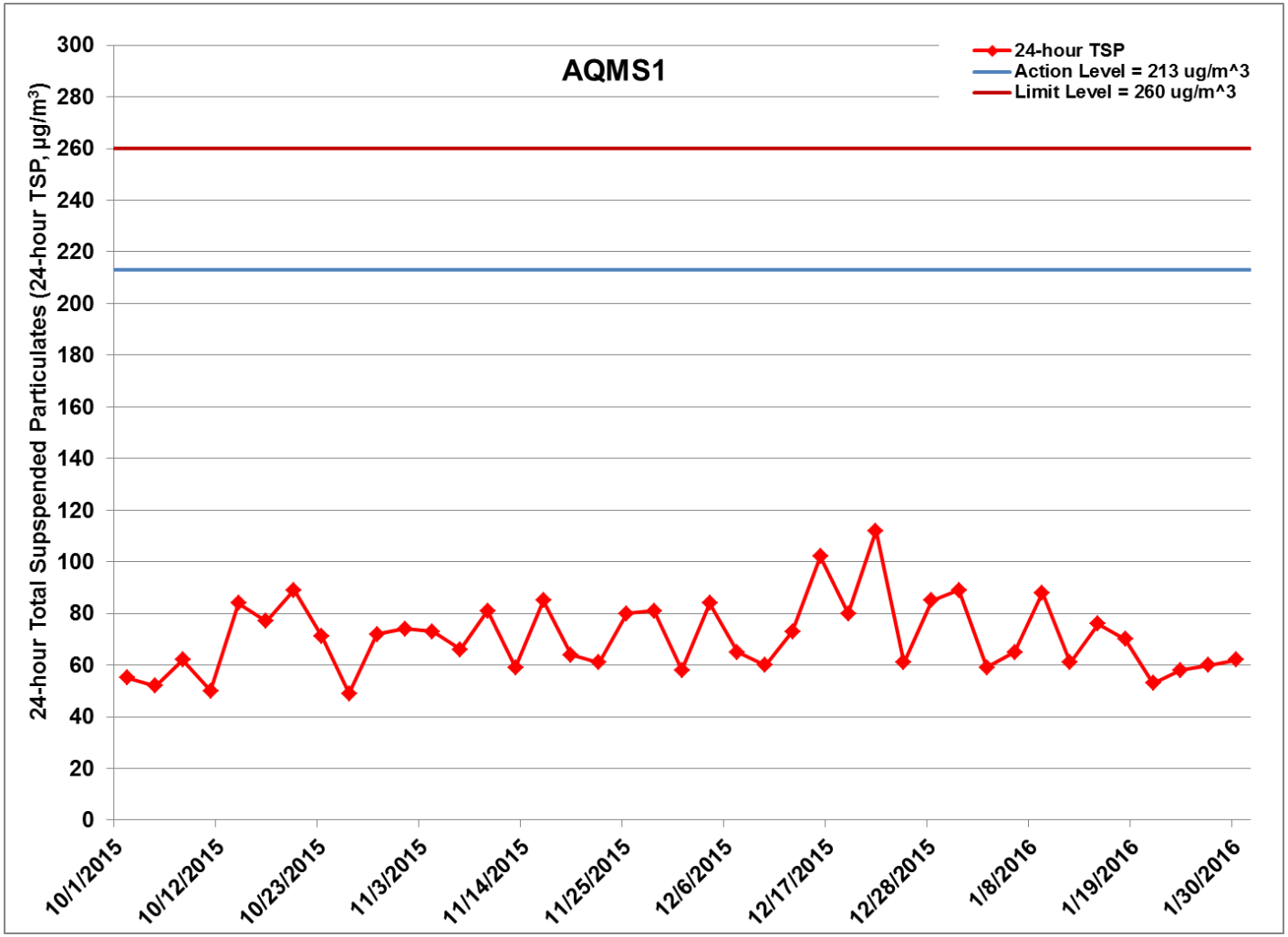

Figure G.8 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

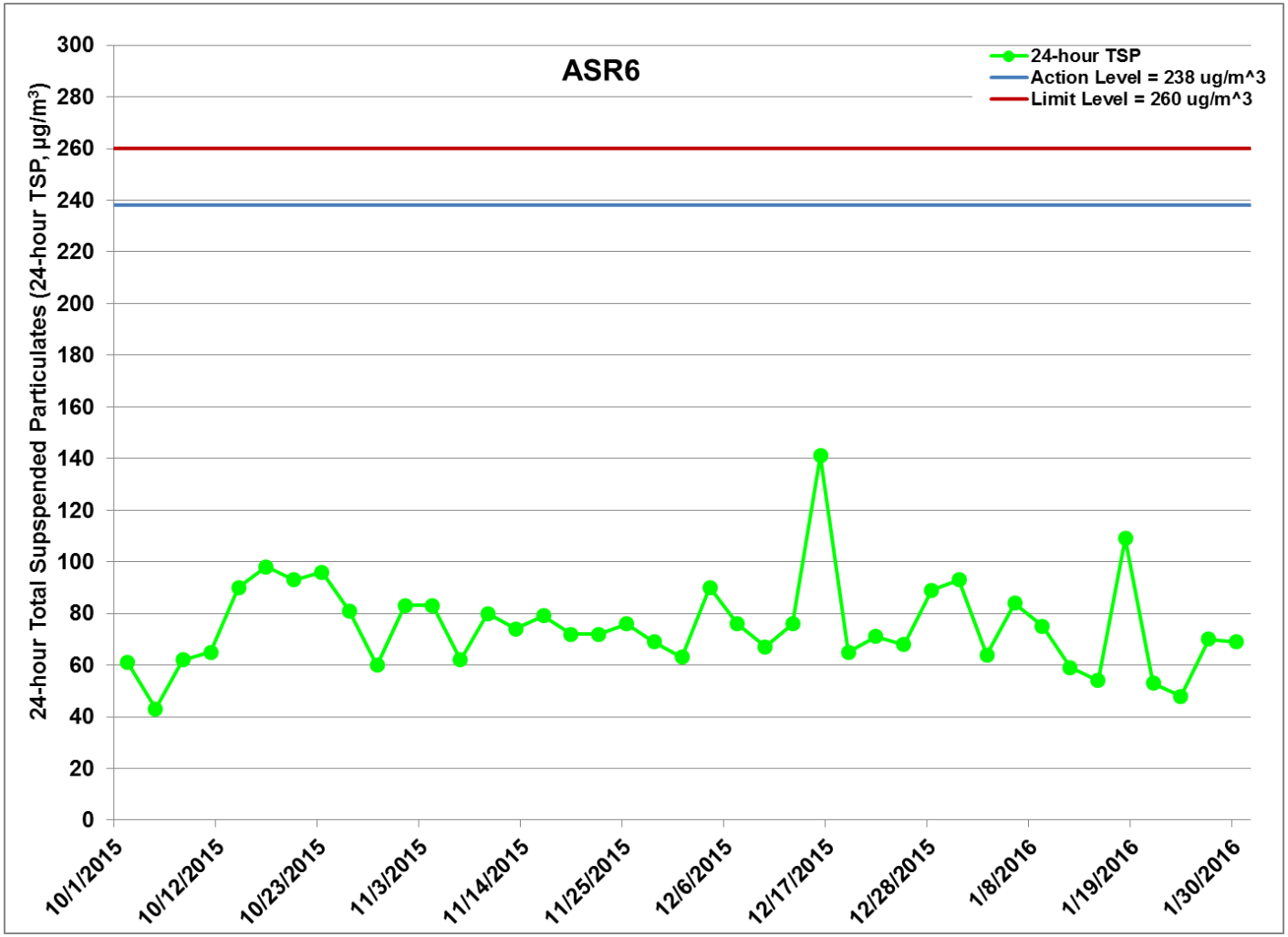

Figure G.9 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

ERM

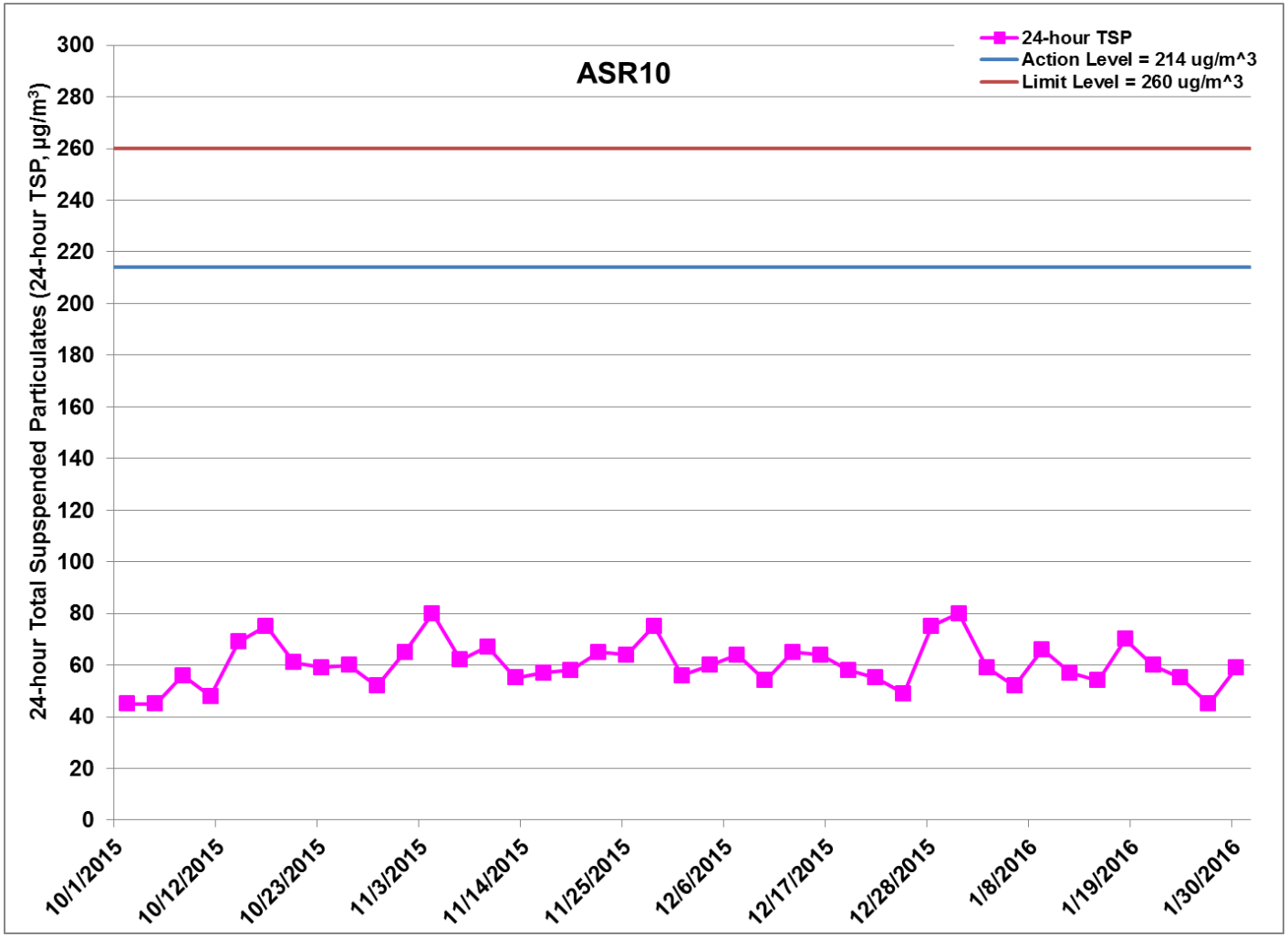

Figure G.10 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 October 2015 and 31 January 2016 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Construction of capping beam and base slab for Ventilation Shaft at Works Area – Portion N-C (1/10/2015 – 31/1/2016) and Box Culvert Extension (1/10/2015 – 31/1/2016). *Ref: 0212330_Impact AQM graphs_ January 2016_REV a.xlsx*

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-03	AQMS1	Rainy	08:47	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2016-01-03	AQMS1	Rainy	09:49	1-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	2016-01-03	AQMS1	Rainy	10:51	1-hour TSP	156	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR1	Rainy	08:36	1-hour TSP	142	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR1	Rainy	09:38	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR1	Rainy	10:40	1-hour TSP	106	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR10	Rainy	08:05	1-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR10	Rainy	09:07	1-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR10	Rainy	11:09	1-hour TSP	146	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR5	Rainy	08:26	1-hour TSP	161	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR5	Rainy	09:28	1-hour TSP	190	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR5	Rainy	10:30	1-hour TSP	168	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR6	Rainy	08:15	1-hour TSP	133	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR6	Rainy	09:17	1-hour TSP	160	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR6	Rainy	10:19	1-hour TSP	150	ug/m3
TMCLKL	HY/2012/08	2016-01-06	AQMS1	Sunny	13:37	1-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2016-01-06	AQMS1	Sunny	14:39	1-hour TSP	106	ug/m3
TMCLKL	HY/2012/08	2016-01-06	AQMS1	Sunny	15:41	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR1	Sunny	13:26	1-hour TSP	171	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR1	Sunny	14:28	1-hour TSP	215	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR1	Sunny	15:30	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR10	Sunny	12:54	1-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR10	Sunny	13:56	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR10	Sunny	14:58	1-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR5	Sunny	13:15	1-hour TSP	211	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR5	Sunny	14:17	1-hour TSP	271	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR5	Sunny	15:19	1-hour TSP	260	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR6	Sunny	13:05	1-hour TSP	130	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR6	Sunny	14:07	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR6	Sunny	15:09	1-hour TSP	133	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-09	AQMS1	Sunny	14:10	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2016-01-09	AQMS1	Sunny	15:12	1-hour TSP	160	ug/m3
TMCLKL	HY/2012/08	2016-01-09	AQMS1	Sunny	16:14	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR1	Sunny	13:59	1-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR1	Sunny	15:01	1-hour TSP	164	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR1	Sunny	16:03	1-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR10	Sunny	13:27	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR10	Sunny	14:29	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR10	Sunny	15:31	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR5	Sunny	13:47	1-hour TSP	207	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR5	Sunny	14:49	1-hour TSP	183	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR5	Sunny	15:51	1-hour TSP	194	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR6	Sunny	13:37	1-hour TSP	155	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR6	Sunny	14:39	1-hour TSP	206	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR6	Sunny	15:41	1-hour TSP	185	ug/m3
TMCLKL	HY/2012/08	2016-01-12	AQMS1	Sunny	13:39	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2016-01-12	AQMS1	Sunny	14:41	1-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2016-01-12	AQMS1	Sunny	15:43	1-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR1	Sunny	13:28	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR1	Sunny	14:30	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR1	Sunny	15:32	1-hour TSP	164	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR10	Sunny	12:57	1-hour TSP	66	ug/m3
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TMCLKL	HY/2012/08	2016-01-12	ASR5	Sunny	13:18	1-hour TSP	240	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR5	Sunny	14:20	1-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR5	Sunny	15:22	1-hour TSP	260	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR6	Sunny	13:07	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR6	Sunny	14:09	1-hour TSP	120	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR6	Sunny	15:11	1-hour TSP	96	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-15	AQMS1	Rainy	09:03	1-hour TSP	176	ug/m3
TMCLKL	HY/2012/08	2016-01-15	AQMS1	Rainy	10:05	1-hour TSP	153	ug/m3
TMCLKL	HY/2012/08	2016-01-15	AQMS1	Rainy	11:07	1-hour TSP	140	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR1	Rainy	08:52	1-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR1	Rainy	09:54	1-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR1	Rainy	10:56	1-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR10	Rainy	08:20	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR10	Rainy	09:22	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR10	Rainy	10:24	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR5	Rainy	08:41	1-hour TSP	184	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR5	Rainy	09:43	1-hour TSP	211	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR5	Rainy	10:45	1-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR6	Rainy	08:30	1-hour TSP	90	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR6	Rainy	09:32	1-hour TSP	118	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR6	Rainy	10:34	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2016-01-18	AQMS1	Cloudy	14:12	1-hour TSP	99	ug/m3
TMCLKL	HY/2012/08	2016-01-18	AQMS1	Cloudy	15:14	1-hour TSP	100	ug/m3
TMCLKL	HY/2012/08	2016-01-18	AQMS1	Cloudy	16:16	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR1	Cloudy	14:01	1-hour TSP	255	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR1	Cloudy	15:03	1-hour TSP	269	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR1	Cloudy	16:05	1-hour TSP	283	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR10	Cloudy	13:29	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR10	Cloudy	14:31	1-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR10	Cloudy	15:33	1-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR5	Cloudy	13:50	1-hour TSP	232	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR5	Cloudy	14:52	1-hour TSP	211	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR5	Cloudy	15:54	1-hour TSP	228	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR6	Cloudy	13:39	1-hour TSP	167	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR6	Cloudy	14:41	1-hour TSP	156	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR6	Cloudy	15:43	1-hour TSP	219	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-21	AQMS1	Cloudy	13:58	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2016-01-21	AQMS1	Cloudy	15:00	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2016-01-21	AQMS1	Cloudy	16:02	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR1	Cloudy	13:46	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR1	Cloudy	14:48	1-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR1	Cloudy	15:50	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR10	Cloudy	13:15	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR10	Cloudy	14:17	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR10	Cloudy	15:19	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR5	Cloudy	13:35	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR5	Cloudy	14:37	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR5	Cloudy	15:41	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR6	Cloudy	13:25	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR6	Cloudy	14:27	1-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR6	Cloudy	15:29	1-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2016-01-24	AQMS1	Rainy	14:24	1-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2016-01-24	AQMS1	Rainy	15:26	1-hour TSP	69	ug/m3
TMCLKL	HY/2012/08	2016-01-24	AQMS1	Rainy	16:28	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR1	Rainy	14:13	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR1	Rainy	15:15	1-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR1	Rainy	16:17	1-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR10	Rainy	13:41	1-hour TSP	75	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR10	Rainy	14:43	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR10	Rainy	15:45	1-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR5	Rainy	14:03	1-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR5	Rainy	15:05	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR5	Rainy	16:07	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR6	Rainy	13:52	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR6	Rainy	14:54	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR6	Rainy	15:56	1-hour TSP	59	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-27	AQMS1	Cloudy	14:36	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2016-01-27	AQMS1	Cloudy	15:38	1-hour TSP	142	ug/m3
TMCLKL	HY/2012/08	2016-01-27	AQMS1	Cloudy	16:40	1-hour TSP	156	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR1	Cloudy	14:25	1-hour TSP	163	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR1	Cloudy	15:27	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR1	Cloudy	16:29	1-hour TSP	112	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR10	Cloudy	13:53	1-hour TSP	42	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR10	Cloudy	14:55	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR10	Cloudy	15:57	1-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR5	Cloudy	14:15	1-hour TSP	213	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR5	Cloudy	15:17	1-hour TSP	178	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR5	Cloudy	16:19	1-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR6	Cloudy	14:04	1-hour TSP	129	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR6	Cloudy	15:06	1-hour TSP	118	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR6	Cloudy	16:08	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	2016-01-30	AQMS1	Cloudy	09:33	1-hour TSP	99	ug/m3
TMCLKL	HY/2012/08	2016-01-30	AQMS1	Cloudy	10:35	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	2016-01-30	AQMS1	Cloudy	11:37	1-hour TSP	127	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR1	Cloudy	09:22	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR1	Cloudy	10:24	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR1	Cloudy	11:26	1-hour TSP	133	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR10	Cloudy	08:50	1-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR10	Cloudy	09:52	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR10	Cloudy	10:54	1-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR5	Cloudy	09:10	1-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR5	Cloudy	10:12	1-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR5	Cloudy	11:14	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR6	Cloudy	09:00	1-hour TSP	174	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR6	Cloudy	10:02	1-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR6	Cloudy	11:04	1-hour TSP	174	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-03	AQMS1	Rainy	11:53	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR1	Rainy	11:42	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR10	Rainy	11:11	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR5	Rainy	11:32	24-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2016-01-03	ASR6	Rainy	11:21	24-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2016-01-06	AQMS1	Sunny	16:43	24-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR1	Sunny	16:32	24-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR10	Sunny	16:00	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR5	Sunny	16:21	24-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2016-01-06	ASR6	Sunny	16:11	24-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2016-01-09	AQMS1	Sunny	17:16	24-hour TSP	88	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR1	Sunny	17:05	24-hour TSP	82	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR10	Sunny	16:33	24-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR5	Sunny	16:53	24-hour TSP	107	ug/m3
TMCLKL	HY/2012/08	2016-01-09	ASR6	Sunny	16:43	24-hour TSP	75	ug/m3
TMCLKL	HY/2012/08	2016-01-12	AQMS1	Sunny	16:45	24-hour TSP	61	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR1	Sunny	16:34	24-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR10	Sunny	16:03	24-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR5	Sunny	16:24	24-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2016-01-12	ASR6	Sunny	16:13	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2016-01-15	AQMS1	Rainy	12:09	24-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR1	Rainy	11:58	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR10	Rainy	11:26	24-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR5	Rainy	11:47	24-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2016-01-15	ASR6	Rainy	11:36	24-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2016-01-18	AQMS1	Cloudy	17:18	24-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR1	Cloudy	17:07	24-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR10	Cloudy	16:35	24-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR5	Cloudy	16:56	24-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2016-01-18	ASR6	Cloudy	16:45	24-hour TSP	109	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2016-01-21	AQMS1	Cloudy	17:04	24-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR1	Cloudy	16:52	24-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR10	Cloudy	16:21	24-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR5	Cloudy	16:53	24-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2016-01-21	ASR6	Cloudy	16:31	24-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2016-01-24	AQMS1	Rainy	17:30	24-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR1	Rainy	17:19	24-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR10	Rainy	16:47	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR5	Rainy	17:09	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2016-01-24	ASR6	Rainy	16:58	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2016-01-27	AQMS1	Cloudy	17:42	24-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR1	Cloudy	17:31	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR10	Cloudy	16:59	24-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR5	Cloudy	17:21	24-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	2016-01-27	ASR6	Cloudy	17:10	24-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2016-01-30	AQMS1	Cloudy	12:39	24-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR1	Cloudy	12:28	24-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR10	Cloudy	11:56	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR5	Cloudy	12:16	24-hour TSP	89	ug/m3
TMCLKL	HY/2012/08	2016-01-30	ASR6	Cloudy	12:06	24-hour TSP	69	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)**
16/01/03	0:00	0	-
16/01/03	1:00	0	-
16/01/03	2:00	0	-
16/01/03	3:00	0.4	95
16/01/03	4:00	0	-
16/01/03	5:00	0.1	87
16/01/03	6:00	0.1	88
16/01/03	7:00	0.1	92
16/01/03	8:00	0.1	101
16/01/03	9:00	0.9	100
16/01/03	10:00	0.9	94
16/01/03	11:00	0	-
16/01/03	12:00	0.1	79
16/01/03	13:00	0.2	86
16/01/03	14:00	0.1	81
16/01/03	15:00	0.1	23
16/01/03	16:00	0.1	11
16/01/03	17:00	0	-
16/01/03	18:00	0	-
16/01/03	19:00	0	-
16/01/03	20:00	0.4	19
16/01/03	21:00	0.9	46
16/01/03	22:00	0.9	52
16/01/03	23:00	0.9	104
16/01/04	0:00	0	-
16/01/04	1:00	0	-
16/01/04	2:00	0.9	122
16/01/04	3:00	1.3	118
16/01/04	4:00	1.3	123
16/01/04	5:00	0.9	104
16/01/04	6:00	0.9	117
16/01/04	7:00	0	-
16/01/04	8:00	0	-
16/01/04	9:00	0	-
16/01/04	10:00	1.3	131
16/01/04	11:00	1.3	126
16/01/04	12:00	0.9	123
16/01/04	13:00	0.4	104
16/01/04	14:00	0.9	115
16/01/04	15:00	0.9	109
16/01/04	16:00	0.9	132
16/01/04	17:00	0.9	124
16/01/06	18:00	0	-
16/01/06	19:00	0	-
16/01/06	20:00	0.4	46
16/01/06	21:00	0.9	172
16/01/06	22:00	0.9	236
16/01/06	23:00	0.9	49
16/01/06	0:00	0.9	170
16/01/06	1:00	0.9	223
16/01/06	2:00	0.9	212
16/01/06	3:00	0.9	225
16/01/06	4:00	0.4	356
16/01/06	5:00	2.2	51

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)**
16/01/06	6:00	3.1	23
16/01/06	7:00	3.6	16
16/01/06	8:00	4.9	52
16/01/06	9:00	4.9	63
16/01/07	10:00	4.5	57
16/01/07	11:00	3.6	49
16/01/07	12:00	3.1	66
16/01/07	13:00	2.7	62
16/01/07	14:00	3.1	49
16/01/07	15:00	2.7	42
16/01/07	16:00	1.3	50
16/01/07	17:00	2.7	62
16/01/07	18:00	2.2	55
16/01/07	19:00	2.2	41
16/01/07	20:00	1.8	38
16/01/07	21:00	1.3	62
16/01/07	22:00	0.9	105
16/01/07	23:00	1.3	241
16/01/07	0:00	0.9	274
16/01/07	1:00	0.9	344
16/01/07	2:00	0.4	136
16/01/07	3:00	0.9	169
16/01/07	4:00	1.8	144
16/01/07	5:00	1.8	152
16/01/07	6:00	1.8	161
16/01/07	7:00	0.4	113
16/01/07	8:00	0.4	124
16/01/07	9:00	0.4	5
16/01/09	10:00	1.8	53
16/01/09	11:00	1.3	42
16/01/09	12:00	1.3	55
16/01/09	13:00	0.4	77
16/01/09	14:00	0	-
16/01/09	15:00	0	-
16/01/09	16:00	0.9	42
16/01/09	17:00	1.3	63
16/01/09	18:00	1.3	55
16/01/09	19:00	1.8	54
16/01/09	20:00	2.7	104
16/01/09	21:00	3.1	115
16/01/09	22:00	3.6	132
16/01/09	23:00	4.5	121
16/01/09	0:00	3.1	120
16/01/09	1:00	3.1	109
16/01/09	2:00	2.7	133
16/01/09	3:00	2.7	171
16/01/09	4:00	2.7	104
16/01/09	5:00	2.7	113
16/01/09	6:00	2.7	105
16/01/09	7:00	1.8	93
16/01/09	8:00	1.3	88
16/01/09	9:00	2.2	96
16/01/10	10:00	1.8	82
16/01/10	11:00	2.2	94

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)**
16/01/10	12:00	1.8	93
16/01/10	13:00	2.7	100
16/01/10	14:00	1.8	138
16/01/10	15:00	2.2	94
16/01/10	16:00	3.1	135
16/01/10	17:00	2.7	85
16/01/10	18:00	2.7	82
16/01/10	19:00	2.7	97
16/01/10	20:00	3.6	132
16/01/10	21:00	4	114
16/01/10	22:00	4	120
16/01/10	23:00	4	135
16/01/10	0:00	3.6	124
16/01/10	1:00	3.6	117
16/01/10	2:00	3.6	123
16/01/10	3:00	3.6	120
16/01/10	4:00	3.6	106
16/01/10	5:00	3.1	131
16/01/10	6:00	3.1	133
16/01/10	7:00	3.6	108
16/01/10	8:00	0.4	116
16/01/10	9:00	0.4	56
16/01/12	10:00	3.1	48
16/01/12	11:00	2.2	52
16/01/12	12:00	2.7	63
16/01/12	13:00	4	55
16/01/12	14:00	4.5	51
16/01/12	15:00	2.2	49
16/01/12	16:00	3.6	50
16/01/12	17:00	4.5	44
16/01/12	18:00	3.1	52
16/01/12	19:00	3.6	61
16/01/12	20:00	3.6	55
16/01/12	21:00	2.7	50
16/01/12	22:00	2.7	49
16/01/12	23:00	2.2	44
16/01/12	0:00	2.2	51
16/01/12	1:00	2.7	60
16/01/12	2:00	2.2	41
16/01/12	3:00	2.2	22
16/01/12	4:00	2.2	25
16/01/12	5:00	2.2	34
16/01/12	6:00	2.7	58
16/01/12	7:00	1.8	57
16/01/12	8:00	3.1	61
16/01/12	9:00	2.7	50
16/01/13	10:00	3.1	48
16/01/13	11:00	3.6	62
16/01/13	12:00	2.7	44
16/01/13	13:00	2.7	60
16/01/13	14:00	2.7	61
16/01/13	15:00	3.1	57
16/01/13	16:00	1.8	24
16/01/13	17:00	3.1	42

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)**
16/01/13	18:00	4	59
16/01/13	19:00	4	63
16/01/13	20:00	2.7	51
16/01/13	21:00	1.3	58
16/01/13	22:00	0.9	138
16/01/13	23:00	1.3	172
16/01/13	0:00	1.3	222
16/01/13	1:00	1.8	212
16/01/13	2:00	0.4	348
16/01/13	3:00	0.9	238
16/01/13	4:00	0.4	181
16/01/13	5:00	0.4	142
16/01/13	6:00	0.9	173
16/01/13	7:00	0.4	158
16/01/13	8:00	0	-
16/01/13	9:00	1.3	81
16/01/15	10:00	1.8	60
16/01/15	11:00	1.3	99
16/01/15	12:00	0.9	142
16/01/15	13:00	1.3	96
16/01/15	14:00	1.8	82
16/01/15	15:00	1.3	100
16/01/15	16:00	0.4	119
16/01/15	17:00	0.4	108
16/01/15	18:00	0.4	113
16/01/15	19:00	1.3	56
16/01/15	20:00	1.8	44
16/01/15	21:00	1.3	77
16/01/15	22:00	0.9	15
16/01/15	23:00	0.9	20
16/01/15	0:00	2.7	65
16/01/15	1:00	3.1	49
16/01/15	2:00	2.2	40
16/01/15	3:00	1.3	12
16/01/15	4:00	2.2	47
16/01/15	5:00	1.3	51
16/01/15	6:00	0.4	50
16/01/15	7:00	0.4	80
16/01/15	8:00	0	-
16/01/15	9:00	0.9	61
16/01/16	10:00	0.9	58
16/01/16	11:00	0.9	84
16/01/16	12:00	0.4	86
16/01/16	13:00	0.9	62
16/01/16	14:00	0.9	115
16/01/16	15:00	0.9	62
16/01/16	16:00	1.3	84
16/01/16	17:00	1.8	92
16/01/16	18:00	1.8	105
16/01/16	19:00	2.7	84
16/01/16	20:00	2.2	92
16/01/16	21:00	4	96
16/01/16	22:00	4	99
16/01/16	23:00	3.1	81

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)**
16/01/16	0:00	3.6	87
16/01/16	1:00	4.5	125
16/01/16	2:00	4	96
16/01/16	3:00	4.5	122
16/01/16	4:00	4	84
16/01/16	5:00	4.5	131
16/01/16	6:00	4.5	119
16/01/16	7:00	4.5	100
16/01/16	8:00	4	103
16/01/16	9:00	4	114
16/01/18	10:00	1.8	53
16/01/18	11:00	0.9	96
16/01/18	12:00	0.9	5
16/01/18	13:00	0.9	10
16/01/18	14:00	0.9	21
16/01/18	15:00	0.9	357
16/01/18	16:00	0.4	22
16/01/18	17:00	1.3	6
16/01/18	18:00	3.6	42
16/01/18	19:00	2.7	51
16/01/18	20:00	2.7	64
16/01/18	21:00	2.2	50
16/01/18	22:00	1.3	119
16/01/18	23:00	0.4	181
16/01/18	0:00	0.4	170
16/01/18	1:00	0.4	320
16/01/18	2:00	0.4	344
16/01/18	3:00	0	-
16/01/18	4:00	0	-
16/01/18	5:00	0	-
16/01/18	6:00	0.4	57
16/01/18	7:00	0.9	122
16/01/18	8:00	0.9	56
16/01/18	9:00	1.3	51
16/01/19	10:00	1.8	55
16/01/19	11:00	1.3	49
16/01/19	12:00	1.3	67
16/01/19	13:00	1.8	51
16/01/19	14:00	1.8	40
16/01/19	15:00	2.2	46
16/01/19	16:00	2.2	62
16/01/19	17:00	2.2	54
16/01/19	18:00	2.2	53
16/01/19	19:00	2.2	60
16/01/19	20:00	1.8	43
16/01/19	21:00	1.3	47
16/01/19	22:00	1.3	19
16/01/19	23:00	1.3	22
16/01/19	0:00	1.3	21
16/01/19	1:00	1.3	50
16/01/19	2:00	2.2	14
16/01/19	3:00	1.8	11
16/01/19	4:00	1.8	20
16/01/19	5:00	0.9	18

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)**
16/01/19	6:00	0.9	39
16/01/19	7:00	1.3	95
16/01/19	8:00	1.3	88
16/01/19	9:00	0.9	81
16/01/21	10:00	1.3	100
16/01/21	11:00	1.8	95
16/01/21	12:00	0.9	94
16/01/21	13:00	0.4	82
16/01/21	14:00	0.4	104
16/01/21	15:00	0.4	115
16/01/21	16:00	0.9	18
16/01/21	17:00	0.4	42
16/01/21	18:00	0.9	23
16/01/21	19:00	1.3	41
16/01/21	20:00	0.4	56
16/01/21	21:00	0.9	108
16/01/21	22:00	0.9	115
16/01/21	23:00	1.3	52
16/01/21	0:00	0.4	119
16/01/21	1:00	1.3	5
16/01/21	2:00	1.8	44
16/01/21	3:00	0.9	43
16/01/21	4:00	1.8	51
16/01/21	5:00	3.1	56
16/01/21	6:00	2.7	54
16/01/21	7:00	2.2	58
16/01/21	8:00	0.9	51
16/01/21	9:00	1.8	44
16/01/22	10:00	1.8	40
16/01/22	11:00	1.3	47
16/01/22	12:00	1.3	39
16/01/22	13:00	1.3	41
16/01/22	14:00	0.4	45
16/01/22	15:00	0	-
16/01/22	16:00	0.4	74
16/01/22	17:00	0.4	52
16/01/22	18:00	0.9	55
16/01/22	19:00	1.8	41
16/01/22	20:00	1.3	39
16/01/22	21:00	0.4	44
16/01/22	22:00	0.9	45
16/01/22	23:00	1.8	43
16/01/22	0:00	1.8	47
16/01/22	1:00	1.3	22
16/01/22	2:00	1.8	355
16/01/22	3:00	1.8	351
16/01/22	4:00	0.9	5
16/01/22	5:00	1.3	353
16/01/22	6:00	1.3	355
16/01/22	7:00	0.4	310
16/01/22	8:00	1.3	89
16/01/22	9:00	1.3	222
16/01/24	10:00	4	29
16/01/24	11:00	3.6	5

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)**
16/01/24	12:00	5.4	23
16/01/24	13:00	4	20
16/01/24	14:00	6.3	24
16/01/24	15:00	6.3	19
16/01/24	16:00	4.9	18
16/01/24	17:00	1.3	5
16/01/24	18:00	0.9	356
16/01/24	19:00	1.8	352
16/01/24	20:00	1.8	354
16/01/24	21:00	1.3	351
16/01/24	22:00	2.2	354
16/01/24	23:00	1.3	6
16/01/24	0:00	1.3	9
16/01/24	1:00	0.4	301
16/01/24	2:00	0.9	2
16/01/24	3:00	0.4	5
16/01/24	4:00	0.4	3
16/01/24	5:00	0.4	12
16/01/24	6:00	0.4	10
16/01/24	7:00	0.9	11
16/01/24	8:00	0	-
16/01/24	9:00	0	-
16/01/25	10:00	0.4	32
16/01/25	11:00	0.9	52
16/01/25	12:00	0.4	351
16/01/25	13:00	0.9	352
16/01/25	14:00	0.4	350
16/01/25	15:00	0.9	349
16/01/25	16:00	1.3	352
16/01/25	17:00	1.8	63
16/01/25	18:00	2.7	344
16/01/25	19:00	2.2	56
16/01/25	20:00	2.2	64
16/01/25	21:00	3.6	47
16/01/25	22:00	3.1	53
16/01/25	23:00	1.8	50
16/01/25	0:00	2.2	9
16/01/25	1:00	0.9	349
16/01/25	2:00	0.9	51
16/01/25	3:00	1.8	6
16/01/25	4:00	1.3	13
16/01/25	5:00	1.3	22
16/01/25	6:00	1.8	10
16/01/25	7:00	1.3	21
16/01/25	8:00	1.3	52
16/01/25	9:00	0.9	56
16/01/27	10:00	0	-
16/01/27	11:00	0.4	49
16/01/27	12:00	0.9	52
16/01/27	13:00	0.4	13
16/01/27	14:00	0.9	5
16/01/27	15:00	0.9	351
16/01/27	16:00	1.3	2
16/01/27	17:00	0.4	128

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)**
16/01/27	18:00	0	-
16/01/27	19:00	1.8	63
16/01/27	20:00	1.8	112
16/01/27	21:00	1.8	84
16/01/27	22:00	1.8	93
16/01/27	23:00	2.2	120
16/01/27	0:00	0.9	87
16/01/27	1:00	1.3	63
16/01/27	2:00	0.4	46
16/01/27	3:00	0.4	52
16/01/27	4:00	0.9	64
16/01/27	5:00	0.4	77
16/01/27	6:00	0	-
16/01/27	7:00	0.9	94
16/01/27	8:00	1.3	100
16/01/27	9:00	1.8	85
16/01/28	10:00	0.9	115
16/01/28	11:00	0.4	165
16/01/28	12:00	0	-
16/01/28	13:00	0	-
16/01/28	14:00	0.9	124
16/01/28	15:00	2.2	113
16/01/28	16:00	1.3	146
16/01/28	17:00	2.7	8
16/01/28	18:00	0.4	88
16/01/28	19:00	3.1	349
16/01/28	20:00	2.2	3
16/01/28	21:00	2.2	115
16/01/28	22:00	0.4	135
16/01/28	23:00	0.9	251
16/01/28	0:00	1.3	134
16/01/28	1:00	0.9	149
16/01/28	2:00	0.9	100
16/01/28	3:00	0.9	111
16/01/28	4:00	0.4	105
16/01/28	5:00	1.8	106
16/01/28	6:00	1.3	107
16/01/28	7:00	1.3	96
16/01/28	8:00	1.8	115
16/01/28	9:00	1.3	87
16/01/30	10:00	0	-
16/01/30	11:00	0.4	107
16/01/30	12:00	0.9	106
16/01/30	13:00	1.3	9
16/01/30	14:00	0	-
16/01/30	15:00	0	-
16/01/30	16:00	0	-
16/01/30	17:00	0.4	23
16/01/30	18:00	0.9	40
16/01/30	19:00	0.9	52
16/01/30	20:00	0.4	223
16/01/30	21:00	0.9	245
16/01/30	22:00	1.3	231
16/01/30	23:00	0.4	271

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)**
16/01/30	0:00	0.9	229
16/01/30	1:00	0.9	251
16/01/30	2:00	0.9	247
16/01/30	3:00	1.3	236
16/01/30	4:00	0.4	258
16/01/30	5:00	0	-
16/01/30	6:00	0	-
16/01/30	7:00	0.4	82
16/01/30	8:00	0	-
16/01/30	9:00	0	-
16/01/31	10:00	0.9	44
16/01/31	11:00	1.3	105
16/01/31	12:00	2.2	123
16/01/31	13:00	3.1	132
16/01/31	14:00	3.1	115
16/01/31	15:00	3.1	104
16/01/31	16:00	3.6	109
16/01/31	17:00	3.6	88
16/01/31	18:00	2.7	96
16/01/31	19:00	3.6	85
16/01/31	20:00	3.1	91
16/01/31	21:00	4	122
16/01/31	22:00	4	106
16/01/31	23:00	3.1	118
16/01/31	0:00	2.7	116
16/01/31	1:00	2.7	111
16/01/31	2:00	2.2	102
16/01/31	3:00	1.8	132
16/01/31	4:00	1.8	134
16/01/31	5:00	1.3	114
16/01/31	6:00	2.2	109
16/01/31	7:00	1.8	121
16/01/31	8:00	0	-
16/01/31	9:00	0	-

Appendix I

Impact Dolphin Monitoring Survey

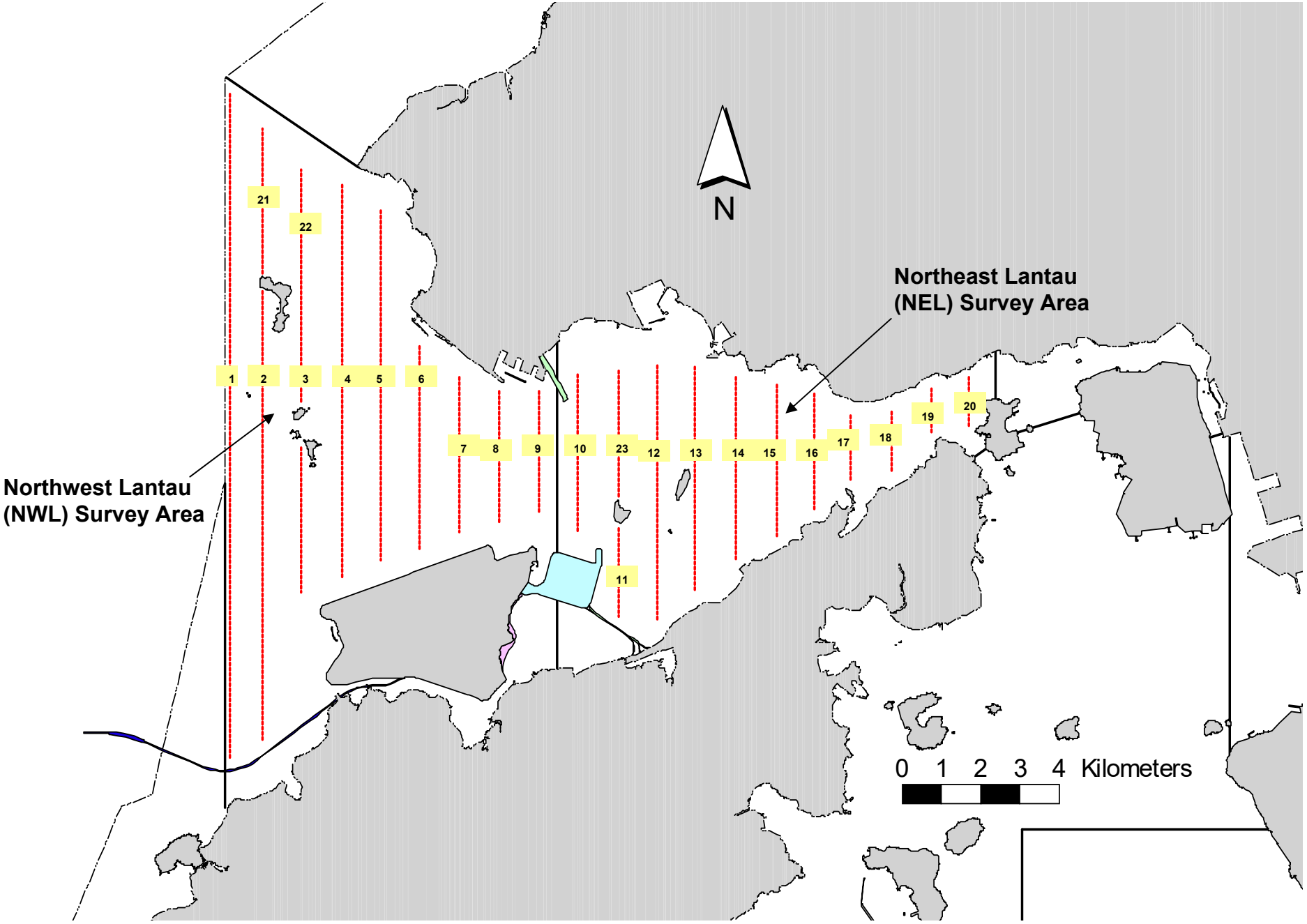

Figure 1. Transect Line Layout in Northwest and Northeast Lantau Survey Areas

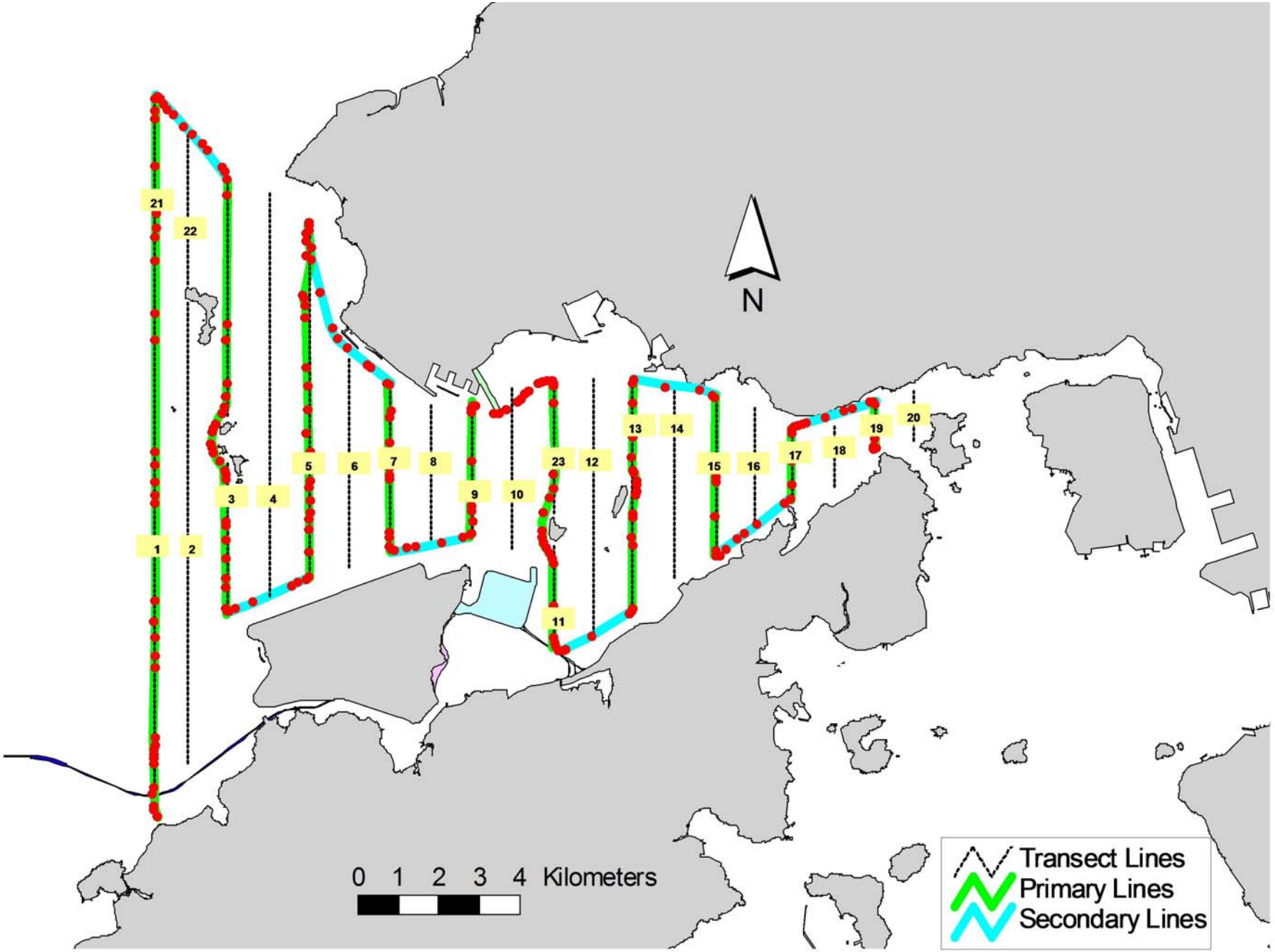

Figure 2. Survey Route on January 8th, 2016 (from HKLR03 project)

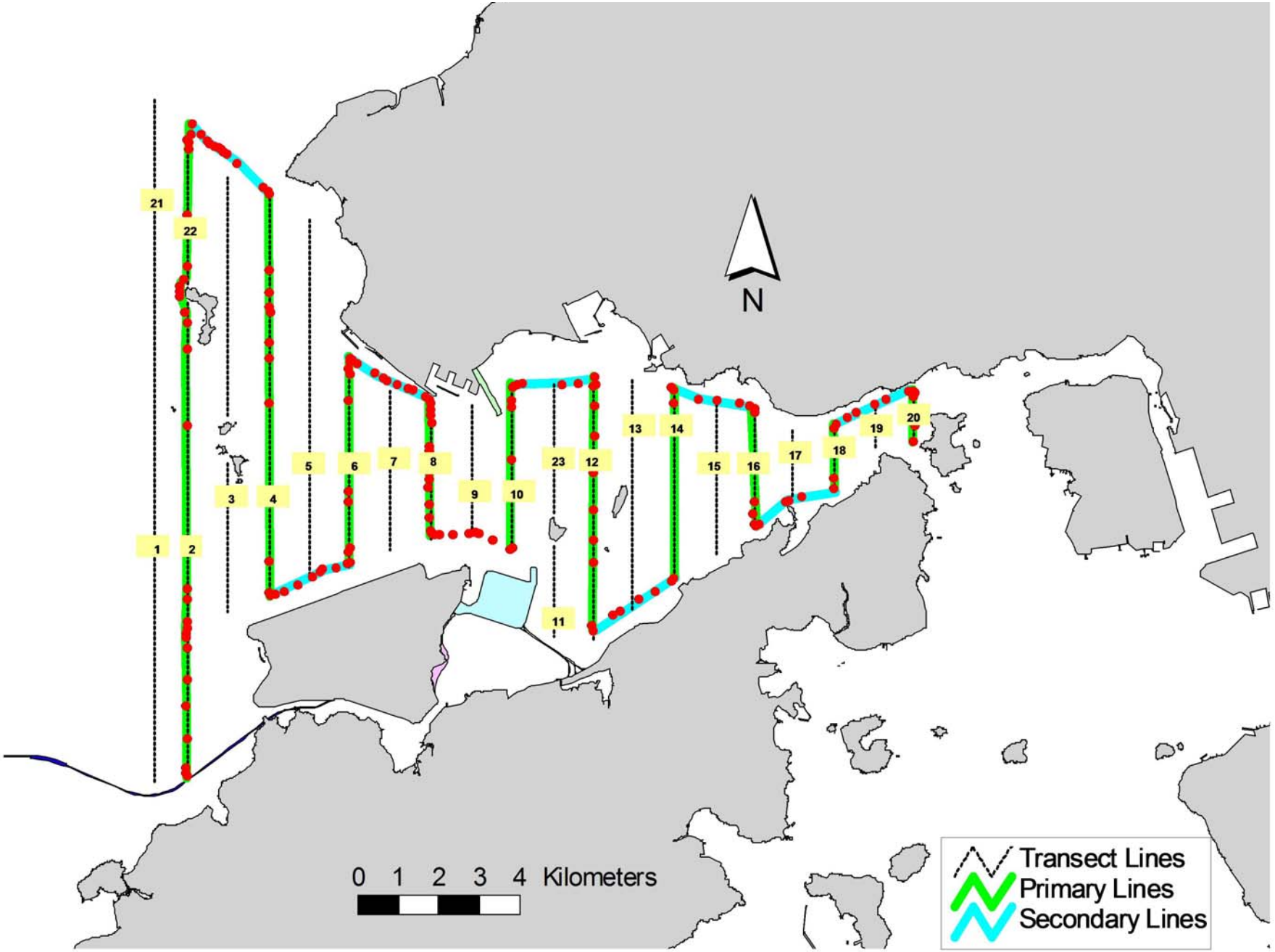

Figure 3. Survey Route on January 11th, 2016 (from HKLR03 project)

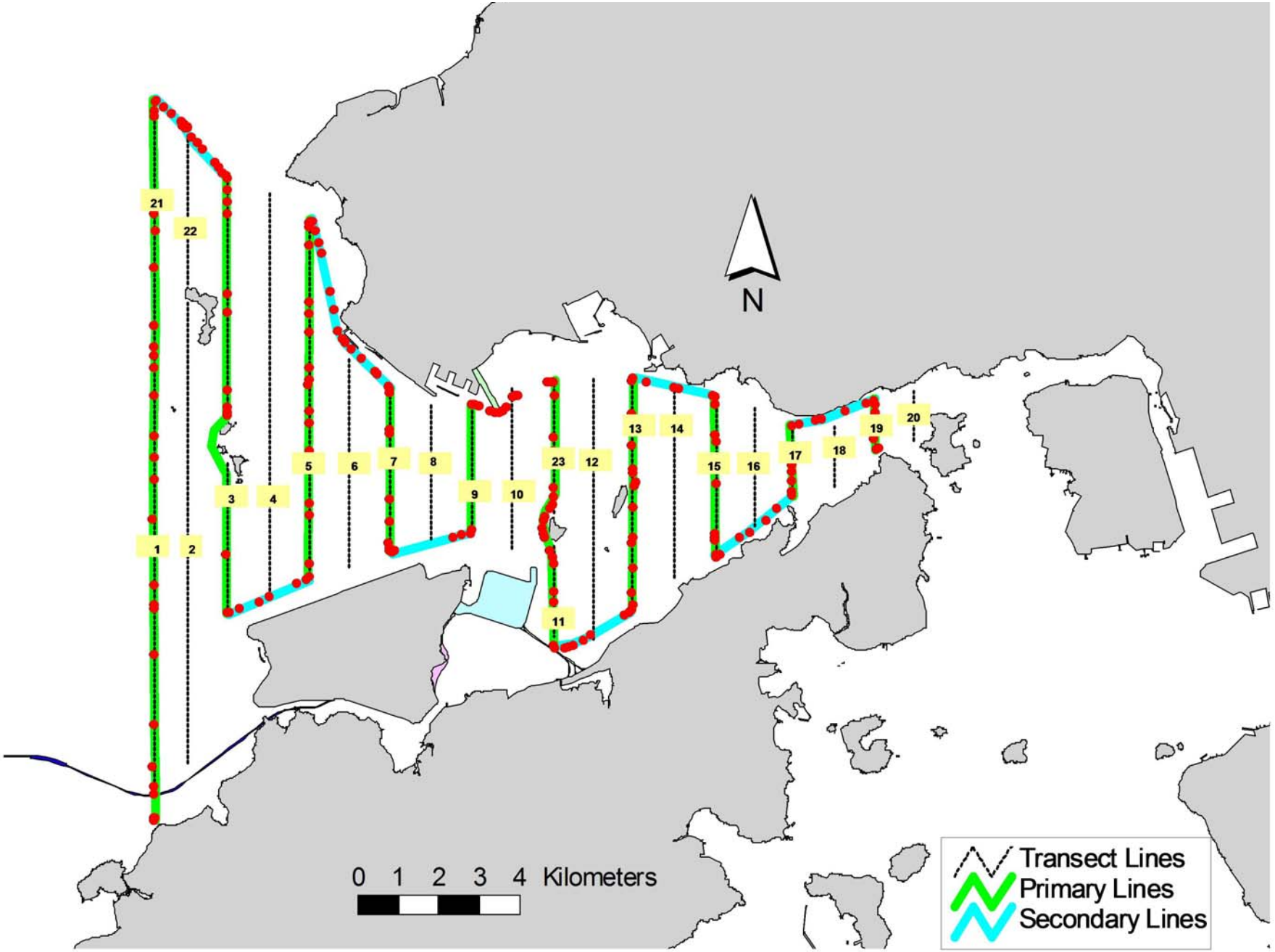

Figure 4. Survey Route on January 13th, 2016 (from HKLR03 project)

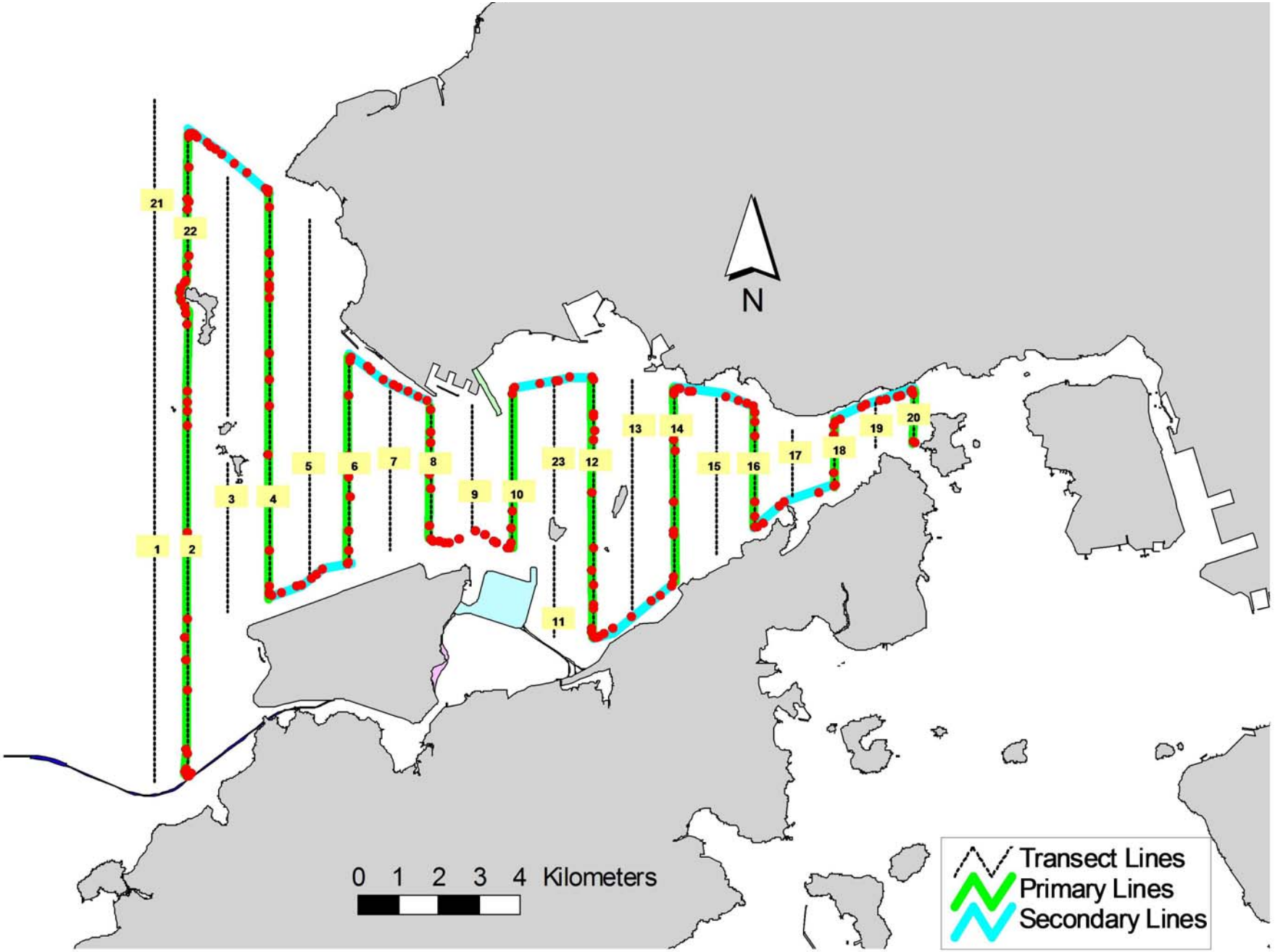

Figure 5. Survey Route on January 19th, 2016 (from HKLR03 project)

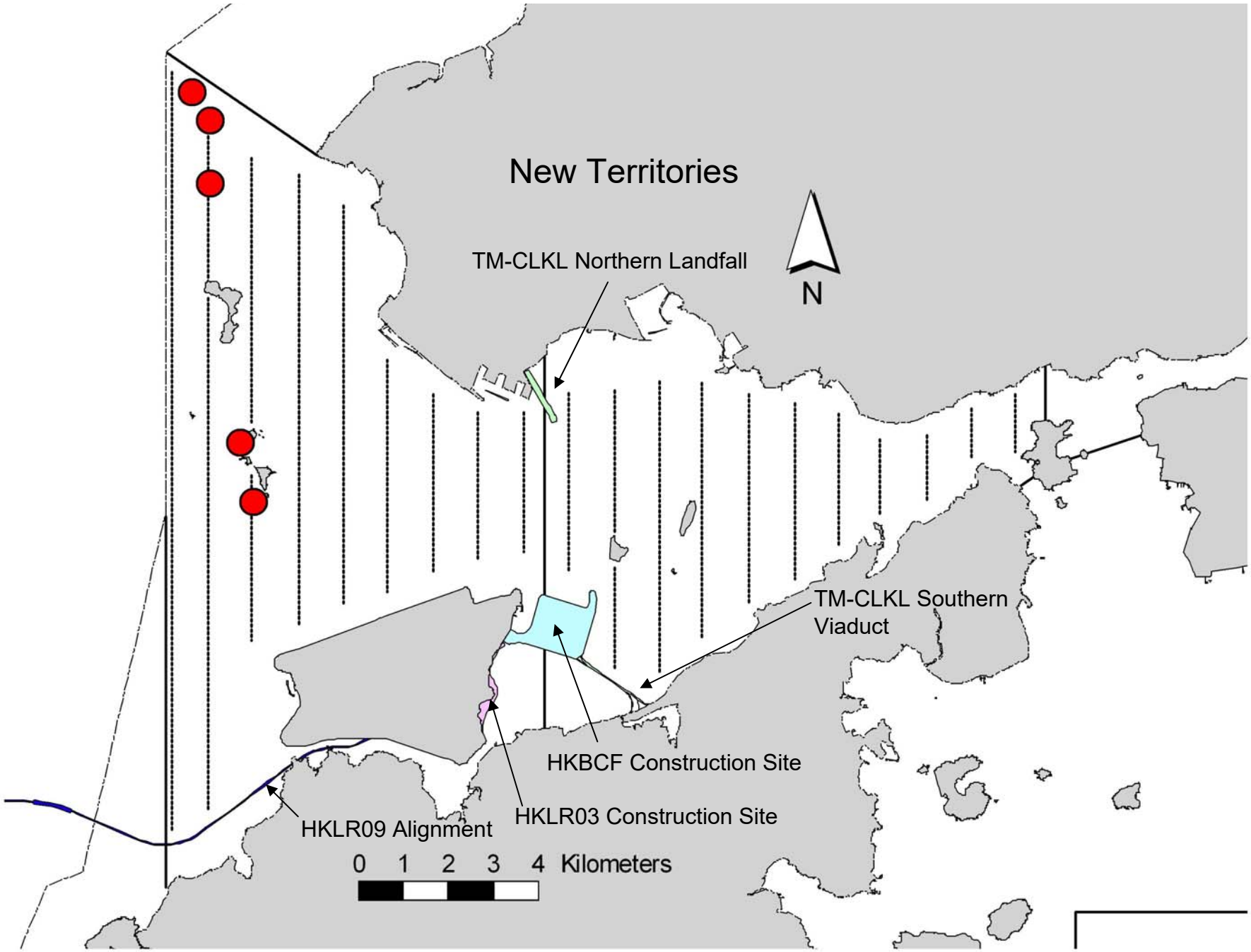

Figure 6. Distribution of Chinese White Dolphin Sightings During January 2016 HKLR03 Monitoring Surveys

Appendix I. HKLR03 Survey Effort Database (January 2016)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
8-Jan-16	NW LANTAU	2	25.03	WINTER	STANDARD31516	HKLR	P
8-Jan-16	NW LANTAU	3	15.46	WINTER	STANDARD31516	HKLR	P
8-Jan-16	NW LANTAU	2	10.60	WINTER	STANDARD31516	HKLR	S
8-Jan-16	NW LANTAU	3	2.21	WINTER	STANDARD31516	HKLR	S
8-Jan-16	NE LANTAU	2	16.39	WINTER	STANDARD31516	HKLR	P
8-Jan-16	NE LANTAU	2	8.31	WINTER	STANDARD31516	HKLR	S
8-Jan-16	NE LANTAU	3	2.10	WINTER	STANDARD31516	HKLR	S
11-Jan-16	NE LANTAU	1	1.97	WINTER	STANDARD31516	HKLR	P
11-Jan-16	NE LANTAU	2	15.21	WINTER	STANDARD31516	HKLR	P
11-Jan-16	NE LANTAU	3	2.72	WINTER	STANDARD31516	HKLR	P
11-Jan-16	NE LANTAU	2	11.00	WINTER	STANDARD31516	HKLR	S
11-Jan-16	NE LANTAU	3	1.30	WINTER	STANDARD31516	HKLR	S
11-Jan-16	NW LANTAU	2	11.76	WINTER	STANDARD31516	HKLR	P
11-Jan-16	NW LANTAU	3	19.32	WINTER	STANDARD31516	HKLR	P
11-Jan-16	NW LANTAU	2	4.82	WINTER	STANDARD31516	HKLR	S
11-Jan-16	NW LANTAU	3	1.00	WINTER	STANDARD31516	HKLR	S
11-Jan-16	NW LANTAU	4	2.10	WINTER	STANDARD31516	HKLR	S
13-Jan-16	NE LANTAU	1	1.00	WINTER	STANDARD31516	HKLR	P
13-Jan-16	NE LANTAU	2	15.93	WINTER	STANDARD31516	HKLR	P
13-Jan-16	NE LANTAU	2	9.63	WINTER	STANDARD31516	HKLR	S
13-Jan-16	NE LANTAU	3	0.64	WINTER	STANDARD31516	HKLR	S
13-Jan-16	NW LANTAU	2	26.61	WINTER	STANDARD31516	HKLR	P
13-Jan-16	NW LANTAU	3	15.03	WINTER	STANDARD31516	HKLR	P
13-Jan-16	NW LANTAU	2	5.05	WINTER	STANDARD31516	HKLR	S
13-Jan-16	NW LANTAU	3	6.87	WINTER	STANDARD31516	HKLR	S
19-Jan-16	NW LANTAU	2	22.73	WINTER	STANDARD31516	HKLR	P
19-Jan-16	NW LANTAU	3	9.01	WINTER	STANDARD31516	HKLR	P
19-Jan-16	NW LANTAU	2	6.16	WINTER	STANDARD31516	HKLR	S
19-Jan-16	NW LANTAU	3	1.50	WINTER	STANDARD31516	HKLR	S
19-Jan-16	NE LANTAU	1	0.90	WINTER	STANDARD31516	HKLR	P
19-Jan-16	NE LANTAU	2	16.70	WINTER	STANDARD31516	HKLR	P
19-Jan-16	NE LANTAU	3	2.29	WINTER	STANDARD31516	HKLR	P
19-Jan-16	NE LANTAU	1	2.30	WINTER	STANDARD31516	HKLR	S
19-Jan-16	NE LANTAU	2	8.41	WINTER	STANDARD31516	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (January 2016)

(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
8-Jan-16	1	1209	1	NW LANTAU	2	591	ON	HKLR	822365	806458	WINTER	NONE	P
11-Jan-16	1	1303	6	NW LANTAU	3	140	ON	HKLR	830351	805495	WINTER	NONE	P
13-Jan-16	1	1355	1	NW LANTAU	3	54	ON	HKLR	823584	806162	WINTER	NONE	S
13-Jan-16	2	1458	2	NW LANTAU	2	83	ON	HKLR	830961	805085	WINTER	NONE	S
19-Jan-16	1	1112	8	NW LANTAU	3	332	ON	HKLR	829044	805503	WINTER	NONE	P

Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in January 2016

ID#	DATE	STG#	AREA
NL48	11/01/16	1	NW LANTAU
	19/01/16	1	NW LANTAU
NL123	11/01/16	1	NW LANTAU
NL182	11/01/16	1	NW LANTAU
	19/01/16	1	NW LANTAU
NL202	19/01/16	1	NW LANTAU
NL210	13/01/16	2	NW LANTAU
NL220	11/01/16	1	NW LANTAU
	19/01/16	1	NW LANTAU
NL284	19/01/16	1	NW LANTAU
NL285	08/01/16	1	NW LANTAU
	11/01/16	1	NW LANTAU
	19/01/16	1	NW LANTAU
NL302	13/01/16	2	NW LANTAU
NL320	11/01/16	1	NW LANTAU
	19/01/16	1	NW LANTAU

Appendix IV. Photographs of Identified Individual Dolphins in January 2016 (HKLR03)

Appendix IV. (cont'd)

Appendix J

Event and Action Plan

Event and Action Plan for Impact Air Monitoring

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

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

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

Event / Action Plan for Impact Dolphin Monitoring

EVENT	ACTION			
	ET	**IEC**	**SOR**	**Contractor**
Action Level	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor.	1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If SOR is satisfied with the proposal of any other measures, SOR to signify the agreement in writing on the measures to be implemented.	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR; 3. Implement the agreed measures.
Limit Level	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences;	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, SOR and	1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 2. If SOR is satisfied with the	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and SOR the necessity of additional dolphin monitoring and any other

EVENT	ACTION			
	ET	**IEC**	**SOR**	**Contractor**
	3. Identify source(s) of impact; 4. Inform the IEC, SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary.	Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise SOR the results and findings accordingly.	proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, SOR to signify the agreement in writing on such proposals and any other mitigation measures. 3. Supervise the implementation of additional monitoring and/or any other mitigation measures.	potential mitigation measures. 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary. 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

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

Appendix K

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

Table K1 *Cumulative Statistics on Exceedances*

Parameters	Level of Exceedance	Total No. recorded in this reporting month	Total No. recorded since project commencement
1-hr TSP	Action	0	30
	Limit	0	2
24-hr TSP	Action	0	5
	Limit	0	1
Water Quality	Action	0	6
	Limit	0	1
Impact Dolphin Monitoring	Action	0	9
	Limit	0	3

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

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (January 2016)	0	0	0
Total No. received since project commencement	4	0	0

Appendix L

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 January 2016 [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	930.268	0.000	0.000	0.000	930.268
Jan-2016	24.068	0.000	0.000	0.000	24.068
Feb-2016					
Mar-2016					
Apr-2016					
May-2016					
Jun-2016					
Half Year Sub-total					
Jul-2016					
Aug-2016					
Sep-2016					
Oct-2016					
Nov-2016					
Dec-2016					
Project Total Quantities	954.336	0.000	0.000	0.000	954.336

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	0.000	0.000	2.150	2.150	6.870	6.870	1.710	1.710	2.217
Jan-2016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
Feb-2016									
Mar-2016									
Apr-2016									
May-2016									
Jun-2016									
Half Year Sub-total									
Jul-2016									
Aug-2016									
Sep-2016									
Oct-2016									
Nov-2016									
Dec-2016									
Project Total Quantities	0.000	0.000	2.150	2.150	6.870	6.870	1.710	1.710	2.330

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)
20.000	0.000	0.000	0.000	20.000

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)
0.000	0.000	0.000	0.000	0.100

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