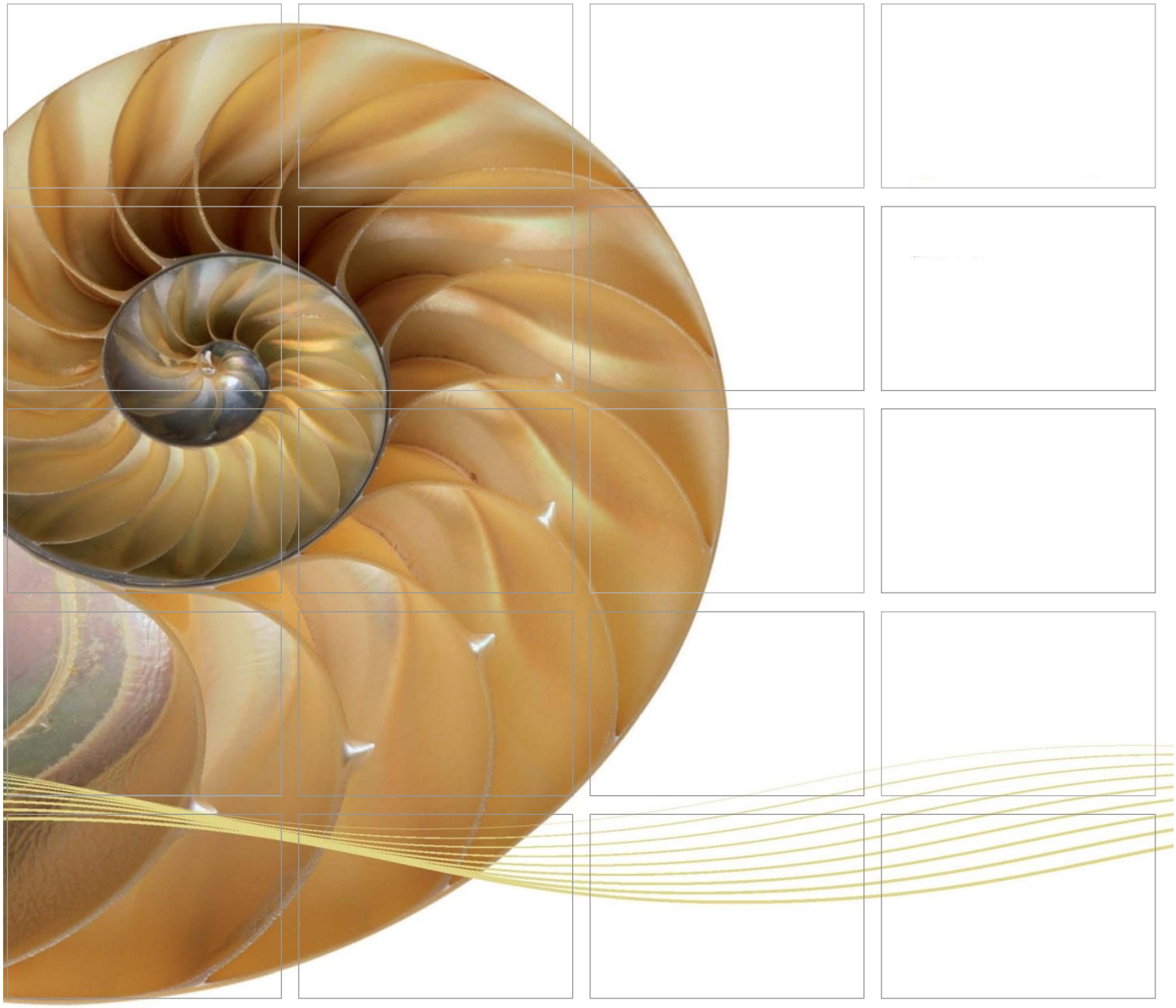
Report



Contract No. HY/2012/07
Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section

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

21 November 2014

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

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Contract No. HY/2012/07
Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section

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Environmental Resources Management

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25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3000
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E-mail: post.hk@erm.com
http://www.erm.com

Document Code:
0215660_3rd Qty EM&A_20141119.doc

Client: Gammon	Project No: 0215660
Summary: This document presents the Third Quarterly EM&A Report for Tuen Mun – Chek Lap Kok Link Southern Connection Viaduct Section.	Date: 21 November 2014 Approved by: *Mr Craig Reid* *Partner* Certified by: *Mr Jovy Tam* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	3rd Quarterly EM&A Report	VAR	JT	CAR	21/11/14

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Ref.: HYDHZMBEEM00_0_2474L.14

24 November 2014

AECOM
Supervising Officer Representative's Office
780 Cheung Tung Road, Lantau, N.T.

By Fax (3691 2899) and By Post

Attention: Mr. Daniel Ip

Dear Sir,

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

Contract No. HY/2012/07 TM-CLKL Southern Connection Viaduct Section
Third Quarterly EM&A Report (EP-354/2009/B)

Reference is made to the Third Quarterly Environmental Monitoring and Audit (EM&A) Report (for June 2014 to August 2014) certified by the ET Leader (ET's ref.: "0215660_3rd Qty EM&A_20141119.doc" dated 21 November 2014) and provided to us via email on 24 November 2014.

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

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

Yours sincerely,

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

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
HyD – Mr. Matthew Fung (By Fax: 3188 6614)
AECOM – Mr. Conrad Ng (By Fax: 3922 9797)
ERM – Mr. Jovy Tam (By Fax: 2723 5660)
Gammon – Mr. Roy Leung (By Fax: 3520 0486)

Internal: DY, YH, ENPO Site

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ENVIRON Hong Kong Limited 英環香港有限公司
Room 2403, 24/F., Jubilee Centre, 18 Fenwick Street, Wanchai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
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TABLE OF CONTENTS

List of Appendices

Under *Contract No. HY/2012/07*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Southern Connection Viaduct 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). ENVIRON Hong Kong Ltd. was employed by the HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) in accordance with *Environmental Permit No. EP-354/2009/A*. Another application for variation of environmental permit (VEP) (*EP-354/2009/B*) was granted on 28 January 2014.

The construction phase of the Contract commenced on 31 October 2013 and will be tentatively be completed by 2018. The impact monitoring of the EM&A programme, including air quality, noise, water quality and marine ecological monitoring as well as environmental site inspections, commenced on 31 October 2013.

This is the third quarterly EM&A report presenting the EM&A works carried out during the period from 1 June to 31 August 2014 for the Southern Connection Viaduct Section 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:

June 2014

Marine-based Works

- Marine piling platform installation;
- Marine Piling at Viaducts B & E;
- Construction of rockfill platform at Viaduct D landing; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Area 2, Viaducts A, B, C & D;
- Land Piling at Viaduct B;
- Piling platform installation for Viaducts B, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

July 2014

Marine-based Works

- Construction of Pile caps at Viaduct B;

- Marine piling platform installation;
- Marine Piling at Viaducts B & E;
- Construction of rockfill platform at Viaduct D landing; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Area 2, Viaducts A, B, C & D;
- Land Piling at Viaducts B & D;
- Piling platform installation for Viaducts B, C, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys;
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9; and
- Site formation of workshop at Area 1.

August 2014

Marine-based Works

- Construction of Pile caps at Viaduct B;
- Marine piling platform installation;
- Marine Piling at Viaducts B, D & E;
- Construction of rockfill platform at Viaduct D landing; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Area 2, Viaducts A, B, C & D;
- Land Piling at Viaduct B;
- Piling platform installation for Viaducts B, C, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

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

24-hour TSP monitoring	16 sessions
1-hour TSP monitoring	16 sessions
Noise monitoring	16 sessions
Water quality monitoring	39 sessions
Dolphin monitoring	6 sessions
Joint Environmental site inspection	13 sessions
Post-Translocation Coral monitoring	1 session

Breaches of Action and Limit Levels for Air Quality
No exceedance of Action and Limit Levels was recorded for air quality monitoring in the reporting period.

Breaches of Action and Limit Levels for Noise
No exceedance of Action and Limit Levels was recorded for construction noise monitoring in the reporting period.

Breaches of Action and Limit Levels for Water Quality

No exceedance of Action and Limit Levels was recorded for impact water quality monitoring in the reporting period.

Impact Dolphin Monitoring

Whilst two (2) Action Level exceedances were observed for the quarterly dolphin monitoring data between June and August 2014, no unacceptable impact from the construction activities of the TM-CLKL Southern Connection Viaduct Section on Chinese White Dolphins was noticeable from general observations during the dolphin monitoring in this reporting quarter. The exceedance is considered to be the natural variation of Chinese White Dolphin ranging pattern upon further investigation.

Daily marine mammal exclusion zone monitoring was undertaken. No sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was recorded in the reporting period during the exclusion zone monitoring.

Post-Translcoation Coral Monitoring

The Third Quarterly Post-Translocation Coral Monitoring was conducted on 24 July 2014 and no exceedance of Action and Limit Levels was recorded. The results were detailed in the *Third Quarterly Post- Translocation Coral Monitoring Report* were submitted under a separate cover.

Environmental Complaints, Non-compliance & Summons

One (1) complaint was referred by the EPD on 23 June 2014 which was considered to be not related to this Contract upon further investigation.

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

Reporting Change

There was no reporting change required in the reporting period.

Upcoming Works for the Next Reporting Period

Works to be undertaken in the coming quarter include the following:

September 2014

Marine Works

- Construction of Pile caps at Viaduct B;
- Marine piling platform installation;
- Marine Piling at Viaducts B & E;
- Marine piling platform installation for Viaduct D; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Works Area 2, Viaducts A, B, C & D;
- Land Piling at Viaduct B and Viaduct C;
- Piling platform installation for Viaducts B, C, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

October 2014

Marine Works

- Construction of Pile caps at Viaduct E;
- Marine piling platform installation;
- Marine Piling at Viaducts A, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Land Piling at Viaducts B, C & D;
- Piling platform installation for Viaducts C & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

November 2014

Marine Works

- Construction of Pile caps at Viaduct E;
- Marine piling platform installation;
- Marine Piling at Viaducts A, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Fence installation and relocation of Viaducts A, B, & C;
- Land Piling at Viaducts A &D;
- Piling platform installation for Viaducts C & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the coming quarterly period are mainly associated with air quality, noise, marine water quality, marine ecology and waste management issue.

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 (*EP-354/2009A*) was issued on 8 December 2010. Another application for variation of environmental permit (VEP) (*EP-354/2009/B*) was granted on 28 January 2014.

Under *Contract No. HY/2012/07*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Southern Connection Viaduct Section of TM-CLKL ("the Contract") 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). ENVIRON Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) in accordance with *Environmental Permit No. EP-354/2009/A*.

The construction phase of the Contract commenced on 31 October 2013 and will be tentatively be completed by 2018. The impact monitoring phase of the EM&A programme, including air quality, noise, water quality and marine ecological monitoring as well environmental site inspections, commenced on 31 October 2013.

The general layout plan of the Contract components is presented in *Figures 1.1 & 1.2a to l.*

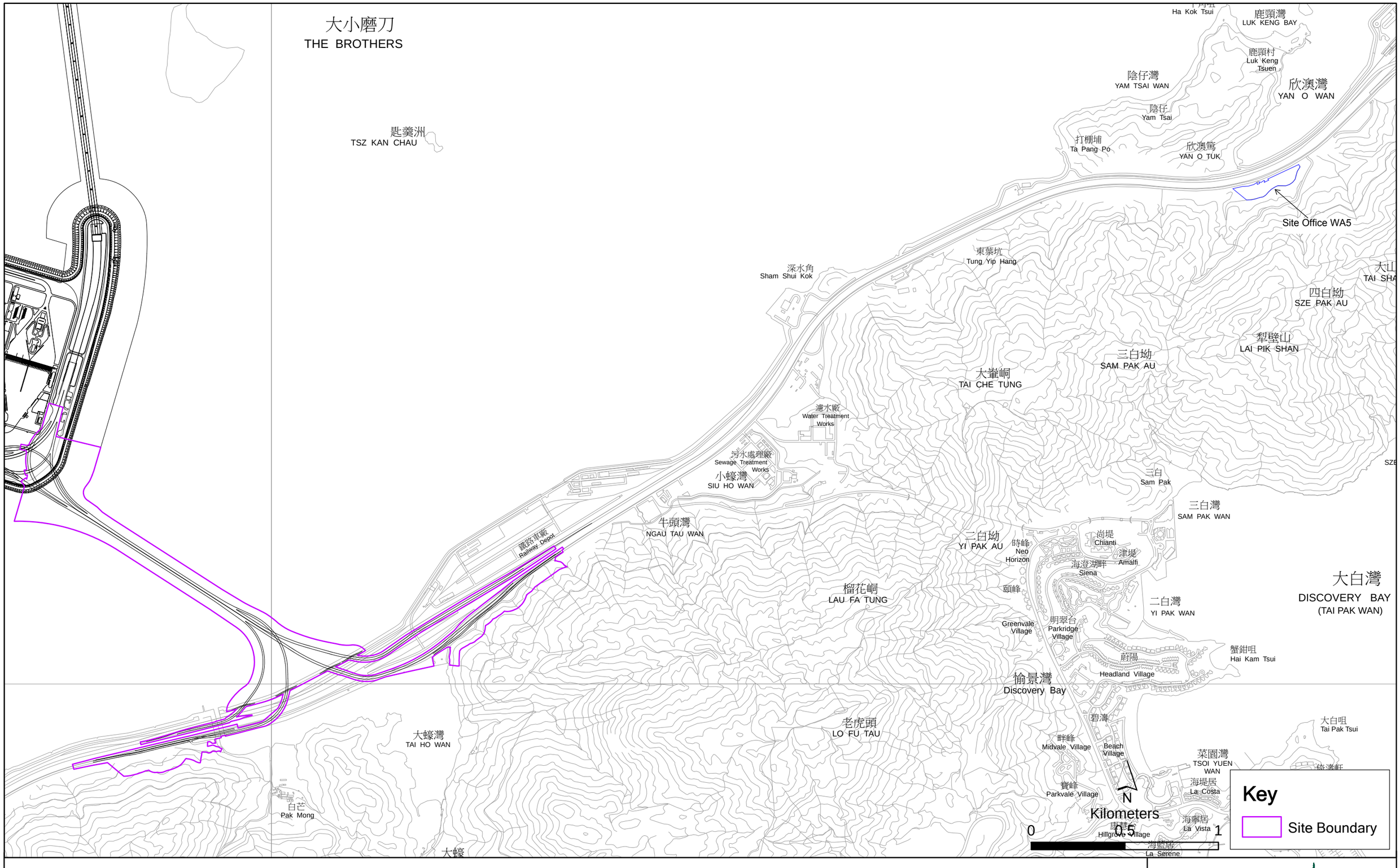

Figure 1.1

General Layout Plan of the Project

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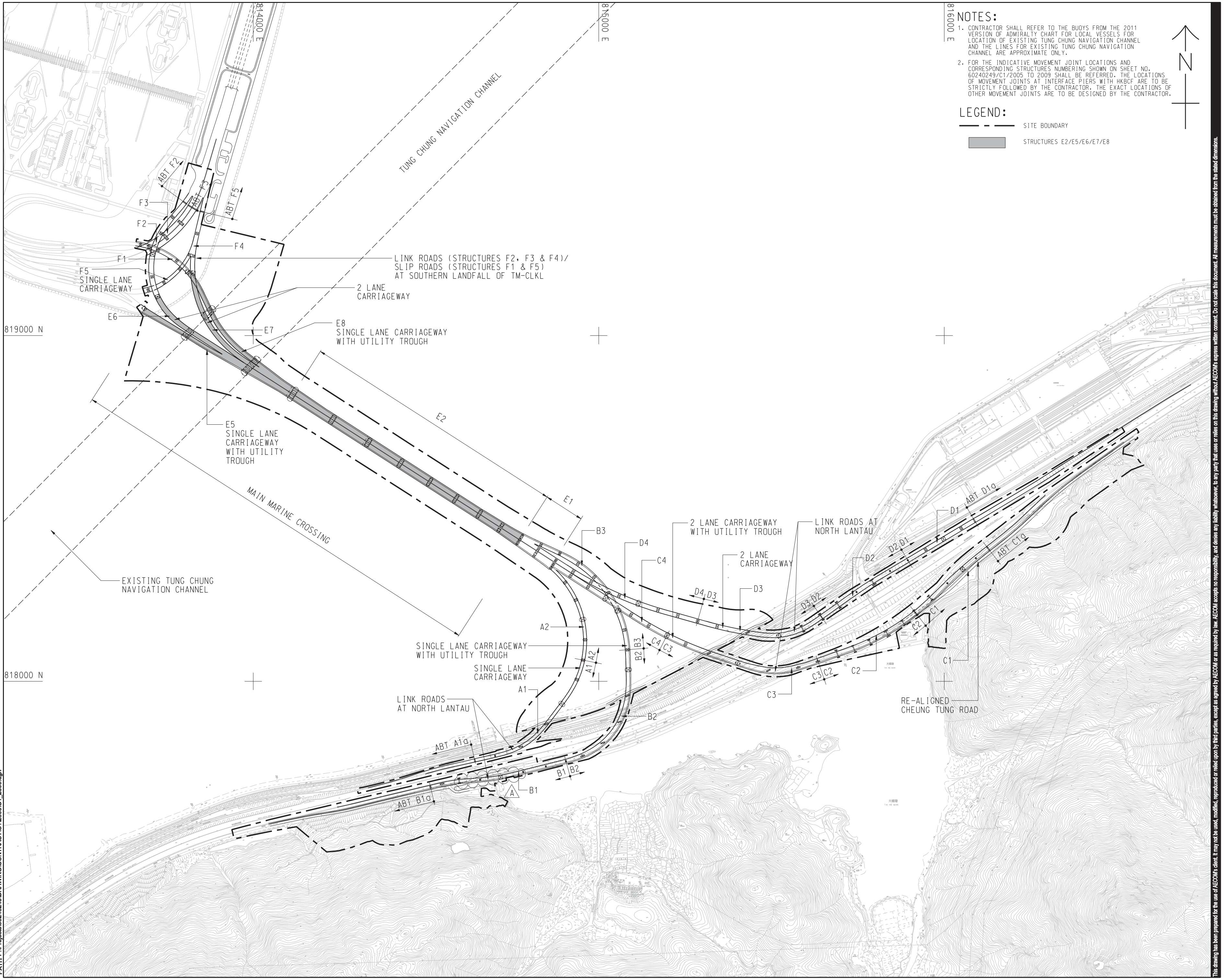
Environmental Resources Management

ERM



AECOM

PROJECT 項目

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE

TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT 業主

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

CONSULTANT 工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

Figure 1.2a

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核
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-	OCT. 12	TENDER DRAWING	CWN

STATUS 階段

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KEY PLAN 索引圖

PROJECT NO. 項目編號: 60240249

CONTRACT NO. 合約編號: HY/2012/07

SHEET TITLE 圖紙名稱

SOUTHERN CONNECTION GENERAL LAYOUT PLAN

SHEET NUMBER 圖紙編號

60240249/C1/2000A

Project Management Initials: Designer: LKWB Checked: SLYY Approved: CWN ISO A1 594mm x 841mm

Plot File by: HUANGC2 Nov-07-2012
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KEY PLAN

NOTES

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LEGEND

- SITE BOUNDARY
- GF1 FAULT

EXISTING G.I.STATIONS :

- BOREHOLE BY GIU DATA EXCLUDING VC
- BOREHOLE BY GCL CONTRACT HY/2012/04
- BOREHOLE BY GCL CONTRACT NL8/97
- BOREHOLE BY GCL CONTRACT HY/2009/23
- TRIAL PIT BY GCL CONTRACT HY/2012/04
- SLOPE STRIPPING BY GCL CONTRACT HY/2012/04

PROPOSED G.I.STATIONS :

- PBH01 PROPOSED BOREHOLE
- TP01 PROPOSED TRIAL PIT
- CH01 PROPOSED COREHOLE
- SS01 SS02 PROPOSED SLOPE STRIPPING

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B	SUBMISSION	RC	07/13				
C	SUBMISSION	RC	09/13				

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Client: 路政署 HIGHWAYS DEPARTMENT, Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

Supervising Officer: AECOM

Contractor: Gammon

Originator: ARUP

Project Title: Contract No. HY/2012/07
Tuen Mun - Chek Lap Kok Link
Southern Connection Viaduct Section

Drawing title: **Figure 1.2b**

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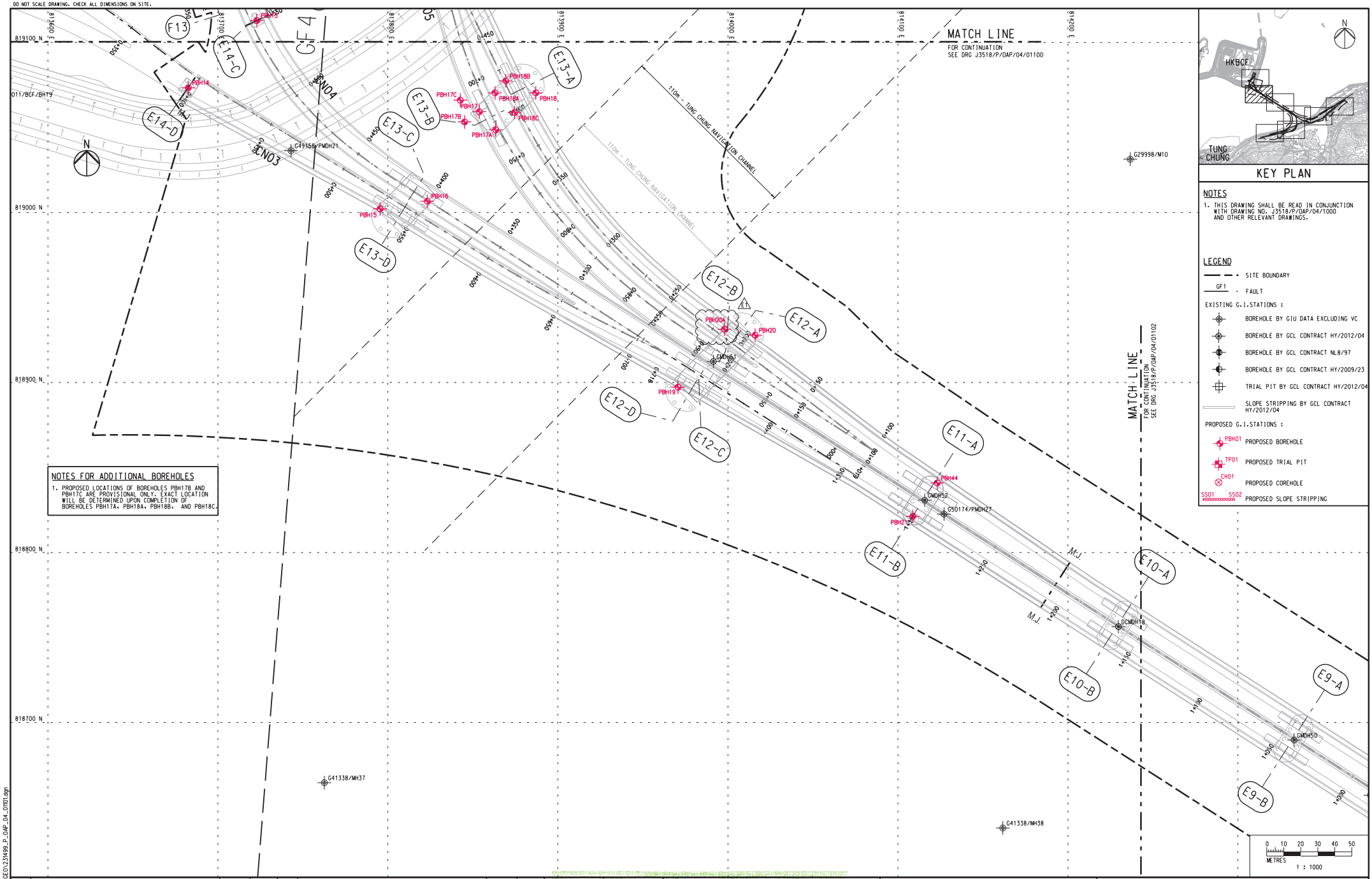

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E1	FOR INTERNAL REVIEW	RC	11/13				

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Client: 路政署 HIGHWAYS DEPARTMENT 香港項大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

Supervising Officer: AECOM

Contractor: Gammon

Originator: ARUP

Project Title: Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section

Drawing title: **Figure 1.2c**

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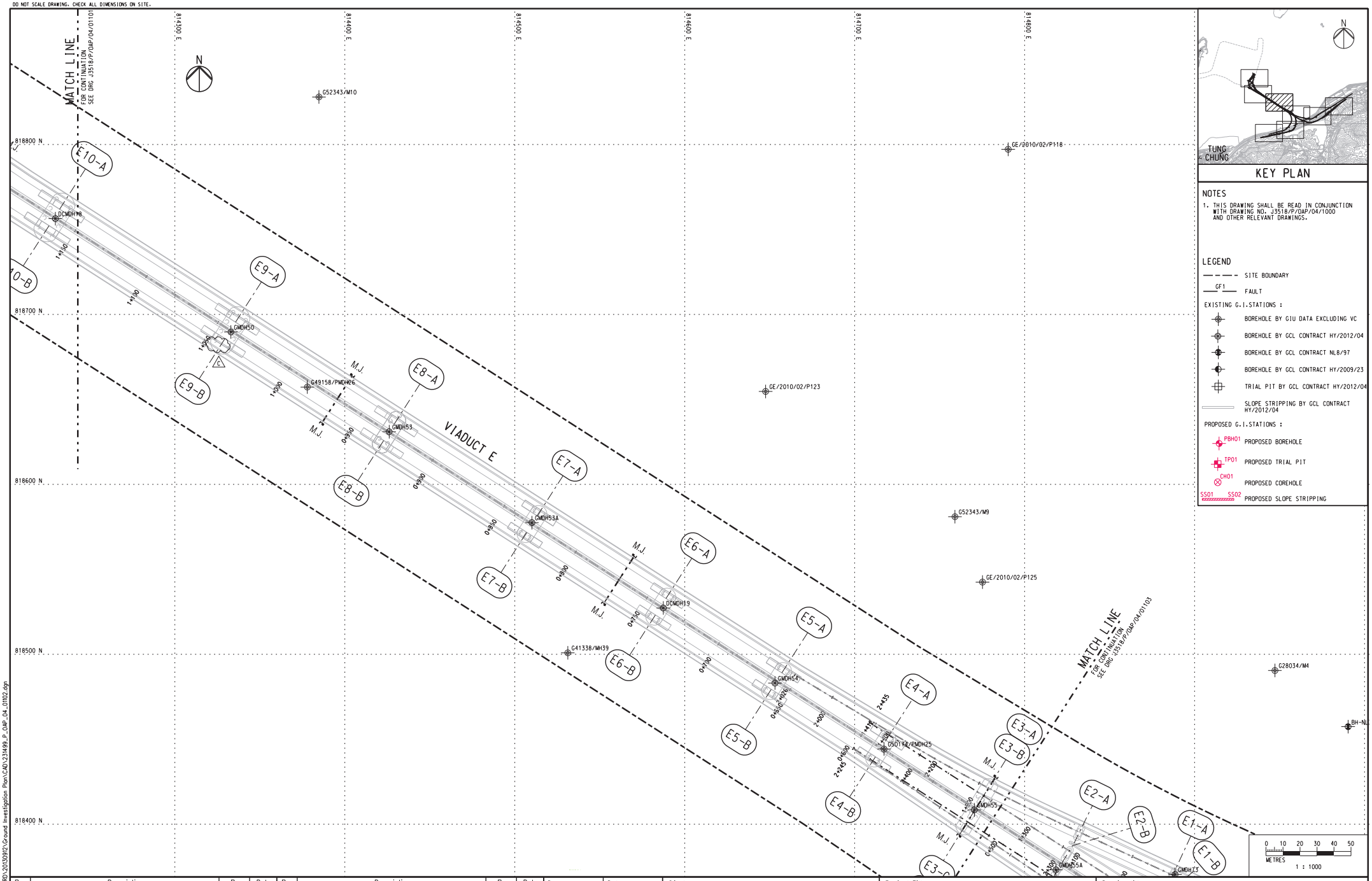

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Project Title: Contract No. HY/2012/07
Tuen Mun - Chek Lap Kok Link
Southern Connection Viaduct Section

Supervising Officer: AECOM
Contractor: Gammon
Originator: ARUP

Drawing title: **Figure 1.2d**

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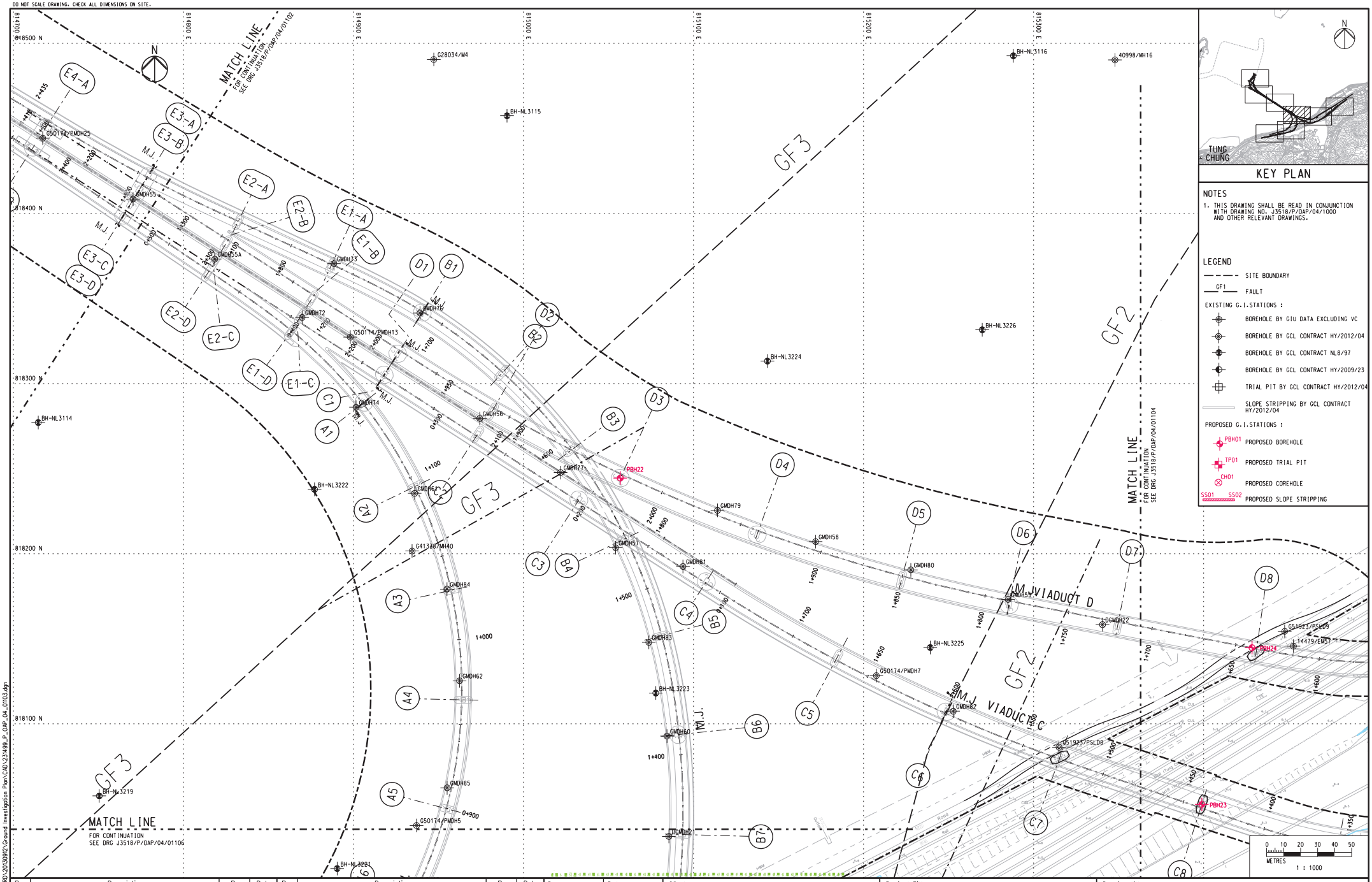

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Client: 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

Project Title: Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section

Supervising Officer: AECOM

Contractor: Gammon

Originator: ARUP

Drawing title: **Figure 1.2e**

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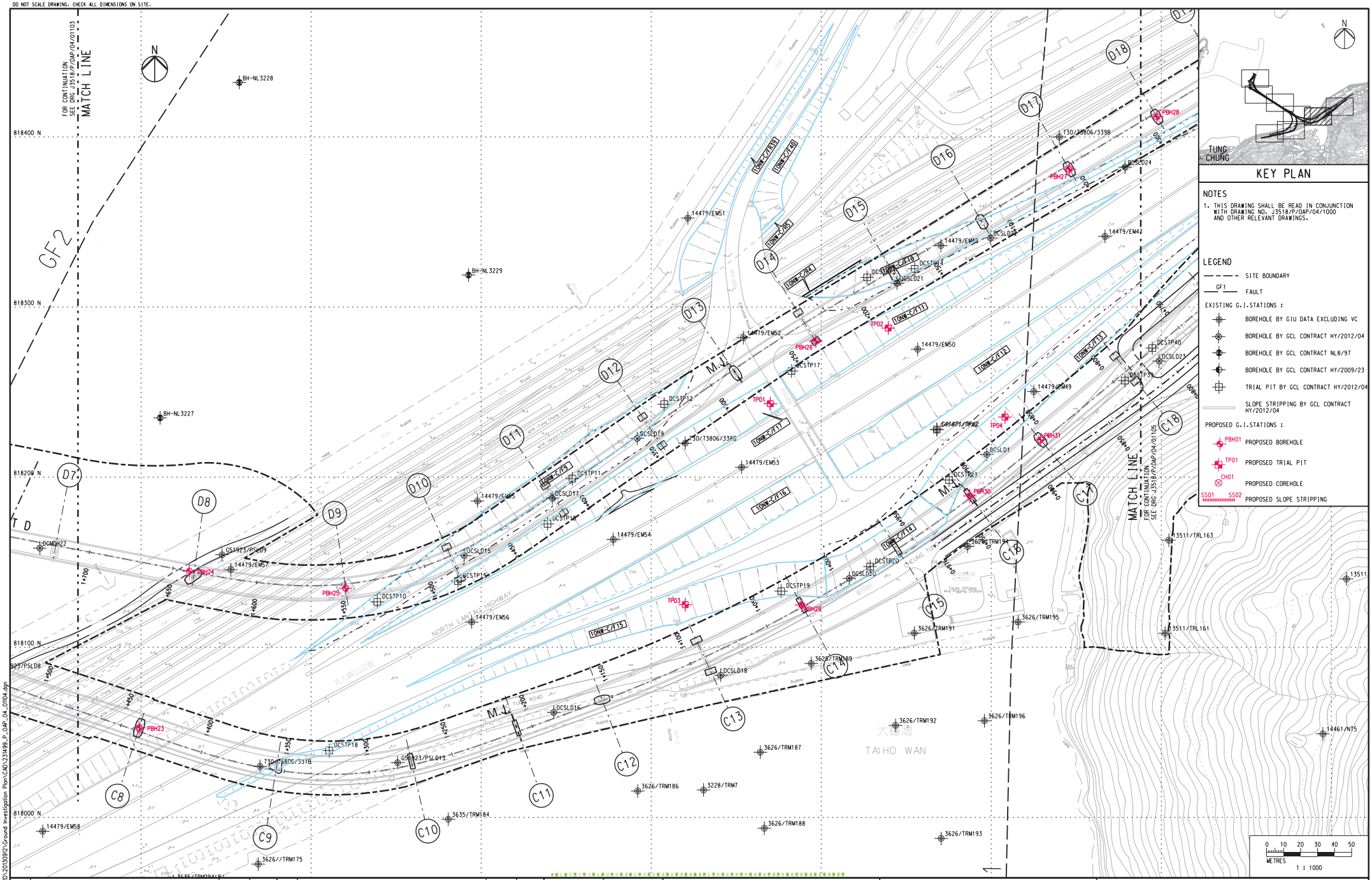

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Client: 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

Project Title: Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section

Supervising Officer: AECOM

Contractor: Gammon

Originator: ARUP

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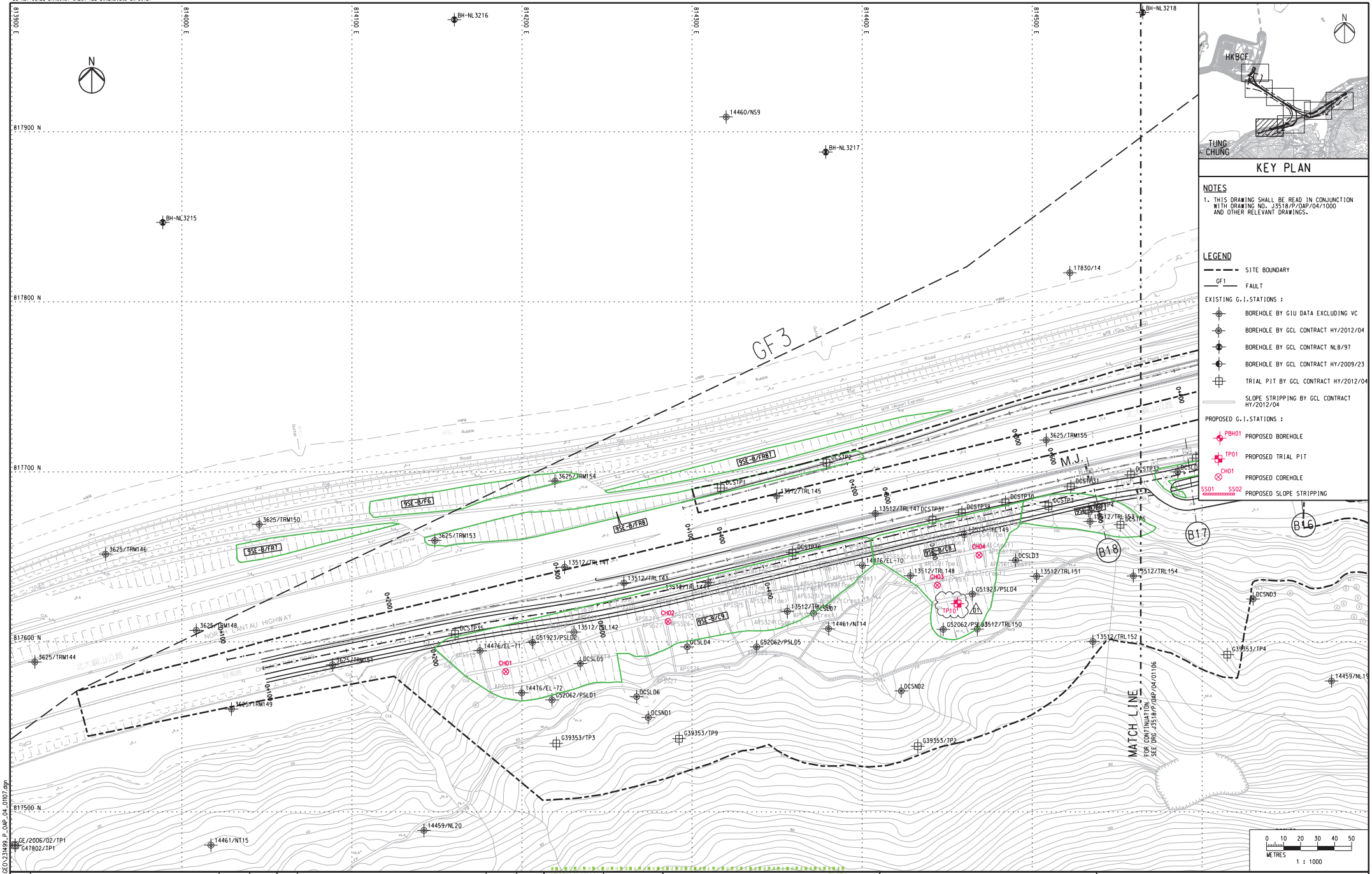

KEY PLAN

NOTES

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- TRIAL PIT BY GCL CONTRACT HY/2012/04
- SLOPE STRIPPING BY GCL CONTRACT HY/2012/04

PROPOSED G.I.STATIONS :

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- TP01 PROPOSED TRIAL PIT
- CH01 PROPOSED COREHOLE
- SS01 SS02 PROPOSED SLOPE STRIPPING

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C	SUBMISSION	RC	09/13				
D1	FOR INTERNAL REVIEW	RC	11/13				

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Client: 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

Project Title: Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section

Supervising Officer: AECOM

Contractor: Gammon

Originator: ARUP

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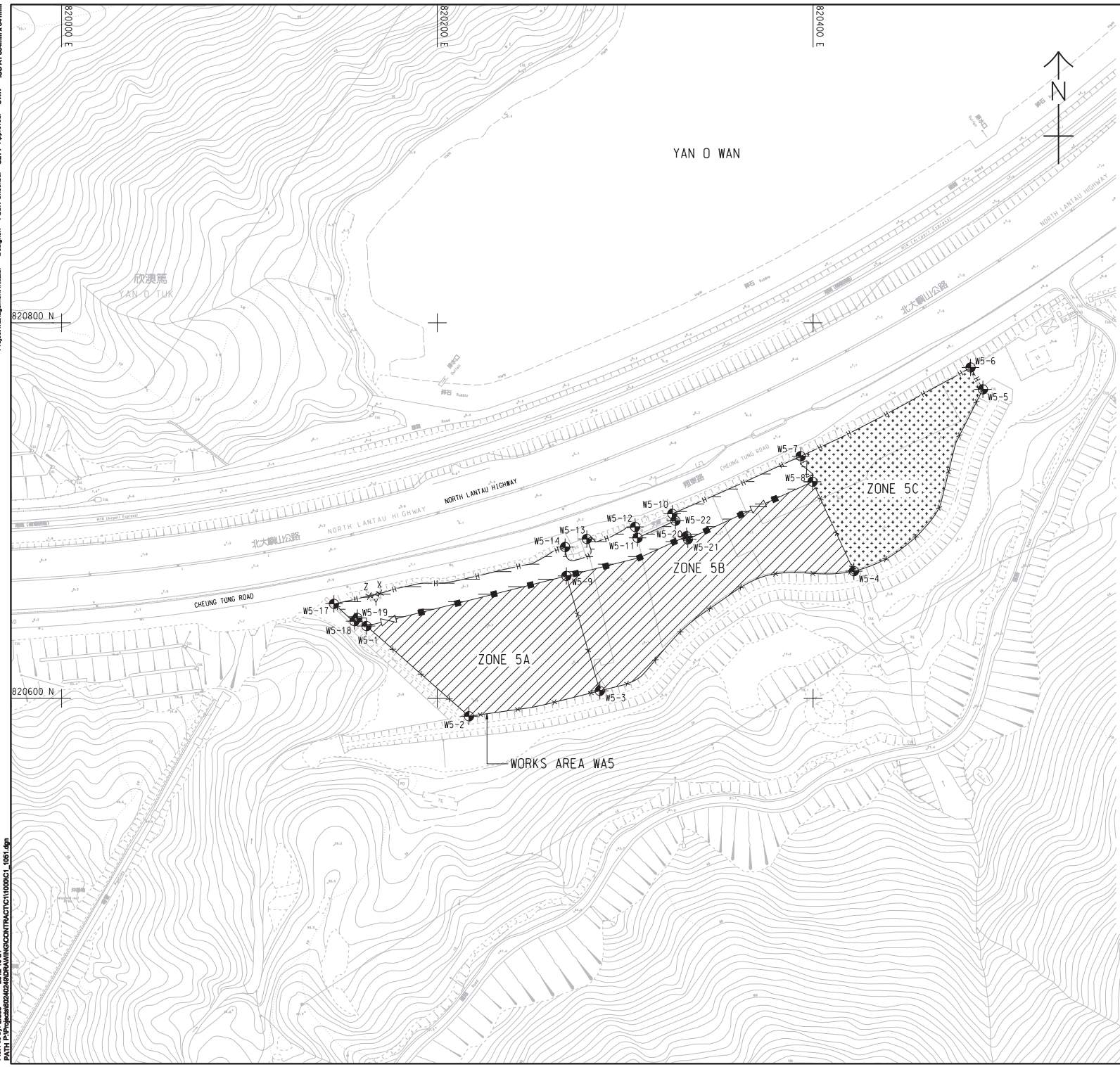

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2. THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. TIS 619. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
3. DEMARCATION OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
4. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6110 AND H6111 FOR DETAILS OF HOARDING.
5. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
6. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
7. CHAIN LINK FENCE SHALL BE ERECTED ALONG THE WORKS AREA BOUNDARY. THE ALIGNMENT AND EXTENT OF CHAIN LINK FENCE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
8. THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
9. NO STRUCTURES SHALL BE ERECTED OTHER THAN SUCH STRUCTURES NOT EXCEEDING TWO STOREYS IN HEIGHT, WHICH ARE APPROVED BY THE DISTRICT LANDS OFFICER AS BEING APPROPRIATE FOR THE USE OF THE SITE AS A WORKS AREA.
10. THE TENTATIVE OCCUPATION PERIOD SHALL BE REFERRED TO EMPLOYER'S REQUIREMENTS PART 2 AND PART 14 SECTION 1 CLAUSE 1.45A.
11. THE WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARE-USED AMONG THE CONTRACTS OF TM-CLKL RELATED CONTRACTS. THE AREAS HATCHED WITH ▨ ARE TENTATIVELY ALLOCATED FOR THE USE BY THIS CONTRACT.
12. THE COMMON AREA SHALL BE CONCRETE PAVED BY THE CONTRACTOR.

LEGEND:

- WORKS AREA UNDER THIS CONTRACT
- COMMON AREA (MAINTAINED UNDER THIS CONTRACT) TO BE SHARE-USED WITH OTHER CONTRACTS
- WORKS AREA FOR THIS CONTRACT TO BE EARLY HANDED OVER BY THE CONTRACTOR.
- H — HOARDING AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
- CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED BY OTHERS)
- CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)

SETTING OUT COORDINATES OF WORKS AREA WA5

POINT	COORDINATES	
	EASTING	NORTHING
W5-1	820162.308	820638.492
W5-2	820216.839	820590.455
W5-3	820286.496	820603.985
W5-4	820421.757	820667.742
W5-5	820490.425	820764.554
W5-6	820483.839	820776.180
W5-7	820393.451	820728.958
W5-8	820399.746	820715.343
W5-9	820268.674	820665.173
W5-10	820325.075	820698.276
W5-11	820306.587	820685.458
W5-12	820305.269	820691.287
W5-13	820279.580	820684.863
W5-14	820268.027	820680.572
X	820169.407	820655.859
Y	820166.601	820655.172
Z	820163.794	820654.484
W5-17	820144.957	820650.334
W5-18	820155.899	820641.093
W5-19	820157.432	820642.788
W5-20	820332.642	820686.314
W5-21	820333.350	820684.738
W5-22	820326.723	820694.608

AECOM

PROJECT
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK.
-	OCT. 12	TENDER DRAWING	CWN

STATUS

SCALE: A1 1 : 1000
DIMENSION UNIT: METRES

KEY PLAN

Figure 1.2h

PROJECT NO.: 60240249
CONTRACT NO.: HY/2012/07

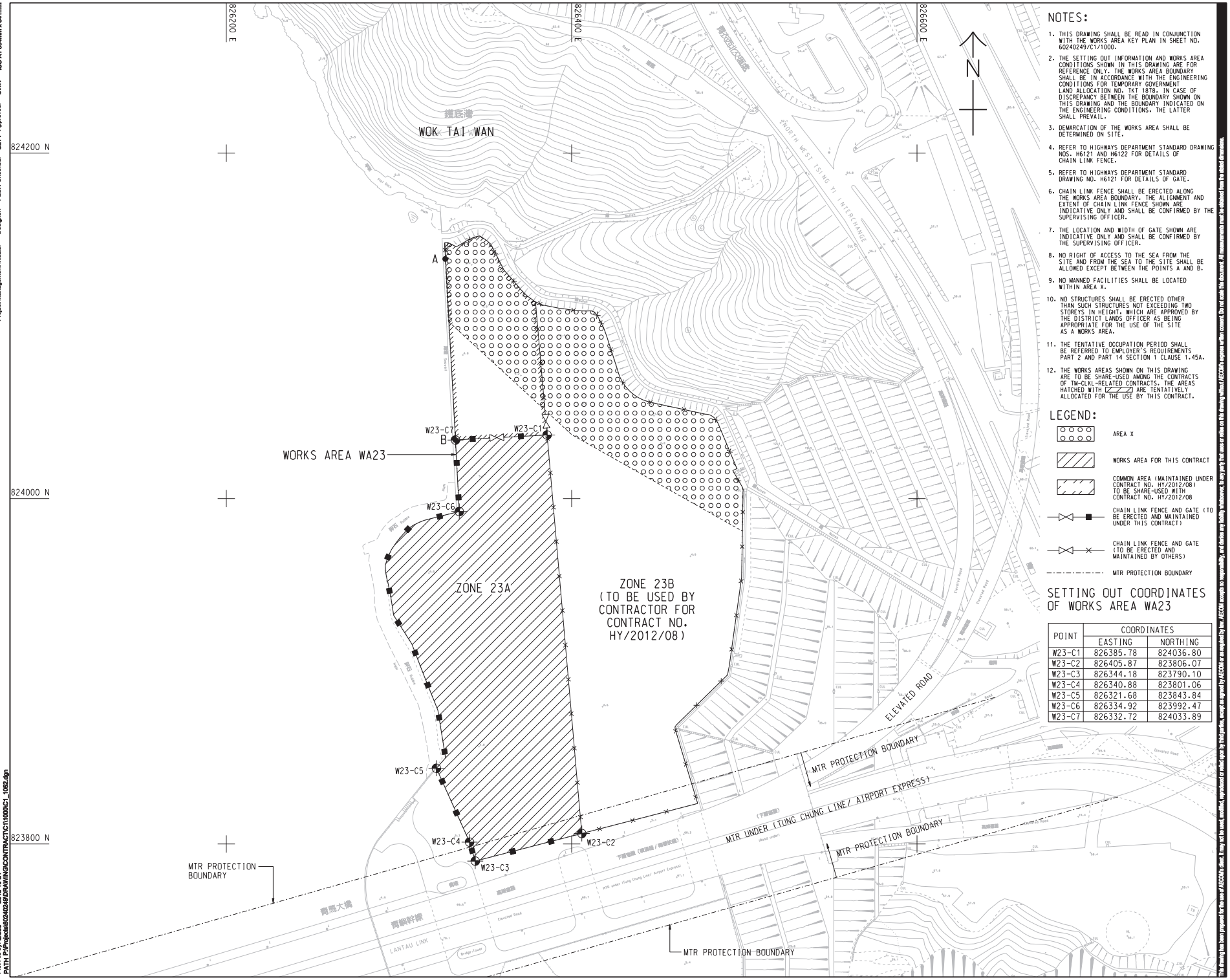
SHEET TITLE
WORKS AREA AND HOARDING PLAN

SHEET 1 OF 2

SHEET NUMBER
60240249/C1/1051

Project Management Initials: Designer: PLCK Checked: SLYY Approved: CWN ISO A1 594mm x 841mm

Plot File by: LIUJ3 2012-10-24
PATH: P:\Projects\60240249\DRAWING\CONTRACT\C1\1000\C1_1051.dgn



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C1/1000.
2. THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. TKT 1878. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
3. DEMARCATION OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
4. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
5. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
6. CHAIN LINK FENCE SHALL BE ERECTED ALONG THE WORKS AREA BOUNDARY. THE ALIGNMENT AND EXTENT OF CHAIN LINK FENCE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
7. THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
8. NO RIGHT OF ACCESS TO THE SEA FROM THE SITE AND FROM THE SEA TO THE SITE SHALL BE ALLOWED EXCEPT BETWEEN THE POINTS A AND B.
9. NO MANNED FACILITIES SHALL BE LOCATED WITHIN AREA X.
10. NO STRUCTURES SHALL BE ERECTED OTHER THAN SUCH STRUCTURES NOT EXCEEDING TWO STOREYS IN HEIGHT, WHICH ARE APPROVED BY THE DISTRICT LANDS OFFICER AS BEING APPROPRIATE FOR THE USE OF THE SITE AS A WORKS AREA.
11. THE TENTATIVE OCCUPATION PERIOD SHALL BE REFERRED TO EMPLOYER'S REQUIREMENTS PART 2 AND PART 14 SECTION 1 CLAUSE 1.45A.
12. THE WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARE-USED AMONG THE CONTRACTS OF TM-CLKL-RELATED CONTRACTS. THE AREAS HATCHED WITH ▨ ARE TENTATIVELY ALLOCATED FOR THE USE BY THIS CONTRACT.

LEGEND:

- AREA X
- WORKS AREA FOR THIS CONTRACT
- COMMON AREA (MAINTAINED UNDER CONTRACT NO. HY/2012/08) TO BE SHARE-USED WITH CONTRACT NO. HY/2012/08
- CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
- CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED BY OTHERS)
- MTR PROTECTION BOUNDARY

SETTING OUT COORDINATES OF WORKS AREA WA23

POINT	COORDINATES	
	EASTING	NORTHING
W23-C1	826385.78	824036.80
W23-C2	826405.87	823806.07
W23-C3	826344.18	823790.10
W23-C4	826340.88	823801.06
W23-C5	826321.68	823843.84
W23-C6	826334.92	823992.47
W23-C7	826332.72	824033.89

AECOM

PROJECT
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
HIGHWAYS DEPARTMENT
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK.
-	OCT. 12	TENDER DRAWING	CWN

STATUS

SCALE: A1 1 : 1000
DIMENSION UNIT: METRES

KEY PLAN

Figure 1.2i

PROJECT NO.: 60240249
CONTRACT NO.: HY/2012/07

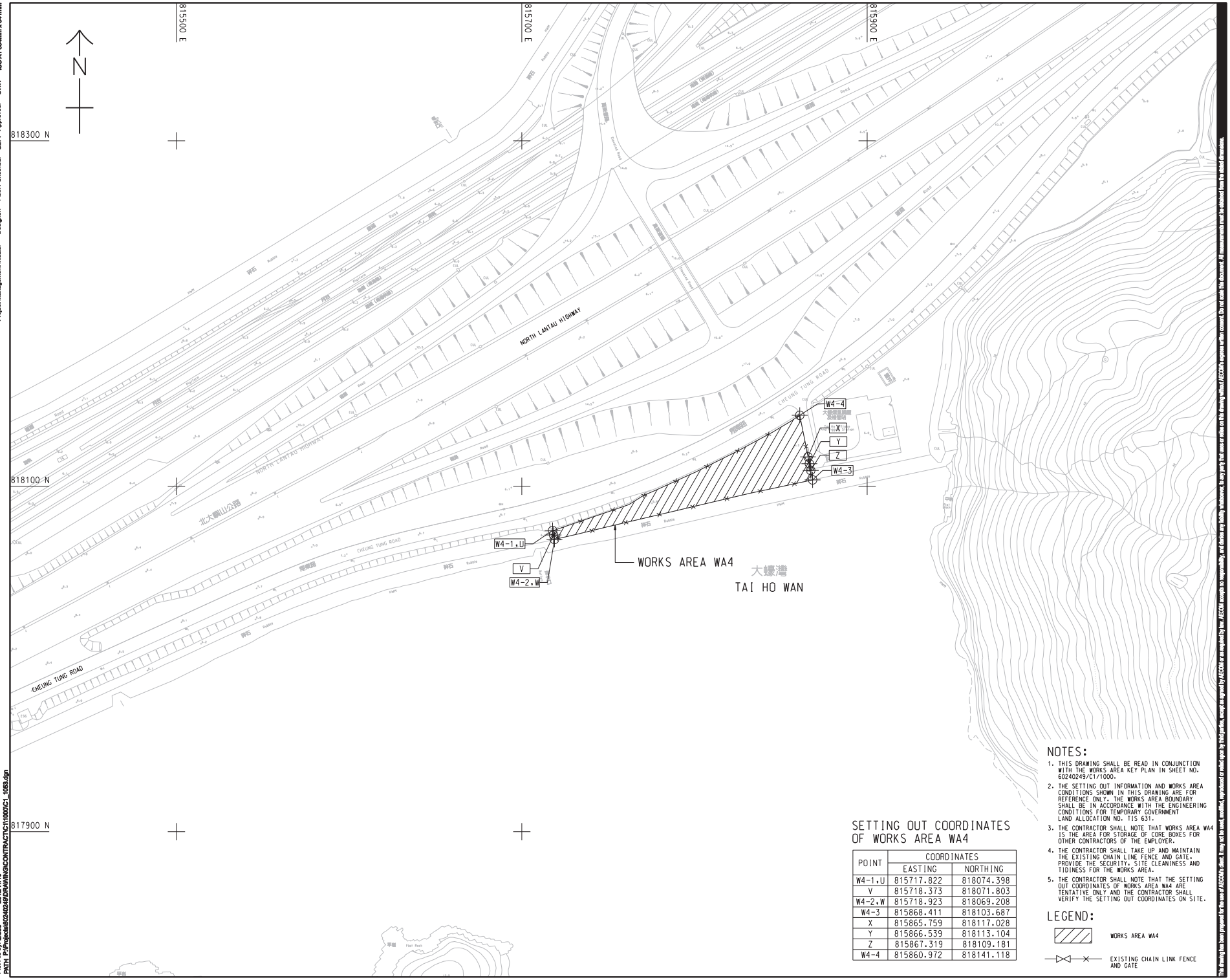
SHEET TITLE
WORKS AREA AND HOARDING PLAN

SHEET 2 OF 2

SHEET NUMBER
60240249/C1/1052

Project Management Initials: Designer: PLCK Checked: SLYY Approved: CWN ISO A1 594mm x 841mm

Plot File by: LIUJ3 2012-10-24
PATH: P:\Projects\60240249\DRAWING\CONTRACT\C1\1000\C1_1052.dgn



Project Management Initials: Designer: PLCK Checked: SLYY Approved: CWN ISO A1 594mm x 841mm

Plot File by: LIUJ3 2012/11/16
PATH: P:\Projects\60240249\DRAWING\CONTRACT\C1\1000\C1_1053.dgn

SETTING OUT COORDINATES OF WORKS AREA WA4

POINT	COORDINATES	
	EASTING	NORTHING
W4-1,U	815717.822	818074.398
V	815718.373	818071.803
W4-2,W	815718.923	818069.208
W4-3	815868.411	818103.687
X	815865.759	818117.028
Y	815866.539	818113.104
Z	815867.319	818109.181
W4-4	815860.972	818141.118

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C1/1000.
2. THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. TIS 631.
3. THE CONTRACTOR SHALL NOTE THAT WORKS AREA WA4 IS THE AREA FOR STORAGE OF CORE BOXES FOR OTHER CONTRACTORS OF THE EMPLOYER.
4. THE CONTRACTOR SHALL TAKE UP AND MAINTAIN THE EXISTING CHAIN LINE FENCE AND GATE. PROVIDE THE SECURITY, SITE CLEANINESS AND TIDINESS FOR THE WORKS AREA.
5. THE CONTRACTOR SHALL NOTE THAT THE SETTING OUT COORDINATES OF WORKS AREA WA4 ARE TENTATIVE ONLY AND THE CONTRACTOR SHALL VERIFY THE SETTING OUT COORDINATES ON SITE.

LEGEND:

WORKS AREA WA4

EXISTING CHAIN LINK FENCE AND GATE

AECOM

PROJECT
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

Figure 1.2j

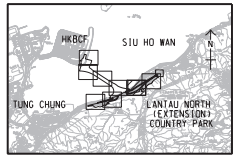
ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK.
-	NOV. 12	TENDER ADDENDUM NO. 1	CWN

STATUS

SCALE: A1 1 : 1000
DIMENSION UNIT: METRES

KEY PLAN

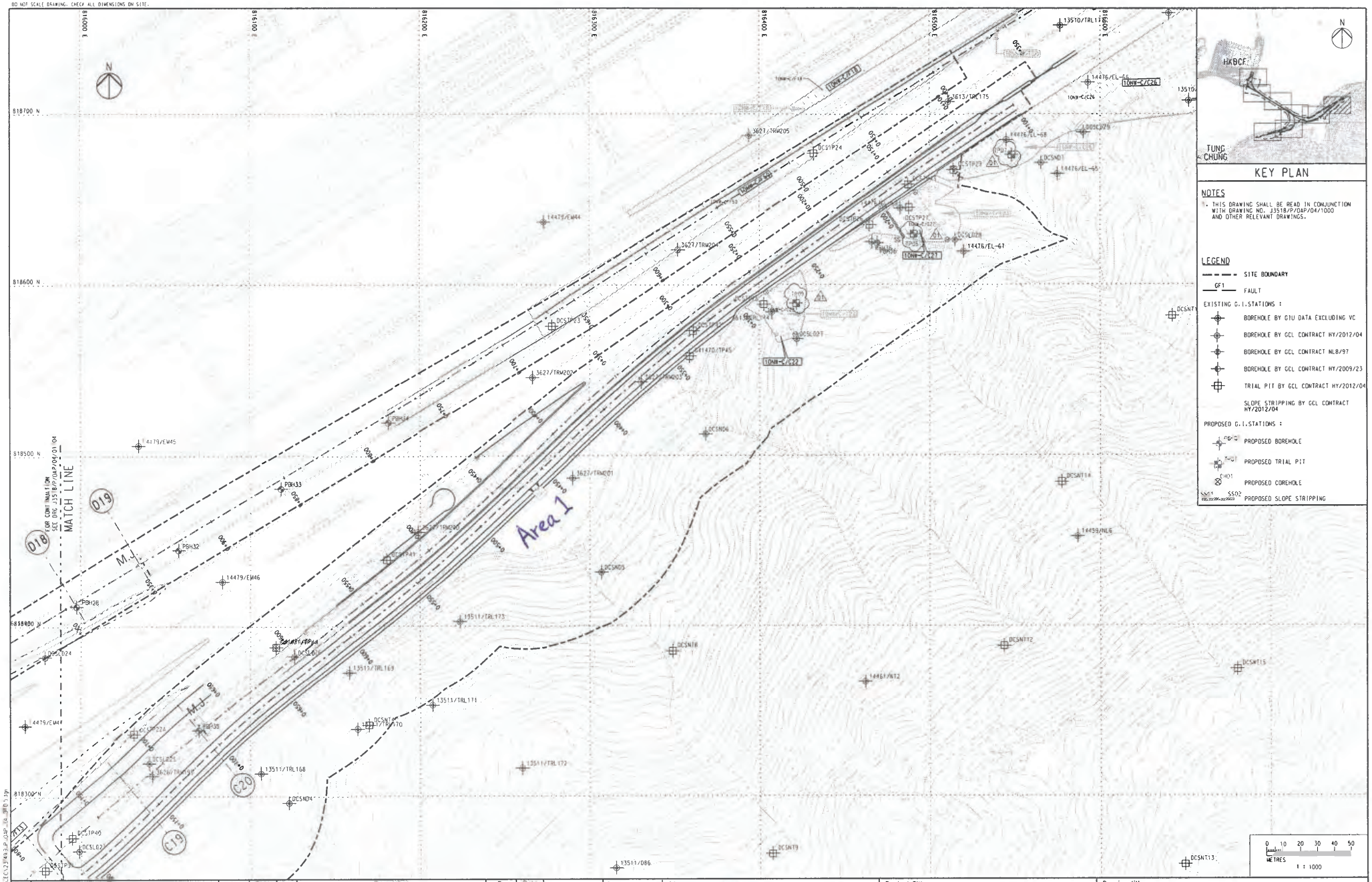


PROJECT NO.: 60240249
CONTRACT NO.: HY/2012/07

SHEET TITLE
WORKS AREA WA4

SHEET NUMBER
60240249/C1/1053

DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.



KEY PLAN

NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. J3518/P/OAP/04/1000 AND OTHER RELEVANT DRAWINGS.

LEGEND

- SITE BOUNDARY
- GF1 FAULT

EXISTING G.I.STATIONS :

- BOREHOLE BY GIU DATA EXCLUDING VC
- BOREHOLE BY GCL CONTRACT HY/2012/04
- BOREHOLE BY GCL CONTRACT NL8/97
- BOREHOLE BY GCL CONTRACT HY/2009/23
- TRIAL PIT BY GCL CONTRACT HY/2012/04
- SLOPE STRIPPING BY GCL CONTRACT HY/2012/04

PROPOSED G.I.STATIONS :

- PBH01 PROPOSED BOREHOLE
- TP01 PROPOSED TRIAL PIT
- CH01 PROPOSED COREHOLE
- SS01 SS02 PROPOSED SLOPE STRIPPING

Rev.	Description	By	Date	Rev.	Description	By	Date
A	[illegible]	RL	07/13				
B	[illegible]	RL	07/13				
C	[illegible]	RL	09/13				
D1	ETA INTERNAL REVIEW	RL	10/13				

Drawn: RL | Date: 07/13
Checked: DS | Approved: DOP
Scale: 1:1000 @ A1 / 1:2000 @ A3

Client: 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

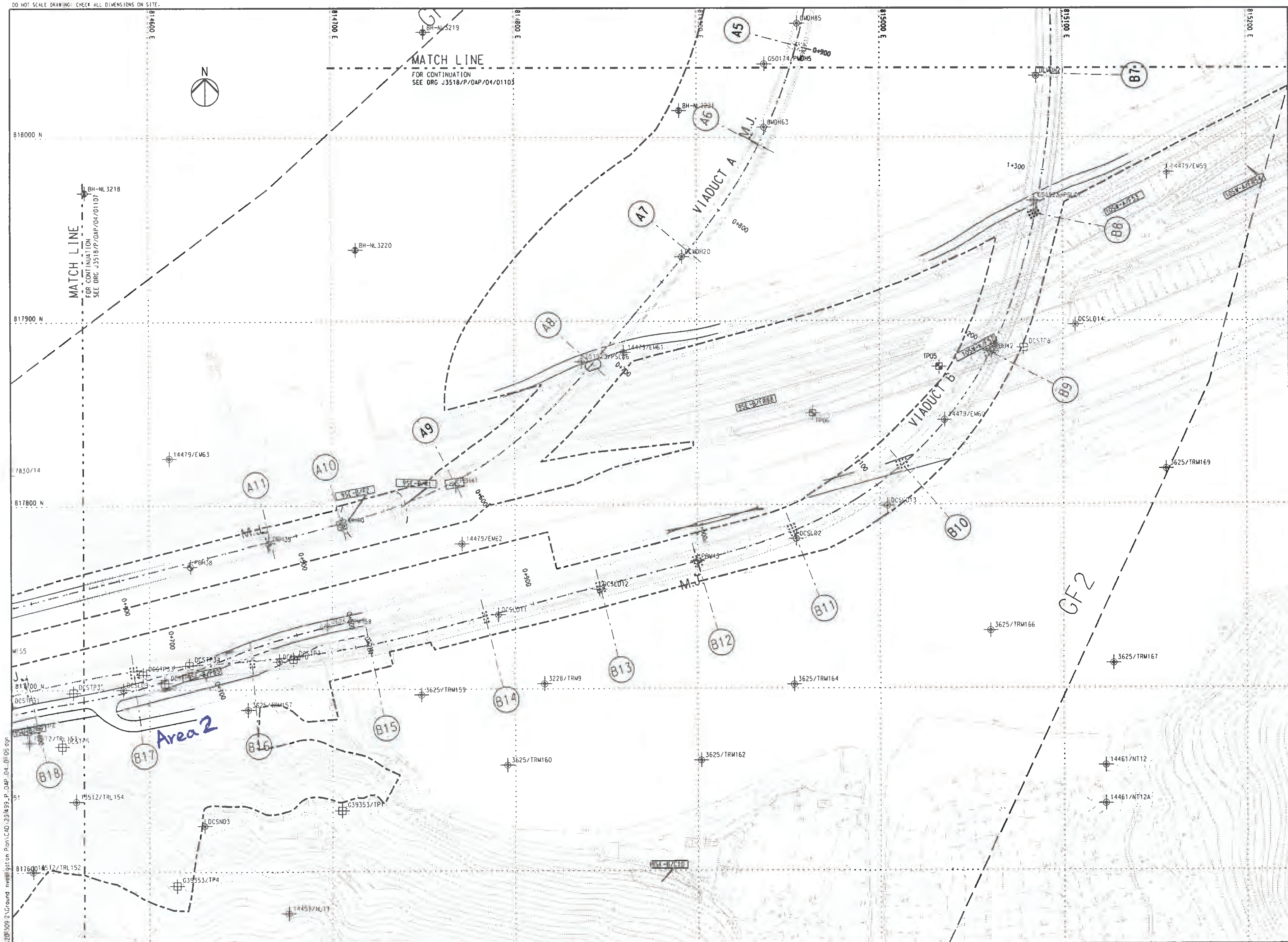
Project Title: Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section

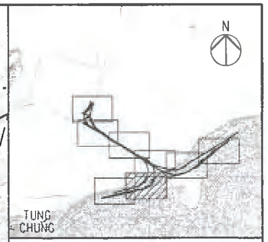
Supervising Officer: AECOM | Contractor: Gammon | Originator: ARUP

Drawing title: **Figure 1.2k**

Drawing no. J3518/P/OAP/04/01105 | Rev. D1

DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.





KEY PLAN

NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. J3518/P/OAP/04/1000 AND OTHER RELEVANT DRAWINGS.

LEGEND

SITE BOUNDARY

GF1 FAULT

EXISTING G.I.STATIONS :

BOREHOLE BY GIU DATA EXCLUDING VC

BOREHOLE BY GCL CONTRACT HY/2012/04

BOREHOLE BY GCL CONTRACT NL8/97

BOREHOLE BY GCL CONTRACT HY/2009/23

TRIAL PIT BY GCL CONTRACT HY/2012/04

SLOPE STRIPPING BY GCL CONTRACT HY/2012/04

PROPOSED G.I.STATIONS :

PB-01 PROPOSED BOREHOLE

TP01 PROPOSED TRIAL PIT

CH01 PROPOSED COREHOLE

SS01 SS02 PROPOSED SLOPE STRIPPING

0 10 20 30 40 50 METRES 1 : 1000

Rev	Description	By	Date	Rev	Description	By	Date
A	SUBMISSION	RC	07/13				
B	SUBMISSION	RC	07/13				
C	SUBMISSION	RC	09/13				

Drawn	Date
RL	07/13
Checked	Approved
DS	DOP
Scale 1:1000 @ A1 / 1:2000 @ A3	

Client: 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

Project Title: Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section

Supervising Officer: AECOM

Contractor: Gammon

Originator: ARUP

Drawing title

Figure 1.2I

Drawing no. J3518/P/OAP/04/01106 Rev C

1.2 SCOPE OF REPORT

This is the Third Quarterly EM&A Report under the *Contract No. HY/2012/07 Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section*. This report presents a summary of the environmental monitoring and audit works from 1 June 2014 to 31 August 2014.

1.3 ORGANIZATION STRUCTURE

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

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Daniel Ip	3553 3800	2492 2057
	Resident Engineer	Kingman Chan	3691 2950	3691 2899
ENPO / IEC (ENVIRON Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2888	3465 2899
	IEC	Dr. F.C. Tsang	3465 2828	3465 2899
Contractor (Gammon Construction Limited)	Environmental Manager	Brian Kam	3520 0387	3520 0486
	Environmental Officer	Roy Leung	3520 0387	3520 0486
	24-hour Complaint Hotline		9738 4332	
ET (ERM-HK)	ET Leader	Jovy Tam	2271 3113	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of the Contract commenced on 31 October 2013. The rolling construction programme for the period of June to August 2014 is shown in *Appendix B*.

As informed by the Contractor, details of the major works carried out in this reporting period are listed below:

June 2014

Marine-based Works

- Marine piling platform installation;
- Marine Piling at Viaducts B & E;
- Construction of rockfill platform at Viaduct D landing; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Area 2, Viaducts A, B, C & D;
- Land Piling at Viaduct B;
- Piling platform installation for Viaducts B, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

July 2014

Marine-based Works

- Construction of Pile caps at Viaduct B;
- Marine piling platform installation;
- Marine Piling at Viaducts B & E;
- Construction of rockfill platform at Viaduct D landing; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Area 2, Viaducts A, B, C & D;
- Land Piling at Viaducts B & D;
- Piling platform installation for Viaducts B, C, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys;
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9; and
- Site formation of workshop at Area 1.

August 2014

Marine-based Works

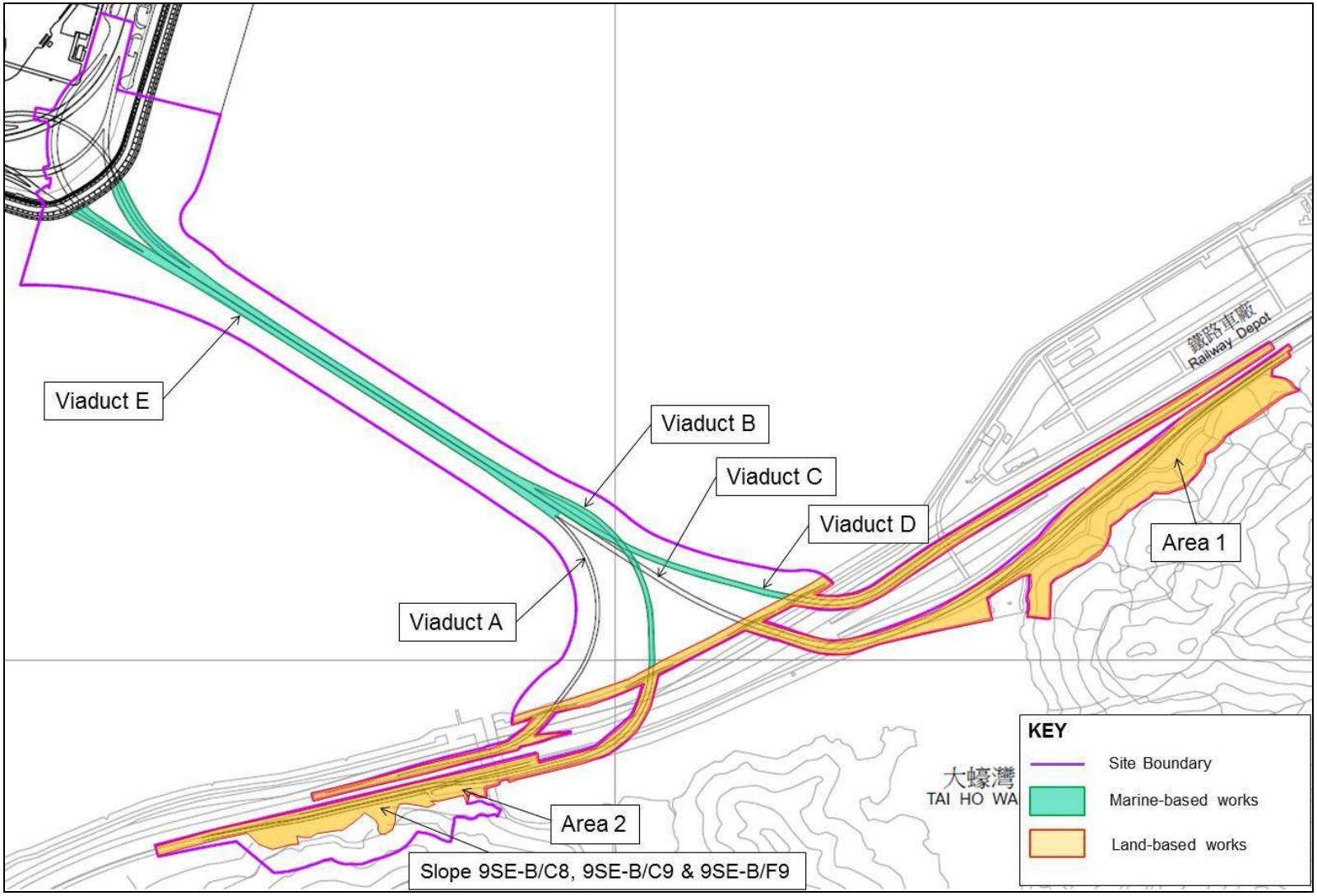
- Construction of Pile caps at Viaduct B;
- Marine piling platform installation;
- Marine Piling at Viaducts B, D & E;
- Construction of rockfill platform at Viaduct D landing; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Area 2, Viaducts A, B, C & D;
- Land Piling at Viaduct B;
- Piling platform installation for Viaducts B, C, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

The locations of the construction activities are shown in *Figure 1.3*. The Environmental Sensitive Receivers in the vicinity of the Project are shown in *Figure 1.4*.

Figure 1.3 Locations of Construction Activities in the Reporting Period



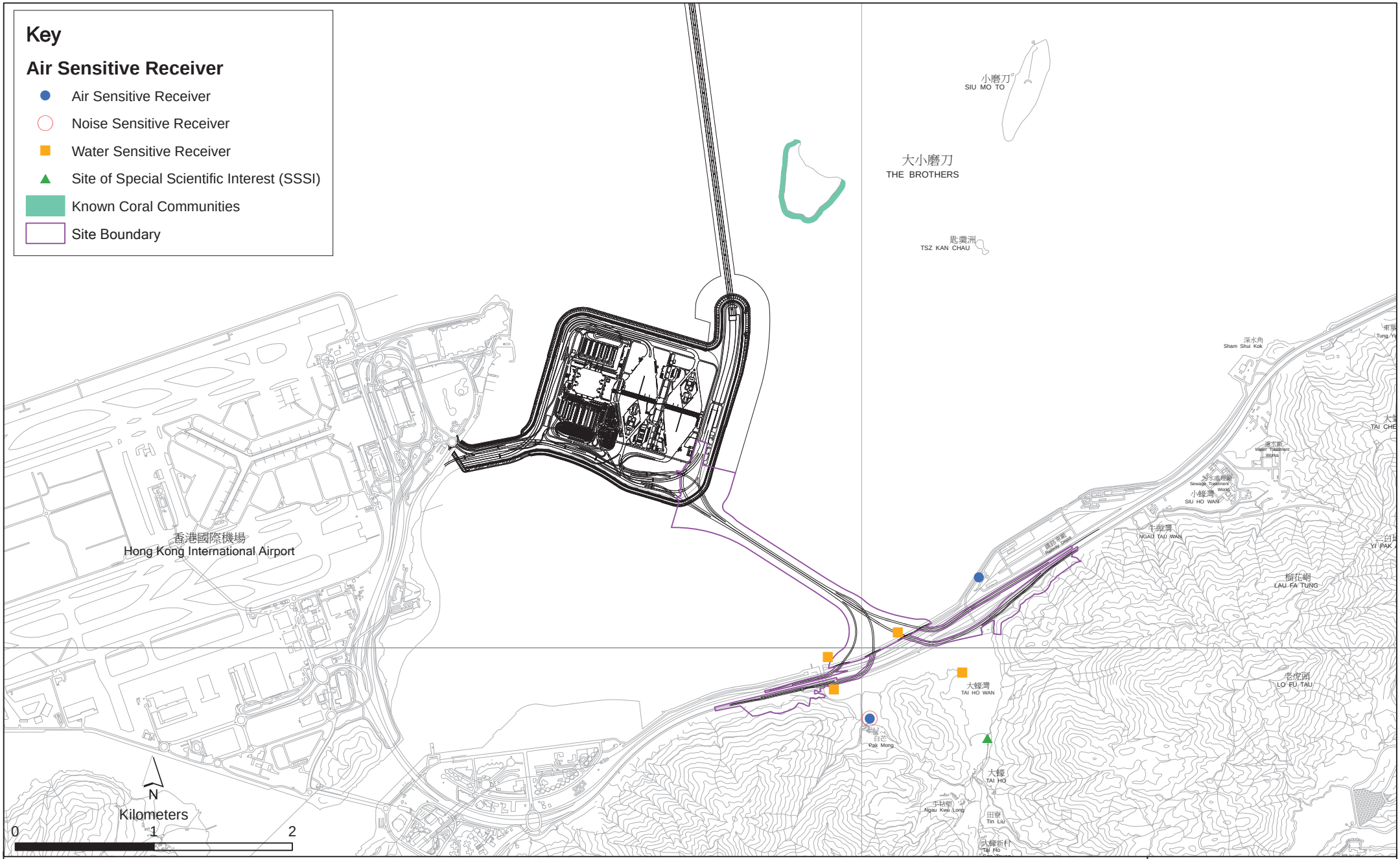


Figure 1.4

Environmental Sensitive Receivers in the Vicinity of Contract No. HY/2012/07
Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section

File: T:\GIS\CONTRACT\0215660\Mxd\0215660_Environmental_Sensitive_Receiver.mxd
Date: 7/8/2014

Environmental Resources Management

ERM

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

1.5 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

The EM&A programme required environmental monitoring for air quality, noise, 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 described in the following sections, which include:

- Monitoring parameters;
- Monitoring schedules for the reporting months and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event Action Plan;
- Results and observations;
- Environmental mitigation measures, as recommended in the approved EIA Report; and
- Environmental requirement in contract documents.

2 EM&A RESULTS

The EM&A programme required environmental monitoring for air quality, noise, 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

The baseline air quality monitoring undertaken by the Hong Kong – Zhuhai – Macao Bridge Hong Kong Projects (HKZMB) during October 2011 has included the two monitoring stations ASR9A and ASR9C for this project. Thus, the baseline monitoring results and Action/ Limit Level presented in HKZMB Baseline Monitoring Report [1] are adopted for this Project.

2.1.1 *Monitoring Requirements and Equipment*

In accordance with the Updated EM&A Manual, impact 1-hour TSP monitoring was conducted three (3) times every six (6) days while the highest dust impact was expected. Impact 24-hour TSP monitoring was carried out once every six (6) days. The Action and Limit Level of the air quality monitoring is provided in *Appendix D*.

Air quality monitoring stations ASR9A and ASR9C in Siu Ho Wan MTRC Depot were the proposed locations in accordance with the Updated EM&A Manual. However, authorization of getting access into Siu Ho Wan MTRC Depot is still being sought for the impact monitoring of the EM&A programme for the captioned Contract. Air quality monitoring stations in Siu Ho Wan MTRC Depot (ASR9A and ASR9C) were relocated to Area 4 (ASR8A) and rooftop of Pak Mong Village (ASR8) respectively since November 2013. A proposal for setting up alternative air quality monitoring stations at ASR8A (Area 4) and ASR8 (Rooftop of Pak Mong Village Watch Tower) was submitted on 13 November 2013 which was subsequently approved. Same baseline and Action/Limit Level for air quality, as derived from the baseline monitoring data recorded at Siu Ho Wan MTRC Depot, were adopted for these temporary air quality locations (*Figure 2.1; Table 2.1*).

High Volume Samplers (HVSs) were used for carrying out 1-hour and 24-hr TSP monitoring during the reporting period. The HVS meets all requirements of the Updated EM&A Manual. Brand and model of the equipment is given in *Table 2.2*.

Wind data monitoring equipment has been installed at the rooftop of Pak Mong Village Watch Tower during the reporting period for logging wind

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

Key

- Original Monitoring Station
- Alternative Monitoring Station
- Site Boundary

AQMS	X	Y
ASR9A	815847.40	818508.64
ASR9C	816399.52	818946.65
ASR8	815059.45	817488.99
ASR8A	815856.14	818118.14

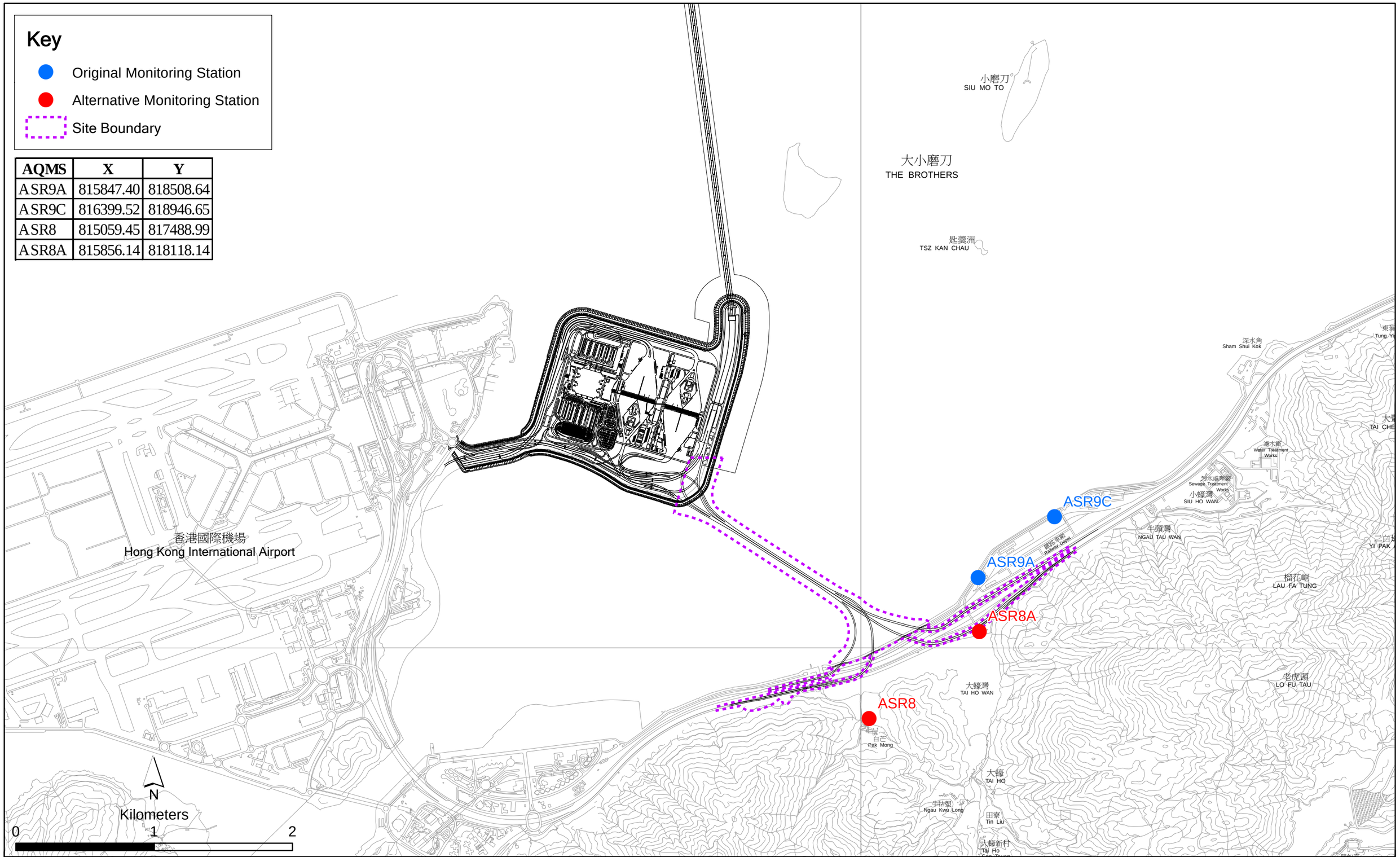


Figure 2.1

Locations of Air Quality Monitoring Stations

File: T:\GIS\CONTRACT\0215660\Mxd\0215660_AQMS.mxd
Date: 6/12/2013

Remark: Air Quality Monitoring Stations ASR9A and ASR9C (Siu Ho Wan MTRC Depot) proposed in accordance with the Updated EM&A were temporarily relocated to ASR8A and ASR8, respectively.

Environmental Resources Management

ERM

speed and wind direction. The wind sensor was setup such as it was clear of obstructions or turbulence caused by building. The wind data monitoring equipment is recalibrated at least once every six months.

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

Monitoring Station (1)	Monitoring Period	Location	Description	Parameters & Frequency
ASR8A ASR8	3, 9, 13, 19, 25 and 30 June; 5, 11, 17, 23 and 29 July; 4, 8, 14, 20 and 26 August 2014	Area 4 Pak Mong Village Watch Tower	On ground at the Area 4 Rooftop of the premise	• 1-hour Total Suspended Particulates (1-hour TSP, µg/m³), 3 times per day every 6 days • 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour every 6 days

Note:
(1) Air Quality Monitoring Stations ASR9A and ASR9C at Siu Ho Wan MTRC Depot proposed in accordance with the Updated EM&A were temporarily relocated to ASR 8A and ASR8, respectively.

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 Sensor	Global Water (Wind Speed Sensor: WE550; Wind Direction Sensor: WE570)
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 Quarter

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

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. Monitoring results are presented graphically in *Appendix F* and detailed impact air quality monitoring results and meteorological information were reported in the *Eighth* to *Tenth Monthly EM&A Report.*

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

Month	Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
June 2014	ASR 8A	73	47 - 131	394	500
	ASR 8	70	49 - 115	393	500
July 2014	ASR 8A	60	40 - 74	394	500
	ASR 8	67	52 - 102	393	500
August 2014	ASR 8A	69	43 - 113	394	500
	ASR 8	67	43 - 116	393	500

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

Month	Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
June 2014	ASR 8A	54	39 - 69	178	260
	ASR 8	53	40 - 68	178	260
July 2014	ASR 8A	43	38 - 47	178	260
	ASR 8	42	36 - 47	178	260
August 2014	ASR 8A	41	40 - 43	178	260
	ASR 8	43	41 - 45	178	260

The major dust sources in the reporting period include construction activities under the Contract as well as nearby traffic emissions.

In this reporting period, a total of sixteen (16) monitoring events were undertaken within the reporting period, in which no Action or Limit Level exceedances for 1-hr and 24-hr TSP for air quality were recorded during the reporting period.

2.2 NOISE MONITORING

The baseline noise monitoring undertaken by the Hong Kong – Zhuhai – Macao Bridge Hong Kong Projects (HKZMB) during the period of 18 October to 1 November 2011 has included the monitoring station NSR1 for this project. Thus, the baseline monitoring results and Action/ Limit Level presented in HKZMB Baseline Monitoring Report [1] are adopted for this Project.

2.2.1 *Monitoring Requirements and Equipment*

In accordance with the Updated EM&A Manual, impact noise monitoring was conducted once per week during the construction phase of the Contract at NSR1.

Monitoring location was set up at NSR1 in accordance with the Updated EM&A Manual. *Figure 2.2* shows the location of the monitoring station. *Table 2.5* describes the details of the monitoring station.

Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in *Table 2.6*.

Table 2.5 Location of Impact Noise Monitoring Station and Monitoring Dates in this Reporting Period

Monitoring Station	Monitoring Period	Location	Parameters & Frequency
NSR1	June 2014 to August 2014	Pak Mong Village Watch Tower	• 30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays (Monday to Saturday). L_{eq}, L_{10} and L_{90} would be recorded. • At least once a week

Table 2.6 Noise Monitoring Equipment

Equipment	Brand and Model
Integrated Sound Level Meter	Rion NL-31
Acoustic Calibrator	Rion NC-73

2.2.2 *Action and Limit Levels*

The Action and Limit levels of the noise monitoring are provided in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

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

Key

- Noise Monitoring Station
- Site Boundary

NMS	X	Y
NSR1	815059.45	817488.99

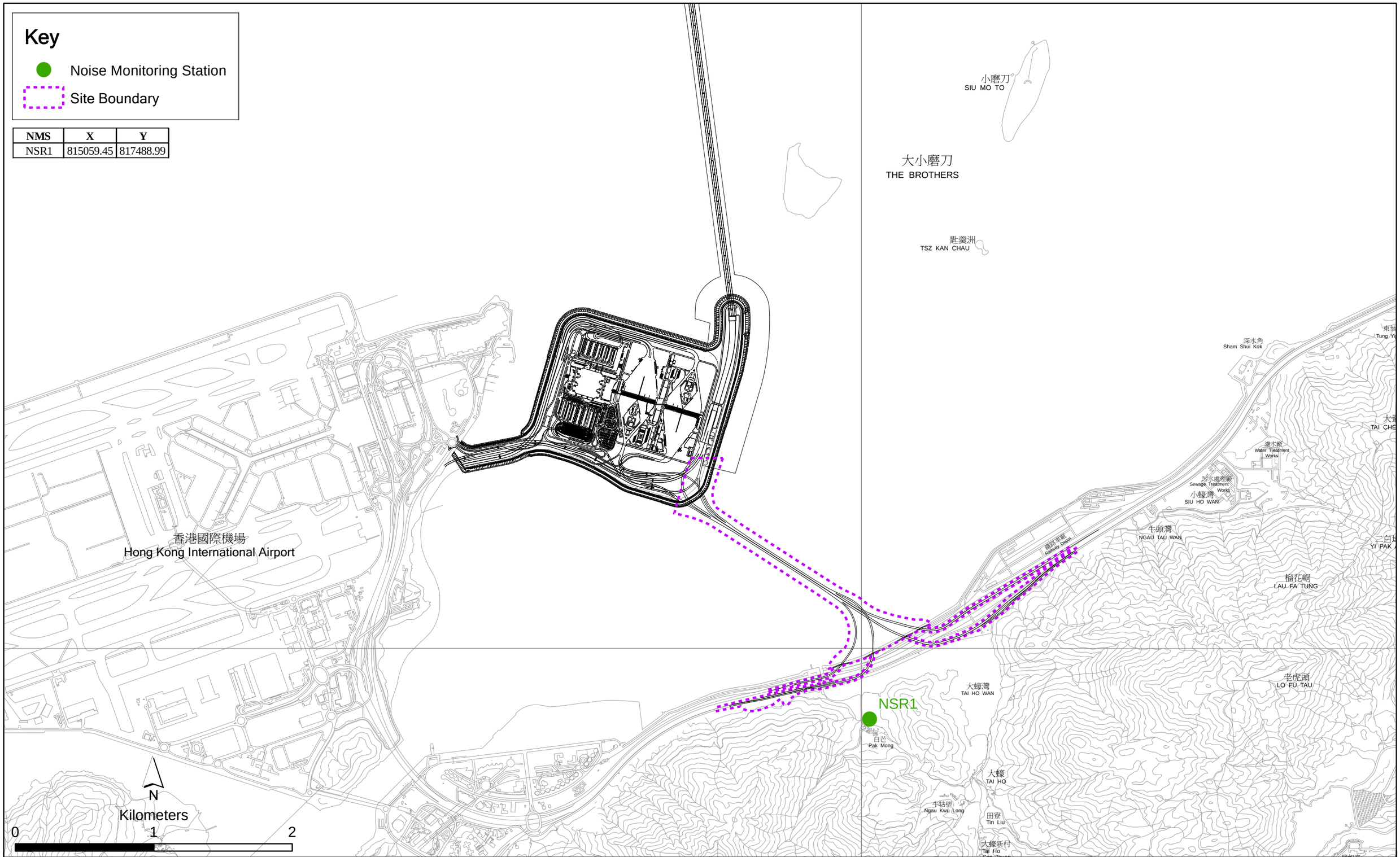


Figure 2.2

Locations of Noise Monitoring Stations

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Date: 10/12/2013

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2.2.3 *Monitoring Schedule for the Reporting Quarter*

The schedules for noise monitoring in the reporting quarter is provided in *Appendix E*.

2.2.4 *Results and Observations*

The monitoring results for noise monitoring are summarized in *Table 2.7*. Monitoring results are presented graphically in *Appendix G* and detailed impact noise monitoring results are reported in the *Eighth* to *Tenth Monthly EM&A Report.*

Table 2.7 Summary of Construction Noise Monitoring Results at NSR1 in the Reporting Period

Month	Average , dB(A), L_{eq} (30mins)	Range, dB(A), L_{eq} (30mins)	Limit Level, dB(A), L_{eq} (30mins)
June 2014	58	55 - 59	75
July 2014	57	56 - 58	75
August 2014	56	54 - 57	75

A total of sixteen (16) monitoring events were undertaken in the reporting period with no Action Level and Limit Level exceedance recorded at all monitoring stations in the reporting period. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix J*.

Major noise sources during the noise monitoring included construction activities, nearby traffic noise and aircraft noise.

2.3 *WATER QUALITY MONITORING*

The baseline water quality monitoring undertaken by the Hong Kong – Zhuhai – Macao Bridge Hong Kong Projects (HKZMB) between 6 and 31 October 2011 has included all monitoring stations except SR4a for the Project. Thus, the baseline monitoring results except for station SR4a and Action/Limit Level presented in HKZMB Baseline Monitoring Report [1] are adopted for this Project. Baseline water quality monitoring was conducted at station SR4a from 29 August to 24 September 2013.

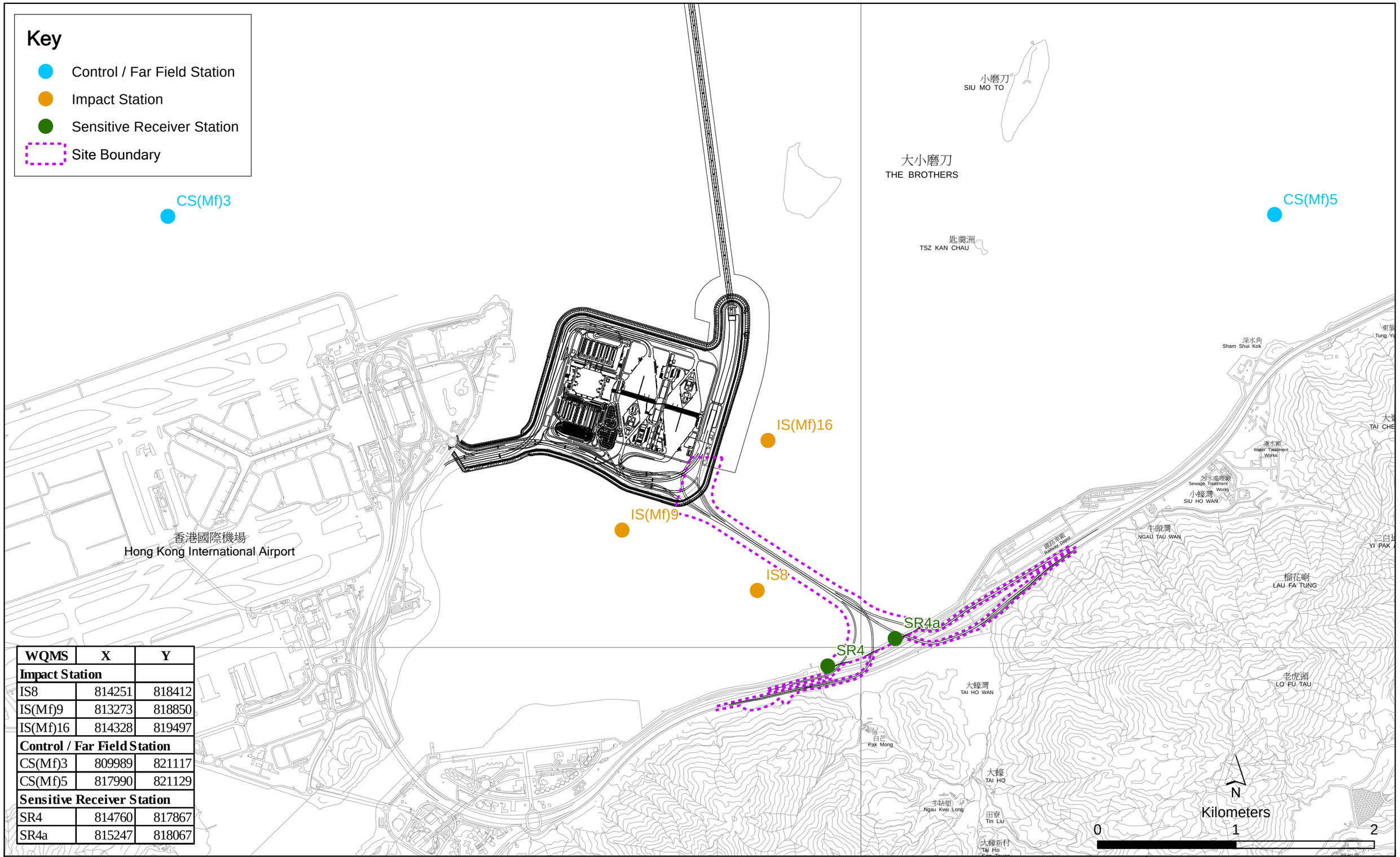
2.3.1 *Monitoring Requirements and Equipment*

Impact water quality monitoring was carried out to ensure that any deterioration of water quality was detected, and that timely action was taken to rectify the situation. Impact water quality monitoring was undertaken three days per week during the construction period at seven water quality monitoring stations in accordance with the Updated EM&A Manual (*Figure 2.3*; *Table 2.8*).

Table 2.8 Locations of Water Quality Monitoring Stations and the Corresponding Monitoring Requirements

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850	• Temperature(°C) • pH(pH unit) • Turbidity (NTU) • Water depth (m) • Salinity (ppt) • DO (mg/L and % of saturation) • SS (mg/L)	3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted.	Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides during the construction period of the Contract.
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497			
IS8	Impact Station(Close to HKBCF construction site)	814251	818412			
SR4	Sensitive receiver (Tai Ho Inlet)	814760	817867			
SR4a	Sensitive receiver	815247	818067			
CS(Mf)3	Control Station	809989	821117			
CS(Mf)5	Control Station	817990	821129			

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



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)3	809989	821117
CS(Mf)5	817990	821129
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

Figure 2.3

Locations of Water Quality Monitoring Stations

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Date: 6/12/2013

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Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
Notes: In addition to the parameters presented monitoring location/position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or works underway nearby were also recorded.						

Table 2.9 summarizes the equipment used in the impact water quality monitoring programme.

Table 2.9 Water Quality Monitoring Equipment

Equipment	Brand and Model
DO, Temperature meter and Salinity	YSI Pro2030
Turbidimeter	HACH Model 2100Q
pH meter	HANNA HI8314
Positioning Equipment	Koden913MK2 with KBG-3 DGPS antenna
Water Depth Detector	Speedtech Instrument SM-5
Water Sampler	Kemmerer 1520 (1520-C25) 2.2L with messenger

2.3.2 Action & Limit Levels

The Action and Limit Level of the water quality monitoring is provided in *Appendix D*.

2.3.3 Monitoring Schedule for the Reporting Quarter

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

2.3.4 Results and Observations

Impact water quality monitoring was conducted at all designated monitoring stations in the reporting period. Monitoring results are presented graphically in *Appendix H* and detailed impact water quality monitoring results were reported in the *Eighth* to *Tenth Monthly EM&A Report*.

In this reporting period, a total of Thirty-nine (39) monitoring events were undertaken in which no Action or Limit Level exceedance were recorded during the reporting quarter.

2.4 DOLPHIN MONITORING

2.4.1 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.

2.4.2 Monitoring Equipment

Table 2.10 summarises the equipment used for the impact dolphin monitoring.

Table 2.10 Dolphin Monitoring Equipment

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

2.4.3 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.

2.4.4 Monitoring Location

The impact dolphin monitoring was carried out in the NEL and NWL along the line transect as depicted in *Figure 2.4*. The co-ordinates of all transect lines are shown in *Table 2.11* below.

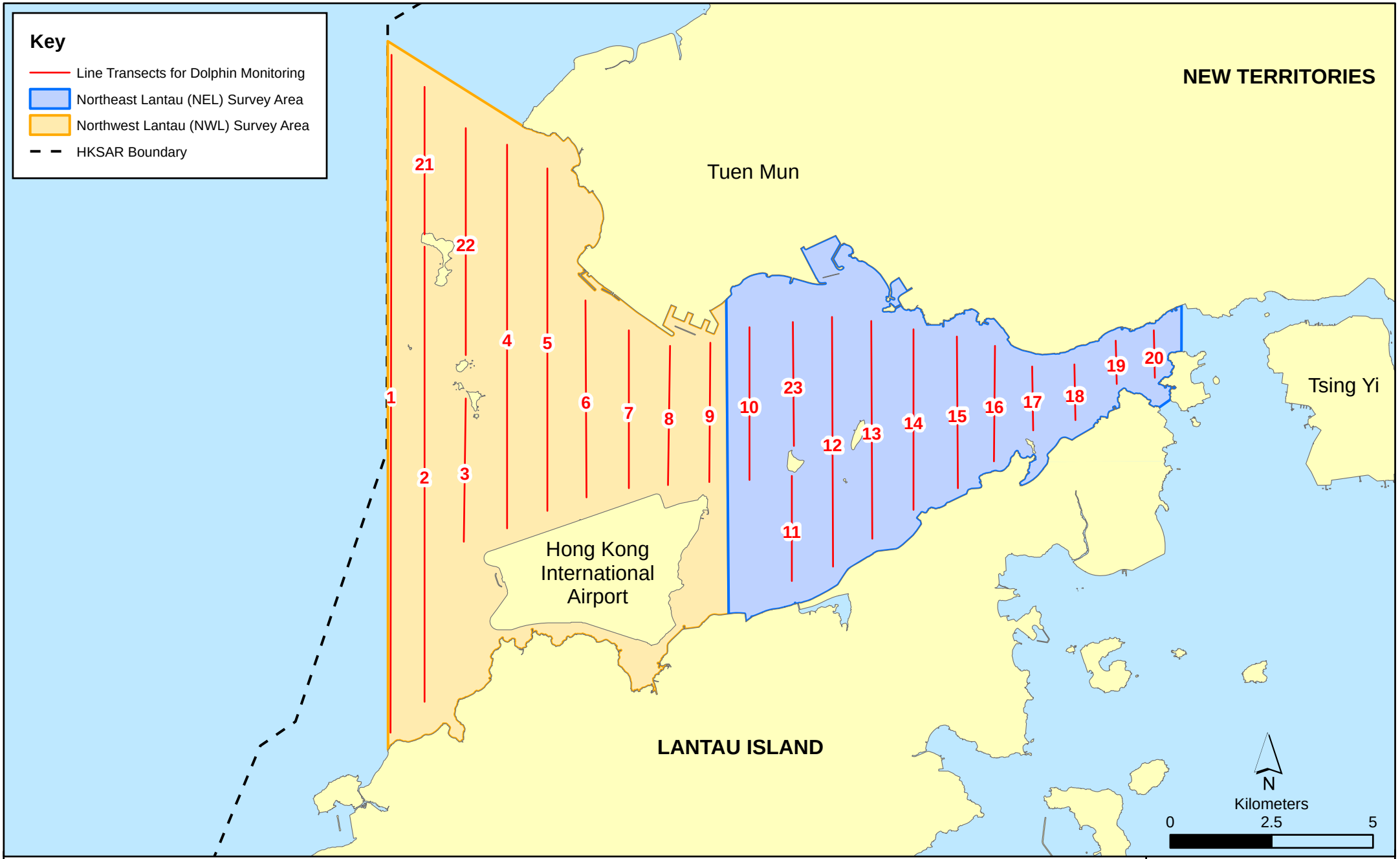

Figure 2.4

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

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Table 2.11 Impact Dolphin Monitoring Line Transect Co-ordinates

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

2.4.5 Action & Limit Levels

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

2.4.6 Monitoring Schedule for the Reporting Period

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

2.4.7 Results & Observations

A total of 894.40 km of survey effort was collected, with 93.6% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas,

343.21 km and 551.19 km of survey effort were conducted in NEL and NWL survey areas respectively. The total survey effort conducted on primary lines was 647.96 km, while the effort on secondary lines was 246.44 km. Both survey efforts conducted on primary and secondary lines were considered as on-effort survey data. The survey efforts are summarized in *Appendix I*.

During the six sets of monitoring surveys from June to August 2014, a total of twenty eight (28) groups of ninety six (96) Chinese White Dolphins were sighted. All except two (2) dolphin sightings were made during on-effort search. Twenty (20) on-effort sightings were made on primary lines, while another six (6) on-effort sightings were made on secondary lines. In this quarterly period, almost all dolphin groups were sighted in NWL, with the exception of one (1) group of four (4) dolphins being sighted in NEL. Summary table of the dolphin sightings is shown in *Appendix I*.

Encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data from the primary transect lines under favourable conditions (Beaufort 3 or below) in the reporting period with the results presented in *Tables 2.12* and *2.13*.

Table 2.12 Individual Survey Event Encounter Rates

Survey Area	**Survey period**	**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 (3 & 5 Jun 2014)	0.0	0.0
	Set 2 (10 & 16 Jun 2014)	0.0	0.0
	Set 3 (3, 9 & 10 Jul 2014)	2.54	10.16
	Set 4 (14 & 21 Jul 2014)	0.0	0.0
	Set 5 (5 & 6 Aug 2014)	0.0	0.0
	Set 6 (15 & 19 Aug 2014)	0.0	0.0
NWL	Set 1 (3 & 5 Jun 2014)	1.67	5.0
	Set 2 (10 & 16 Jun 2014)	0.0	0.0
	Set 3 (3, 9 & 10 Jul 2014)	3.03	10.61
	Set 4 (14 & 21 Jul 2014)	8.4	26.6
	Set 5 (5 & 6 Aug 2014)	5.63	22.52
	Set 6 (15 & 19 Aug 2014)	9.7	40.4

Note: Dolphin Encounter Rates are deduced from the six sets of surveys (two surveys in each set) in the reporting period in Northeast (NEL) and Northwest Lantau (NWL)

Table 2.13 Quarterly Average Encounter Rates

Survey Area	**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)	
	June – August 2014	**September - November 2011**	**June – August 2014**	**September - November 2011**
Northeast Lantau	0.42 ± 1.04	6.00 ± 5.05	1.69 ± 4.15	22.19 ± 26.81

Northwest Lantau	4.74 ± 3.84	9.85 ± 5.85	17.52 ± 15.12	44.66 ± 29.85

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

Group size of Chinese White Dolphins ranged from one to eight (1 - 8) individuals per group in North Lantau region during June – August 2014. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in *Table 2.14*.

Table 2.14 Comparison of Quarterly Average Encounter Rates

	Average Dolphin Group Size	
	June – August 2014	**September -November 2011**
Overall	3.43 ± 1.95 (n = 28)	3.72 ± 3.13 (n = 66)
Northeast Lantau	4.00 ± 0.00 (n = 1)	3.18 ± 2.16 (n = 17)
Northwest Lantau	3.41 ± 1.99 (n = 27)	3.92 ± 3.40 (n = 49)

Whilst two (2) Action Level exceedances (one Action Level exceedance for Northeast Lantau cluster; one Action Level exceedance for Northwest Lantau social cluster) and no Limit Level exceedance were observed for the quarterly dolphin monitoring data between June and August 2014. During this quarter of dolphin monitoring, no unacceptable impact from the activities of this Contract on Chinese White Dolphins was noticeable from the general observations. Although the dolphins infrequently occurred along the alignment of TMCLKL southern connection viaduct in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL, and many individuals have shifted away from the important habitat around the Brothers Islands.

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

2.4.8 Marine Mammal Exclusion Zone Monitoring

Daily 250 m marine mammal exclusion zone monitoring was undertaken under this Contract. No sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was recorded in the reporting period during the exclusion zone monitoring.

2.5 *POST-TRANSLOCATION CORAL MONITORING*

The third quarterly Coral Post-Translocation Monitoring was conducted on 24 July 2014 and the results were provided in the *Third Quarterly Post-Translocation Coral Monitoring Report* submitted under a separate cover. The findings indicated that the Action or Limit Levels for coral monitoring were not exceeded as increase in percentage of partial mortality was not detected for both the tagged translocated and natural coral colonies when comparing to the pre-translocation dataset.

2.6 *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. Thirteen (13) site inspections were carried out in the reporting quarter on 4, 11, 19 and 25 June 2014; 2, 10, 16, 24 and 31 July 2014; 6, 14, 21 and 27 August 2014.

Key observations during the site inspections in this reporting period are summarized in *Table 2.15*.

Table 2.15 Specific Observations Identified during the Weekly Site Inspection in this Reporting Period

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
4 June 2014	Pier E9 • Decoupling pad was not placed underneath the water pump and generator Pier E10 • Chemical containers were placed at site without drip tray • Oil stain was seen underneath the crane.	Pier E9 • The Contractor was reminded to place the decoupling pad Pier E10 • The Contractor was reminded to place the chemical containers in drip tray properly • The Contractor was reminded to maintain all plants in properly and oil stain was immediately absorbed by absorbent.
11 June 2014	Pier B9 • Drip tray was not plugged. Seafront • No acoustic decoupling pad was found for generators on platform. • Chemical containers were not placed in drip tray. • Drip trays for generators next to the office have no stopper	Pier B9 • The Contractor was reminded to plug the drip tray properly Seafront • Acoustic decoupling pad was suggested to be placed underneath the generators on platform • Chemical containers at site should be placed in drip tray. • All drip trays used at site should be properly plugged.
19 June 2014	Rockfill platform at Seafront.	Rockfill platform at Seafront

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
	• A drip tray was found not plugged. Barge G23 • Chemical containers were not placed in drip tray • Labels of chemical waste was found dropped off Pier B2 • Drip tray was not plugged properly	• The Contractor was reminded to plug the drip tray. Barge G23 • Chemical containers should be provided for chemical containers • All chemical waste containers should be well-labelled Pier B2 • The Contractor was reminded to plug drip tray properly
25 June 2014	Pier B15 • Two chemical containers were placed without drip tray • General refuse was observed scattered onsite Pier B16 • Stagnant water was observed to be present in drip tray of a generator • Stagnant water was observed to be accumulated in pit which is for placing excavated materials	Pier B15 • The Contractor was advised to put them on drip tray properly • The Contractor was advised to clear off any general refuse properly Pier B16 • The Contractor was advised to clear away any stagnant water accumulated in drip tray in timely manner • The Contractor was advised to clear away any stagnant water accumulated in pits in timely manner
2 July 2014	Area 2 • Tarpaulin sheet was required for grouting. • Chemical waste was not placed in drip tray. Pier B15 • General refuse was disposed improperly. Pier B11 • More sandbags were needed to avoid runoff. Area 1 • A rubbish bin was label incorrectly.	Area 2 • Tarpaulin sheet should be provided for grouting. • Chemical waste should be placed in drip tray. Pier B15 • General refuse should be removed. Pier B11 • More sandbags should be added. Area 1 • The label was removed immediately.
10 July 2014	Seafront • Refuse was disposed improperly. • Oil stain was observed on the ground. • Chemical containers were not placed in drip tray. • A drip tray was unplugged. Barge M025 • Chemical containers were not placed in drip tray.	Seafront • The Contractor was reminded to maintain good housekeeping. • Oil stain should be removed. • Chemical containers should be placed in drip tray. • The drip tray should be plugged. Barge M025 • Chemical containers should be placed in drip tray.
16 July 2014	Area 2 • Sandbags were considered insufficient. • The unpaved slope was not well cover by tarpaulin sheet. • Drainage was not fully protected from runoff.	Area 2 • More sandbags should be provided. • The unpaved slope should be entirely covered by tarpaulin sheet. • More sandbags should be provided to prevent runoff.
24 July 2014	Seafront • Chemical containers were not placed in drip tray. Pier E3 • Dumping permit was expired.	Seafront • Chemical containers should be placed in drip tray. Pier E3 • The Contractor was reminded to renew the dumping permits regularly.

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
31 July 2014	Pak Mong • General refuse was observed in the project area. • Sandbags were not enough to avoid surface runoff. Pier E3 • Stagnant water was observed on the platform. • The acoustic decoupling pad was not deployed properly beneath the generators. Pier E11 • The acoustic decoupling pad was not deployed properly beneath the generators. • A drip tray was found unplugged.	Pak Mong • The Contractor was reminded to maintain good housekeeping. • The Contractor was reminded to provide sufficient sandbags to prevent runoff. Pier E3 • Stagnant water was removed immediately. • The Contractor was reminded to place the acoustic decoupling pad beneath the generators properly. Pier E11 • The Contractor was reminded to place the acoustic decoupling pad beneath the generators properly. • A drip tray stopper should be provided.
6 August 2014	Site Access 9A • Chemical containers were not placed in drip tray. • A drip tray was found unplugged. Slope next to NL1 • Drainage was filled with trash. Site Access 9B • Chemical containers were not placed in drip tray. Slope BC8 • Tarpaulin sheet for soil nail on unpaved slope was not cover properly.	Site Access 9A • Chemical Containers should be placed in drip tray. • The contractor should provide stopper to the drip tray. • Slope next to NL1 The contractor was reminded to clean up the drainage regularly. Site Access 9B • Chemical Containers should be placed in drip tray. Slope BC8 • Soil nail on unpaved slope should be well covered.
14 August 2014	Pier B1 • A drip tray was found unplugged. • Stagnant water was found in a drip tray. Pier A,C&D1 • A drip tray of generator could not be covered well by screen. • Stagnant water was found in a drip tray. • A drip tray was found unplugged. Pier E4 • Muddy water was accumulated on the platform. • A label of waste category label was missing.	Pier B1 • The drip tray should be plugged. • Stagnant water in drip tray should be cleared. Pier A,C&D1 • The screen was improved immediately and able to cover the drip tray of generator properly. • Stagnant water in drip tray should be cleared. • The drip tray should be plugged. Pier E4 • Muddy water should be cleared. • Waste category label should be labelled properly.
21 August 2014	Pier B1 • Stagnant water was accumulated in a drip tray. Pier E10 • Chemical containers were not labelled properly. • Soil and sand were accumulated on the platform. Slope BC9 • Soil and mud was observed accumulating in drainage.	Pier B1 • Stagnant water in a drip tray should be cleared. Pier E10 • Chemical containers should be labelled properly. • Soil and sand on the platform were cleaned up immediately. Slope BC9 • Soil and mud in drainage should be cleared regularly.
27 August 2014	Slope BC9	Slope BC9

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
	• A chemical container was not placed in drip tray. • An unpaved slope was not covered. • Refuse was observed on the slope. • A part of bund was missing at the path on slope. Pier B15 • A drip tray was found unplugged.	• The chemical container was removed intermediately. • The unpaved slope should be covered by tarpaulin sheet. • Refuse on the slope should be removed. • The Contractor was reminded to implement precautionary measures for preventing soil and sand runoff from the slope. Pier B15 • The drip tray should be plugged.

2.7 *WASTE MANAGEMENT STATUS*

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

Wastes generated during this reporting period include mainly construction wastes (inert and non-inert), imported fill, recyclable materials, and marine sediments. Reference has been made to the waste flow table prepared by the Contractor (*Appendix K*). The quantities of different types of wastes are summarized in *Table 2.16*.

Table 2.16 Quantities of Different Waste Generated in the Reporting Period

Month/Year	Inert Construction Waste [a] (m^3)	Imported Fill (m^3)	Inert Construction Waste Re-used (m^3)	Non-inert Construction Waste [b] (tonnes)	Recyclable Materials [c] (kg)	Chemical Wastes (kg)	Marine Sediment (m^3)	
							Category L	Category M
June 2014	357	2,457	2,503	77.29	25,480	0	338	0
July 2014	4,654	1,629	20	87.81	27,496	0	847	303
August 2014	2,441	288	2,094	98.22	22,281	0	391	164
Total	**7,452**	**4,374**	**4,617**	**263.32**	**75,257**	**0**	**1,576**	**467**

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.

2.8 *ENVIRONMENTAL LICENSES AND PERMITS*

The status of environmental licensing and permit is summarized in *Table 2.17* below.

Table 2.17 Summary of Environmental Licensing and Permit Status

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Environmental Permit	EP-354/2009/A	8 Dec 2010	NA	HyD	Tuen Mun- Chek Lap Kok Link
Environmental Permit	EP-354/2009/B	28 Jan 2014	NA	HyD	Tuen Mun- Chek Lap Kok Link
Construction Dust Notification	361571	5 Jul 2013	NA	GCL	-
Construction Dust Notification	362093	17 Jul 2013	NA	GCL	For Area 23
Billing Account for Disposal	7017735	10 Jul 2013	End of Project	GCL	-
Chemical Waste Registration	5213-961-G2380-13	10 Oct 2013	NA	GCL	Chemical waste produced in Contract HY/2012/07 (Area 1 adjacent to Cheng Tung Road, Siu Ho Wan)
Chemical Waste Registration	5213-961-G2380-14	10 Oct 2013	NA	GCL	Chemical waste produced in Contract HY/2012/07 (Area 2 adjacent to Cheung Tung Road, Pak Mong Village)
Chemical Waste Registration	5213-974-G2588-03	4 Nov 2013	NA	GCL	Chemical waste produced in Contract HY/2012/07 (WA5 adjacent to Cheung Tung Road, Yam O)
Construction Waste Disposal Account	7017735	10 Jul 2013	NA	GCL	Waste disposal in Contract HY/2012/07
Waste Water Discharge License	WT00019017-2014	13 May 2014	31 May 2019	GCL	Discharge for marine portion
Waste Water Discharge License	WT00019018-2014	13 May 2014	31 May 2019	GCL	Discharge for land portion
Construction Noise Permit	Nil	Application in process	NA	GCL	For Piling Works

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Construction Noise Permit	GW-RS0419-14	15 May 2014	13 Nov 2014	GCL	For loading & unloading on NLH near Viaducts A & B
Construction Noise Permit	GW-RS0226-14	30 Mar 2014	29 Sep 2014	GCL	For loading & unloading on NLH near Viaduct D
Construction Noise Permit	GW-RS0299-14	7 Apr 2014	5 Jul 2014	GCL	Pier B8 at CEDD Access Road
Construction Noise Permit	GW-RS0331-14	4 Apr 2014	6 Jul 2014	GCL	Broad permit for works at seafront & marine piers
Construction Noise Permit	GW-RS0338-14	4 Apr 2014	3 Jun 2014	GCL	For bored piling works between Pier E13 and HKBCF
Construction Noise Permit	GW-RS1423-13	11 Dec 2013	30 Apr 2014	GCL	Renewal for marine portion
Construction Noise Permit	GW-RW0123-14	27 Feb 2014	27 Aug 2014	GCL	For night works and works in general holiday at WA5
Dumping Permit/ Loading Permit (Type 1 – Open Sea Disposal)	(4) in EP/MD/14-075	25 Sep 2013	NA	GCL	-
Marine Dumping Permit	EP/MD/14-075	28 Jan 2014	27 Jul 2014	GCL	For dumping Type I Sediment
Marine Dumping Permit	EP/MD/15-028	1 Jun 2014	30 Jun 2014	GCL	For dumping Type I (Dedicated Site) and Type II sediment
Chemical Waste Registration	5213-951-G2380-17	12 Jun 2014	NA	GCL	Viaducts A, B, C, D & E
Construction Noise Permit for night works and works in general holidays	GW-RS0646-14	27 Jun 2014	26 Oct 2014	GCL	Broad Permit for Works at Seafront & Marine Piers & Pier B9
Construction Noise Permit for night works and works in general holidays	GW-RS0647-14	28 Jun 2014	26 Oct 2014	GCL	Pier C7 & D8 at CEDD Access Road
Marine Dumping Permit	EP/MD/15-028	1 Jun 2014	30 Jun 2014	GCL	For dumping Type I (Dedicated Site) and Type II sediment
Construction Noise Permit	GW-RS0792-14	31 Jul 2014	24 Dec 2014	GCL	Broad Permit for Works at Seafront & Marine Piers & Pier B9
Construction Noise Permit	GW-RS0700-14	21 Jul 2014	31 Dec 2014	GCL	For loading & unloading on NLH near Viaduct A & B
Construction Noise Permit	GW-RW0640-14	28 Aug 2014	27 Feb 2015	GCL	General works at WA5
Marine Dumping Permit	EP/MD/15-065	1 Aug 2014	31 Aug 2014	GCL	For dumping Type I (Dedicated Site) and Type II sediment

2.9 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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

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

2.10 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

Results for 1-hour TSP, 24-hour TSP, construction noise and impact water quality monitoring complied with the Action/ Limit levels in the reporting period.

The construction impact on depth-averaged SS was assessed by comparing the quarterly mean values of depth-averaged SS with the relevant ambient mean values. Results showed that the quarterly mean values of depth-averaged SS at all monitoring stations are well below the ambient mean values (*Table 2.18*), thus no further action is required in accordance with the Updated EM&A Manual.

Table 2.18 Comparison between Quarterly Mean and Ambient Mean Values of Depth-averaged Suspended Solids

Station	Baseline Mean		Ambient Mean [a]		Quarterly Mean (June 2014 to August 2014)	
	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
CS(Mf)3	9.2	12.8	12.0	16.6	3.9	3.9
CS(Mf)5	9.2	11.5	12.0	15.0	3.8	4.2
SR4	10.3	12.3	13.4	16.0	4.0	4.1
SR4a	9.1	9.8	11.8	12.7	3.9	4.1
IS8	11.3	13.5	14.7	17.6	4.0	4.2
IS(Mf)9	10.9	14.3	14.2	18.6	4.0	4.1
IS(Mf)16	11.4	10.3	14.8	13.4	4.0	4.1

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

Two Action Level exceedances were recorded for impact dolphin monitoring in this reporting quarter. Following the review of the monitoring data and marine works details as per the procedure stipulated in the Event and Action Plan of the *Updated EM&A Manual*, the recorded exceedance was considered to be due to natural variation of dolphin ranging pattern. Investigation findings were detailed in *Appendix L*.

2.11 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

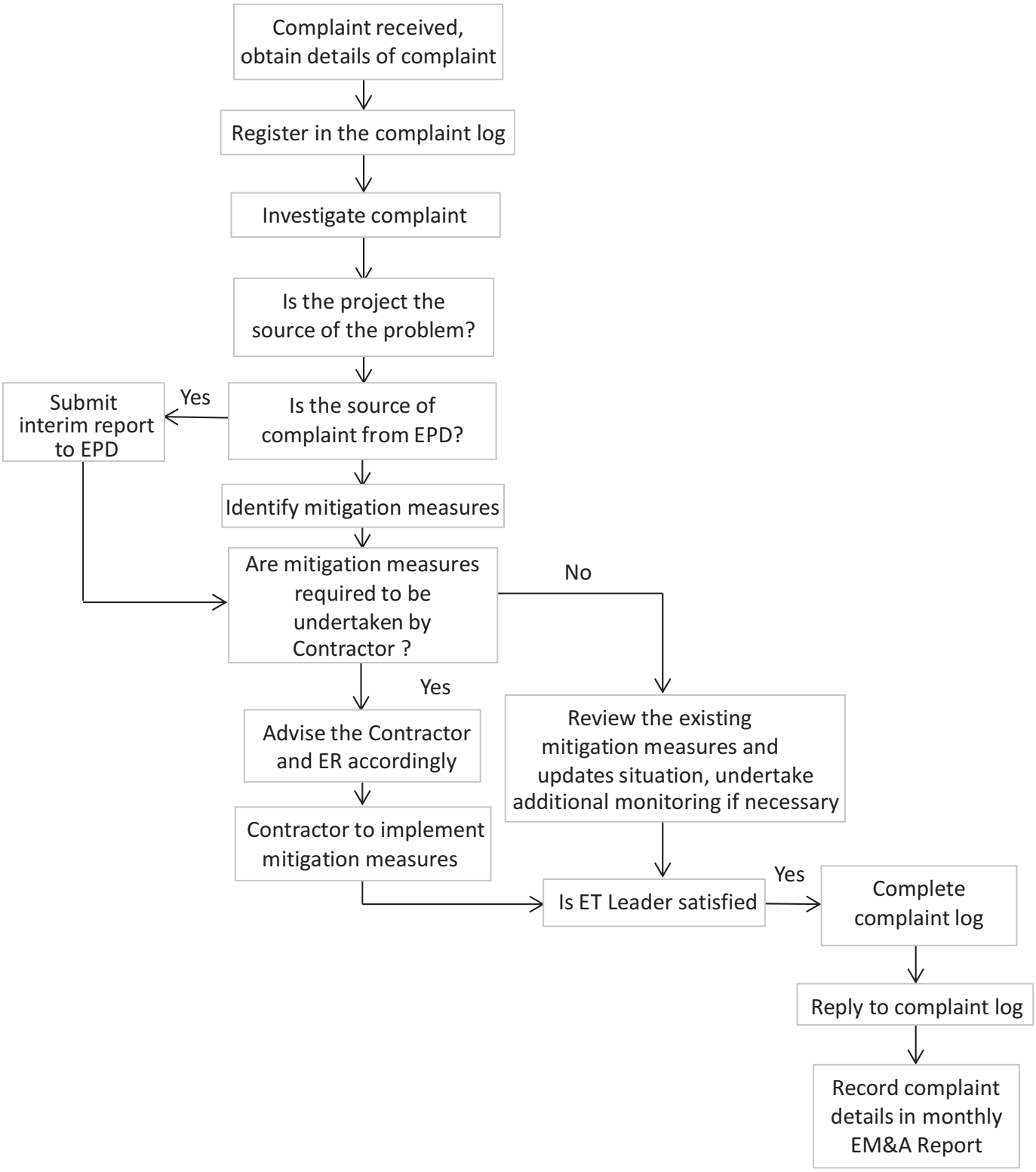

Figure 2.5 Environmental Complaint Handling Procedure

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DATE: 06/12/2013

Environmental Resources Management

ERM

One (1) complaint was referred by EPD on 23 June 2014 regarding to the discharge of muddy water from Site Access 9A to the nearby storm drains. Complaint investigation was conducted on 25 June 2014 and the interim report was submitted to EPD on 4 July 2014. The complaint was considered to be not related to the Contract and it was subsequently closed upon further investigation on 30 July 2014. However, the Contractor was reminded to implement the on-site precautionary measures appropriately for handling the waste water, if any, during rainy season. The complaint investigation findings are detailed in *Appendix N* of the *Ninth Monthly EM&A Report*.

Statistics on complaint, notification of summon of successful prosecution are summarized in *Appendix L*.

3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING QUARTER

As informed by the Contractor, the major works for the Contract in the coming quarter are summarized below:

September 2014

Marine Works

- Construction of Pile caps at Viaduct B;
- Marine piling platform installation;
- Marine Piling at Viaducts B & E;
- Marine piling platform installation for Viaduct D; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Fence installation and relocation of Works Area 2, Viaducts A, B, C & D;
- Land Piling at Viaduct B and Viaduct C;
- Piling platform installation for Viaducts B, C, D and E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

October 2014

Marine Works

- Construction of Pile caps at Viaduct E;
- Marine piling platform installation;
- Marine Piling at Viaducts A, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

Land-based Works

- Land Piling at Viaducts B, C & D;
- Piling platform installation for Viaducts C & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

November 2014

Marine Works

- Construction of Pile caps at Viaduct E;
- Marine piling platform installation;
- Marine Piling at Viaducts A, C, D & E; and

- Additional marine ground investigation (GI) and laboratory testing

Land-based Works

- Fence installation and relocation of Viaducts A B, & C;
- Land Piling at Viaducts A &D;
- Piling platform installation for Viaducts C & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9

3.2 KEY ISSUES FOR THE COMING QUARTER

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

3.3 MONITORING SCHEDULE FOR THE COMING QUARTER

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

The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Third Quarterly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 June to 31 August 2014, in accordance with the Updated EM&A Manual and the requirements of EP-354/2009/B.

Neither Action Level nor Limit Level exceedances were observed for air quality, noise, water quality impact monitoring and post-translocation coral monitoring in this reporting period.

A total of twenty eight (28) groups of ninety six (96) Chinese White Dolphin sightings were recorded during the six sets of surveys from June 2014 to August 2014. Whilst two Action Level exceedances were recorded for the quarterly dolphin monitoring data between June and August 2014, no unacceptable impact from the activities of this Contract on Chinese White Dolphins was noticeable from the general observations. Although the dolphins infrequently occurred along the alignment of TMCLKL southern connection viaduct in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL, and many individuals have shifted away from the important habitat around the Brothers Islands. It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

Environmental site inspection was carried out thirteen (13) times in the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audits.

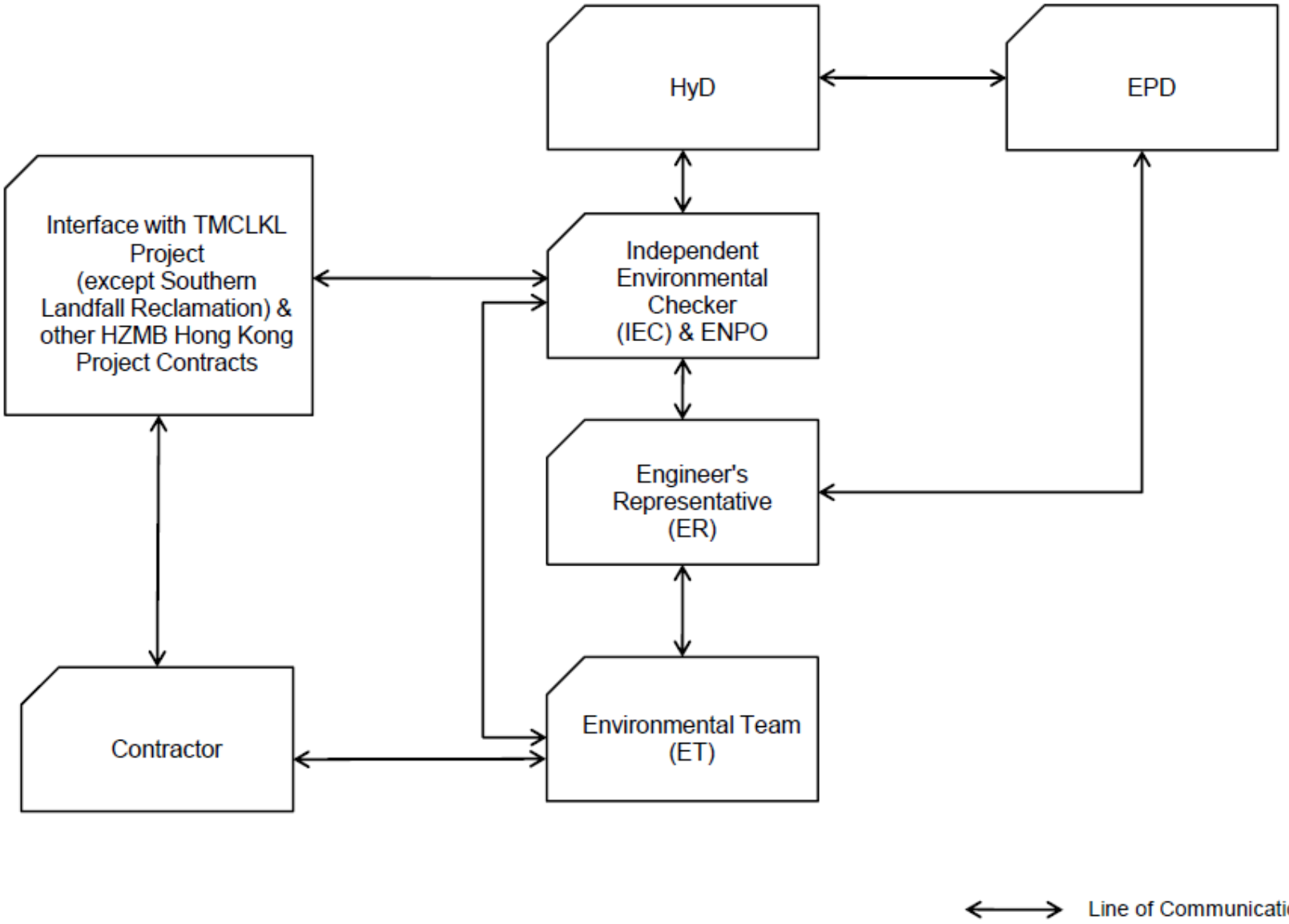
One (1) environmental complaint regarding the discharge of muddy water and soil from Site Access 9A to the nearby storm drains was received on 23 June 2014 and the interim complaint investigation was undertaken on 25 June 2014. The complaint was considered to be not related to the Contract and it was subsequently closed upon further investigation on 30 July 2014.

No summons/ prosecution were received during the reporting period.

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

Appendix A

Project Organization for Environmental Works



Appendix A1

Contract No. HY/2012/07 Southern Connection Viaduct Section
Project Organization

DATE: 06/03/2013

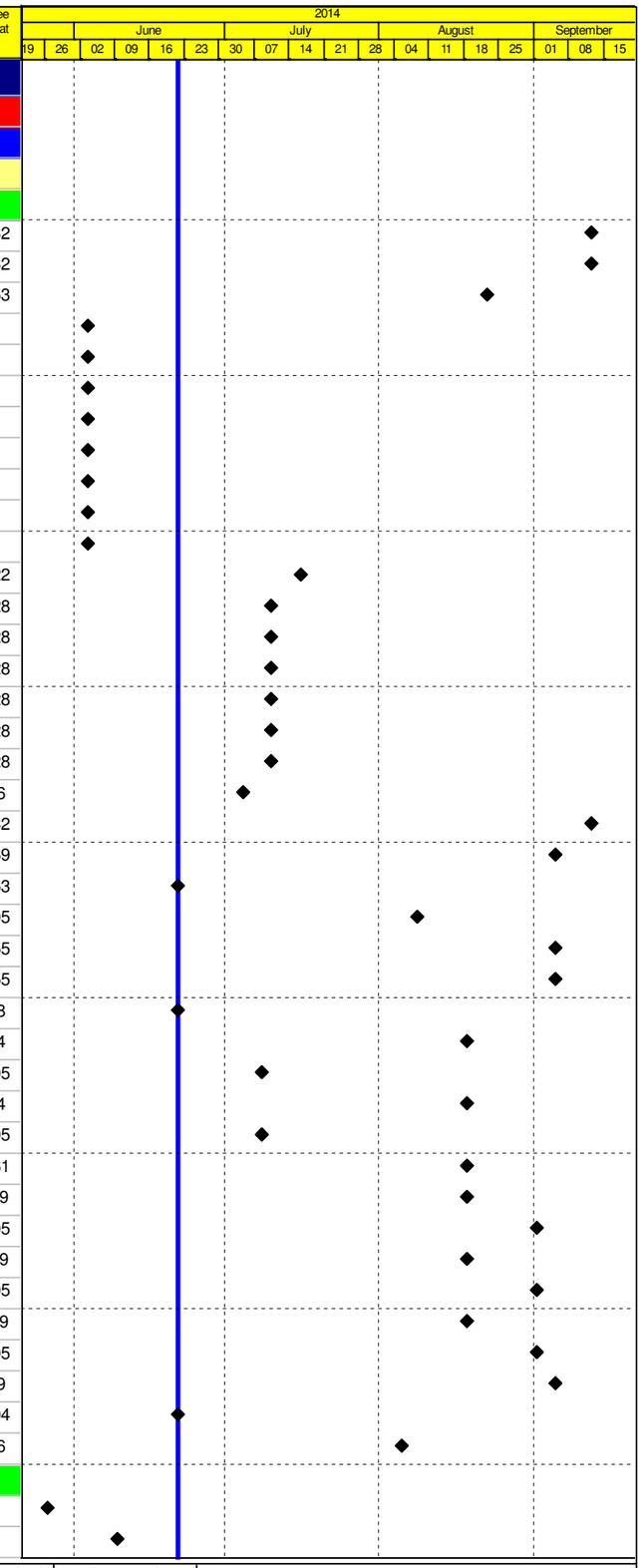
Environmental Resources Management

ERM

Appendix B

Construction Programme for the Reporting Quarter

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
HY/2012/07 - TM-CLK Link-SC [DWP rD1] - Status Update 21-06-2014										
Contract Key Dates										
IPS Milestones										
Cost Centre IPS Milestones										
CC 2 - Design and Design Checking of the Works										
MS2.006	Accept construction traffic impact assessment by the Supervising Officer	0		0%	0	12-Sep-14*		02-Apr-17	933	432
MS2.008	Accept ground investigation reports by the Supervising Officer	0		0%	0	12-Sep-14		02-Apr-17	933	432
MS2.012	Accept report for utilities by the Supervising Officer	0		0%	0	22-Aug-14		02-Apr-17	954	453
MS2.013	Submit AIP for Structure F1, excluding Structure F1 between Pier F1c and Pier F1d	0		100%	0	03-Jun-14 A				
MS2.017	Submit AIP for Structure F1 between Pier F1c and Pier F1d	0		100%	0	03-Jun-14 A				
MS2.021	Submit AIP for Structure F2	0		100%	0	03-Jun-14 A				
MS2.025	Submit AIP for Structure F3, excluding Structure F3 between Pier F3c and Pier F3d	0		100%	0	03-Jun-14 A				
MS2.029	Submit AIP for Structure F3 between Pier F3c and Pier F3d	0		100%	0	03-Jun-14 A				
MS2.033	Submit AIP for Structure F4	0		100%	0	03-Jun-14 A				
MS2.037	Submit AIP for Structure F5, excluding Structure F5 between Pier F5c and Pier F5d	0		100%	0	03-Jun-14 A				
MS2.041	Submit AIP for Structure F5 between Pier F5c and Pier F5d	0		100%	0	03-Jun-14 A				
MS2.047	Submit DDA for Structure E1	0		0%	0	16-Jul-14		02-Apr-17	992	122
MS2.051	Submit DDA for Structure E2	0		0%	0	10-Jul-14		02-Apr-17	998	128
MS2.055	Submit DDA for Structure E5, excluding Structure E5 between Pier E5c and Pier E5d	0		0%	0	10-Jul-14		02-Apr-17	998	128
MS2.059	Submit DDA for Structure E5 between Pier E5c and Pier E5d	0		0%	0	10-Jul-14		02-Apr-17	998	128
MS2.063	Submit DDA for Structure E6	0		0%	0	10-Jul-14		02-Apr-17	998	128
MS2.067	Submit DDA for Structure E7	0		0%	0	10-Jul-14		02-Apr-17	998	128
MS2.071	Submit DDA for Structure E8	0		0%	0	10-Jul-14		02-Apr-17	998	128
MS2.073	Submit AIP for Structure A	0		0%	0	04-Jul-14		02-Apr-17	1003	96
MS2.080	Approve DDA for Structure B by the Supervising Officer	0		0%	0	12-Sep-14		02-Apr-17	933	432
MS2.082	Approve AIP for Structure C by the Supervising Officer	0		0%	0	05-Sep-14		02-Apr-17	941	169
MS2.086	Approve AIP for Structure D by the Supervising Officer	0		0%	0	21-Jun-14		02-Apr-17	1016	153
MS2.087	Submit DDA for Structure D	0		0%	0	08-Aug-14		02-Apr-17	968	105
MS2.090	Approve AIP for At grade Roadworks and Other Works along NLH by the S.O.	0		0%	0	05-Sep-14		02-Apr-17	941	155
MS2.094	Approve AIP for At grade Roadworks & Other Works along Cheung Tung Road by S.O.	0		0%	0	05-Sep-14		02-Apr-17	941	155
MS2.097	Submit AIP for At grade Roadworks and Other Works at Southern Landfall	0		0%	0	21-Jun-14		02-Apr-17	1016	58
MS2.098	Approve AIP for At grade Roadwrks & Other Wrks at Southern Landfall by S.O.	0		0%	0	18-Aug-14		02-Apr-17	958	64
MS2.099	Submit DDA for At grade Roadworks and Other Works at Southern Landfall	0		0%	0	08-Jul-14		02-Apr-17	999	105
MS2.102	Approve AIP for Watermains & All Assoc Wrks frm Tung Chung to South Landfall by S.O.	0		0%	0	18-Aug-14		02-Apr-17	958	64
MS2.103	Submit DDA for Watermains & All Assoc Wrks frm Tung Chung to South Landfall	0		0%	0	08-Jul-14		02-Apr-17	999	105
MS2.106	Approve AIP for Irrigation System for Soft Landscape Works by the Supervising Officer	0		0%	0	18-Aug-14		02-Apr-17	958	161
MS2.108-2	Approve AIP for Fac Prov for TCSS Wrks for At grade Rds at South Landfall by S.O.	0		0%	0	18-Aug-14		02-Apr-17	958	119
MS2.108-3	Submit DDA for Fac Prov for TCSS Wrks for At grade Rds at Southern Landfall	0		0%	0	01-Sep-14		02-Apr-17	944	105
MS2.110	Approve AIP for Facilities Provision for TCSS Works for Viaducts by S.O.	0		0%	0	18-Aug-14		02-Apr-17	958	119
MS2.111	Submit DDA for Facilities Provision for TCSS Works for Viaducts	0		0%	0	01-Sep-14		02-Apr-17	944	105
MS2.114	Approve AIP for Fac Prov for TCSS Wrks for At grade Rds along NLH by S.O.	0		0%	0	18-Aug-14		21-Mar-17	946	119
MS2.115	Submit DDA for Fac Prov for TCSS Wrks for At grade Rds along NLH	0		0%	0	01-Sep-14		21-Mar-17	932	105
MS2.118	Approve AIP for Facilities Provision for E&M Works by the Supervising Officer	0		0%	0	05-Sep-14		02-Apr-17	941	29
MS2.119	Submit DDA for Facilities Provision for E&M Works	0		0%	0	21-Jun-14		02-Apr-17	1016	104
MS2.121	Submit AIP for remaining works	0		0%	0	05-Aug-14		02-Apr-17	971	56
CC 4.1 - Structure E2 and All Associated Works										
MS4.1.02	Complete piles of 10% of total pile length for Structure E2	0		100%	0	26-May-14 A				
MS4.1.03	Complete piles of 15% of total pile length for Structure E2	0		100%	0	09-Jun-14 A				



Actual Work
Planned Bar
Critical Bar
Milestone

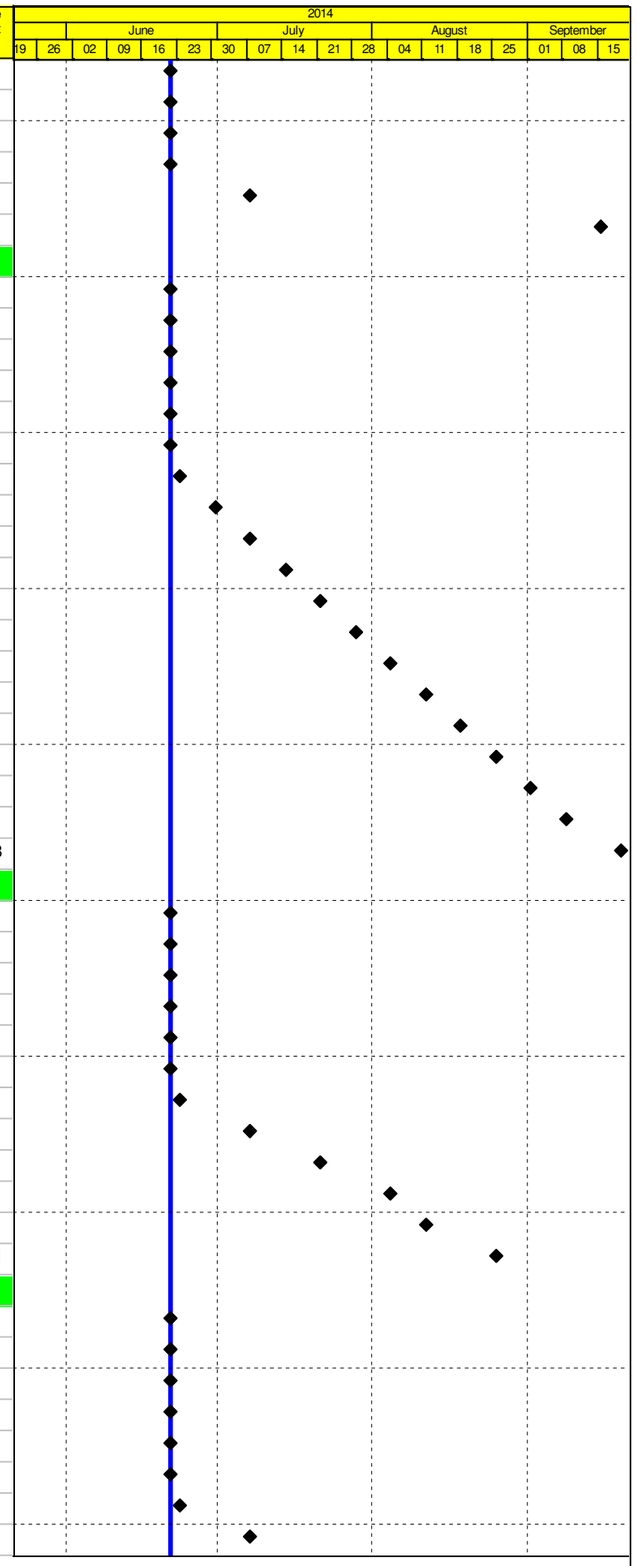
Project ID: J3518DWPrD1-M13
Layout: J3518-DWP-3MRP submission - M13
Filter: TASK filters: 3-Month Lookahead, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 1 of 27 Pages)
(Progress as of 21-Jun-14)

Date	Revision	Checked	Approved
28-Jun-14		FZ	

DWG. No.:
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
MS4.1.04	Complete piles of 20% of total pile length for Structure E2	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.1.05	Complete piles of 25% of total pile length for Structure E2	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.1.06	Complete piles of 30% of total pile length for Structure E2	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.1.07	Complete piles of 35% of total pile length for Structure E2	0		0%	0	21-Jun-14*		02-Apr-17	1016	16
MS4.1.08	Complete piles of 40% of total pile length for Structure E2	0		0%	0	07-Jul-14*		02-Apr-17	1000	70
MS4.1.09	Complete piles of 45% of total pile length for Structure E2	0		0%	0	15-Sep-14*		02-Apr-17	930	49
CC 4.2 - Structure E5, excl structure E5 betw Pier E5c & Pier E5d, & All Assoc Works										
MS4.2.01	Compl piles of 5% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2.02	Compl piles of 10% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2.03	Compl piles of 15% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2.04	Compl piles of 20% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2.05	Compl piles of 25% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2.06	Compl piles of 30% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	2
MS4.2.07	Compl piles of 35% of total pile length for part of structure E5 under this CC No.	0		0%	0	23-Jun-14*		02-Apr-17	1014	7
MS4.2.08	Compl piles of 40% of total pile length for part of structure E5 under this CC No.	0		0%	0	30-Jun-14*		02-Apr-17	1007	7
MS4.2.09	Compl piles of 45% of total pile length for part of structure E5 under this CC No.	0		0%	0	07-Jul-14*		02-Apr-17	1000	7
MS4.2.10	Compl piles of 50% of total pile length for part of structure E5 under this CC No.	0		0%	0	14-Jul-14*		02-Apr-17	993	7
MS4.2.11	Compl piles of 55% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jul-14*		02-Apr-17	986	7
MS4.2.12	Compl piles of 60% of total pile length for part of structure E5 under this CC No.	0		0%	0	28-Jul-14*		02-Apr-17	979	7
MS4.2.13	Compl piles of 65% of total pile length for part of structure E5 under this CC No.	0		0%	0	04-Aug-14*		02-Apr-17	972	7
MS4.2.14	Compl piles of 70% of total pile length for part of structure E5 under this CC No.	0		0%	0	11-Aug-14*		02-Apr-17	965	7
MS4.2.15	Compl piles of 75% of total pile length for part of structure E5 under this CC No.	0		0%	0	18-Aug-14*		02-Apr-17	958	7
MS4.2.16	Compl piles of 80% of total pile length for part of structure E5 under this CC No.	0		0%	0	25-Aug-14*		02-Apr-17	951	7
MS4.2.17	Compl piles of 85% of total pile length for part of structure E5 under this CC No.	0		0%	0	01-Sep-14*		02-Apr-17	944	7
MS4.2.18	Compl piles of 90% of total pile length for part of structure E5 under this CC No.	0		0%	0	08-Sep-14*		02-Apr-17	937	11
MS4.2.19	Compl piles of 95% of total pile length for part of structure E5 under this CC No.	0		0%	0	19-Sep-14*		02-Apr-17	926	218
CC 4.2A- Structure E5 between Pier E5c & Pier E5d, & All Assoc Works										
MS4.2A.01	Compl piles of 5% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2A.02	Compl piles of 10% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2A.03	Compl piles of 15% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2A.04	Compl piles of 20% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2A.05	Compl piles of 25% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.2A.06	Compl piles of 30% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jun-14*		02-Apr-17	1016	2
MS4.2A.07	Compl piles of 35% of total pile length for part of structure E5 under this CC No.	0		0%	0	23-Jun-14*		02-Apr-17	1014	14
MS4.2A.08	Compl piles of 40% of total pile length for part of structure E5 under this CC No.	0		0%	0	07-Jul-14*		02-Apr-17	1000	14
MS4.2A.09	Compl piles of 45% of total pile length for part of structure E5 under this CC No.	0		0%	0	21-Jul-14*		02-Apr-17	986	14
MS4.2A.10	Compl piles of 50% of total pile length for part of structure E5 under this CC No.	0		0%	0	04-Aug-14*		02-Apr-17	972	7
MS4.2A.11	Compl piles of 55% of total pile length for part of structure E5 under this CC No.	0		0%	0	11-Aug-14*		02-Apr-17	965	14
MS4.2A.12	Compl piles of 60% of total pile length for part of structure E5 under this CC No.	0		0%	0	25-Aug-14*		02-Apr-17	951	191
CC 4.3 - Structure E6 and All Associated Works										
MS4.3.01	Complete piles of 5% of total pile length for Structure E6	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.3.02	Complete piles of 10% of total pile length for Structure E6	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.3.03	Complete piles of 15% of total pile length for Structure E6	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.3.04	Complete piles of 20% of total pile length for Structure E6	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.3.05	Complete piles of 25% of total pile length for Structure E6	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.3.06	Complete piles of 30% of total pile length for Structure E6	0		0%	0	21-Jun-14*		02-Apr-17	1016	2
MS4.3.07	Complete piles of 35% of total pile length for Structure E6	0		0%	0	23-Jun-14*		02-Apr-17	1014	14
MS4.3.08	Complete piles of 40% of total pile length for Structure E6	0		0%	0	07-Jul-14*		02-Apr-17	1000	14



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: J3518DWPrD1-M13
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Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 2 of 27 Pages)
(Progress as of 21-Jun-14)

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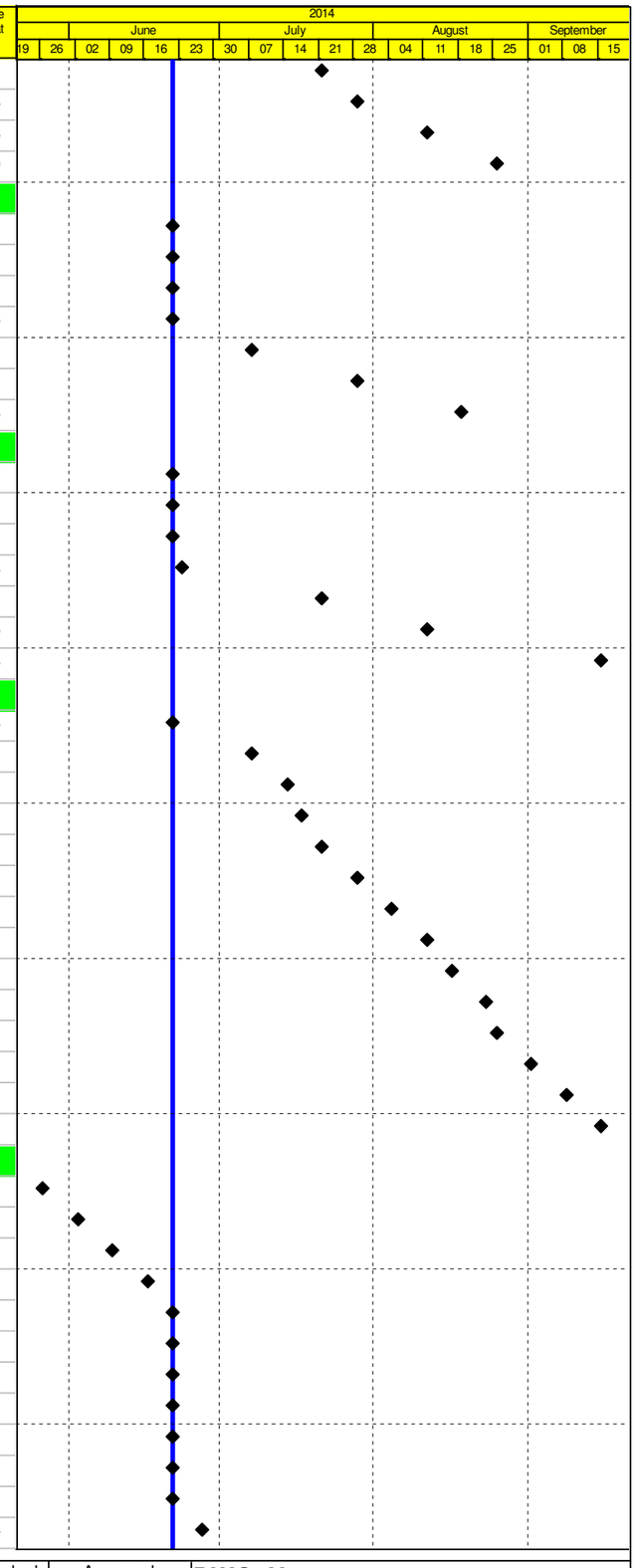
DWG. No.:
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
MS4.3.09	Complete piles of 45% of total pile length for Structure E6	0		0%	0	21-Jul-14*		02-Apr-17	986	7
MS4.3.10	Complete piles of 50% of total pile length for Structure E6	0		0%	0	28-Jul-14*		02-Apr-17	979	14
MS4.3.11	Complete piles of 55% of total pile length for Structure E6	0		0%	0	11-Aug-14*		02-Apr-17	965	14
MS4.3.12	Complete piles of 60% of total pile length for Structure E6	0		0%	0	25-Aug-14*		02-Apr-17	951	49
CC 4.4 - Structure E7 and All Associated Works										
MS4.4.01	Complete piles of 5% of total pile length for Structure E7	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.4.02	Complete piles of 10% of total pile length for Structure E7	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.4.03	Complete piles of 15% of total pile length for Structure E7	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.4.04	Complete piles of 20% of total pile length for Structure E7	0		0%	0	21-Jun-14*		02-Apr-17	1016	16
MS4.4.05	Complete piles of 25% of total pile length for Structure E7	0		0%	0	07-Jul-14*		02-Apr-17	1000	21
MS4.4.06	Complete piles of 30% of total pile length for Structure E7	0		0%	0	28-Jul-14*		02-Apr-17	979	21
MS4.4.07	Complete piles of 35% of total pile length for Structure E7	0		0%	0	18-Aug-14*		02-Apr-17	958	56
CC 4.5 - Structure E8 and All Associated Works										
MS4.5.01	Complete piles of 5% of total pile length for Structure E8	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.5.02	Complete piles of 10% of total pile length for Structure E8	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS4.5.03	Complete piles of 15% of total pile length for Structure E8	0		0%	0	21-Jun-14*		02-Apr-17	1016	2
MS4.5.04	Complete piles of 20% of total pile length for Structure E8	0		0%	0	23-Jun-14*		02-Apr-17	1014	28
MS4.5.05	Complete piles of 25% of total pile length for Structure E8	0		0%	0	21-Jul-14*		02-Apr-17	986	21
MS4.5.06	Complete piles of 30% of total pile length for Structure E8	0		0%	0	11-Aug-14*		02-Apr-17	965	35
MS4.5.07	Complete piles of 35% of total pile length for Structure E8	0		0%	0	15-Sep-14*		02-Apr-17	930	28
CC 5 - Structure E1 and All Associated Works										
MS5.01	Complete piles of 5% of total pile length for Structure E1	0		0%	0	21-Jun-14*		02-Apr-17	1016	16
MS5.02	Complete piles of 10% of total pile length for Structure E1	0		0%	0	07-Jul-14*		02-Apr-17	1000	7
MS5.03	Complete piles of 15% of total pile length for Structure E1	0		0%	0	14-Jul-14*		02-Apr-17	993	3
MS5.04	Complete piles of 20% of total pile length for Structure E1	0		0%	0	17-Jul-14*		02-Apr-17	990	4
MS5.05	Complete piles of 25% of total pile length for Structure E1	0		0%	0	21-Jul-14*		02-Apr-17	986	7
MS5.06	Complete piles of 30% of total pile length for Structure E1	0		0%	0	28-Jul-14*		02-Apr-17	979	7
MS5.07	Complete piles of 35% of total pile length for Structure E1	0		0%	0	04-Aug-14*		02-Apr-17	972	7
MS5.08	Complete piles of 40% of total pile length for Structure E1	0		0%	0	11-Aug-14*		02-Apr-17	965	5
MS5.09	Complete piles of 45% of total pile length for Structure E1	0		0%	0	16-Aug-14*		02-Apr-17	960	7
MS5.10	Complete piles of 50% of total pile length for Structure E1	0		0%	0	23-Aug-14*		02-Apr-17	953	2
MS5.11	Complete piles of 55% of total pile length for Structure E1	0		0%	0	25-Aug-14*		02-Apr-17	951	7
MS5.12	Complete piles of 60% of total pile length for Structure E1	0		0%	0	01-Sep-14*		02-Apr-17	944	7
MS5.13	Complete piles of 65% of total pile length for Structure E1	0		0%	0	08-Sep-14*		02-Apr-17	937	7
MS5.14	Complete piles of 70% of total pile length for Structure E1	0		0%	0	15-Sep-14*		02-Apr-17	930	7
CC 7 - Structure B and All Associated Works										
MS7.05	Complete piles of 25% of total pile length for Structure B	0		100%	0	26-May-14 A				
MS7.06	Complete piles of 30% of total pile length for Structure B	0		100%	0	02-Jun-14 A				
MS7.07	Complete piles of 35% of total pile length for Structure B	0		100%	0	09-Jun-14 A				
MS7.08	Complete piles of 40% of total pile length for Structure B	0		100%	0	16-Jun-14 A				
MS7.09	Complete piles of 45% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS7.10	Complete piles of 50% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS7.11	Complete piles of 55% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS7.12	Complete piles of 60% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS7.13	Complete piles of 65% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS7.14	Complete piles of 70% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS7.15	Complete piles of 75% of total pile length for Structure B	0		0%	0	21-Jun-14*		02-Apr-17	1016	6
MS7.16	Complete piles of 80% of total pile length for Structure B	0		0%	0	27-Jun-14*		02-Apr-17	1010	14



Actual Work
Planned Bar
Critical Bar
Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection
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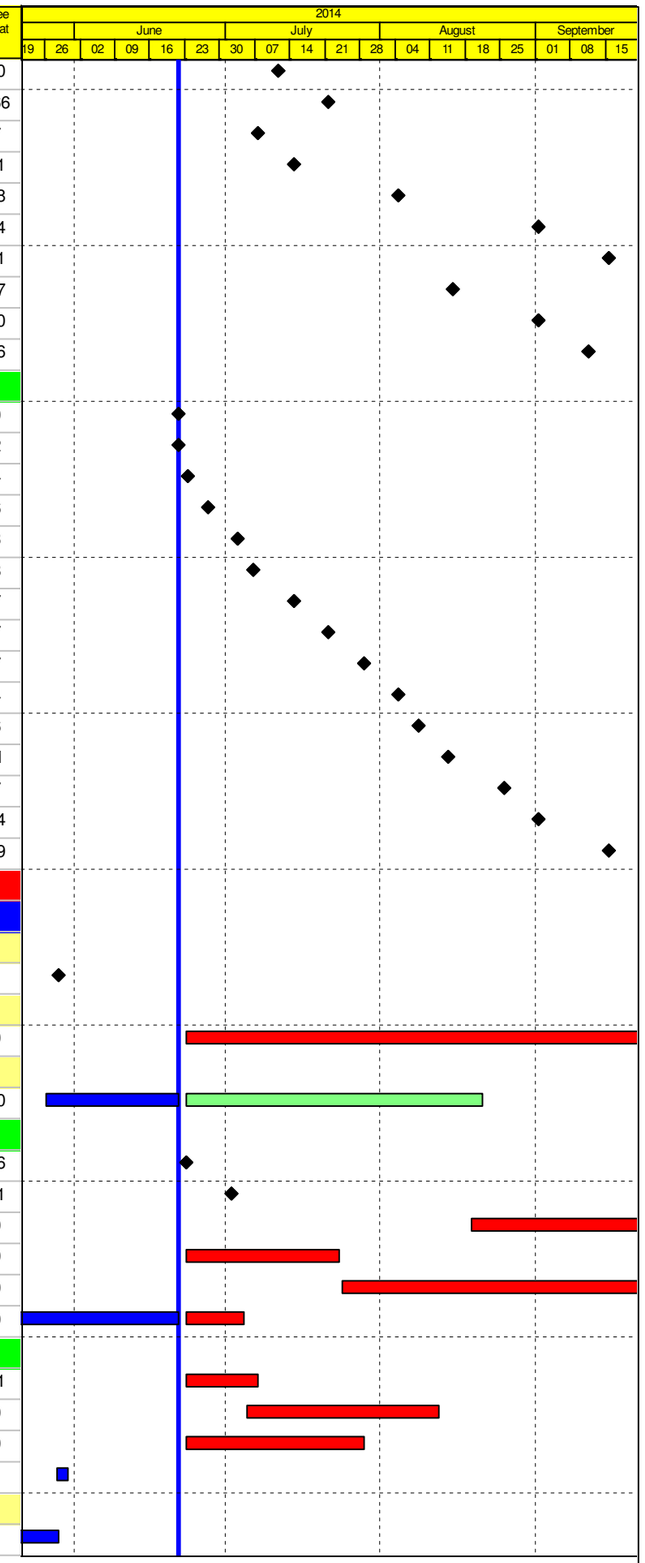
MS7.17	Complete piles of 85% of total pile length for Structure B	0		0%	0	11-Jul-14*		02-Apr-17	996	10
MS7.18	Complete piles of 90% of total pile length for Structure B	0		0%	0	21-Jul-14*		02-Apr-17	986	566
MS7.21	Complete 10% of number of pile caps for Structure B	0		0%	0	07-Jul-14*		02-Apr-17	1000	7
MS7.22	Complete 20% of number of pile caps for Structure B	0		0%	0	14-Jul-14*		02-Apr-17	993	21
MS7.23	Complete 30% of number of pile caps for Structure B	0		0%	0	04-Aug-14*		02-Apr-17	972	28
MS7.24	Complete 40% of number of pile caps for Structure B	0		0%	0	01-Sep-14*		02-Apr-17	944	14
MS7.25	Complete 50% of number of pile caps for Structure B	0		0%	0	15-Sep-14*		02-Apr-17	930	21
MS7.31	Complete 10% of number of bridge piers for Structure B	0		0%	0	15-Aug-14*		02-Apr-17	961	17
MS7.32	Complete 20% of number of bridge piers for Structure B	0		0%	0	01-Sep-14*		02-Apr-17	944	10
MS7.33	Complete 30% of number of bridge piers for Structure B	0		0%	0	11-Sep-14*		02-Apr-17	934	16
CC 9 - Structure D and All Associated Works										
MS9.01	Complete piles of 5% of total pile length for Structure D	0		0%	0	21-Jun-14*		02-Apr-17	1016	0
MS9.02	Complete piles of 10% of total pile length for Structure D	0		0%	0	21-Jun-14*		02-Apr-17	1016	2
MS9.03	Complete piles of 15% of total pile length for Structure D	0		0%	0	23-Jun-14*		02-Apr-17	1014	4
MS9.04	Complete piles of 20% of total pile length for Structure D	0		0%	0	27-Jun-14*		02-Apr-17	1010	6
MS9.05	Complete piles of 25% of total pile length for Structure D	0		0%	0	03-Jul-14*		02-Apr-17	1004	3
MS9.06	Complete piles of 30% of total pile length for Structure D	0		0%	0	06-Jul-14*		02-Apr-17	1001	8
MS9.07	Complete piles of 35% of total pile length for Structure D	0		0%	0	14-Jul-14*		02-Apr-17	993	7
MS9.08	Complete piles of 40% of total pile length for Structure D	0		0%	0	21-Jul-14*		02-Apr-17	986	7
MS9.09	Complete piles of 45% of total pile length for Structure D	0		0%	0	28-Jul-14*		02-Apr-17	979	7
MS9.10	Complete piles of 50% of total pile length for Structure D	0		0%	0	04-Aug-14*		02-Apr-17	972	4
MS9.11	Complete piles of 55% of total pile length for Structure D	0		0%	0	08-Aug-14*		02-Apr-17	968	6
MS9.12	Complete piles of 60% of total pile length for Structure D	0		0%	0	14-Aug-14*		02-Apr-17	962	11
MS9.13	Complete piles of 65% of total pile length for Structure D	0		0%	0	25-Aug-14*		02-Apr-17	951	7
MS9.14	Complete piles of 70% of total pile length for Structure D	0		0%	0	01-Sep-14*		02-Apr-17	944	14
MS9.15	Complete piles of 75% of total pile length for Structure D	0		0%	0	15-Sep-14*		02-Apr-17	930	19
General Submissions										
General Requirements										
General Management										
PR9000	Completion of initial general submissions, mobilisation & setup coordination with external parties	0		100%	0	28-May-14 A				
Temporary Works Design										
PR00130	Unloading Jetty at HKBCF - Working Platform design and approval	90	23-Jun-14*	0%	90	09-Oct-14	30-Apr-14	16-Aug-14	-43	0
Land Works										
PR00160	Propose/submit/approval of a performance review for piled fnds in accordance w/ ETWB TCW No. 4/2004	101	26-May-14 A	50%	51	21-Aug-14	08-Aug-14	09-Oct-14	40	40
Land GI Works										
PR02188	Proposed Access Date to Portion A for SQR	0	23-Jun-14*	0%	0		15-Apr-14		-53	26
PR02190	Proposed Early Access date at Portion A	0	02-Jul-14*	0%	0		19-Aug-14		41	41
PR02200	14No possible Boreholes for Pier E14 & Viaduct F - possible early access ahead of possession of Portion A	72	19-Aug-14	0%	72	13-Nov-14	19-Aug-14	13-Nov-14	0	0
PR02202	SQR Permit Application	26	23-Jun-14*	0%	26	23-Jul-14	14-Mar-14	14-Apr-14	-79	0
PR02204	SQR Sampling & Testing and Approval	195	24-Jul-14	0%	195	18-Mar-15	15-Apr-14	09-Dec-14	-79	0
PR03110	Trial Pits along Cheung Tung Road	20	17-Feb-14 A	50%	10	04-Jul-14	12-Apr-14	28-Apr-14	-55	0
Additional Land GI										
PR03189-1	Relocate MTR fence & GI works at Borehole PBH23 (Pier C8)	12	23-Jun-14	0%	12	07-Jul-14	24-May-14	09-Jun-14	-24	31
PR03200	Boreholes PBH25, 29, 30, 31 (Piers D9, C14, C16, C17)	33	05-Jul-14	0%	33	12-Aug-14	28-Apr-14	09-Jun-14	-55	0
PR03210	Boreholes PBH38 & PBH45 (AR-A), PBH39 (A11) , PBH40 (A10), PBH41(A9)	30	23-Jun-14	0%	30	28-Jul-14	10-Apr-14	20-May-14	-57	0
PR03217	Borehole PBH46 (AR-D)	3	28-May-14 A	100%	0	30-May-14 A				
Marine Works										
PR01120	Apply for DASO permits for the dumping of sediments in Hong Kong waters	76	25-Sep-13 A	100%	0	28-May-14 A				



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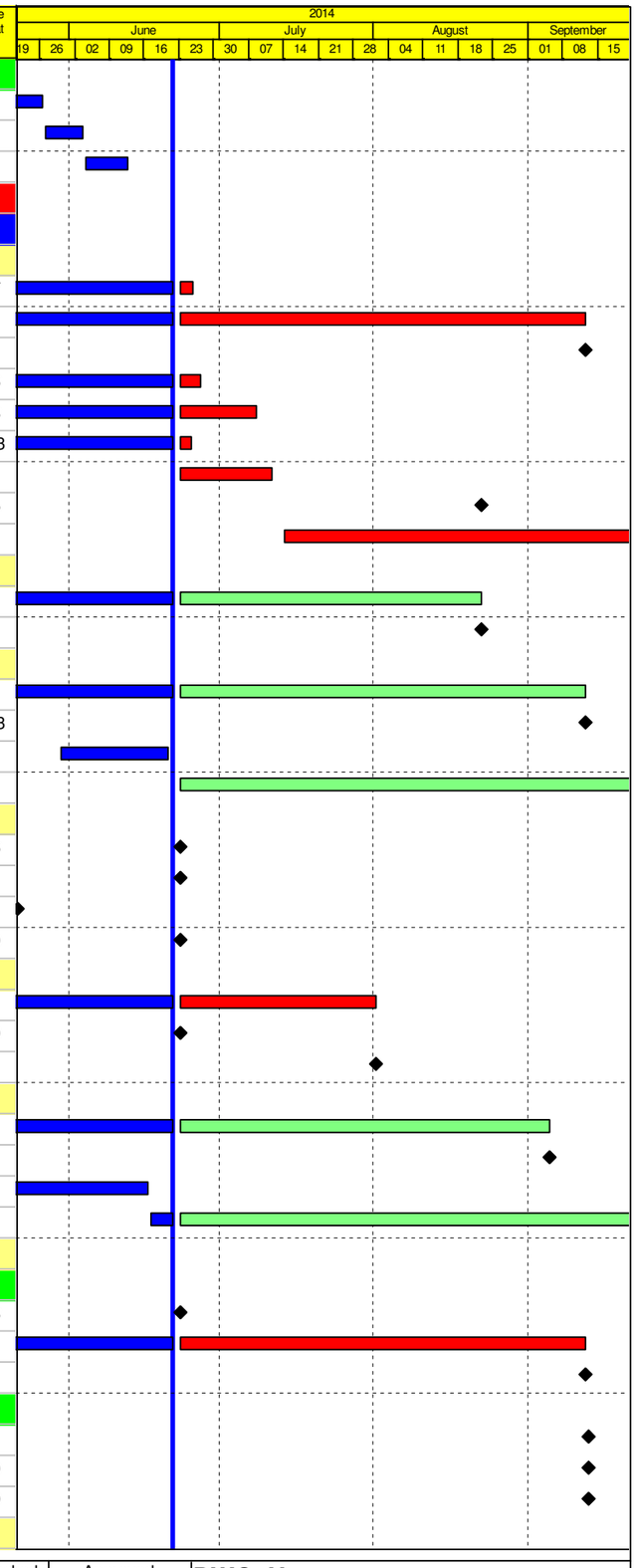
Additional Marine GI										
PR02162	PBH17C (Pier E13B)	12	15-May-14 A	100%	0	26-May-14 A				
PR02163	PBH18A (Pier E13A)	12	27-May-14 A	100%	0	03-Jun-14 A				
PR02164	PBH17B (Pier E13B)	12	04-Jun-14 A	100%	0	12-Jun-14 A				
Design Submissions										
Detailed Design (v17)										
Ground Investigation										
ARDD0009	Consultation with GEO	20	13-Aug-13 A	85%	3	25-Jun-14	01-Jul-14	03-Jul-14	6	57
ARDD0010	IC/SO Approval of Ground Investigation Interpretative Report - AP03.00	75	13-Aug-13 A	20%	60	12-Sep-14	11-Apr-14	03-Jul-14	-51	0
ARDD0010-1	IC/SO Approval of Ground Investigation Interpretative Report - AP03.00	0		0%	0	12-Sep-14		03-Jul-14	-51	0
ARDD0013-1	Additional GI Fieldwork, Lab Testing and Permitting E5-E8	45	16-Jul-13 A	90%	5	27-Jun-14	27-Jun-14	03-Jul-14	5	86
ARDD0013-2	Additional GI Fieldwork, Lab Testing and Permitting - Other areas	60	16-Jul-13 A	80%	12	08-Jul-14	18-Jun-14	03-Jul-14	-3	78
ARDD0015-1	E5-E8 Interpretation	15	17-Sep-13 A	85%	2	25-Jun-14	01-Jul-14	03-Jul-14	7	103
ARDD0015-2	Additional GI Interpretative Report - AP03.00	15	23-Jun-14	0%	15	11-Jul-14	28-Feb-14	20-Mar-14	-81	0
ARDD0017-1	Earliest IC certificate for DDA-AP03.00	0		0%	0	22-Aug-14		03-Jul-14	-36	45
ARDD0017-2	IC/SO Approval of Additional GI Interpretative Report - AP03.00	75	14-Jul-14	0%	75	24-Oct-14	21-Mar-14	03-Jul-14	-81	0
Surveys and Investigations										
ARDD0025	IC/SO Approval of Utility Report - AP04.00	75	22-Oct-13 A	40%	45	22-Aug-14	30-Jan-17	31-Mar-17	680	0
ARDD0025-1	IC/SO Approval of Utility Report - AP04.00	0		0%	0	22-Aug-14		31-Mar-17	680	0
General Submissions										
ARDD0039	IC/SO Approval of Maintenance Matrix - AP07.00	75	08-May-14 A	20%	60	12-Sep-14	17-Jun-15	08-Sep-15	257	0
ARDD0039-1	IC/SO Approval of Maintenance Matrix - AP07.00	0		0%	0	12-Sep-14		08-Sep-15	257	203
ARDD0041-1	Preparation of O&M Facility Provisions AIP - BP11.00	50	30-May-14 A	100%	0	20-Jun-14 A				
ARDD0041-2	IC/SO Approval of O&M Facility Provisions AIP - BP11.00	75	23-Jun-14	0%	75	03-Oct-14	17-Dec-14	31-Mar-15	127	0
GCL Erection Sequence and Method										
ARDD0060-2	Receipt of Final Erection Sequence and Loads - Bridge A	0		0%	0	23-Jun-14		24-Sep-14	68	26
ARDD0060-4	Receipt of Final Erection Sequence and Loads - Bridge C	0		0%	0	23-Jun-14		09-Jun-14	-10	2
ARDD0060-5	Receipt of Final Erection Sequence and Loads - Bridge D	0		100%	0	21-May-14 A				
ARDD0060-7	Receipt of Final Erection Sequence and Loads - Bridge F	0		0%	0	23-Jun-14		06-Aug-14	33	10
Gazette and Alignment (assume no gazette change)										
ARDD0071	IC/SO Approval of Alignment DDA - BP01.01	75	24-Jan-14 A	60%	30	01-Aug-14	07-Feb-14	20-Mar-14	-96	0
ARDD0071-1	Earliest IC Cert for Alignment DDA - BP01.01	0		0%	0	23-Jun-14		20-Mar-14	-66	30
ARDD0071-2	IC/SO Approval of Alignment DDA - BP01.01	0		0%	0	01-Aug-14		20-Mar-14	-96	0
General Viaduct Submission										
ARDD0076	IC/SO Approval of Viaduct E&M Works AIP - BP21.00	68	15-Mar-14 A	20%	54	05-Sep-14	13-May-15	28-Jul-15	233	0
ARDD0076-1	IC/SO Approval of Viaduct E&M Works AIP - BP21.00	0		0%	0	05-Sep-14		28-Jul-15	233	0
ARDD0077	Preparation of Viaduct E&M Works DDA - BP21.01	30	01-Apr-14 A	100%	0	16-Jun-14 A				
ARDD0078	IC/SO Approval of Viaduct E&M Works DDA BP21.01	75	17-Jun-14 A	0%	75	03-Oct-14	15-Apr-15	28-Jul-15	212	0
Viaduct B										
Viaduct Design										
ARDD0099-1	Viaduct B - Earliest IC Certificate for DP12.03	0		0%	0	23-Jun-14		27-May-14	-18	18
ARDD0099-3	Viaduct B - IC/SO Approval of Sub & Superstructure DDA - DP12.03	75	04-Mar-14 A	20%	60	12-Sep-14	02-May-14	24-Jul-14	-36	0
ARDD0099-5	Viaduct B - IC/SO Approval of Sub & Superstructure DDA - DP12.03	0		0%	0	12-Sep-14		24-Jul-14	-36	0
Associated Construction Milestones										
ARDD0128	Viaduct B - DDA approval ready for Commencement of Pilecaps (Marine)	0	13-Sep-14	0%	0		25-Jul-14		-50	0
ARDD0128-1	Viaduct B - DDA approval ready for Commencement of Pilecaps (Land)	0	13-Sep-14	0%	0		28-Oct-14		45	10
ARDD0129	Viaduct B - DDA approval ready for Initial Segment Casting	0	13-Sep-14	0%	0		01-Aug-14		-43	69
Viaduct E5 and E6										



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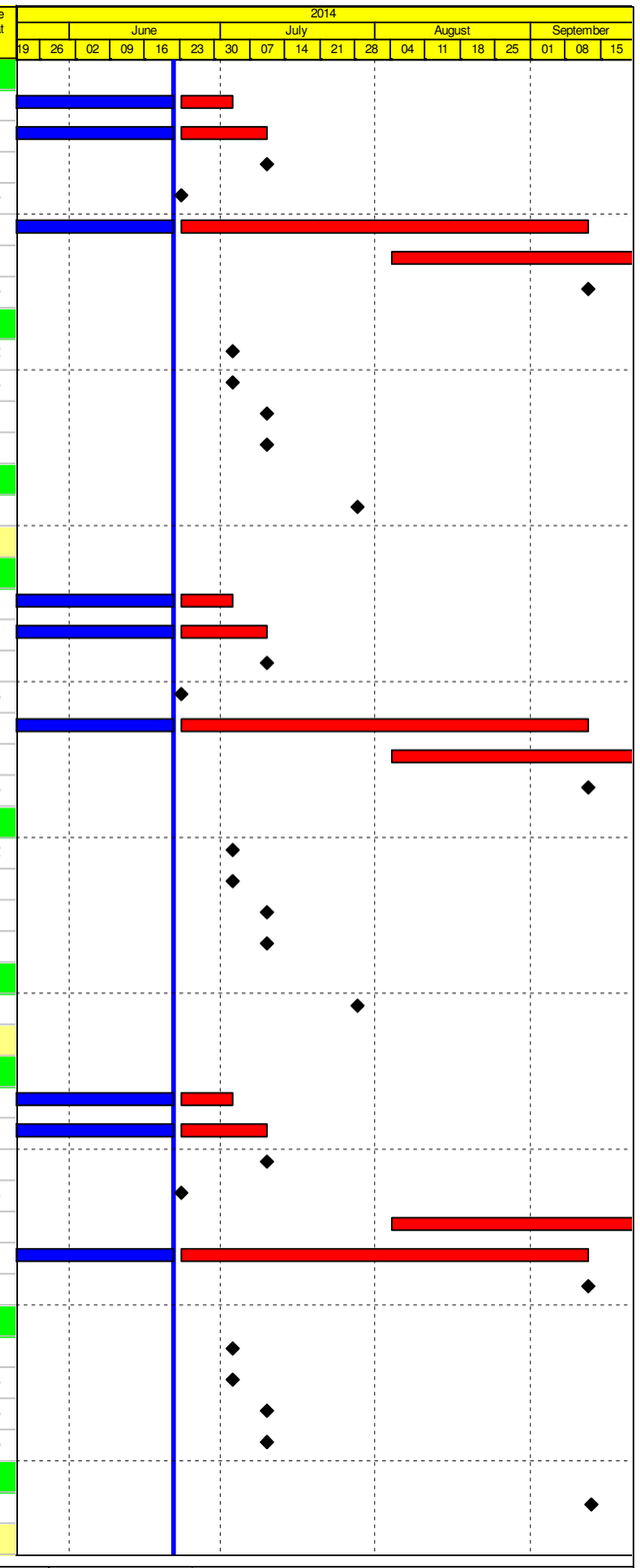
Viaduct Design										
ARDD0147	Viaduct E5 & E6 - Preparation of Substructure DDA - DP15.09	60	29-Oct-13 A	85%	9	03-Jul-14	31-Jan-14	12-Feb-14	-101	0
ARDD0148	Viaduct E5 & E6 - Preparation of Superstructure DDA - DP15.09	90	29-Oct-13 A	85%	14	10-Jul-14	03-Mar-14	20-Mar-14	-80	0
ARDD0149	Viaduct E5 & E6 - Submission of DDA for Viaduct Sub & Superstructure E5 & E6 - DP15.09	0		0%	0	10-Jul-14		20-Mar-14	-80	0
ARDD0150-1	Viaduct E5 & E6 - Earliest IC certificate for DDA for Viaduct E5 & E6 - DP15.09	0		0%	0	23-Jun-14		22-May-14	-21	75
ARDD0150-3	Viaduct E5 & E6 - IC/SO Approval of Pile Cap Precast Shells DDA DP15.05	75	15-Apr-14 A	20%	60	12-Sep-14	11-Apr-14	03-Jul-14	-51	0
ARDD0150-4	Viaduct E5 & E6 - IC/SO Approval (late) of Sub & Superstructure DDA DP15.09	75	04-Aug-14	0%	75	14-Nov-14	21-Mar-14	03-Jul-14	-96	0
ARDD0150-6	Viaduct E5 & E6 - IC/SO Approval of Pile Cap Precast Shells DDA DP15.05	0		0%	0	12-Sep-14		03-Jul-14	-51	45
Information to Contractor										
ARDD0160	Viaduct E5 & E6 - Final Pilecap Reinforcement	0		0%	0	03-Jul-14		12-Feb-14	-101	12
ARDD0162	Viaduct E5 & E6 - Final Pier Shapes and Reinforcement	0		0%	0	03-Jul-14		19-Jun-14	-10	18
ARDD0165	Viaduct E5 & E6 - Final Segment Types and Reinforcement	0		0%	0	10-Jul-14		22-Apr-14	-57	0
ARDD0167	Viaduct E5 & E6 - Final Anchorage and PT Requirements	0		0%	0	10-Jul-14		22-Apr-14	-57	0
Associated Construction Milestones										
ARDD0173	Viaduct E5 & E6 - DDA approval ready for Commencement of Piling	0	28-Jul-14	0%	0		17-Mar-14		-133	0
Viaduct E7 & E8										
Viaduct Design										
ARDD0192	Viaduct E7 & E8 - Preparation of Substructure DDA - 15.09	60	29-Oct-13 A	85%	9	03-Jul-14	11-Apr-14	23-Apr-14	-51	0
ARDD0193	Viaduct E7 & E8 - Preparation of Superstructure DDA - DP15.09	90	29-Oct-13 A	85%	14	10-Jul-14	03-Mar-14	20-Mar-14	-80	0
ARDD0194	Viaduct E7 & E8 - Submission of Sub & Superstructure DDA - DP15.09	0		0%	0	10-Jul-14		20-Mar-14	-80	0
ARDD0195-1	Viaduct E7 & E8 - Earliest IC certificate for Pilecap Precast Shells DDA - DP15.08	0		0%	0	23-Jun-14		20-Mar-14	-66	14
ARDD0195-3	Viaduct E7 & E8 - IC/SO Approval of Pilecap Precast Shells DDA - DP15.08	75	15-Apr-14 A	20%	60	12-Sep-14	11-Apr-14	03-Jul-14	-51	0
ARDD0195-4	Viaduct E7 & E8 - IC/SO Approval of Sub & Superstructure DDA - DP15.09	75	04-Aug-14	0%	75	14-Nov-14	21-Mar-14	03-Jul-14	-96	0
ARDD0195-6	Viaduct E7 & E8 - IC/SO Approval of Pilecap Precast Shells DDA - DP15.08	0		0%	0	12-Sep-14		03-Jul-14	-51	45
Information to Contractor										
ARDD0205	Viaduct E7 & E8 - Final Pilecap Reinforcement	0		0%	0	03-Jul-14		23-Apr-14	-51	12
ARDD0207	Viaduct E7 & E8 - Final Pier Shapes and Reinforcement	0		0%	0	03-Jul-14		01-Oct-14	64	0
ARDD0210	Viaduct E7 & E8 - Final Segment Types and Reinforcement	0		0%	0	10-Jul-14		22-Apr-14	-57	0
ARDD0212	Viaduct E7 & E8 - Final Anchorage and PT Requirements	0		0%	0	10-Jul-14		22-Apr-14	-57	0
Associated Construction Milestones										
ARDD0218	Viaduct E7 & E8 - DDA approval ready for Commencement of Piling	0	28-Jul-14	0%	0		17-Mar-14		-133	0
Viaduct E2										
Viaduct Design										
ARDD0238	Viaduct E2 - Preparation of Substructure DDA - DP15.06	60	29-Oct-13 A	85%	9	03-Jul-14	14-Mar-14	26-Mar-14	-71	0
ARDD0239	Viaduct E2 - Preparation of Superstructure DDA - DP15.06	90	29-Oct-13 A	85%	14	10-Jul-14	14-Apr-14	01-May-14	-50	0
ARDD0240	Viaduct E2 - Submission of Sub & Superstructure DDA - DP15.06	0		0%	0	10-Jul-14		01-May-14	-50	0
ARDD0241-1	Viaduct E2 - Earliest IC certificate for Pilecap Precast Shells DDA - DP15.05	0		0%	0	23-Jun-14		17-Jun-14	-3	63
ARDD0241-3	Viaduct E2 - IC/SO Approval (Late) of Sub & Superstructure DDA - DP15.06	75	04-Aug-14	0%	75	14-Nov-14	02-May-14	14-Aug-14	-66	0
ARDD0241-4	Viaduct E2 - IC/SO Approval Pilecap Precast Shells DDA - DP15.05	75	15-Apr-14 A	20%	60	12-Sep-14	03-Mar-14	23-May-14	-80	0
ARDD0241-5	Viaduct E2 - IC/SO Approval Pilecap Precast Shells DDA - DP15.05	0		0%	0	12-Sep-14		23-May-14	-80	0
Information to Contractor										
ARDD0251	Viaduct E2 - Final Pilecap Reinforcement	0		0%	0	03-Jul-14		26-Mar-14	-71	0
ARDD0253	Viaduct E2 - Final Pier Shapes and Reinforcement	0		0%	0	03-Jul-14		25-Apr-14	-49	18
ARDD0256	Viaduct E2 - Final Segment Types and Reinforcement	0		0%	0	10-Jul-14		23-May-14	-34	36
ARDD0258	Viaduct E2 - Final Anchorage and PT Requirements	0		0%	0	10-Jul-14		23-May-14	-34	36
Associated Construction Milestones										
ARDD0266-1	Viaduct E2 - DDA approval ready for Pile Cap Shell Casting	0	13-Sep-14	0%	0		25-May-14		-110	0
Viaduct E1										



Actual Work
Planned Bar
Critical Bar
Milestone

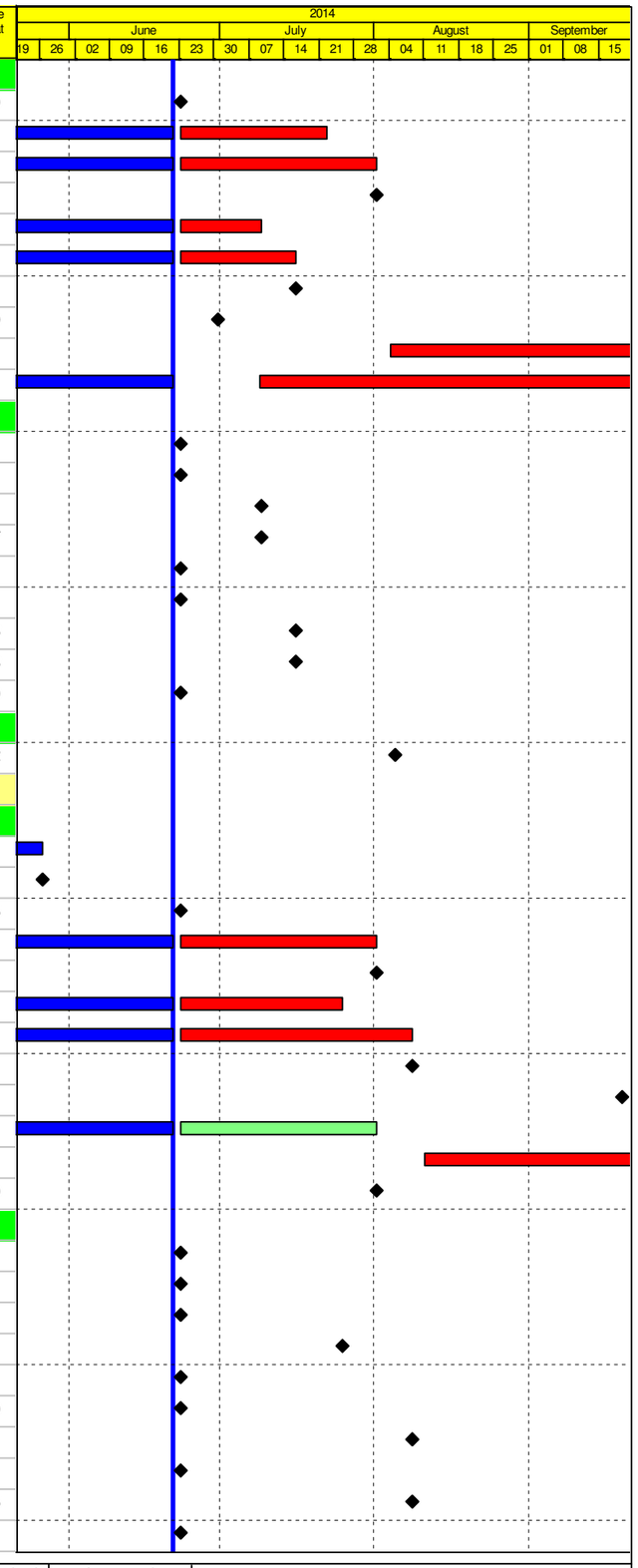
Project ID: J3518DWPrD1-M13
Layout: J3518-DWP-3MRP submission - M13
Filter: TASK filters: 3-Month Lookahead, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 6 of 27 Pages)
(Progress as of 21-Jun-14)

Date	Revision	Checked	Approved
28-Jun-14		FZ	

DWG. No.:
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
Viaduct Design										
ARDD0282-1	Viaduct E1 - Earliest IC Certificate for DDA - DP15.01	0		0%	0	23-Jun-14		06-Jun-14	-10	30
ARDD0282-2	Viaduct E1 - IC/SO Approval of Foundation (Early) DDA - DP15.01	55	20-Mar-14 A	60%	22	22-Jul-14	08-May-14	06-Jun-14	-32	8
ARDD0282-3	Viaduct E1 - IC/SO Approval of Foundation (Late) DDA - DP15.01	75	20-Mar-14 A	60%	30	01-Aug-14	28-Apr-14	06-Jun-14	-40	0
ARDD0282-5	Viaduct E1 - IC/SO Approval of Foundation (Late) DDA - DP15.01	0		0%	0	01-Aug-14		06-Jun-14	-40	0
ARDD0284	Viaduct E1 - Preparation of Substructure DDA -DP15.03	50	07-Apr-14 A	75%	13	09-Jul-14	11-Apr-14	30-Apr-14	-50	0
ARDD0285	Viaduct E1 - Preparation of Superstructure DDA -DP15.03	70	07-Apr-14 A	75%	18	16-Jul-14	17-Apr-14	13-May-14	-46	0
ARDD0286	Viaduct E1 - Submission of Sub & Superstructure DDA - DP15.03	0		0%	0	16-Jul-14		15-Jul-14	-1	0
ARDD0287-1	Viaduct E1 - Earliest IC Certificate for DDA - DP15.02	0		0%	0	30-Jun-14		05-Aug-14	26	39
ARDD0287-3	Viaduct E1 - IC/SO Approval (Late) of Sub & Superstructure DDA DP15.03	75	04-Aug-14	0%	75	14-Nov-14	16-Jul-14	28-Oct-14	-13	0
ARDD0287-5	Viaduct E1 - IC/SO Approval of Pilecap Precast Shells DDA DP15.02	75	20-May-14 A	20%	60	30-Sep-14	06-May-14	28-Jul-14	-46	0
Information to Contractor										
ARDD0295	Viaduct E1 - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	23-Jun-14	0%	0		14-Apr-14		-50	0
ARDD0296	Viaduct E1 - Typical Pilecap Reinforcement - Regular Rebar	0		0%	0	23-Jun-14		11-Apr-14	-50	0
ARDD0297	Viaduct E1 - Final Pilecap Reinforcement	0		0%	0	09-Jul-14		28-Jul-14	14	0
ARDD0299	Viaduct E1 - Final Pier Shapes and Reinforcement	0		0%	0	09-Jul-14		27-May-14	-31	17
ARDD0300	Viaduct E1 - Typical Segment Shapes for Moulds	0		0%	0	23-Jun-14		11-Jun-14	-7	0
ARDD0301	Viaduct E1 - Typical Segment Reinforcement	0		0%	0	23-Jun-14		11-Jun-14	-7	9
ARDD0302	Viaduct E1 - Final Segment Types and Reinforcement	0		0%	0	16-Jul-14		25-Sep-14	52	68
ARDD0304	Viaduct E1 - Final Anchorage and PT Requirements	0		0%	0	16-Jul-14		25-Sep-14	52	68
ARDD0308	Viaduct E1 - Final Movement Joint (MJ) Schedule	0		0%	0	23-Jun-14		11-Sep-14	59	60
Associated Construction Milestones										
ARDD0310	Viaduct E1 - DDA approval ready for Commencement of Piling	0	05-Aug-14	0%	0		10-Jun-14		-56	22
Viaduct D										
Viaduct Design										
ARDD0323	Viaduct D - IC/SO Approval of AIP - DP14.00	68	31-Dec-13 A	100%	0	26-May-14 A				
ARDD0323-1	Viaduct D - IC/SO Approval of AIP - DP14.00	0		100%	0	26-May-14 A				
ARDD0328-1	Viaduct D - Earliest IC Certificate for Foundation DDA - DP14.01	0		0%	0	23-Jun-14		11-Jul-14	15	35
ARDD0328-2	Viaduct D - IC/SO Approval of Foundation DDA - DP14.01	75	03-Apr-14 A	60%	30	01-Aug-14	05-May-14	13-Jun-14	-35	0
ARDD0328-4	Viaduct D - IC/SO Approval of Foundation DDA - DP14.01	0		0%	0	01-Aug-14		17-Jun-14	-33	0
ARDD0330	Viaduct D - Preparation of Substructure DDA - DP14.03	50	19-Feb-14 A	50%	25	25-Jul-14	25-Apr-14	30-May-14	-40	0
ARDD0331	Viaduct D - Preparation of Superstructure DDA - DP14.03	70	19-Feb-14 A	50%	35	08-Aug-14	26-May-14	11-Jul-14	-20	0
ARDD0332	Viaduct D - Submission of Sub & Superstructure DDA - DP14.03	0		0%	0	08-Aug-14		11-Jul-14	-20	0
ARDD0333-1	Viaduct D - Earliest IC Certificate for Sub & Superstructure DDA - DP14.03	0		0%	0	19-Sep-14		27-Aug-14	-17	3
ARDD0333-2	Viaduct D - IC/SO Approval Pilecap Precast Shells DDA - DP14.02	75	26-Apr-14 A	60%	30	01-Aug-14	07-Jul-14	15-Aug-14	10	0
ARDD0333-3	Viaduct D - IC/SO Approval of Sub & Superstructure DDA - DP14.03	75	11-Aug-14	0%	75	21-Nov-14	14-Jul-14	24-Oct-14	-20	0
ARDD0333-5	Viaduct D - IC/SO Approval Pilecap Precast Shells DDA - DP14.02	0		0%	0	01-Aug-14		15-Aug-14	10	50
Information to Contractor										
ARDD0341	Viaduct D - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	23-Jun-14	0%	0		28-Apr-14		-40	0
ARDD0342	Viaduct D - Typical Pilecap Reinforcement - Regular Rebar	0		0%	0	23-Jun-14		25-Apr-14	-40	0
ARDD0343	Viaduct D - Final Pilecap Reinforcement	0	23-Jun-14	0%	0		15-Jul-14		16	0
ARDD0345	Viaduct D - Final Pier Shapes and Reinforcement	0		0%	0	25-Jul-14		24-Sep-14	42	0
ARDD0346	Viaduct D - Typical Segment Shapes for Moulds	0		0%	0	23-Jun-14		09-Jun-14	-9	0
ARDD0347	Viaduct D - Typical Segment Reinforcement	0		0%	0	23-Jun-14		09-Jun-14	-9	20
ARDD0348	Viaduct D - Final Segment Types and Reinforcement	0		0%	0	08-Aug-14		23-Sep-14	32	61
ARDD0349	Viaduct D - Typical Anchorage and Tendon Types	0		0%	0	23-Jun-14		12-May-14	-29	0
ARDD0350	Viaduct D - Final Anchorage and PT Requirements	0		0%	0	08-Aug-14		15-Sep-14	26	55
ARDD0351	Viaduct D - Provisional Bearing Schedule	0		0%	0	23-Jun-14		14-May-14	-27	0



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: J3518DWPrD1-M13
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Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 7 of 27 Pages)
(Progress as of 21-Jun-14)

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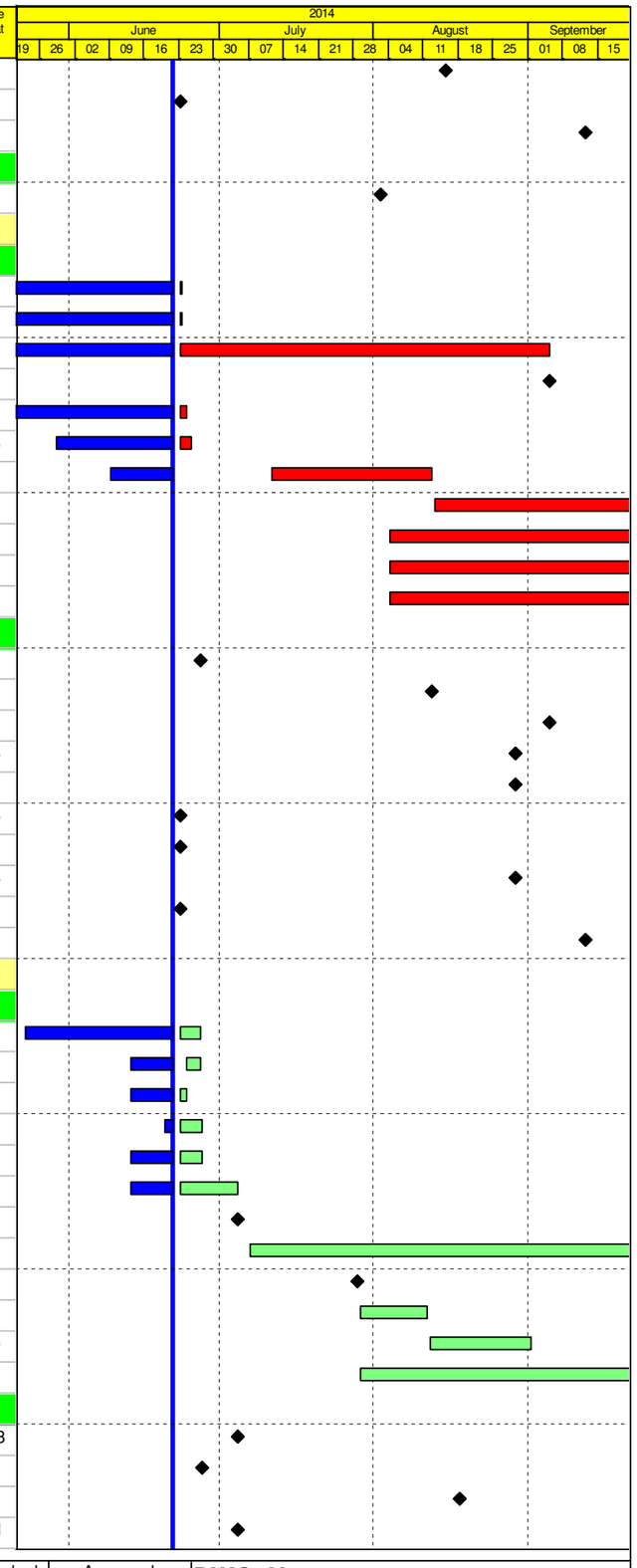
DWG. No.:
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
ARDD0352	Viaduct D - Final Bearing Schedule	0		0%	0	15-Aug-14		09-Jul-14	-27	0
ARDD0353	Viaduct D - Provisional Movement Joint (MJ) Schedule	0		0%	0	23-Jun-14		19-Jun-14	-1	0
ARDD0354	Viaduct D - Final Movement Joint (MJ) Schedule	0		0%	0	12-Sep-14		11-Sep-14	-1	0
Associated Construction Milestones										
ARDD0361	Viaduct D - DDA approval ready for Commencement of Piling	0	02-Aug-14	0%	0		18-Jun-14		-45	0
Viaduct C										
Viaduct Design										
ARDD0369	Viaduct C - Provisonal Load Rundown and Global Analysis	5	04-Mar-14 A	90%	1	23-Jun-14	09-Jun-14	09-Jun-14	-10	1
ARDD0370	Viaduct C - Provisional Pile Loads	10	11-Mar-14 A	90%	1	23-Jun-14	06-Jun-14	09-Jun-14	-11	1
ARDD0374	Viaduct C - IC/SO Approval of Sub & Superstructure AIP - DP13.00	68	16-May-14 A	20%	54	05-Sep-14	29-May-14	13-Aug-14	-16	0
ARDD0374-1	Viaduct C - IC/SO Approval of Sub & Superstructure AIP - DP13.00	0		0%	0	05-Sep-14		13-Aug-14	-16	0
ARDD0376	Viaduct C - Update Midas Model	10	15-May-14 A	85%	2	24-Jun-14	06-Jun-14	09-Jun-14	-11	1
ARDD0377	Viaduct C - Final Pile Loads and Global Analysis	15	29-May-14 A	85%	2	25-Jun-14	05-Jun-14	09-Jun-14	-12	35
ARDD0378	Viaduct C - Foundation DDA - DP13.01	45	09-Jun-14 A	50%	23	12-Aug-14	08-May-14	09-Jun-14	-47	0
ARDD0379-2	Viaduct C - IC/SO Approval of Foundation DDA - DP13.01	75	13-Aug-14	0%	75	25-Nov-14	17-Jun-14	29-Sep-14	-41	0
ARDD0380	Viaduct C - Preparation of Pilecap Precast Shells DDA - DP13.02	40	04-Aug-14	0%	40	26-Sep-14	19-Jun-14	13-Aug-14	-32	0
ARDD0381	Viaduct C - Preparation of Substructure DDA -DP13.03	50	04-Aug-14	0%	50	10-Oct-14	01-Aug-14	09-Oct-14	-1	0
ARDD0382	Viaduct C - Preparation of Superstructure DDA -DP13.03	70	04-Aug-14	0%	70	07-Nov-14	10-Jul-14	15-Oct-14	-17	0
Information to Contractor										
ARDD0388	Viaduct C - Typical Pile Reinforcement - Stainless Rebar	0	27-Jun-14	0%	0		05-Jun-14		-16	9
ARDD0389	Viaduct C - Final Pile Reinforcement and Socket H Pile Details	0		0%	0	12-Aug-14		08-Jul-14	-25	0
ARDD0392	Viaduct C - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	05-Sep-14	0%	0		04-Sep-14		-1	31
ARDD0393	Viaduct C - Typical Pilecap Reinforcement - Regular Rebar	0		0%	0	29-Aug-14		03-Sep-14	3	35
ARDD0397	Viaduct C - Typical Segment Shapes for Moulds	0		0%	0	29-Aug-14		15-Oct-14	33	0
ARDD0400	Viaduct C - Typical Anchorage and Tendon Types	0		0%	0	23-Jun-14		15-Oct-14	83	55
ARDD0402	Viaduct C - Provisional Bearing Schedule	0		0%	0	23-Jun-14		27-Jun-14	5	0
ARDD0403	Viaduct C - Final Bearing Schedule	0		0%	0	29-Aug-14		05-Sep-14	5	34
ARDD0404	Viaduct C - Provisional Movement Joint (MJ) Schedule	0		0%	0	23-Jun-14		19-Jun-14	-1	0
ARDD0405	Viaduct C - Final Movement Joint (MJ) Schedule	0		0%	0	12-Sep-14		11-Sep-14	-1	0
Viaduct A										
Viaduct Design										
ARDD0418	Viaduct A - Setup Midas Model	15	23-May-14 A	70%	5	27-Jun-14	21-Aug-14	27-Aug-14	44	0
ARDD0419	Viaduct A - Sectional and Segment Dimensional Analysis	10	13-Jun-14 A	70%	3	27-Jun-14	25-Aug-14	27-Aug-14	44	6
ARDD0420	Viaduct A - Provisonal Load Rundown and Global Analysis	5	13-Jun-14 A	70%	2	24-Jun-14	25-Dec-14	26-Dec-14	134	4
ARDD0421	Viaduct A - Provisional Pile Loads	10	20-Jun-14 A	50%	5	27-Jun-14	22-Dec-14	26-Dec-14	130	0
ARDD0422	Viaduct A - Preparation of Foundation Scheme	10	13-Jun-14 A	50%	5	27-Jun-14	22-Dec-14	26-Dec-14	130	0
ARDD0423	Viaduct A - Preparation of Substructure and Superstructure Scheme	20	13-Jun-14 A	50%	10	04-Jul-14	14-Aug-14	27-Aug-14	38	0
ARDD0424	Viaduct A - Submission of Viaduct AIP - DP11.00	0		0%	0	04-Jul-14		27-Aug-14	38	0
ARDD0425	Viaduct A - IC/SO Approval of Viaduct AIP - DP11.00	68	07-Jul-14	0%	68	08-Oct-14	09-Oct-14	12-Jan-15	68	0
ARDD0426	Viaduct A - Receipt of Data for Final Analysis	0		0%	0	28-Jul-14		27-Aug-14	22	0
ARDD0427	Viaduct A - Update Midas Model	10	29-Jul-14	0%	10	11-Aug-14	25-Sep-14	08-Oct-14	42	0
ARDD0428	Viaduct A - Final Pile Loads and Global Analysis	15	12-Aug-14	0%	15	01-Sep-14	09-Oct-14	29-Oct-14	42	20
ARDD0429	Viaduct A - Foundation DDA - DP11.01	45	29-Jul-14	0%	45	29-Sep-14	28-Aug-14	29-Oct-14	22	0
Information to Contractor										
ARDD0437	Viaduct A - Provisional Segment Types and Weights	0		0%	0	04-Jul-14		28-May-15	234	143
ARDD0438	Viaduct A - Pile Spacing and Diameter for Temp Platform Design	0		0%	0	27-Jun-14		26-Dec-14	130	0
ARDD0439	Viaduct A - Typical Pile Reinforcement - Stainless Rebar	0	18-Aug-14	0%	0		16-Dec-14		86	7
ARDD0442	Viaduct A - Typical Pilecap Shapes for Formwork	0		0%	0	04-Jul-14		01-May-15	215	211



Actual Work
Planned Bar
Critical Bar
Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 8 of 27 Pages)
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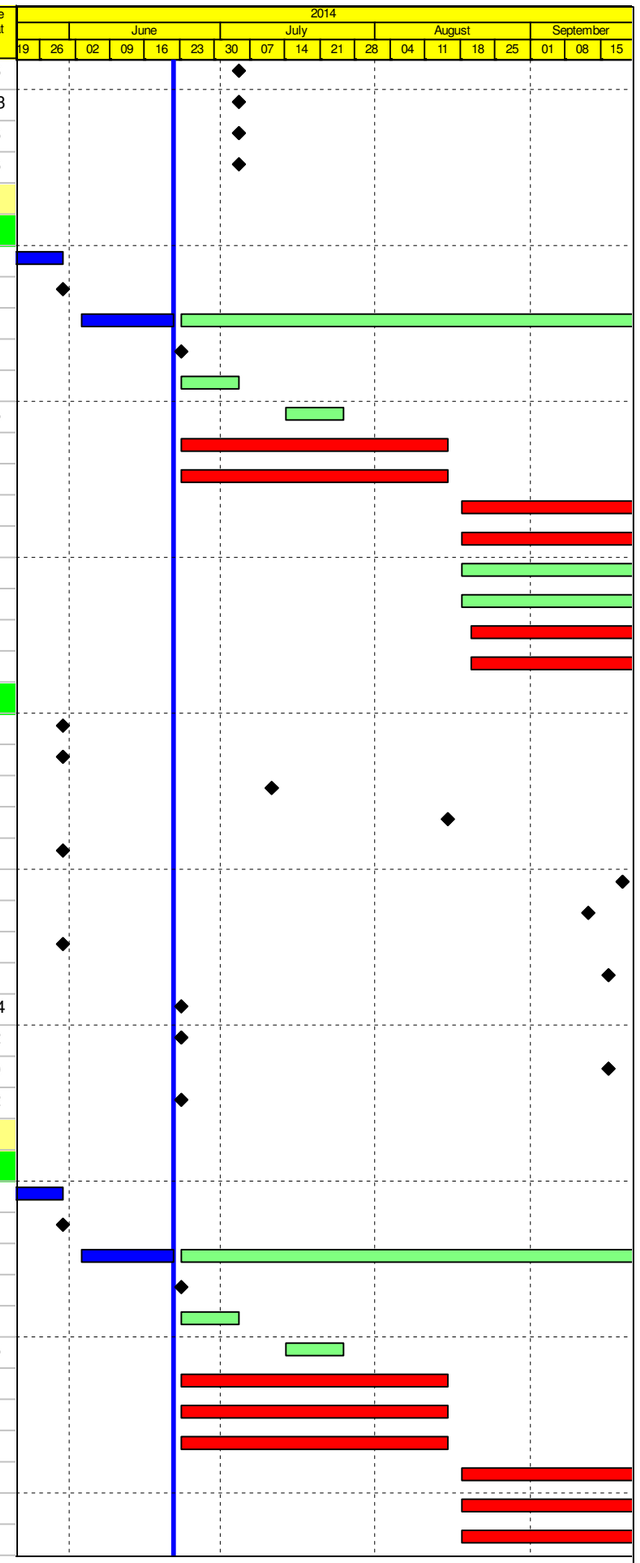
Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
ARDD0446	Viaduct A - Typical Pier Shapes for Formwork Planning	0		0%	0	04-Jul-14		29-Jan-15	149	26
ARDD0451	Viaduct A - Typical Anchorage and Tendon Types	0		0%	0	04-Jul-14		28-May-15	234	143
ARDD0453	Viaduct A - Provisional Bearing Schedule	0		0%	0	04-Jul-14		17-Oct-14	75	46
ARDD0455	Viaduct A - Provisional Movement Joint (MJ) Schedule	0		0%	0	04-Jul-14		23-Oct-14	79	26
Viaduct F1 & F3										
Viaduct Design										
ARDD0474	Viaduct F1 & F3 - Preparation of Sub & Superstructure Scheme	20	08-Apr-14 A	100%	0	30-May-14 A				
ARDD0475	Viaduct F1 & F3 - Submission of Viaduct Fdns, Sub & Superstructure AIP - DP16.00	0		100%	0	30-May-14 A				
ARDD0476	Viaduct F1 & F3 - IC/SO Approval of Viaduct AIP - DP16.00	68	03-Jun-14 A	0%	68	24-Sep-14	18-Aug-14	19-Nov-14	40	0
ARDD0477	Viaduct F1 & F3 - Receipt of Data for Final Analysis	0		0%	0	23-Jun-14		11-Jun-14	-7	0
ARDD0478	Viaduct F1 & F3 - Update Midas Model	10	23-Jun-14	0%	10	04-Jul-14	10-Jul-14	23-Jul-14	13	5
ARDD0479	Viaduct F1 & F3 - Final Pile Loads and Global Analysis	10	14-Jul-14	0%	10	25-Jul-14	24-Jul-14	06-Aug-14	8	15
ARDD0480	Viaduct F1 & F3 - Foundation DDA - DP16.01	40	23-Jun-14	0%	40	15-Aug-14	12-Jun-14	06-Aug-14	-7	0
ARDD0480-2	Viaduct F1 & F3 - Foundation DDA - DP16.07	40	23-Jun-14	0%	40	15-Aug-14	12-Jun-14	06-Aug-14	-7	0
ARDD0481	Viaduct F1 & F3 - IC/SO Approval of Foundation DDA - DP16.01	75	18-Aug-14	0%	75	28-Nov-14	07-Aug-14	19-Nov-14	-7	0
ARDD0481-2	Viaduct F1 & F3 - IC/SO Approval of Foundation DDA - DP16.07	75	18-Aug-14	0%	75	28-Nov-14	07-Aug-14	19-Nov-14	-7	0
ARDD0482	Viaduct F1 & F3 - Preparation of Substructure DDA - DP16.02	50	18-Aug-14	0%	50	24-Oct-14	17-Sep-14	25-Nov-14	22	0
ARDD0482-2	Viaduct F1 & F3 - Preparation of Substructure DDA - DP16.08	50	18-Aug-14	0%	50	24-Oct-14	17-Sep-14	25-Nov-14	22	0
ARDD0483	Viaduct F1 & F3 - Preparation of Superstructure DDA - DP16.03	70	20-Aug-14	0%	70	25-Nov-14	20-Aug-14	25-Nov-14	0	0
ARDD0483-2	Viaduct F1 & F3 - Preparation of Superstructure DDA - DP16.09	70	20-Aug-14	0%	70	25-Nov-14	20-Aug-14	25-Nov-14	0	0
Information to Contractor										
ARDD0487	Viaduct F1 & F3 - Provisional Segment Types and Weights	0		100%	0	30-May-14 A				
ARDD0488	Viaduct F1 & F3 - Pile Spacing and Diameter for Temp Platform Design	0		100%	0	30-May-14 A				
ARDD0489	Viaduct F1 & F3 - Typical Pile Reinforcement - Stainless Rebar	0	11-Jul-14	0%	0		23-Jul-14		8	2
ARDD0490	Viaduct F1 & F3 - Final Pile Reinforcement and Socket H Pile Details	0		0%	0	15-Aug-14		25-Aug-14	6	0
ARDD0491	Viaduct F1 & F3 - Typical Pilecap Shapes for Formwork	0		100%	0	30-May-14 A				
ARDD0492	Viaduct F1 & F3 - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	19-Sep-14	0%	0		04-Nov-14		32	2
ARDD0493	Viaduct F1 & F3 - Typical Pilecap Reinforcement - Regular Rebar	0		0%	0	12-Sep-14		03-Nov-14	36	6
ARDD0495	Viaduct F1 & F3 - Typical Pier Shapes for Formwork Planning	0		100%	0	30-May-14 A				
ARDD0497	Viaduct F1 & F3 - Typical Segment Shapes for Moulds	0		0%	0	16-Sep-14		27-Nov-14	52	0
ARDD0500	Viaduct F1 & F3 - Typical Anchorage and Tendon Types	0		0%	0	23-Jun-14		27-Nov-14	114	144
ARDD0502	Viaduct F1 & F3 - Provisional Bearing Schedule	0		0%	0	23-Jun-14		08-Aug-14	35	12
ARDD0503	Viaduct F1 & F3 - Final Bearing Schedule	0		0%	0	16-Sep-14		17-Oct-14	23	50
ARDD0504	Viaduct F1 & F3 - Provisional Movement Joint (MJ) Schedule	0		0%	0	23-Jun-14		04-Dec-14	119	12
Viaduct F2, F4 and F5										
Viaduct Design										
ARDD0518	Viaduct F2, F4 & F5 - Preparation of Sustructure and Superstructure Scheme	20	08-Apr-14 A	100%	0	30-May-14 A				
ARDD0519	Viaduct F2, F4 & F5 - Submssion of Viaduct AIP - DP16.00 Update	0		100%	0	30-May-14 A				
ARDD0520	Viaduct F2, F4 & F5 - IC/SO Approval of Viaduct AIP - DP16.00	68	03-Jun-14 A	0%	68	24-Sep-14	01-Sep-14	03-Dec-14	50	0
ARDD0521	Viaduct F2, F4 & F5 - Receipt of Data for Final Analysis	0		0%	0	23-Jun-14		25-Jun-14	3	0
ARDD0522	Viaduct F2, F4 & F5 - Update Midas Model	10	23-Jun-14	0%	10	04-Jul-14	24-Jul-14	06-Aug-14	23	5
ARDD0523	Viaduct F2, F4 & F5 - Final Pile Loads and Global Analysis	10	14-Jul-14	0%	10	25-Jul-14	07-Aug-14	20-Aug-14	18	15
ARDD0524	Viaduct F2, F4 & F5 - Foundation DDA - DP16.04	40	23-Jun-14	0%	40	15-Aug-14	26-Jun-14	20-Aug-14	3	0
ARDD0524-2	Viaduct F2, F4 & F5 - Foundation DDA - DP16.10	40	23-Jun-14	0%	40	15-Aug-14	26-Jun-14	20-Aug-14	3	0
ARDD0524-4	Viaduct F2, F4 & F5 - Foundation DDA - DP16.13	40	23-Jun-14	0%	40	15-Aug-14	26-Jun-14	20-Aug-14	3	0
ARDD0525-2	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.04	75	18-Aug-14	0%	75	28-Nov-14	21-Aug-14	03-Dec-14	3	0
ARDD0525-4	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.10	75	18-Aug-14	0%	75	28-Nov-14	21-Aug-14	03-Dec-14	3	0
ARDD0525-6	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.13	75	18-Aug-14	0%	75	28-Nov-14	21-Aug-14	03-Dec-14	3	0



Actual Work
Planned Bar
Critical Bar
Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection
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(Progress as of 21-Jun-14)

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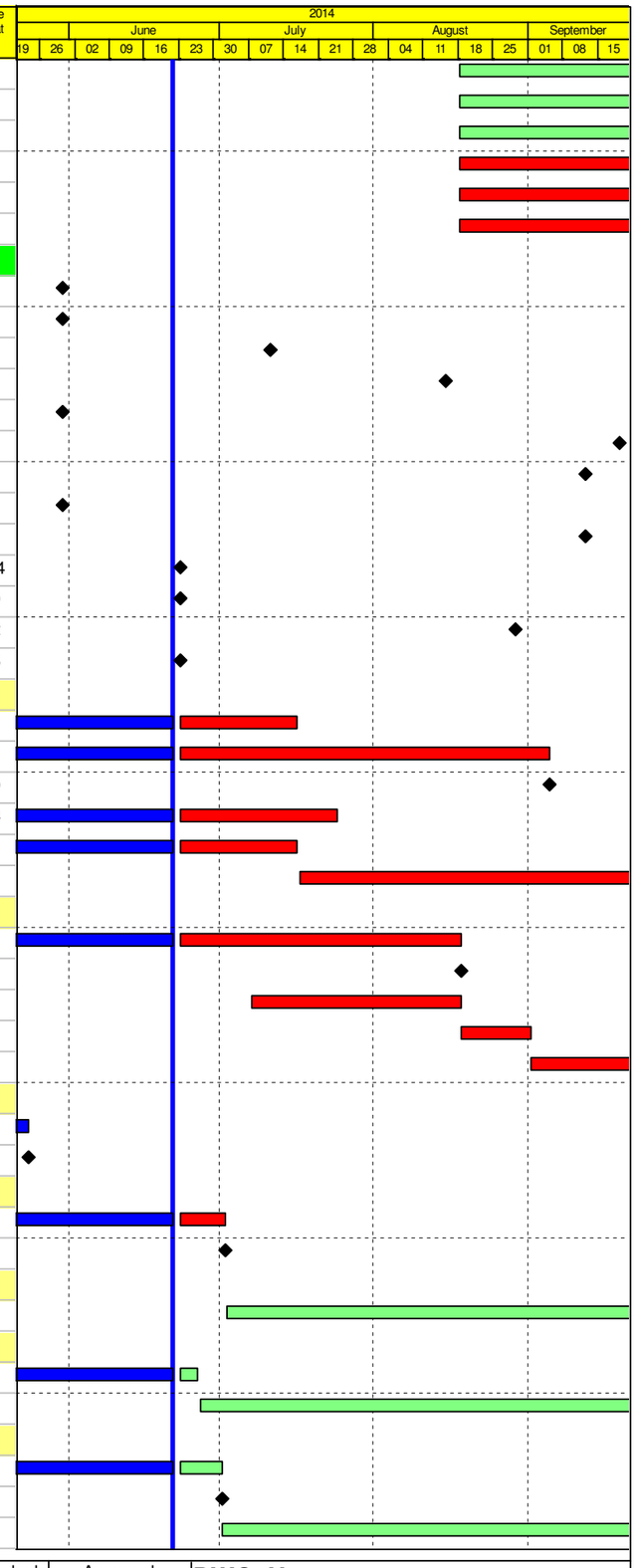
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
ARDD0526	Viaduct F2, F4 & F5 - Preparation of Substructure DDA - DP16.05	50	18-Aug-14	0%	50	24-Oct-14	23-Sep-14	01-Dec-14	26	0
ARDD0526-4	Viaduct F2, F4 & F5 - Preparation of Substructure DDA - DP16.11	50	18-Aug-14	0%	50	24-Oct-14	23-Sep-14	01-Dec-14	26	0
ARDD0526-6	Viaduct F2, F4 & F5 - Preparation of Substructure DDA - DP16.14	50	18-Aug-14	0%	50	24-Oct-14	23-Sep-14	01-Dec-14	26	0
ARDD0527	Viaduct F2, F4 & F5 - Preparation of Superstructure DDA - DP16.06	70	18-Aug-14	0%	70	21-Nov-14	26-Aug-14	01-Dec-14	6	0
ARDD0527-4	Viaduct F2, F4 & F5 - Preparation of Superstructure DDA - DP16.12	70	18-Aug-14	0%	70	21-Nov-14	26-Aug-14	01-Dec-14	6	0
ARDD0527-6	Viaduct F2, F4 & F5 - Preparation of Superstructure DDA - DP16.15	70	18-Aug-14	0%	70	21-Nov-14	26-Aug-14	01-Dec-14	6	0
Information to Contractor										
ARDD0531	Viaduct F2, F4 & F5 - Provisional Segment Types and Weights	0		100%	0	30-May-14 A				
ARDD0532	Viaduct F2, F4 & F5 - Pile Spacing and Diameter for Temp Platform Design	0		100%	0	30-May-14 A				
ARDD0533	Viaduct F2, F4 & F5 - Typical Pile Reinforcement - Stainless Rebar	0	11-Jul-14	0%	0		29-Sep-14		56	2
ARDD0534	Viaduct F2, F4 & F5 - Final Pile Reinforcement and Socket H Pile Details	0		0%	0	15-Aug-14		31-Oct-14	54	0
ARDD0535	Viaduct F2, F4 & F5 - Typical Pilecap Shapes for Formwork	0		100%	0	30-May-14 A				
ARDD0536	Viaduct F2, F4 & F5 - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	19-Sep-14	0%	0		25-Feb-15		113	2
ARDD0537	Viaduct F2, F4 & F5 - Typical Pilecap Reinforcement - Regular Rebar	0		0%	0	12-Sep-14		25-Feb-15	117	6
ARDD0539	Viaduct F2, F4 & F5 - Typical Pier Shapes for Formwork Planning	0		100%	0	30-May-14 A				
ARDD0541	Viaduct F2, F4 & F5 - Typical Segment Shapes for Moulds	0		0%	0	12-Sep-14		27-Nov-14	54	2
ARDD0544	Viaduct F2, F4 & F5 - Typical Anchorage and Tendon Types	0		0%	0	23-Jun-14		27-Nov-14	114	144
ARDD0546	Viaduct F2, F4 & F5 - Provisional Bearing Schedule	0		0%	0	23-Jun-14		22-Aug-14	45	10
ARDD0547	Viaduct F2, F4 & F5 - Final Bearing Schedule	0		0%	0	29-Aug-14		17-Oct-14	35	62
ARDD0548	Viaduct F2, F4 & F5 - Provisional Movement Joint (MJ) Schedule	0		0%	0	23-Jun-14		23-Jan-15	155	46
Parapet and Utility Trough										
ARDD0558	Preparation of Utility Truss Scheme	60	29-Oct-13 A	70%	18	16-Jul-14	23-Apr-14	16-May-14	-43	0
ARDD0560	IC/SO Approval of AIP - DP30.00	68	17-Apr-14 A	20%	54	05-Sep-14	19-May-14	01-Aug-14	-25	0
ARDD0560-1	IC/SO Approval of AIP - DP30.00	0		0%	0	05-Sep-14		21-Nov-14	56	99
ARDD0561	Preparation of Parapet DDA DP30.01	40	24-Apr-14 A	40%	24	24-Jul-14	16-Jun-14	17-Jul-14	-5	54
ARDD0562	Preparation of Utility Trough DDA	30	16-Apr-14 A	40%	18	16-Jul-14	23-Apr-14	16-May-14	-43	0
ARDD0563	Preparation of Utility Truss DDA	60	17-Jul-14	0%	60	08-Oct-14	19-May-14	08-Aug-14	-43	0
TCSS Provisions										
ARDD0570	IC/SO Approval of AIP for TCSS civil provisions - BP10.00	68	03-Apr-14 A	40%	41	18-Aug-14	30-May-14	25-Jul-14	-16	0
ARDD0570-1	IC/SO Approval of AIP for TCSS civil provisions - BP10.00	0		0%	0	18-Aug-14		25-Jul-14	-16	0
ARDD0571	Finalisation of TCSS Civil Provisions	30	07-Jul-14	0%	30	18-Aug-14	16-Jun-14	25-Jul-14	-16	0
ARDD0572	Preparation of DDA for TCSS civil provisions - BP10.01	10	18-Aug-14	0%	10	01-Sep-14	28-Jul-14	08-Aug-14	-16	0
ARDD0573	IC/SO Approval of DDA for TCSS civil provisions - BP10.01	75	01-Sep-14	0%	75	15-Dec-14	11-Aug-14	21-Nov-14	-16	0
Slopeworks for Viaduct B: 9SE- B/C8, B/C9, B/F9, B/F85+ 10SW-A/F52, A/F53										
ARDD0579	IC/SO Approval of Slope Combined AIP/DDA-CP12.01	75	05-Oct-13 A	100%	0	23-May-14 A				
ARDD0579-1	IC/SO Approval of Slope Combined AIP/DDA-CP12.01	0		100%	0	23-May-14 A				
Slopeworks for Viaduct C: 10NW -C/C22, C/C26, C/C27, C/F13, C/F14. C/F15										
ARDD0587	IC/SO Approval of Slope Combined AIP/DDA-CP13.01	75	20-Nov-13 A	90%	8	02-Jul-14	15-May-14	26-May-14	-27	0
ARDD0587-1	IC/SO Approval of Slope Combined AIP/DDA-CP13.01	0		0%	0	02-Jul-14		26-May-14	-27	0
Slopeworks for Viaduct A: 9SE-B/FR8, B/R1, B/R2										
ARDD0595	IC/SO Approval of Slope Combined AIP/DDA-CP11.01	75	02-Jul-14	0%	75	15-Oct-14	11-Jun-15	23-Sep-15	246	0
Slopeworks for Viaduct D: 10NW -C/R4, C/F9, C/F10, C/F11, C/F17, C/F50										
ARDD0602	Preparation of Slope Combined AIP/DDA - CP14.01	20	10-Dec-13 A	80%	4	26-Jun-14	23-Oct-14	28-Oct-14	88	0
ARDD0603	IC/SO Approval of Slope Combined AIP/DDA-CP14.01	75	27-Jun-14	0%	75	09-Oct-14	29-Oct-14	10-Feb-15	88	0
Natural Terrian Hazard Assessment										
ARDD0612	IC/SO Approval of NTHA Combined General Submission - CP20.01, CP21.01	68	31-Dec-13 A	90%	7	01-Jul-14	27-Nov-14	05-Dec-14	113	0
ARDD0612-1	IC/SO Approval of NTHA Combined General Submission - CP20.01, CP21.01	0		0%	0	01-Jul-14		05-Dec-14	113	0
ARDD0613	GEO Approval of NTHM Combined AIP/DDA - CP20.02, CP21.02	75	01-Jul-14	0%	75	14-Oct-14	08-Dec-14	20-Mar-15	113	0



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Critical Bar
Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection
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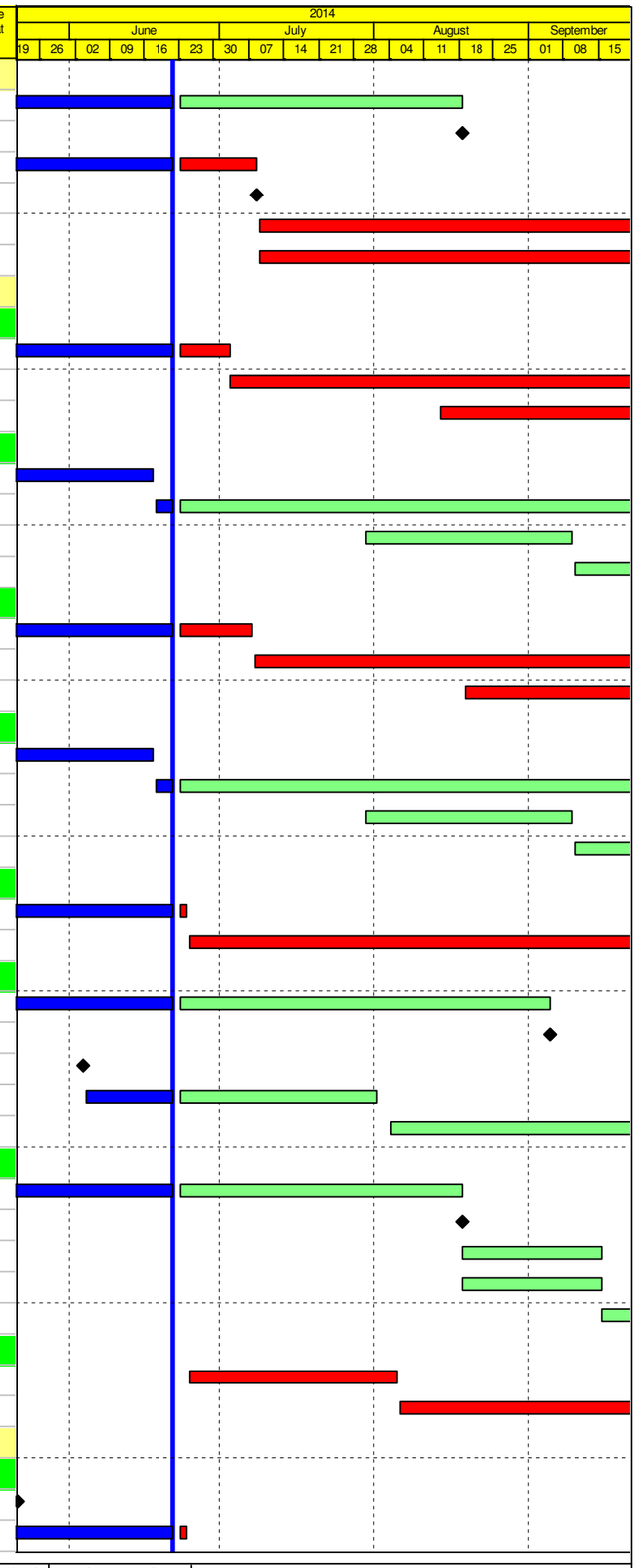
Waterworks, Drainage & Utility Diversions										
ARDD0622	IC/SO Approval of Waterworks, Drainage & Utility AIP - BP20.00	68	03-Jan-14 A	40%	41	18-Aug-14	03-Feb-17	31-Mar-17	684	0
ARDD0622-1	IC/SO Approval of Waterworks, Drainage & Utility AIP - BP20.00	0		0%	0	18-Aug-14		31-Mar-17	684	0
ARDD0624	Preparation of Waterworks, Drainage & Utility DDA - BP20.01	40	06-Mar-14 A	70%	12	08-Jul-14	15-May-14	30-May-14	-27	0
ARDD0628	Submission of Waterworks, Drainage & Utility DDA - BP20.01	0		0%	0	08-Jul-14		30-May-14	-27	0
ARDD0629	IC/SO Approval of Waterworks, Drainage & Utility DDA - BP20.01	75	09-Jul-14	0%	75	21-Oct-14	02-Jun-14	12-Sep-14	-27	0
ARDD0630	Gov't Approval of Submissions for Waterworks, Drainage & Utility Diversions	75	09-Jul-14	0%	75	21-Oct-14	02-Jun-14	12-Sep-14	-27	0
Viaduct Approach Ramp Retaining Walls										
Approach Ramp D										
ARDD0649	Approach D - Preparation of Approach Ramp D AIP Submission - DP21.00	55	29-Oct-13 A	85%	8	03-Jul-14	20-Jan-14	30-Jan-14	-109	0
ARDD0650	Approach D - IC/SO Approval of Approach Ramp D AIP - DP21.00	68	03-Jul-14	0%	68	07-Oct-14	31-Jan-14	06-May-14	-109	0
ARDD0651	Approach D - Preparation of Approach Ramp D DDA Submission - DP20.01	30	14-Aug-14	0%	30	25-Sep-14	14-Mar-14	24-Apr-14	-109	0
Approach Ramp C										
ARDD0655	Approach C - Preparation of Approach Ramp C AIP Submission -DP20.00 Update	30	11-Apr-14 A	100%	0	17-Jun-14 A				
ARDD0656	Approach C - IC/SO Approval of Approach Ramp C AIP -DP20.00	68	18-Jun-14 A	0%	68	24-Sep-14	05-Sep-14	09-Dec-14	54	0
ARDD0657	Approach C - Preparation of Approach Ramp C DDA Submission - DP20.01	30	30-Jul-14	0%	30	09-Sep-14	14-Oct-14	24-Nov-14	54	0
ARDD0658	Approach C - IC/SO Approval of Approach Ramp C DDA -DP20.01	75	10-Sep-14	0%	75	23-Dec-14	25-Nov-14	09-Mar-15	54	0
Approach Ramp B										
ARDD0661	Approach B - Preparation of Approach Ramp B AIP Submission - DP21.00 Update	55	29-Oct-13 A	80%	11	07-Jul-14	10-Jan-14	24-Jan-14	-116	0
ARDD0662	Approach B - IC/SO Approval of Approach Ramp B AIP -DP21.00	68	08-Jul-14	0%	68	09-Oct-14	27-Jan-14	30-Apr-14	-116	0
ARDD0663	Approach B - Preparation of Approach Ramp B DDA Submission -DP21.01	30	19-Aug-14	0%	30	29-Sep-14	10-Mar-14	18-Apr-14	-116	0
Approach A										
ARDD0667	Approach A - Preparation of Approach Ramp A AIP Submission -DP20.00 Update	30	11-Apr-14 A	100%	0	17-Jun-14 A				
ARDD0668	Approach A - IC/SO Approval of Approach Ramp A AIP -DP20.00	68	18-Jun-14 A	0%	68	24-Sep-14	21-Jul-14	22-Oct-14	20	0
ARDD0669	Approach A - Preparation of Approach Ramp A DDA Submission -DP20.01	30	30-Jul-14	0%	30	09-Sep-14	27-Aug-14	07-Oct-14	20	0
ARDD0670	Approach A - IC/SO Approval of Approach Ramp A DDA - DP20.01	75	10-Sep-14	0%	75	23-Dec-14	08-Oct-14	20-Jan-15	20	0
Viaduct Pavement										
ARDD865	Viaduct Pavement - Preparation of AIP Submission - BP02.00	20	10-Mar-14 A	90%	2	24-Jun-14	17-Apr-14	18-Apr-14	-47	0
ARDD867	Viaduct Pavement - IC/SO Approval of AIP - BP02.00	68	25-Jun-14	0%	68	26-Sep-14	21-Apr-14	23-Jul-14	-47	0
Signs, Markings and Street Furniture										
ARDD0683	IC/SO Approval of Signs, Markings & Street Furniture AIP - BP03.00	68	01-Mar-14 A	20%	54	05-Sep-14	16-Jan-17	31-Mar-17	671	0
ARDD0683-1	IC/SO Approval of Signs, Markings & Street Furniture AIP - BP03.00	0		0%	0	05-Sep-14		31-Mar-17	671	0
ARDD0684	Confirmation of all Cast - In Requirements To Deck Segments	0		100%	0	03-Jun-14 A				
ARDD0685	Preparation of Final Signs and Markings Plans	30	04-Jun-14 A	0%	30	01-Aug-14	19-Sep-14	30-Oct-14	64	0
ARDD0686	Preparation of Detail Sign Gantry Structures	50	04-Aug-14	0%	50	10-Oct-14	31-Oct-14	08-Jan-15	64	0
Landscape										
ARDD0696	IC/SO Approval of AIP for landscape works - BP22.00	68	14-May-14 A	40%	41	18-Aug-14	29-May-15	24-Jul-15	244	0
ARDD0696-1	IC/SO Approval of AIP for landscape works - BP22.00	0		0%	0	18-Aug-14		24-Jul-15	244	0
ARDD0697	Prepare Final Planting Plans and Schedules	20	18-Aug-14	0%	20	15-Sep-14	27-Jul-15	21-Aug-15	244	0
ARDD0698	Prepare Irrigation Plans	20	18-Aug-14	0%	20	15-Sep-14	27-Jul-15	21-Aug-15	244	0
ARDD0699	Preparation of DDA Submission for landscape works - BP22.01	20	15-Sep-14	0%	20	13-Oct-14	24-Aug-15	18-Sep-15	244	0
Remaining Works										
ARDD0704	Preparation of Remaining Works AIP - ZP01.00	30	25-Jun-14	0%	30	05-Aug-14	20-Jun-14	31-Jul-14	-3	0
ARDD0705	IC/SO Approval of Remaining Works AIP - ZP01.00	40	06-Aug-14	0%	40	30-Sep-14	01-Aug-14	25-Sep-14	-3	0
Segment Target Geometry And Erection Engineering										
Viaduct B										
ARDD0711	Viaduct B - Confirmation of Erection Sequence from Freyssinet	0		100%	0	21-May-14 A				
ARDD0712	Viaduct B - Erection Sequence Analysis	20	09-Jan-14 A	90%	2	24-Jun-14	25-Apr-14	28-Apr-14	-41	0



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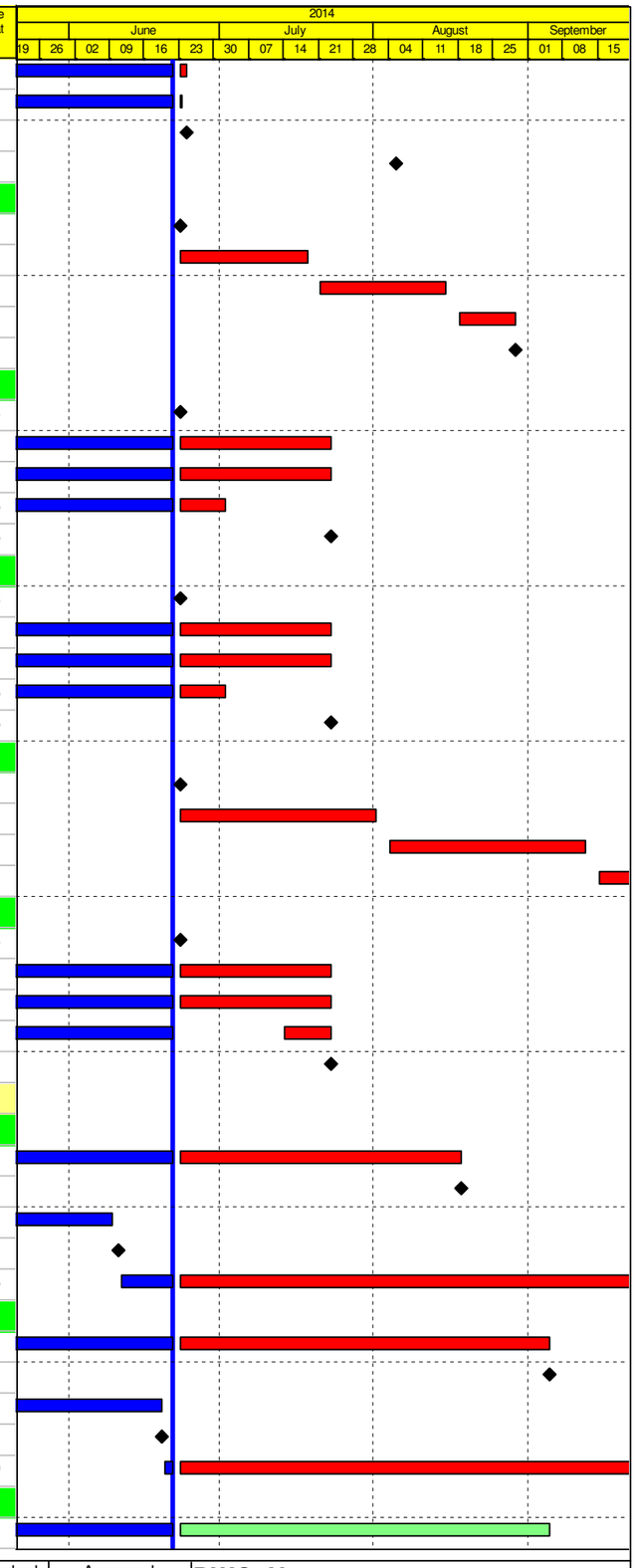
ARDD0713	Viaduct B - Target Geometry Analysis	20	06-Feb-14 A	90%	2	24-Jun-14	25-Apr-14	28-Apr-14	-41	0
ARDD0714	Viaduct B - Segment Geometry Schedules	10	06-Mar-14 A	90%	1	23-Jun-14	28-Apr-14	28-Apr-14	-40	1
ARDD0714-1	Viaduct B - Final Erection Geometry (Bridge B3)	0		0%	0	24-Jun-14		28-Apr-14	-41	0
ARDD0714-2	Viaduct B - Final Erection Geometry (Bridge B2 & B1)	0		0%	0	05-Aug-14		09-Jun-14	-41	0
Viaduct D										
ARDD0726	Viaduct D - Confirmation of Erection Sequence from Freyssinet	0		0%	0	23-Jun-14		02-Jun-14	-14	0
ARDD0727	Viaduct D - Erection Sequence Analysis	20	23-Jun-14	0%	20	18-Jul-14	03-Jun-14	30-Jun-14	-14	0
ARDD0728	Viaduct D - Target Geomtery Analysis	20	21-Jul-14	0%	20	15-Aug-14	01-Jul-14	28-Jul-14	-14	0
ARDD0729	Viaduct D - Segment Geometry Schedules	10	18-Aug-14	0%	10	29-Aug-14	29-Jul-14	11-Aug-14	-14	0
ARDD0729-1	Viaduct D - Final Erection Geometry (Bridge D3)	0		0%	0	29-Aug-14		11-Aug-14	-14	0
Viaduct E5 and E6										
ARDD0731	Viaduct E5 & E6 - Confirmation of Erection Sequence from Freyssinet	0		0%	0	23-Jun-14		09-Jun-14	-9	23
ARDD0732	Viaduct E5 & E6 - Erection Sequence Analysis	30	24-Dec-13 A	25%	23	23-Jul-14	08-May-14	09-Jun-14	-32	0
ARDD0733	Viaduct E5 & E6 - Target Geometry Analysis	30	04-Feb-14 A	25%	23	23-Jul-14	08-May-14	09-Jun-14	-32	0
ARDD0734	Viaduct E5 & E6 - Segment Geometry Schedules	10	18-Mar-14 A	25%	8	02-Jul-14	29-May-14	09-Jun-14	-17	15
ARDD0734-1	Viaduct E5 & E6 - Final Erection Geometry	0		0%	0	23-Jul-14		09-Jun-14	-32	25
Viaduct E7 & E8										
ARDD0736	Viaduct E7 & E8 - Confirmation of Erection Sequence from Freyssinet	0		0%	0	23-Jun-14		30-May-14	-15	23
ARDD0737	Viaduct E7 & E8 - Erection Sequence Analysis	30	24-Dec-13 A	25%	23	23-Jul-14	30-Apr-14	30-May-14	-38	0
ARDD0738	Viaduct E7 & E8 - Target Geometry Analysis	30	04-Feb-14 A	25%	23	23-Jul-14	30-Apr-14	30-May-14	-38	0
ARDD0739	Viaduct E7 & E8 - Segment Geometry Schedules	10	18-Mar-14 A	25%	8	02-Jul-14	21-May-14	30-May-14	-23	15
ARDD0739-1	Viaduct E7 & E8 - Final Erection Geometry	0		0%	0	23-Jul-14		30-May-14	-38	25
Viaduct E1										
ARDD0741	Viaduct E1 - Confirmation of Erection Sequence from Freyssinet	0		0%	0	23-Jun-14		17-Apr-14	-46	0
ARDD0742	Viaduct E1 - Erection Sequence Analysis	30	23-Jun-14	0%	30	01-Aug-14	18-Apr-14	29-May-14	-46	0
ARDD0743	Viaduct E1 - Target Geometry Analysis	30	04-Aug-14	0%	30	12-Sep-14	30-May-14	10-Jul-14	-46	0
ARDD0744	Viaduct E1 - Segment Geometry Schedules	10	15-Sep-14	0%	10	26-Sep-14	11-Jul-14	24-Jul-14	-46	0
Viaduct E2										
ARDD0746	Viaduct E2 - Confirmation of Erection Sequence from Freyssinet	0		0%	0	23-Jun-14		15-May-14	-26	23
ARDD0747	Viaduct E2 - Erection Sequence Analysis	30	24-Dec-13 A	25%	23	23-Jul-14	15-Apr-14	15-May-14	-49	0
ARDD0748	Viaduct E2 - Target Geometry Analysis	30	04-Feb-14 A	25%	23	23-Jul-14	15-Apr-14	15-May-14	-49	0
ARDD0749	Viaduct E2 - Segment Geometry Schedules	10	18-Mar-14 A	25%	8	23-Jul-14	06-May-14	15-May-14	-49	0
ARDD0749-1	Viaduct E2 - Final Erection Geometry	0		0%	0	23-Jul-14		15-May-14	-49	21
Reprovisioning Works										
Chung Tung Road Realignment Viaduct B										
ARDD0804	Viaduct B - IC/SO Approval of AIP of CTR Reprovisioning Works AIP - BP33.00	68	31-Dec-13 A	40%	41	18-Aug-14	19-Dec-13	13-Feb-14	-132	0
ARDD0804-1	Viaduct B - IC/SO Approval of AIP of CTR Reprovisioning Works AIP - BP33.00	0		0%	0	18-Aug-14		13-Feb-14	-132	0
ARDD0805	Viaduct B - Preparation of CTR Reprovisioning Works DDA - BP33.01	30	25-Nov-13 A	100%	0	09-Jun-14 A				
ARDD0806	Viaduct B - Submission of CTR Reprovisioning Works DDA - BP33.01	0		100%	0	10-Jun-14 A				
ARDD0807	Viaduct B - IC/SO Approval of CTR Reprovisioning Works DDA - BP33.01	75	11-Jun-14 A	0%	75	03-Oct-14	27-Jan-14	09-May-14	-105	26
Chung Tung Road Realignment Viaduct C										
ARDD0881	Viaduct C - IC/SO Approval of AIP of CTR Reprovisioning Works AIP - BP34.00	68	04-Apr-14 A	20%	54	05-Sep-14	30-Dec-13	14-Mar-14	-124	0
ARDD0881-1	Viaduct C - IC/SO Approval of AIP of CTR Reprovisioning Works AIP - BP34.00	0		0%	0	05-Sep-14		14-Mar-14	-124	0
ARDD0883	Viaduct C - Preparation of CTR Reprovisioning Works DDA - BP34.01	30	06-Mar-14 A	100%	0	19-Jun-14 A				
ARDD0885	Viaduct C - Submission of CTR Reprovisioning Works DDA - BP34.01	0		100%	0	19-Jun-14 A				
ARDD0887	Viaduct C - IC/SO Approval of CTR Reprovisioning Works DDA - BP34.01	75	20-Jun-14 A	0%	75	03-Oct-14	24-Feb-14	06-Jun-14	-85	39
Remaining Reprovisioning Works (Viaduct A&D)										
ARDD0813	Viaduct A&D - IC/SO Approval of AIP for Remaining Reprovisioning Works V-A&D BP35.00	68	30-Apr-14 A	20%	54	05-Sep-14	28-Apr-15	13-Jul-15	222	0



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Tuen Mun - Chek Lap Kok Link - Southern Connection
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(Progress as of 21-Jun-14)

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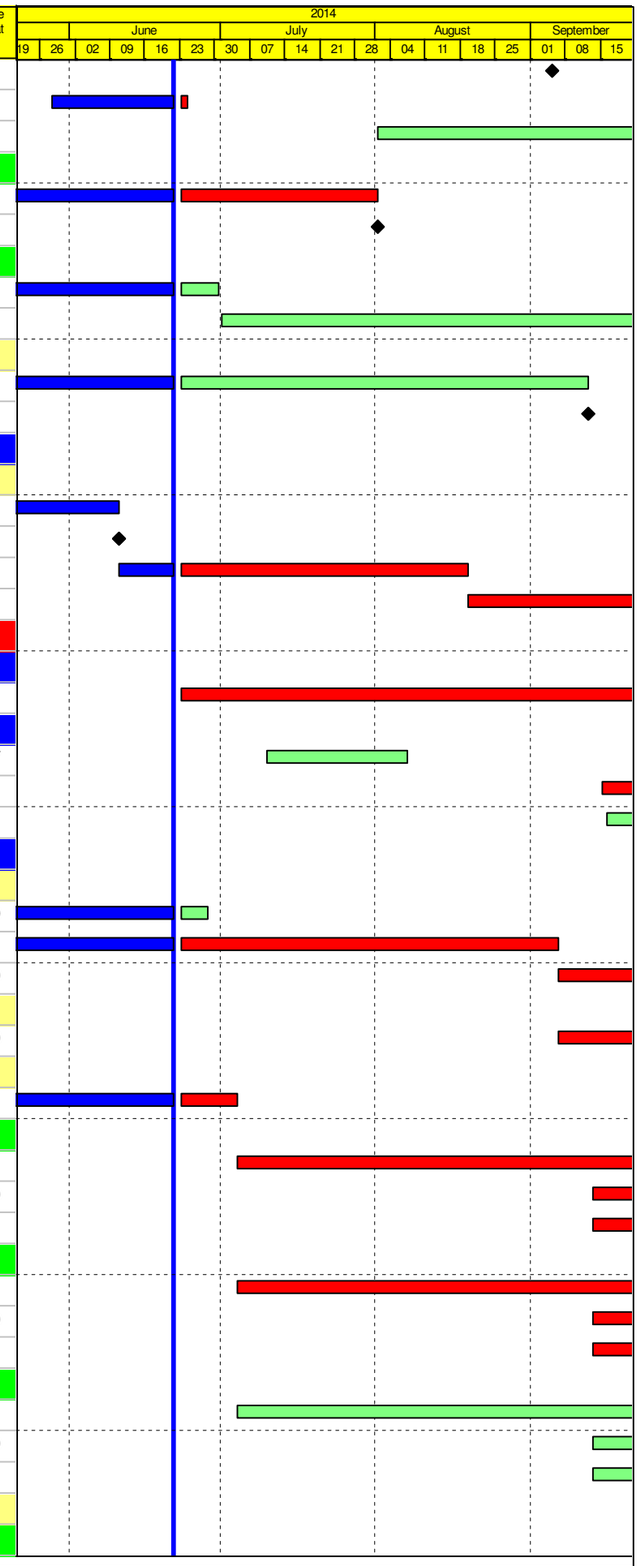
ARDD0813-1	Viaduct A&D - IC/SO Approval of AIP for Remaining Reprovisioning Works V-A&D BP35.00	0		0%	0	05-Sep-14		13-Jul-15	222	0
ARDD0814	Viaduct A&D - Preparation of DDA of Remaining Reprovisioning Works V-A&D BP35.01	20	28-May-14 A	90%	2	24-Jun-14	18-Jun-14	19-Jun-14	-3	0
ARDD0815	Viaduct A&D - IC/SO Approval of DDA of Remaining Reprovisioning Works BP35.01	75	01-Aug-14	0%	75	14-Nov-14	09-Jun-15	21-Sep-15	222	0
ESS Substation										
ARDD0819	IC/SO Approval of Combined AIP/DDA for ESS Substation - BP31.01	75	12-Nov-13 A	60%	30	01-Aug-14	03-Jan-14	13-Feb-14	-121	0
ARDD0821	IC/SO Approval of Combined AIP/DDA for ESS Substation - BP31.01	0		0%	0	01-Aug-14		13-Feb-14	-121	0
CEDD Access Track										
ARDD0808	Preparation of Combined AIP/DDA for CEDD Access Track - BP32.01	30	09-Sep-13 A	80%	6	30-Jun-14	19-Feb-16	26-Feb-16	434	0
ARDD0809	IC/SO Approval of Combined AIP/DDA for CEDD Access Track - BP32.01	75	01-Jul-14	0%	75	13-Oct-14	29-Feb-16	10-Jun-16	434	0
Construction Traffic Impact Assessment										
ARDD0811	IC/SO Approval of CTIA - AP05.00	75	25-Feb-14 A	20%	60	12-Sep-14	09-Jan-17	31-Mar-17	665	0
ARDD0816	IC/SO Approval of CTIA - AP05.00	0		0%	0	12-Sep-14		31-Mar-17	665	0
Other Design										
Marine Permanent Navigation Aids										
BMT0110	IC/SO Approval of MPNA AIP - BP36.00	68	30-Jan-14 A	100%	0	10-Jun-14 A				
BMT0120	IC/SO Approval of MPNA AIP - BP36.00	0		100%	0	10-Jun-14 A				
BMT0135	Preparation of MPNA DDA - BP36.01	46	11-Jun-14 A	10%	41	19-Aug-14	28-Nov-13	24-Jan-14	-146	0
BMT0140	IC/SO Approval of MPNA DDA BP36.01	75	19-Aug-14	0%	75	02-Dec-14	27-Jan-14	09-May-14	-146	0
Major Procurement										
Tower Cranes										
PR66010	Procure Tower Crane Supplier	96	23-Jun-14	0%	96	16-Oct-14	09-Jun-14	30-Sep-14	-12	0
Equipment Platforms for Tower Cranes										
PR66025	Inst.Temp.Eqpt.Platform (piles & deck) @ E3	18	10-Jul-14	0%	18	07-Aug-14	27-Nov-14	17-Dec-14	100	47
PR66026	Inst.Temp.Eqpt.Platform (piles & deck) @ E4	18	15-Sep-14	0%	18	11-Oct-14	05-Sep-14	30-Sep-14	-6	4
PR66031	Inst.Temp.Eqpt.Platform (piles & deck) @ E9	18	16-Sep-14	0%	18	13-Oct-14	11-May-15	08-Jun-15	179	3
Deck Segment Installation Equipment										
Launching Gantry 1										
PR67040	Launching Gantry Design	95	05-Feb-14 A	94%	6	28-Jun-14	29-Aug-14	04-Sep-14	57	59
PR67041	Launching Gantry 1 Fabrication	95	15-May-14 A	32%	65	06-Sep-14	20-Jun-14	04-Sep-14	-2	0
PR67042	Launching Gantry 1 Delivery	20	06-Sep-14	0%	20	03-Oct-14	05-Sep-14	29-Sep-14	-2	80
Launching Gantry 2										
PR67043	Launching Gantry 2 Fabrication	105	06-Sep-14	0%	105	14-Jan-15	05-Sep-14	12-Jan-15	-2	50
Lifting Frames										
PR68010	Lifting Frame Technical Specs, Tender & Place Order	63	15-Jan-14 A	85%	9	04-Jul-14	16-Apr-14	30-Apr-14	-51	0
Lifting Frames 1 & 2										
PR68011	Lifting Frame 1&2 Design	70	04-Jul-14	0%	70	25-Sep-14	03-Jun-14	23-Aug-14	-26	0
PR68012	Lifting Frame 1&2 Approval	60	13-Sep-14	0%	60	25-Nov-14	05-Sep-14	17-Nov-14	-6	20
PR68013	Lifting Frame 1&2 Fabrication	140	13-Sep-14	0%	140	05-Mar-15	13-Aug-14	29-Jan-15	-26	0
Lifting Frames 3 & 4										
PR68015	Lifting Frame 3&4 Design	70	04-Jul-14	0%	70	25-Sep-14	02-May-14	25-Jul-14	-51	0
PR68016	Lifting Frame 3&4 Approval	60	13-Sep-14	0%	60	25-Nov-14	07-Aug-14	18-Oct-14	-31	20
PR68017	Lifting Frame 3&4 Fabrication	140	13-Sep-14	0%	140	05-Mar-15	15-Jul-14	30-Dec-14	-51	0
Lifting Frames 5 & 6										
PR68019	Lifting Frame 5&6 Design	70	04-Jul-14	0%	70	25-Sep-14	08-Nov-14	31-Jan-15	106	0
PR68020	Lifting Frame 5&6 Approval	60	13-Sep-14	0%	60	25-Nov-14	13-Feb-15	02-May-15	126	20
PR68021	Lifting Frame 5&6 Fabrication	140	13-Sep-14	0%	140	05-Mar-15	21-Jan-15	15-Jul-15	106	0
Unloading Frames										
Type 1										



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Tuen Mun - Chek Lap Kok Link - Southern Connection
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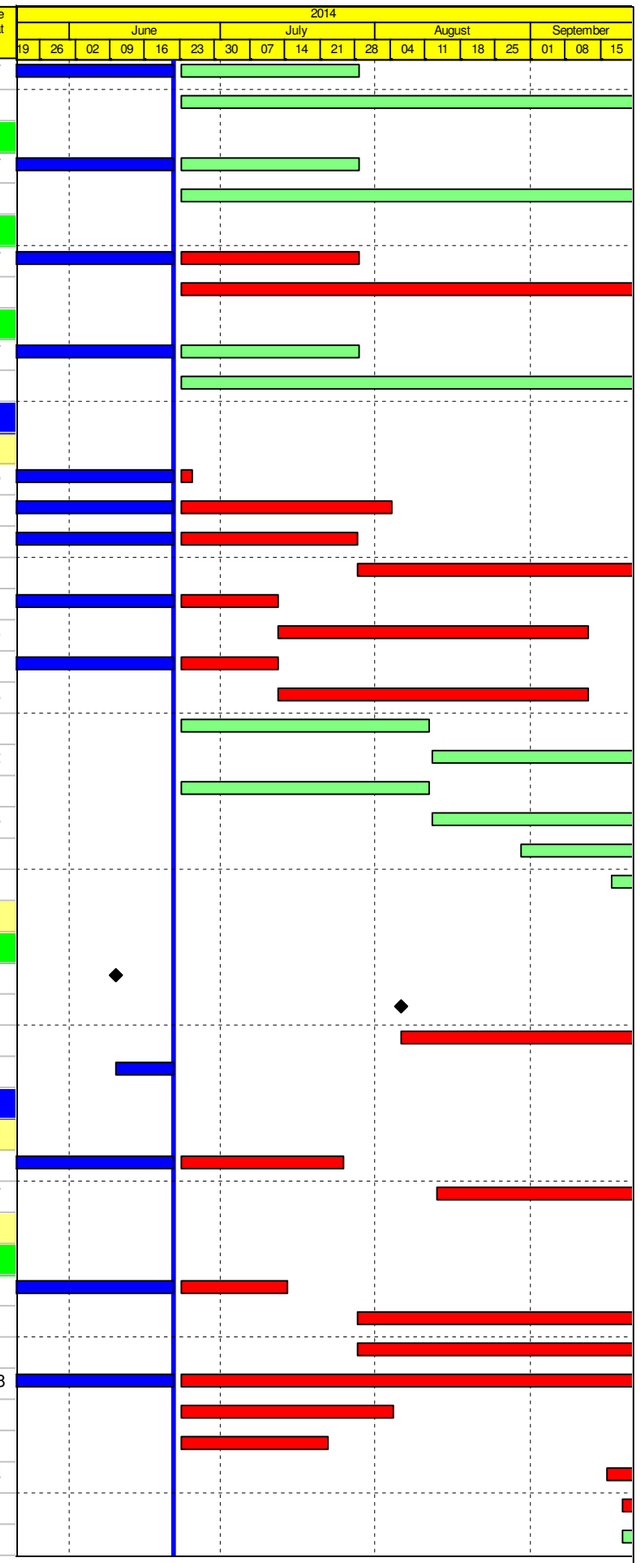
PR69100	Unloading Frame Type 1 Design	50	05-May-14 A	40%	30	28-Jul-14	10-Oct-14	13-Nov-14	90	17
PR69110	Unloading Frame Type 1 Fabrication	95	23-Jun-14	0%	95	15-Oct-14	10-Oct-14	31-Jan-15	90	0
Type 2										
PR69170	Unloading Frame Type 2 Design	50	05-May-14 A	40%	30	28-Jul-14	18-May-15	23-Jun-15	267	17
PR69180	Unloading Frame Type 2 Fabrication	95	23-Jun-14	0%	95	15-Oct-14	18-May-15	08-Sep-15	267	0
Type 3										
PR69220	Unloading Frame Type 3 Design	50	05-May-14 A	40%	30	28-Jul-14	17-Apr-14	27-May-14	-51	17
PR69230	Unloading Frame Type 3 (Lantau) Fabrication	95	23-Jun-14	0%	95	15-Oct-14	17-Apr-14	13-Aug-14	-51	0
Type 4										
PR69250	Unloading Frame Type 4 Design	50	05-May-14 A	40%	30	28-Jul-14	29-Oct-14	02-Dec-14	106	17
PR69260	Unloading Frame Type 4 (BCF) Fabrication	95	23-Jun-14	0%	95	15-Oct-14	29-Oct-14	23-Feb-15	106	0
Deck Segments & Precast Pile Cap Shells										
Preliminaries										
MBBC0014	Pile Cap Shell Mould Fabrication & Erection (M1 & M2)	50	07-Apr-14 A	95%	3	25-Jun-14	16-Jun-14	18-Jun-14	-6	85
MBBE0010	Set Up Precast Segment Casting Yard & Beds etc	176	15-Oct-13 A	80%	35	04-Aug-14	19-Jun-14	31-Jul-14	-2	91
MBBE0012	Precast Segment Mould Design (Viaduct B)	42	15-Oct-13 A	30%	29	28-Jul-14	25-Feb-14	31-Mar-14	-93	0
MBBE0014	Precast Segment Mould Fabrication & Assembly (Viaduct B)	52	28-Jul-14	0%	52	27-Sep-14	01-Apr-14	07-Jun-14	-93	0
MBBE0018	Precast Segment Mould Design (Viaduct E5, E6, E7 & E8)	42	15-Oct-13 A	60%	17	12-Jul-14	19-Jun-14	09-Jul-14	-3	0
MBBE0020	Precast Segment Mould Fabrication & Assembly (Viaduct E5, E6, E7 & E8)	52	12-Jul-14	0%	52	12-Sep-14	10-Jul-14	08-Sep-14	-3	63
MBBE0024	Precast Segment Mould Design (Viaduct E2)	42	15-Oct-13 A	60%	17	12-Jul-14	26-May-14	14-Jun-14	-23	0
MBBE0026	Precast Segment Mould Fabrication & Assembly (Viaduct E2)	52	12-Jul-14	0%	52	12-Sep-14	16-Jun-14	15-Aug-14	-23	58
MBBE0030	Precast Segment Mould Design (Viaduct E1)	42	23-Jun-14	0%	42	11-Aug-14	09-Jul-14	26-Aug-14	13	0
MBBE0032	Precast Segment Mould Fabrication & Assembly (Viaduct E1)	52	12-Aug-14	0%	52	14-Oct-14	27-Aug-14	29-Oct-14	13	32
MBBE0036	Precast Segment Mould Design (Viaduct D)	42	23-Jun-14	0%	42	11-Aug-14	07-Jul-14	23-Aug-14	11	0
MBBE0038	Precast Segment Mould Fabrication & Assembly (Viaduct D)	52	12-Aug-14	0%	52	14-Oct-14	25-Aug-14	27-Oct-14	11	45
MBBE0042	Precast Segment Mould Design (Viaduct C)	42	30-Aug-14	0%	42	21-Oct-14	06-Dec-14	27-Jan-15	81	0
MBBE0054	Precast Segment Mould Design (Viaduct F1 to F5)	42	17-Sep-14	0%	42	06-Nov-14	16-Jan-15	09-Mar-15	99	0
Viaduct B										
Precast Pile Caps										
MBBC0120	B: Commence Pile Cap Shell Casting on Approval of DDA	0	10-Jun-14 A	100%	0					
MBBC0130	B: Commence Pile Cap Shell Delivery	0	06-Aug-14	0%	0		10-Jun-14		-48	1
MBBC0130-1	B: Progressive Pile Cap Shell Manufacture & Delivery remaining shells (7 Nr)	81	06-Aug-14	0%	81	11-Nov-14	06-Jun-14	10-Sep-14	-51	0
PP7050	Production of initial Viaduct B Marine Precast Pile Cap Shells	55	10-Jun-14 A	100%	0	21-Jun-14 A				
Materials										
H-Piles										
PP7390	Procurement of Viaduct D Socketted H-Piles	70	21-Feb-14 A	60%	28	25-Jul-14	15-May-14	17-Jun-14	-32	6
PP7470	Procurement of Viaduct C Socketted H-Piles	70	13-Aug-14	0%	70	05-Nov-14	09-Jul-14	29-Sep-14	-30	17
Reinforcement										
Bored Piles										
PP7020	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct B Piles	24	28-Feb-14 A	28%	17	14-Jul-14	21-May-14	11-Jun-14	-26	0
PP7100	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E5 & E6 Piles	185	28-Jul-14	0%	185	11-Mar-15	19-Feb-14	04-Oct-14	-128	0
PP7170	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E7 & E8 Piles	185	28-Jul-14	0%	185	11-Mar-15	17-Mar-14	30-Oct-14	-106	0
PP7240	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E2 Piles	106	15-Apr-14 A	20%	85	03-Oct-14	30-Apr-14	11-Aug-14	-43	138
PP7310	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E1 Piles	36	23-Jun-14	0%	36	04-Aug-14	25-Apr-14	10-Jun-14	-47	0
PP7380	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct D Piles	25	23-Jun-14	0%	25	22-Jul-14	19-May-14	17-Jun-14	-29	2
PP7460	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct C Piles	35	16-Sep-14	0%	35	28-Oct-14	25-Aug-14	07-Oct-14	-18	14
PP7620	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct F1 & F3 Piles	61	19-Sep-14	0%	61	01-Dec-14	27-Sep-14	09-Dec-14	7	0
PP7690	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct F2, F4 & F5 Piles	73	19-Sep-14	0%	73	15-Dec-14	04-Dec-14	06-Mar-15	63	0



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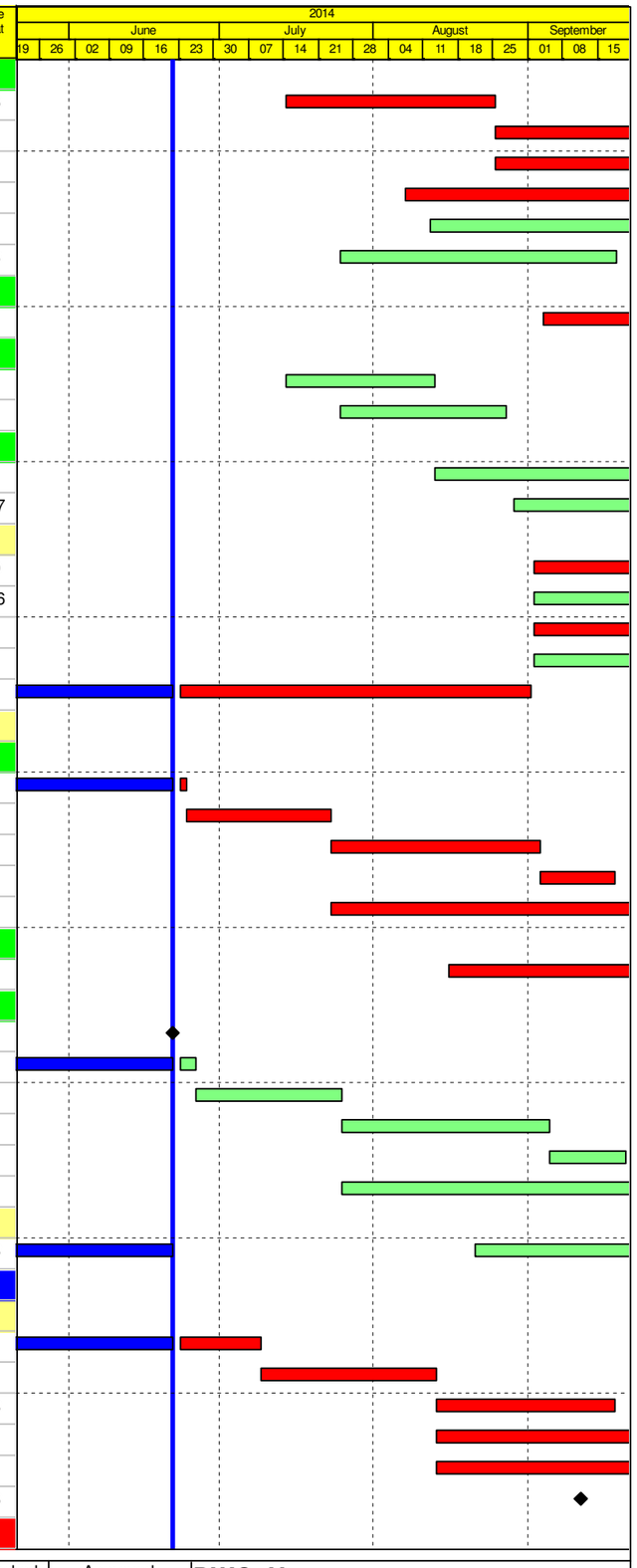
Marine Pile Caps										
PP7040	Rebar - Cut, Bend & Fabricate for Viaduct B Marine Pile Caps	36	14-Jul-14	0%	36	25-Aug-14	12-Jun-14	24-Jul-14	-26	16
PP7110	Rebar - Cut, Bend & Fabricate for Viaduct E5 & E6 Pile Caps	245	25-Aug-14	0%	245	25-Jun-15	19-Mar-14	14-Jan-15	-128	0
PP7180	Rebar - Cut, Bend & Fabricate for Viaduct E7 & E8 Pile Caps	102	25-Aug-14	0%	102	27-Dec-14	28-May-14	26-Sep-14	-74	0
PP7250	Rebar - Cut, Bend & Fabricate for Viaduct E2 Pile Caps	185	07-Aug-14	0%	185	20-Mar-15	30-Apr-14	09-Dec-14	-81	0
PP7320	Rebar - Cut, Bend & Fabricate for Viaduct E1 Pile Caps	67	12-Aug-14	0%	67	01-Nov-14	11-Sep-14	01-Dec-14	25	0
PP7400	Rebar - Cut, Bend & Fabricate for Viaduct D Marine Pile Caps	47	25-Jul-14	0%	47	18-Sep-14	29-Aug-14	25-Oct-14	30	53
Marine Piers - Viaduct E										
PP7270	Rebar - Cut, Bend & Fabricate for Viaduct E2 Piers	180	04-Sep-14	0%	180	16-Apr-15	30-May-14	03-Jan-15	-81	2
Land Pile Caps										
PP7752	Rebar - Cut, Bend & Fabricate for Viaduct B Land Pile Caps	26	14-Jul-14	0%	26	13-Aug-14	02-Aug-14	01-Sep-14	17	0
PP7754	Rebar - Cut, Bend & Fabricate for Viaduct D Land Pile Caps	29	25-Jul-14	0%	29	27-Aug-14	20-Sep-14	25-Oct-14	48	1
Land / Marine Piers - Viaduct A, B, C, D & F										
PP7060	Bending of Rebar for Viaduct B Piers	64	13-Aug-14	0%	64	30-Oct-14	02-Sep-14	18-Nov-14	17	61
PP7420	Bending of Rebar for Viaduct D Piers	71	29-Aug-14	0%	71	22-Nov-14	14-Mar-15	11-Jun-15	160	197
In-Situ Formworks / Falseworks										
PP7070	On-Site Preparation & Assembly of Pier Formwork for Viaduct B Piers	70	02-Sep-14	0%	70	25-Nov-14	30-Aug-14	22-Nov-14	-2	20
PP7140	On-Site Preparation & Assembly of Pier Formwork for Viaduct E5 & E6 Piers	90	02-Sep-14	0%	90	18-Dec-14	15-Sep-14	02-Jan-15	10	136
PP7280	On-Site Preparation & Assembly of Pier Formwork for Viaduct E2 Piers	90	02-Sep-14	0%	90	18-Dec-14	27-Jun-14	14-Oct-14	-56	0
PP7430	On-Site Preparation & Assembly of Pier Formwork for Viaduct D Piers	90	02-Sep-14	0%	90	18-Dec-14	20-Oct-14	05-Feb-15	38	0
PPPF02	Design & Fabrication of Falsework / Formwork & Delivery	120	20-Feb-14 A	50%	60	01-Sep-14	11-Apr-14	26-Jun-14	-56	0
Bearings										
Viaduct B										
PPBRB3	Bearing design and submission - Viaduct B	12	07-Feb-14 A	85%	2	24-Jun-14	07-May-14	08-May-14	-39	0
PPBRB4	Design check by ICE - Viaduct B	24	24-Jun-14	0%	24	23-Jul-14	09-May-14	06-Jun-14	-39	0
PPBRB5	SO review & comment on design submission - Viaduct B	36	23-Jul-14	0%	36	03-Sep-14	07-Jun-14	19-Jul-14	-39	0
PPBRB6	Bearing Design Amendment & re-issue - Viaduct B	12	03-Sep-14	0%	12	18-Sep-14	28-Jul-14	09-Aug-14	-33	6
PPBRB7	Manufacture of Bearing - Viaduct B	54	23-Jul-14	0%	54	25-Sep-14	07-Jun-14	09-Aug-14	-39	0
Viaduct D										
PPBRD1	Preliminary Design of Bearings - Viaduct D	50	16-Aug-14	0%	50	16-Oct-14	10-Jul-14	05-Sep-14	-32	0
Viaduct E										
PPBRE2	Confirmation of bearing assumption - Viaduct E (E1, E2, E5, E6, E7 & E8)	0		0%	0	21-Jun-14		31-Jul-14	33	4
PPBRE3	Bearing design and submission - Viaduct E (E1, E2, E5, E6, E7 & E8)	12	06-Jan-14 A	70%	4	26-Jun-14	28-Jul-14	31-Jul-14	29	0
PPBRE4	Design check by ICE - Viaduct E (E1, E2, E5, E6, E7 & E8)	24	26-Jun-14	0%	24	25-Jul-14	01-Aug-14	28-Aug-14	29	0
PPBRE5	SO review & comment on design submission - Viaduct E (E1, E2, E5, E6, E7 & E8)	36	25-Jul-14	0%	36	05-Sep-14	29-Aug-14	13-Oct-14	29	0
PPBRE6	Bearing Design Amendment & re-issue - Viaduct E (E1, E2, E5, E6, E7 & E8)	12	05-Sep-14	0%	12	20-Sep-14	21-Oct-14	03-Nov-14	35	6
PPBRE7	Manufacture of Bearing - Viaduct E (E1, E2, E5, E6, E7 & E8)	54	25-Jul-14	0%	54	27-Sep-14	29-Aug-14	03-Nov-14	29	0
Movement Joints										
PPMJ01	Design & Submission of MJ	138	08-Feb-14 A	30%	97	15-Dec-14	30-Oct-14	26-Feb-15	57	58
Other Sub-Contract Procurement										
Structural Health Monitoring System (SHMS)										
PP7770	Procure SHMS Sub-Contractor	42	11-Nov-13 A	67%	14	09-Jul-14	19-Feb-14	06-Mar-14	-99	0
PP7772	SHMS - Prepare & Submit Preliminary System Proposal	30	09-Jul-14	0%	30	13-Aug-14	07-Mar-14	11-Apr-14	-99	0
PP7774	SHMS - So approval of Preliminary System Proposal	30	13-Aug-14	0%	30	18-Sep-14	09-May-14	13-Jun-14	-81	18
PP7776	SHMS - Prepare & Submit Final System Proposal	48	13-Aug-14	0%	48	11-Oct-14	12-Apr-14	13-Jun-14	-99	0
PP7780	SHMS - Prepare Civil Work Provision	90	13-Aug-14	0%	90	29-Nov-14	14-May-14	28-Aug-14	-77	0
PP7782	SHMS - Submit Precast Pile Cap Shell SHMS details for E5-E6-E7-E8	0	11-Sep-14	0%	0		25-Jun-14		-66	46
Site Preparation / Mobilisations										



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Critical Bar
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Tuen Mun - Chek Lap Kok Link - Southern Connection
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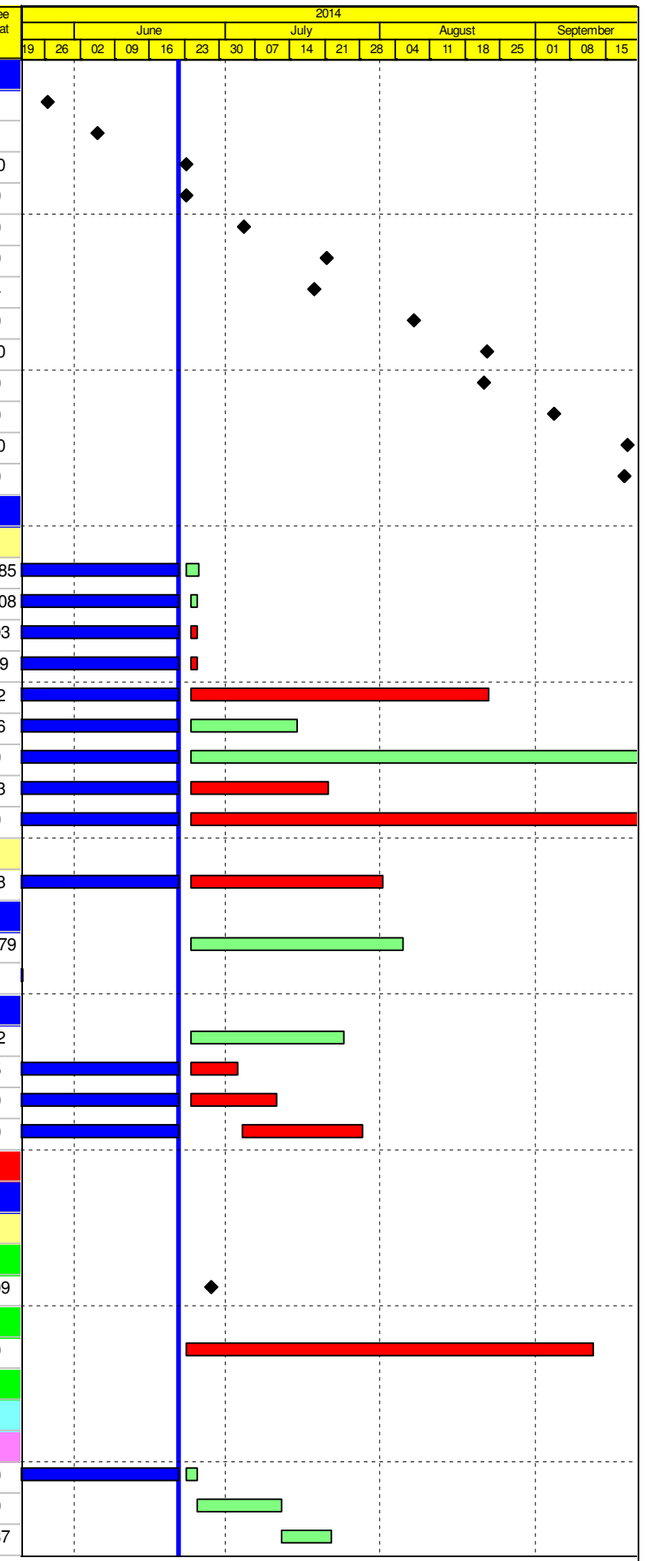
Temp Traffic Mgt Submission & Approval										
TTM00380	Send TTMs to SO & Govt Depts for TMLG Meeting No. 10	0		100%	0	26-May-14 A				
TTM00390	TMLG Meeting No. 10	0		100%	0	05-Jun-14 A				
TTM00400	Earliest Implementation of TTM after TMLG Meeting No. 10	0	23-Jun-14	0%	0		05-Nov-14		97	60
TTM00410	Send TTMs to SO & Govt Depts for TMLG Meeting No. 11	0		0%	0	23-Jun-14		07-Aug-14	34	0
TTM00420	TMLG Meeting No. 11	0		0%	0	04-Jul-14*		21-Aug-14	34	0
TTM00430	Earliest Implementation of TTM after TMLG Meeting No. 11	0	21-Jul-14	0%	0		05-Sep-14		34	0
TTM00440	Send TTMs to SO & Govt Depts for TMLG Meeting No. 12	0		0%	0	18-Jul-14		12-Sep-14	40	4
TTM00450	TMLG Meeting No. 12	0		0%	0	07-Aug-14*		26-Sep-14	36	0
TTM00460	Earliest Implementation of TTM after TMLG Meeting No. 12	0	22-Aug-14	0%	0		22-Sep-15		282	20
TTM00470	Send TTMs to SO & Govt Depts for TMLG Meeting No. 13	0		0%	0	21-Aug-14		10-Oct-14	36	0
TTM00480	TMLG Meeting No. 13	0		0%	0	04-Sep-14*		24-Oct-14	36	0
TTM00490	Earliest Implementation of TTM after TMLG Meeting No. 13	0	19-Sep-14	0%	0		22-Sep-15		262	20
TTM00500	Send TTMs to SO & Govt Depts for TMLG Meeting No. 14	0		0%	0	18-Sep-14		07-Nov-14	36	0
Tree Felling / Transplant										
Approved Trees in Contract										
TR00140	SO Approval of Base Tree Survey Report	30	14-Oct-13 A	90%	3	25-Jun-14	20-Aug-18	23-Aug-18	1085	1085
TR00200	Tree transplant for Viaduct B - affecting Piers B11 to B17	90	17-Feb-14 A	98%	2	25-Jun-14	15-Feb-16	16-Feb-16	442	1108
TR00220	Tree transplant for Viaduct B - affecting Pier B18 & Abutment B	90	17-Feb-14 A	98%	2	25-Jun-14	28-Feb-14	01-Mar-14	-73	203
TR00240	Tree transplant for Viaduct B - affecting realigned CTR	90	17-Feb-14 A	98%	2	25-Jun-14	28-Feb-14	01-Mar-14	-73	119
TR00250	Tree felling for Viaduct B - affecting Slopes 9SE-B/F9, C8 & C9	48	05-May-14 A	13%	42	22-Aug-14	24-Mar-14	29-May-14	-53	52
TR00260	Tree felling for Viaduct C - affecting Piers C9 to Abutment C	24	30-Jan-14 A	35%	16	15-Jul-14	17-Oct-14	04-Nov-14	81	56
TR00270	Tree transplant for Viaduct C - affecting Piers C9 to Abutment C	90	17-Feb-14 A	20%	72	03-Oct-14	29-Jul-14	04-Nov-14	25	0
TR00280	Tree felling for Viaduct C - affecting realigned CTR	30	30-Jan-14 A	35%	20	21-Jul-14	25-Apr-14	26-May-14	-33	53
TR00290	Tree transplant for Viaduct C - affecting realigned CTR	90	17-Feb-14 A	20%	72	03-Oct-14	14-Feb-14	26-May-14	-85	0
Additional Trees										
TR01010	Additional tree felling for Viaduct B along CTR	48	19-May-14 A	42%	28	01-Aug-14	22-Feb-14	26-Mar-14	-78	88
Site Set Up for Works Area 3 and Site Offices along CEDD Access Road										
PR30030	Works Area 3-A1/3-A2 - Construct 1.5m steel access bridge	30	24-Jun-14	0%	30	05-Aug-14	16-Jul-18	23-Aug-18	1079	1079
PR30040	Set up container site offices at crest of CEDD Seawall	60	16-Oct-13 A	100%	0	21-May-14 A				
Temporary Working Platform at North Lantau										
PR08020	Temp. Working Platform at N.Lantau - Install boundary fence	22	24-Jun-14	0%	22	24-Jul-14	11-Aug-14	11-Sep-14	33	82
PR08030	Temp. Working Platform at N.Lantau - Modify top of existing seawall	24	25-Nov-13 A	71%	7	03-Jul-14	24-Jan-14	04-Feb-14	-100	5
PR08050	Temp. Working Platform at N.Lantau - Temp. rockfill & paving between existing & Temp.Seawalls	42	17-Feb-13 A	71%	12	11-Jul-14	17-Jan-14	04-Feb-14	-105	0
PR08070	Temp. Working Platform at N.Lantau - Construct steel deck / bollards / fenders	24	02-May-14 A	30%	17	28-Jul-14	27-Jan-14	18-Feb-14	-105	0
CONSTRUCTION										
PILING AND SUBSTRUCTURE										
Viaduct A										
Milestones - Marine Foundation										
GFXX111	Viaduct A - ARUP issues Pile Spacing & Diameter for Temporary Platform Design	0	28-Jun-14	0%	0		27-Dec-14		150	109
General										
ZA00060	Prepare/submit/approval of MTR Protective Fence submission for Viaduct A	60	23-Jun-14	0%	60	12-Sep-14	27-Jun-14	18-Sep-14	4	0
Bridge A2										
Pier A1 (A2e)										
Foundation Works										
GFXX142	A1 (A2e) - Inst.Temp.Working Platform (Common Platform with Pier A1,C1,D1)	23	21-May-14 A	90%	2	25-Jun-14	25-Mar-15	27-Mar-15	227	0
GFXX143	A1 (A2e) - Pre-drilling (3 nos)	14	25-Jun-14	0%	14	12-Jul-14	28-Mar-15	17-Apr-15	227	0
GFXX143-2	A1 (A2e) - Confirm Rockhead Levels	8	12-Jul-14	0%	8	22-Jul-14	25-Apr-15	05-May-15	233	137



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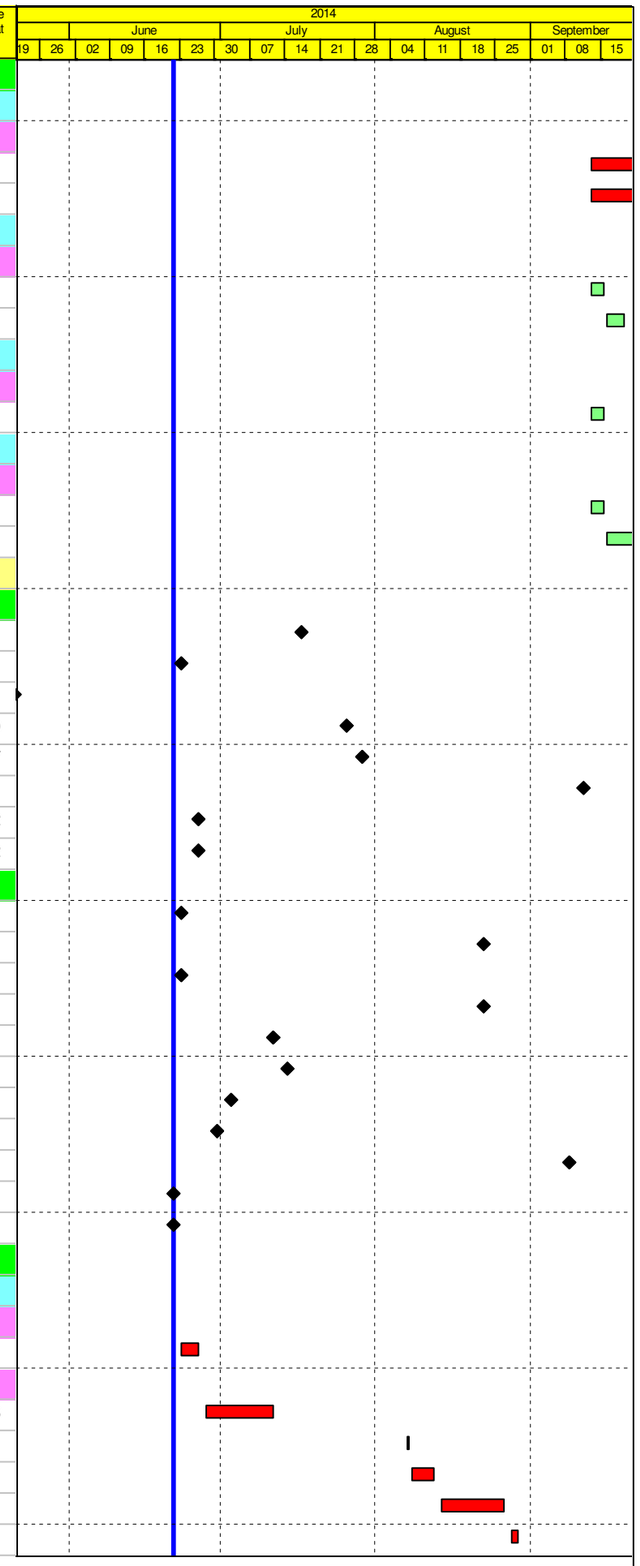
Bridge A1										
Pier A8 (A1d)										
Preliminary Works for Land Piling										
PA080020	A08 (A1d) - Erect MTR protective fence / Remove existing fence	12	13-Sep-14	0%	12	26-Sep-14	19-Sep-14	04-Oct-14	5	0
PA080030	A08 (A1d) - Install Geo. Instru. & Baseline Monitoring	36	13-Sep-14	0%	36	27-Oct-14	19-Sep-14	01-Nov-14	5	0
Pier A9 (A1c)										
Preliminary Works for Land Piling										
PA090010	A09 (A1c) - Implement TTMS along north side of NLH E/B	2	13-Sep-14	0%	2	15-Sep-14	24-Oct-14	25-Oct-14	31	0
PA090020	A09 (A1c) - Erect boundary fence, site clearance & set up site ingress	4	16-Sep-14	0%	4	19-Sep-14	27-Oct-14	30-Oct-14	31	6
Pier A10 (A1b)										
Preliminary Works for Land Piling										
PA100010	A10 (A1b) - Implement TTMS along north side of NLH E/B	2	13-Sep-14	0%	2	15-Sep-14	05-Nov-14	06-Nov-14	41	0
Pier A11 (A1a) & Abutment A										
Preliminary Works for Land Piling										
PA110010	A11 (A1a) to Abutment A - Implement TTMS along north side of NLH E/B	2	13-Sep-14	0%	2	15-Sep-14	05-Nov-14	06-Nov-14	41	0
PA110020	A11 (A1a) to Approach Ramp A - Erect boundary fence / water filled barrier & set up site ingress	14	16-Sep-14	0%	14	03-Oct-14	07-Nov-14	22-Nov-14	41	0
Viaduct B										
Milestones - Marine Foundation										
GFXX152-1	B7 (B2f) - Start date for piling	0	17-Jul-14	0%	0		26-May-14		-43	0
GFXX157-1	B6 (B3a) - Start date for piling	0	23-Jun-14	0%	0		22-May-14		-26	0
GFXX162-1	B5 (B3b) - Start date for piling	0	21-May-14 A	100%	0					
GFXX165-1	B5 (B3b) - Completion of piling works	0		0%	0	26-Jul-14		01-Sep-14	31	10
GFXX170-1	B4 (B3c) - Completion of piling works	0		0%	0	29-Jul-14		01-Sep-14	30	57
GFXX175-1	B3 (B3d) - Completion of piling works	0		0%	0	11-Sep-14		15-Aug-14	-22	8
GFXX180-1	B2 (B3e) - Completion of piling works	0		0%	0	26-Jun-14		05-Jun-14	-18	12
GFXX185-1	B1 (B3f) - Completion of piling works	0		0%	0	26-Jun-14		17-Jun-14	-8	12
Milestones - Land Foundation										
ZB00100	B14 (B1f) - Start date for piling	0	23-Jun-14	0%	0		29-Jul-14		30	0
ZB00101	B14 (B1f) - Completion of piling works	0		0%	0	22-Aug-14		27-Sep-14	30	0
ZB00110	B13 (B1g) - Start date for piling	0	23-Jun-14	0%	0		13-Sep-14		69	0
ZB00111	B13 (B1g) - Completion of piling works	0		0%	0	22-Aug-14		14-Nov-14	69	0
ZB00121	B12 (B2a) - Completion of piling works	0		0%	0	11-Jul-14		22-Aug-14	36	0
ZB00131	B11 (B2b) - Completion of piling works	0		0%	0	14-Jul-14		03-Nov-14	94	0
ZB00150	B9 (B2d) - Start date for piling	0	03-Jul-14	0%	0		23-Jul-14		17	0
ZB00160	B8 (B2e) - Start date for piling	0	30-Jun-14	0%	0		15-May-14		-38	1
ZB00161	B8 (B2e) - Completion of piling works	0		0%	0	08-Sep-14		25-Jul-14	-38	1
ZB15011	B15 (B1e) - Completion of piling works	0		0%	0	21-Jun-14		18-Nov-14	124	1
ZB16011	B16 (B1d) - Completion of piling works	0		0%	0	21-Jun-14		27-Nov-14	131	7
Bridge B3										
Pier B1 (B3f)										
Foundation Works										
GFXX185	B1 (B3f) - Dismantle removable panels of temp. platform	4	23-Jun-14	0%	4	26-Jun-14	27-May-14	30-May-14	-22	0
Pile Cap Works										
SB3F0070	B1 (B3f) - Marine Pile Cap M2 - Inst.Floating Seal & Casing Head Steelwork	7	28-Jun-14	0%	7	11-Jul-14	31-May-14	17-Jun-14	-11	16
SB3F0080	B1 (B3f) - Marine Pile Cap M2 - Install precast shell in position	1	07-Aug-14	0%	1	07-Aug-14	19-Jun-14	19-Jun-14	-27	0
SB3F0090	B1 (B3f) - Marine Pile Cap M2 - Inst.Access & make Watertight	3	08-Aug-14	0%	3	12-Aug-14	21-Jun-14	26-Jun-14	-27	0
SB3F0100	B1 (B3f) - Marine Pile Cap M2 - Weld Fin plates/Plug Rebar & Concrete	9	14-Aug-14	0%	9	26-Aug-14	28-Jun-14	15-Jul-14	-27	0
SB3F0110	B1 (B3f) - Marine Pile Cap M2 - Dewater precast shell / Remove Lifting Frame	2	28-Aug-14	0%	2	29-Aug-14	17-Jul-14	18-Jul-14	-27	0



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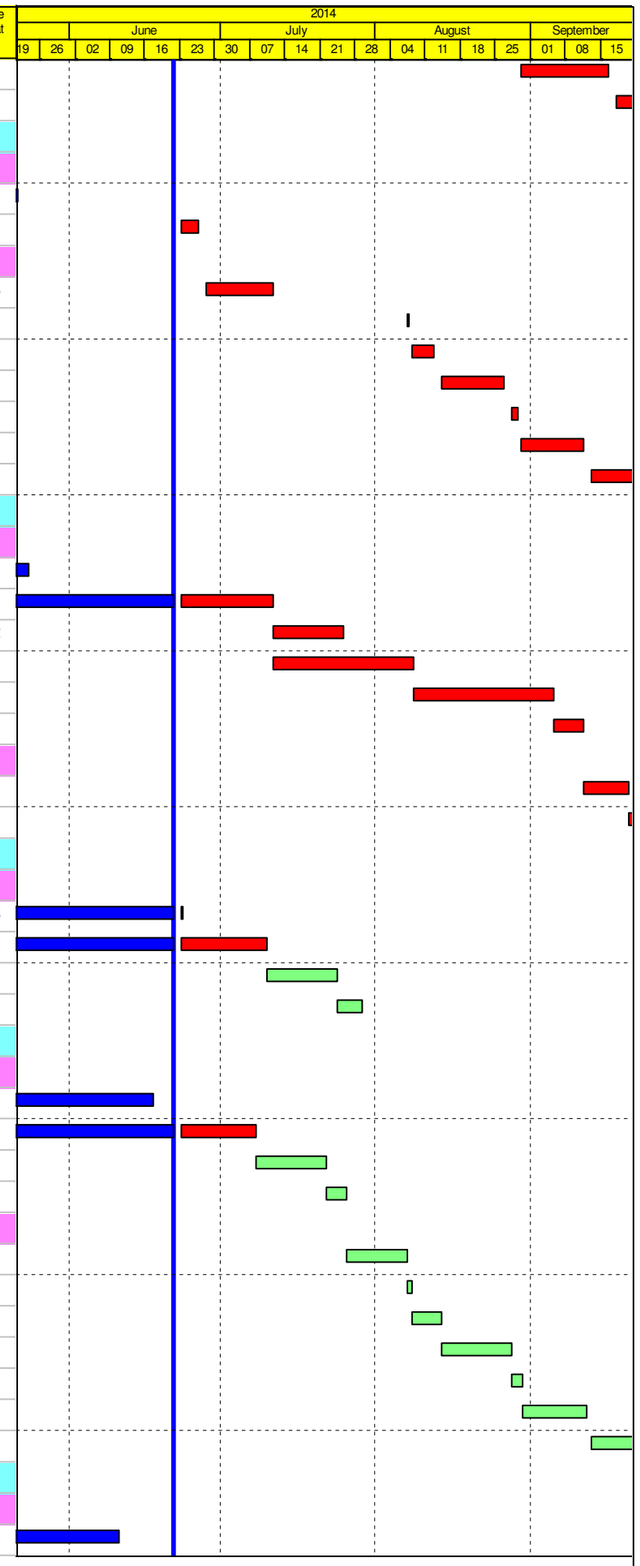
SB3F0120	B1 (B3f) - Marine Pile Cap M2 - Pile cut down	12	30-Aug-14	0%	12	16-Sep-14	19-Jul-14	05-Aug-14	-27	0
SB3F0130	B1 (B3f) - Marine Pile Cap M2 - Rebar fixing, inst.inserts etc	12	18-Sep-14	0%	12	04-Oct-14	07-Aug-14	25-Aug-14	-27	0
Pier B2 (B3e)										
Foundation Works										
GFXX179	B2 (B3e) - Sonic & Interface Coring	12	19-May-14 A	100%	0	21-May-14 A				
GFXX180	B2 (B3e) - Dismantle removable panels of temp. platform	4	23-Jun-14	0%	4	26-Jun-14	21-May-14	24-May-14	-27	0
Pile Cap Works										
SB3E0070	B2 (B3e) - Marine Pile Cap M1 - Inst.Floating Seal & Casing Head Steelwork	7	28-Jun-14	0%	7	11-Jul-14	26-May-14	05-Jun-14	-15	16
SB3E0080	B2 (B3e) - Marine Pile Cap M1 - Install precast shell in position	1	07-Aug-14	0%	1	07-Aug-14	10-Jun-14	10-Jun-14	-31	0
SB3E0090	B2 (B3e) - Marine Pile Cap M1 - Inst.Access & make Watertight	3	08-Aug-14	0%	3	12-Aug-14	12-Jun-14	17-Jun-14	-31	0
SB3E0100	B2 (B3e) - Marine Pile Cap M1 - Weld Fin plates/Plug Rebar & Concrete	9	14-Aug-14	0%	9	26-Aug-14	19-Jun-14	08-Jul-14	-31	0
SB3E0120	B2 (B3e) - Marine Pile Cap M1 - Dewater precast shell / Remove Lifting Frame	2	28-Aug-14	0%	2	29-Aug-14	10-Jul-14	11-Jul-14	-31	0
SB3E0130	B2 (B3e) - Marine Pile Cap M1 - Pile cut down	8	30-Aug-14	0%	8	11-Sep-14	12-Jul-14	24-Jul-14	-31	1
SB3E0140	B2 (B3e) - Marine Pile Cap M1 - Rebar fixing, inst.inserts etc	12	13-Sep-14	0%	12	29-Sep-14	25-Jul-14	12-Aug-14	-32	0
Pier B3 (B3d)										
Foundation Works										
GFXX172-2	B3 (B3d) - Confirm Rockhead Levels	8	16-Apr-14 A	100%	0	23-May-14 A				
GFXX173	B3 (B3d) - Bored Piles (2.20m dia. x 2 nos)	56	10-Apr-14 A	72%	16	11-Jul-14	12-Apr-14	05-May-14	-55	0
GFXX174	B3 (B3d) - Sonic & Interface Coring	12	11-Jul-14	0%	12	25-Jul-14	18-Jun-14	02-Jul-14	-20	12
GFXX174-1	B3 (B3d) - Selection of bored pile for Full Depth Coring	24	11-Jul-14	0%	24	08-Aug-14	04-Jun-14	02-Jul-14	-32	0
GFXX174-2	B3 (B3d) - Bored Pile Full Depth Coring & Testing	24	08-Aug-14	0%	24	05-Sep-14	03-Jul-14	30-Jul-14	-32	0
GFXX175	B3 (B3d) - Dismantle removable panels of temp. platform	4	05-Sep-14	0%	4	11-Sep-14	31-Jul-14	04-Aug-14	-32	0
Pile Cap Works										
SB3D0070	B3 (B3d) - Marine Pile Cap M1 - Inst.Floating Seal & Casing Head Steelwork	7	11-Sep-14	0%	7	20-Sep-14	05-Aug-14	15-Aug-14	-24	0
SB3D0080	B3 (B3d) - Marine Pile Cap M1 - Install precast shell in position	1	20-Sep-14	0%	1	22-Sep-14	16-Aug-14	16-Aug-14	-24	0
Pier B4 (B3c)										
Foundation Works										
GFXX167-2	B4 (B3c) - Confirm Rockhead Levels	8	29-Apr-14 A	90%	1	23-Jun-14	30-May-14	30-May-14	-19	14
GFXX168	B4 (B3c) - Bored Piles (2.20m dia. x 2 nos)	72	13-May-14 A	80%	14	10-Jul-14	14-May-14	30-May-14	-32	0
GFXX169	B4 (B3c) - Sonic & Interface Coring	12	10-Jul-14	0%	12	24-Jul-14	05-Aug-14	18-Aug-14	22	0
GFXX170	B4 (B3c) - Dismantle removable panels of temp. platform	4	24-Jul-14	0%	4	29-Jul-14	19-Aug-14	22-Aug-14	22	0
Pier B5 (B3b)										
Foundation Works										
GFXX162-2	B5 (B3b) - Confirm Rockhead Levels	8	10-May-14 A	100%	0	17-Jun-14 A				
GFXX163	B5 (B3b) - Bored Piles (2.20m dia. x 2 nos)	72	21-May-14 A	83%	12	08-Jul-14	26-May-14	10-Jun-14	-22	0
GFXX164	B5 (B3b) - Sonic & Interface Coring	12	08-Jul-14	0%	12	22-Jul-14	04-Aug-14	18-Aug-14	23	0
GFXX165	B5 (B3b) - Dismantle removable panels of temp. platform	4	22-Jul-14	0%	4	26-Jul-14	18-Aug-14	22-Aug-14	23	0
Pile Cap Works										
SB3B0070	B5 (B3b) - Marine Pile Cap M1 - Inst.Floating Seal & Casing Head Steelwork	7	26-Jul-14	0%	7	07-Aug-14	22-Aug-14	01-Sep-14	16	0
SB3B0080	B5 (B3b) - Marine Pile Cap M1 - Install precast shell in position	1	07-Aug-14	0%	1	08-Aug-14	01-Sep-14	02-Sep-14	16	0
SB3B0090	B5 (B3b) - Marine Pile Cap M1 - Inst.Access & make Watertight	3	08-Aug-14	0%	3	14-Aug-14	02-Sep-14	08-Sep-14	17	0
SB3B0100	B5 (B3b) - Marine Pile Cap M1 - Weld Fin plates/Plug Rebar & Concrete	9	14-Aug-14	0%	9	28-Aug-14	08-Sep-14	22-Sep-14	17	0
SB3B0120	B5 (B3b) - Marine Pile Cap M1 - Dewater precast shell / Remove Lifting Frame	2	28-Aug-14	0%	2	30-Aug-14	22-Sep-14	25-Sep-14	17	0
SB3B0130	B5 (B3b) - Marine Pile Cap M1 - Pile cut down	8	30-Aug-14	0%	8	12-Sep-14	25-Sep-14	07-Oct-14	17	1
SB3B0140	B5 (B3b) - Marine Pile Cap M1 - Rebar fixing, inst.inserts etc	12	13-Sep-14	0%	12	29-Sep-14	07-Oct-14	23-Oct-14	16	0
Pier B6 (B3a)										
Foundation Works										
GFXX156	B6 (B3a) - Inst.Temp.Working Platform	6	30-Apr-14 A	100%	0	10-Jun-14 A				



Actual Work
Planned Bar
Critical Bar
Milestone

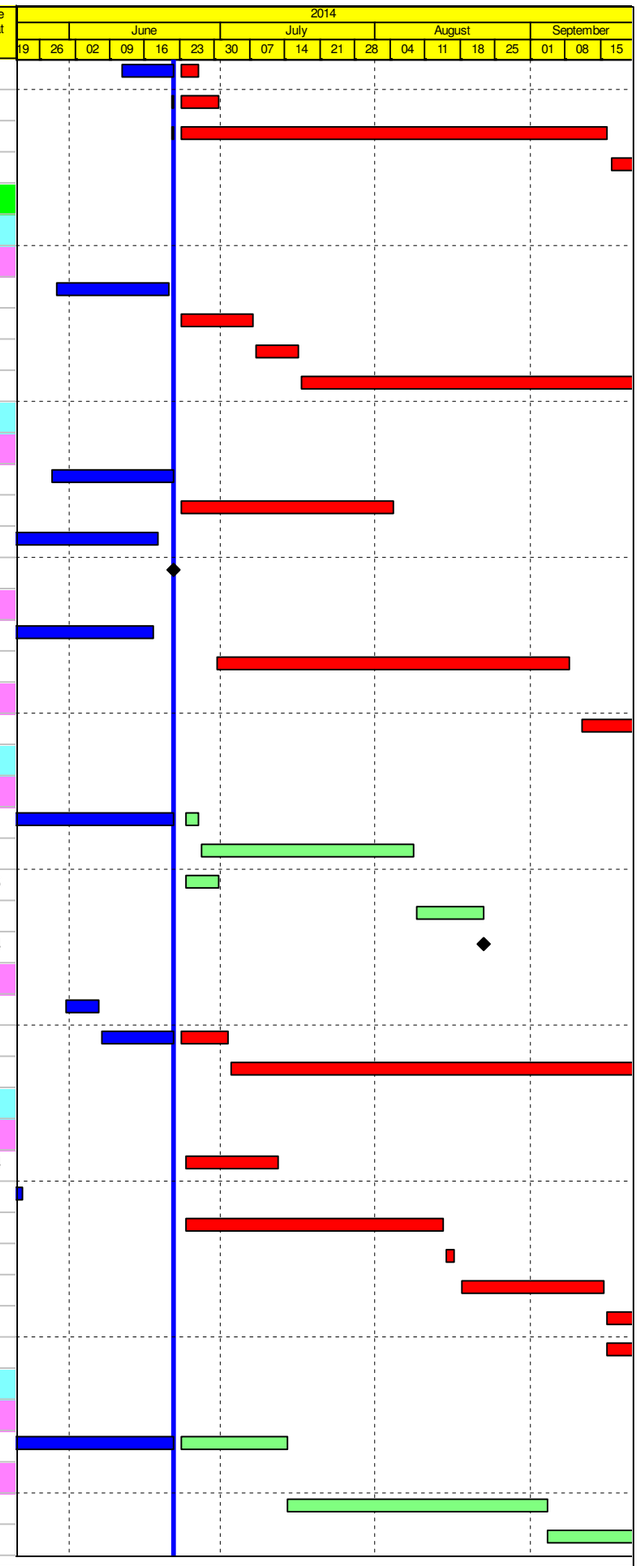
Project ID: J3518DWPrD1-M13
Layout: J3518-DWP-3MRP submission - M13
Filter: TASK filters: 3-Month Lookahead, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 18 of 27 Pages)
(Progress as of 21-Jun-14)

Date	Revision	Checked	Approved
28-Jun-14		FZ	

DWG. No.:
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
GFXX157	B6 (B3a) - Predrilling for Piles (3 nos)	12	11-Jun-14 A	67%	4	26-Jun-14	07-May-14	10-May-14	-39	3
GFXX157-2	B6 (B3a) - Confirm Rockhead Levels	8	21-Jun-14 A	12.5%	7	30-Jun-14	02-May-14	10-May-14	-42	0
GFXX158	B6 (B3a) - Bored Piles (1.80m dia. x 3 nos)	72	21-Jun-14 A	1%	71	16-Sep-14	30-Apr-14	26-Jul-14	-42	0
GFXX159	B6 (B3a) - Sonic & Interface Coring	12	17-Sep-14	0%	12	30-Sep-14	16-Aug-14	29-Aug-14	-26	0
Bridge B2										
Pier B7 (B2f)										
Foundation Works										
GFXX151	B7 (B2f) - Inst.Temp.Working Platform	6	29-May-14 A	100%	0	20-Jun-14 A				
GFXX152	B7 (B2f) - Predrilling (2 nos)	12	23-Jun-14	0%	12	07-Jul-14	08-Apr-14	24-Apr-14	-59	0
GFXX152-2	B7 (B2f) - Confirm Rockhead Levels	8	08-Jul-14	0%	8	16-Jul-14	25-Apr-14	05-May-14	-59	0
GFXX153	B7 (B2f) - Bored Piles (2.20m dia. x 2 nos)	66	17-Jul-14	0%	66	04-Oct-14	07-May-14	24-Jul-14	-59	0
Pier B8 (B2e)										
Preliminary Works for Land Piling										
GFXX310-2	B8 (B2e) - Pre-grouting Works	12	28-May-14 A	100%	0	21-Jun-14 A				
PB080030	B8 (B2e) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	27-Mar-14	14-May-14	-68	0
PB080040	B8 (B2e) - Set up piling platform	10	05-May-14 A	100%	0	18-Jun-14 A				
PB080050	B8 (B2e) - Complete Civil Preparation Works for Piling	0		100%	0	21-Jun-14 A				
Socketted H-Pile Installation										
GFXX352-1	B8 (B2e) - Confirm Rockhead Levels	8	08-Mar-14 A	100%	0	17-Jun-14 A				
GFXX353	B8 (B2e) - Install SH Pile (14 nr)	60	30-Jun-14	0%	60	08-Sep-14	03-Apr-14	19-Jun-14	-68	0
Pile Cap Works										
SB2E0088	B8 (B2e) - Pile cap - Pipe Pile Wall for ELS	24	11-Sep-14	0%	24	11-Oct-14	26-Jul-14	30-Aug-14	-30	0
Pier B9 (B2d)										
Preliminary Works for Land Piling										
PB090050	B9 (B2d) - Set up concrete blocks / piling platform	36	22-Mar-14 A	91.67%	3	26-Jun-14	15-Aug-14	18-Aug-14	36	0
PB090070	B9 (B2d) - Install Geo. Instru. & Baseline Monitoring	36	27-Jun-14	0%	36	08-Aug-14	19-Aug-14	30-Sep-14	44	0
PB090120	B9 (B2d) - Erect platform for pregrouting	6	24-Jun-14	0%	6	30-Jun-14	24-Sep-14	30-Sep-14	65	26
PB090150	B9 (B2d) - Pre-grouting Works B9	12	09-Aug-14	0%	12	22-Aug-14	03-Oct-14	16-Oct-14	44	0
PB090190	B9 (B2d) - Complete civil preparation works	0		0%	0	22-Aug-14		16-Oct-14	39	24
Socketted H-Pile Installation										
GFXX347	B9 (B2d) - Predrilling	16	31-May-14 A	100%	0	06-Jun-14 A				
GFXX347-1	B9 (B2d) - Confirm Rockhead Levels	8	07-Jun-14 A	0%	8	02-Jul-14	17-May-14	26-May-14	-30	0
GFXX348	B9 (B2d) - Install SH Pile (14 nr)	71	03-Jul-14	0%	71	24-Sep-14	27-May-14	19-Aug-14	-30	0
Pier B10 (B2c)										
Preliminary Works for Land Piling										
PB100020	B10 (B2c) - Trial trench	14	24-Jun-14	0%	14	12-Jul-14	19-Feb-14	06-Mar-14	-81	24
PB100022	B10 (B2c) - Install Geo. Instru. & Baseline Monitoring	36	04-Apr-14 A	100%	0	22-May-14 A				
PB100040	B10 (B2c) - TTM Review/Approval new Emergency Access Gates G8 & G9	36	24-Jun-14	0%	36	14-Aug-14	18-Jan-14	04-Mar-14	-105	0
PB100050	B10 (B2c) - Implement TTM for constructing new Emergency Access Gates G8 & G9	2	15-Aug-14	0%	2	16-Aug-14	05-Mar-14	06-Mar-14	-105	0
PB100060	B10 (B2c) - Construct fencing / roadside beam barriers between new Gates G8 & G9	20	18-Aug-14	0%	20	15-Sep-14	07-Mar-14	29-Mar-14	-105	0
PB100070	B10 (B2c) - Construct new Gate G8	20	16-Sep-14	0%	20	11-Oct-14	31-Mar-14	03-May-14	-105	0
PB100080	B10 (B2c) - Construct new Gate G9	20	16-Sep-14	0%	20	11-Oct-14	31-Mar-14	03-May-14	-105	0
Pier B11 (B2b)										
Socketted H-Pile Installation										
GFXX334-1	B11 (B2b) - Install SH Pile (12 nr)	52	22-Apr-14 A	67%	17	14-Jul-14	14-Oct-14	03-Nov-14	94	0
Pile Cap Works										
SB2B0090	B11 (B2b) - Utility diversion & Cut Slope	36	14-Jul-14	0%	36	04-Sep-14	04-Nov-14	15-Dec-14	82	0
SB2B0091	B11 (B2b) - Pile cap Excavation / ELS	24	04-Sep-14	0%	24	07-Oct-14	16-Dec-14	15-Jan-15	82	0



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: J3518DWPrD1-M13
Layout: J3518-DWP-3MRP submission - M13
Filter: TASK filters: 3-Month Lookahead, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 19 of 27 Pages)
(Progress as of 21-Jun-14)

Date	Revision	Checked	Approved
28-Jun-14		FZ	

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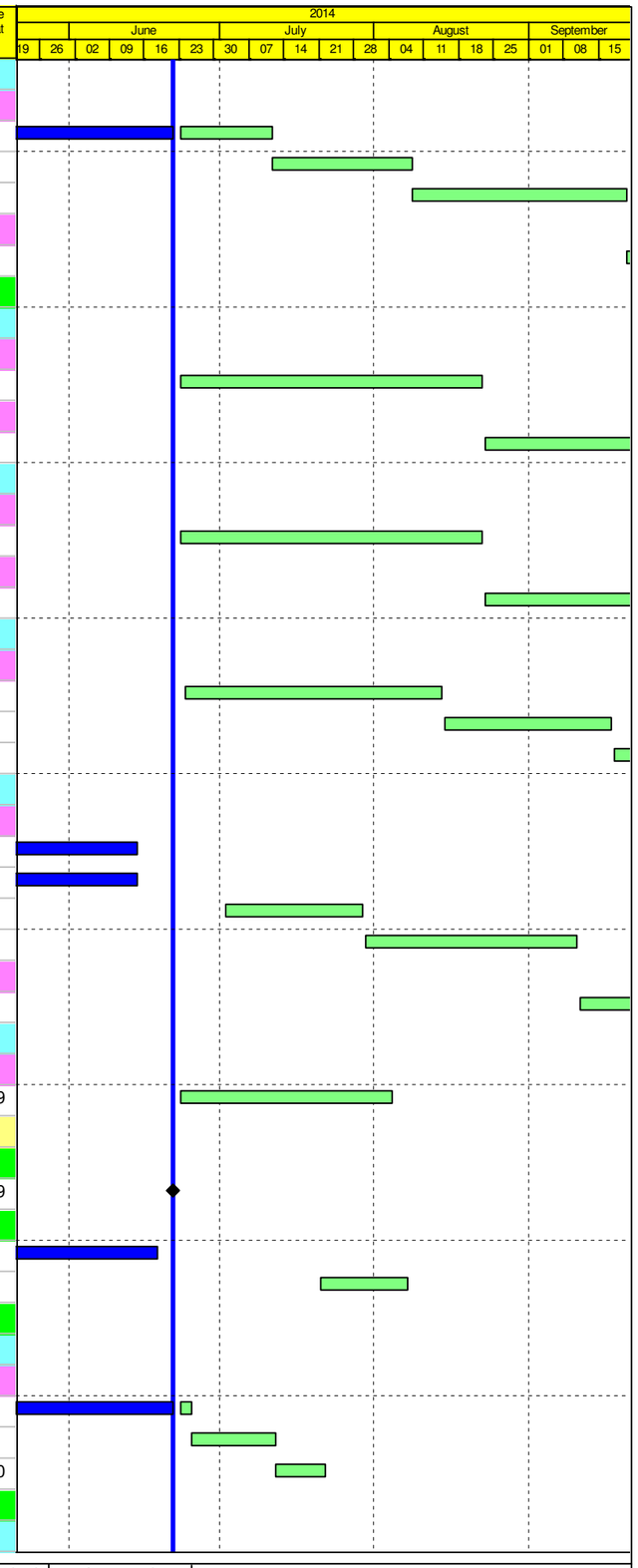
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
Pier B12 (B2a)										
Socketted H-Pile Installation										
GFXX334-2	B12 (B2a) - Install SH Pile (10 nr)	52	08-May-14 A	70%	16	11-Jul-14	05-Aug-14	22-Aug-14	36	0
GFXX354-5	B12 (B2a) - Selection of pile for loading test	24	11-Jul-14	0%	24	08-Aug-14	23-Aug-14	20-Sep-14	36	0
GFXX354-7	B12 (B2a) - Loading Test for pre-bored H-pile	36	08-Aug-14	0%	36	20-Sep-14	22-Sep-14	04-Nov-14	36	0
Pile Cap Works										
SB2A0090	B12 (B2a) - Utility diversion & Cut Slope	36	20-Sep-14	0%	36	06-Nov-14	05-Nov-14	16-Dec-14	34	0
Bridge B1										
Pier B13 (B1g)										
Socketted H-Pile Installation										
GFXX334-3	B13 (B1g) - Install SH Pile (13 nr)	52	23-Jun-14	0%	52	22-Aug-14	13-Sep-14	14-Nov-14	69	0
Pile Cap Works										
SB1G0090	B13 (B1g) - Utility diversion & Cut slope	36	23-Aug-14	0%	36	11-Oct-14	15-Nov-14	29-Dec-14	64	0
Pier B14 (B1f)										
Socketted H-Pile Installation										
GFXX334-4	B14 (B1f) - Install SH Pile (13 nr)	52	23-Jun-14	0%	52	22-Aug-14	29-Jul-14	27-Sep-14	30	0
Pile Cap Works										
SB1F0090	B14 (B1f) - Utility diversion & Cut slope	36	23-Aug-14	0%	36	11-Oct-14	29-Sep-14	13-Nov-14	27	0
Pier B15 (B1e)										
Pile Cap Works										
SB1E0094	B15 (B1e) - Utility diversion & cut slope	36	24-Jun-14	0%	36	14-Aug-14	19-Nov-14	02-Jan-15	109	0
SB1E0095	B15 (B1e) - Pile cap Excavation / ELS (incl. sheet piling)	24	15-Aug-14	0%	24	17-Sep-14	03-Jan-15	30-Jan-15	109	0
SB1E0096	B15 (B1e) - Pile Breakdown to cut-off etc.	4	18-Sep-14	0%	4	22-Sep-14	31-Jan-15	04-Feb-15	109	0
Pier B16 (B1d)										
Socketted H-Pile Installation										
GFXX317-4	B16 (B1d) - Confirm Rockhead Levels	8	15-Feb-14 A	100%	0	14-Jun-14 A				
GFXX318-2	B16 (B1d) - Install SH Pile (10 nr)	35	20-May-14 A	100%	0	14-Jun-14 A				
GFXX326-2	B16 (B1d) - Selection of pile for loading test	24	02-Jul-14	0%	24	29-Jul-14	27-Nov-14	27-Dec-14	124	0
GFXX326-4	B16 (B1d) - Loading Test for pre-bored H-pile	36	30-Jul-14	0%	36	10-Sep-14	27-Dec-14	09-Feb-15	124	0
Pile Cap Works										
SB1D0090	B16 (B1d) - Pile cap Excavation / ELS (incl. sheet piling)	24	11-Sep-14	0%	24	11-Oct-14	09-Feb-15	12-Mar-15	122	0
Pier B18 (B1b) & Abutment B										
Preliminary Works for Land Piling										
PB180030	B18 (B1b) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	03-Nov-15	14-Dec-15	406	569
Viaduct C										
Milestones - Marine Foundation										
GFXX192	Viaduct C - ARUP issues Pile Spacing & Diameter for Temporary Platform Design	0		0%	0	21-Jun-14		31-Oct-14	109	109
General - Preliminary Works for Land Piling										
ZC80040	Prepare/submit/approval of MTR Protective Fence submission for Viaduct C	60	13-May-14 A	100%	0	18-Jun-14 A				
ZC80050	Implement TTMS for C9 to C20 for land piling preliminary works	12	21-Jul-14	0%	12	07-Aug-14	05-Sep-14	20-Sep-14	32	0
Bridge C4										
Pier C1 (C4e)										
Foundation Works										
GFXX218	C1 (C4e) - Inst.Temp.Working Platform (Common Platform with Pier A1,C1,D1)	23	21-May-14 A	90%	2	25-Jun-14	10-Sep-14	12-Sep-14	67	0
GFXX219	C1 (C4e) - Predrilling (3 nos)	14	25-Jun-14	0%	14	12-Jul-14	13-Sep-14	29-Sep-14	67	0
GFXX219-2	C1 (C4e) - Confirm Rockhead Levels	8	12-Jul-14	0%	8	22-Jul-14	02-Jan-15	10-Jan-15	143	190
Bridge C3										
Pier C7 (C3e)										



Actual Work
Planned Bar
Critical Bar
Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 20 of 27 Pages)
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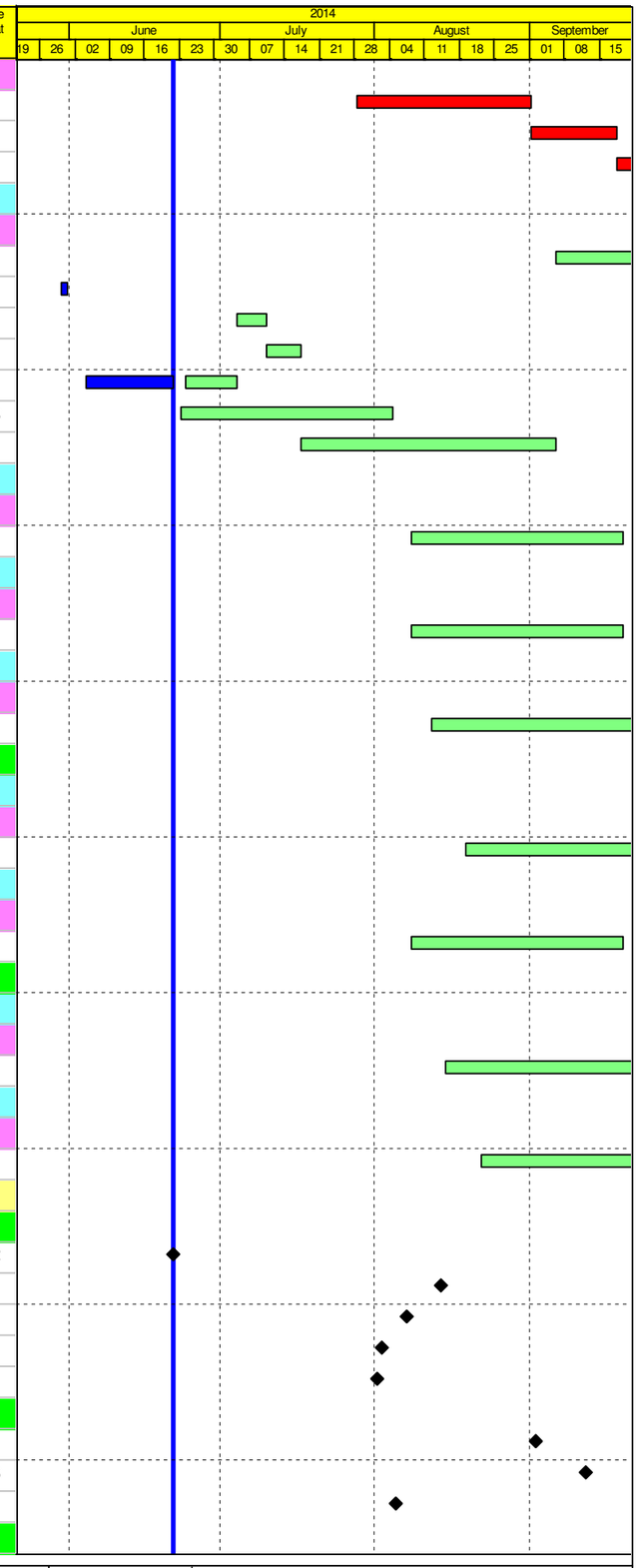
Preliminary Works for Land Piling										
PC070020	C7 (C3e) - CEDD Access Track Temp. Re-alignment	24	28-Jul-14	0%	24	01-Sep-14	30-Jun-14	02-Aug-14	-19	0
PC070030	C7 (C3e) - Erect MTR protective fence / Remove existing fence	12	01-Sep-14	0%	12	18-Sep-14	05-Aug-14	21-Aug-14	-19	0
PC070040	C7 (C3e) - Install Geo. Instru. & Baseline Monitoring	36	18-Sep-14	0%	36	01-Nov-14	22-Aug-14	06-Oct-14	-22	0
Pier C8 (C3d)										
Preliminary Works for Land Piling										
GFXX361-3	C8 (C3d) - Pre-grouting Works	30	06-Sep-14	0%	30	15-Oct-14	04-Dec-14	10-Jan-15	73	1
PC080010	C8 (C3d) - Implement TTMS	2	30-May-14 A	100%	0	31-May-14 A				
PC080020	C8 (C3d) - Set up site ingress	4	04-Jul-14	0%	4	10-Jul-14	11-Oct-14	16-Oct-14	70	0
PC080030	C8 (C3d) - General site clearance	5	10-Jul-14	0%	5	17-Jul-14	17-Oct-14	22-Oct-14	70	0
PC080040	C8 (C3d) - Erect boundary fence / water filled barrier	12	04-Jun-14 A	40%	7	04-Jul-14	29-Sep-14	10-Oct-14	70	0
PC080050	C8 (C3d) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	23-Oct-14	03-Dec-14	101	28
PC080060	C8 (C3d) - Set up piling platform	36	17-Jul-14	0%	36	06-Sep-14	23-Oct-14	03-Dec-14	70	0
Pier C9 (C3c)										
Preliminary Works for Land Piling										
PC090010	C9 (C3c) - Install Geo. Instru. & Baseline Monitoring	36	08-Aug-14	0%	36	19-Sep-14	22-Sep-14	04-Nov-14	37	0
Pier C10 (C3b)										
Preliminary Works for Land Piling										
PC100010	C10 (C3c) - Install Geo. Instru. & Baseline Monitoring	36	08-Aug-14	0%	36	19-Sep-14	31-Oct-14	11-Dec-14	69	0
Pier C11 (C3a)										
Preliminary Works for Land Piling										
PC110010	C11 (C3a) - Install Geo. Instru. & Baseline Monitoring	36	12-Aug-14	0%	36	23-Sep-14	26-Nov-14	09-Jan-15	88	0
Bridge C2										
Pier C12 (C2f)										
Preliminary Works for Land Piling										
PC120010	C12 (C2f) - Install Geo. Instru. & Baseline Monitoring	36	19-Aug-14	0%	36	30-Sep-14	17-Jan-15	03-Mar-15	124	0
Pier C16 (C2b)										
Preliminary Works for Land Piling										
PC160010	C16 (C2b) - Install Geo. Instru. & Baseline Monitoring	36	08-Aug-14	0%	36	19-Sep-14	09-Oct-14	19-Nov-14	50	0
Bridge C1										
Pier C17 (C2a)										
Preliminary Works for Land Piling										
PC170010	C17 (C2a) - Install Geo. Instru. & Baseline Monitoring	36	15-Aug-14	0%	36	26-Sep-14	16-Oct-14	26-Nov-14	50	0
Pier C18 (C3d) Portal										
Preliminary Works for Land Piling										
PC180010	C18 (C1e) - Install Geo. Instru. & Baseline Monitoring	36	22-Aug-14	0%	36	06-Oct-14	23-Oct-14	03-Dec-14	50	0
Viaduct D										
Milestones - Marine Foundation										
GFXX228	Viaduct D - ARUP issuses Pile Spacing & Diameter for Temporary Platform Design	0		0%	0	21-Jun-14		30-May-14	-18	12
GFXX250-1	Pier D3 (D4d) - Start date for piling	0	14-Aug-14	0%	0		19-Jul-14		-22	0
GFXX255-1	Pier D2 (D4e) - Start date for piling	0	07-Aug-14	0%	0		20-May-15		231	0
GFXX260-1	Pier D1 (D4f) - Start date for piling	0	02-Aug-14	0%	0		24-Oct-14		68	0
ZD00010	Viaduct D - Approval of Foundation DDA	0		0%	0	01-Aug-14		06-Nov-14	69	21
Milestones - Land Foundation										
GFXX438-4	D18 (D1c) - Start date for piling	0	02-Sep-14	0%	0		07-Nov-14		54	0
GFXX438-5	D19 (D1b) - Start date for piling	0	12-Sep-14	0%	0		18-Nov-14		55	26
GFXX446A1	D14 (D2c) - Start date for piling	0	05-Aug-14	0%	0		17-Jul-14		-16	0
General - Preliminary Works for Land Piling										



Actual Work
Planned Bar
Critical Bar
Milestone

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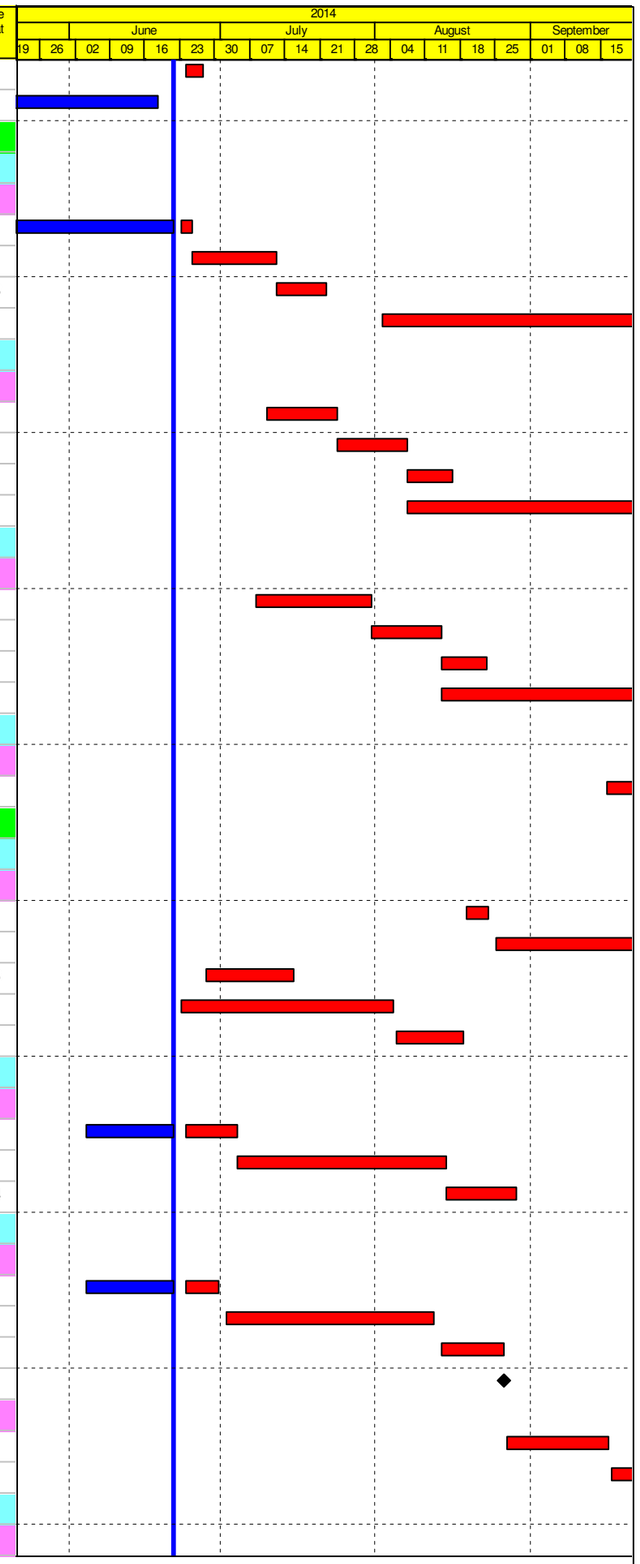
ZD20010	Viaduct D works area between MTR and NLH - Setup TTMS	4	24-Jun-14	0%	4	27-Jun-14	07-Mar-14	11-Mar-14	-67	0
ZD20020	Prepare/submit/approval of MTR Protective Fence submission for Viaduct D	60	13-May-14 A	100%	0	18-Jun-14 A				
Bridge D3										
Pier D1 (D4f)										
Foundation Works										
GFXX259	D1 (D4f) - Inst.Temp.Working Platform (Common Platform with Pier A1,C1,D1)	23	21-May-14 A	90%	2	25-Jun-14	26-May-14	28-May-14	-22	0
GFXX260	D1 (D4f) - Predrilling for Piles (3 nos)	14	25-Jun-14	0%	14	12-Jul-14	29-May-14	14-Jun-14	-22	0
GFXX260-2	D1 (D4f) - Confirm Rockhead Levels	8	12-Jul-14	0%	8	22-Jul-14	16-Jun-14	24-Jun-14	-22	18
GFXX261	D1 (D4f) - Bored Piles (1.80m dia. x 3 nos)	58	02-Aug-14	0%	58	11-Oct-14	16-Jun-14	22-Aug-14	-40	0
Pier D2 (D4e)										
Foundation Works										
GFXX254	D2 (D4e) - Inst.Temp.Working Platform	12	10-Jul-14	0%	12	24-Jul-14	31-May-14	14-Jun-14	-32	0
GFXX255	D2 (D4e) - Predrilling (2 nos)	12	24-Jul-14	0%	12	07-Aug-14	16-Jun-14	28-Jun-14	-32	0
GFXX255-2	D2 (D4e) - Confirm Rockhead Levels	8	07-Aug-14	0%	8	16-Aug-14	30-Jun-14	09-Jul-14	-32	0
GFXX256	D2 (D4e) - Bored Piles (2.35m dia. x 2 nos)	63	07-Aug-14	0%	63	23-Oct-14	30-Jun-14	12-Sep-14	-32	0
Pier D3 (D4d)										
Foundation Works										
GFXX249	D3 (D4d) - Inst.Temp.Working Platform	20	08-Jul-14	0%	20	31-Jul-14	11-Jun-14	04-Jul-14	-22	0
GFXX250	D3 (D4d) - Predrilling for Piles (3 nos)	12	31-Jul-14	0%	12	14-Aug-14	05-Jul-14	18-Jul-14	-22	0
GFXX250-2	D3 (D4d) - Confirm Rockhead Levels	8	14-Aug-14	0%	8	23-Aug-14	19-Jul-14	28-Jul-14	-22	0
GFXX251	D3 (D4d) - Bored Piles (2.00m dia. x 3 nos)	65	14-Aug-14	0%	65	01-Nov-14	19-Jul-14	06-Oct-14	-22	0
Pier D4 (D4c)										
Foundation Works										
GFXX244	D4 (D4c) - Inst.Temp.Working Platform	14	16-Sep-14	0%	14	04-Oct-14	28-Jul-14	12-Aug-14	-42	0
Bridge D2										
Pier D8 (D3d)										
Preliminary Works for Land Piling										
GFXX432	D8 (D3d) - Set up for Pregrouting	5	19-Aug-14	0%	5	23-Aug-14	10-Apr-14	15-Apr-14	-105	0
GFXX433-1	D8 (D3d) - Pregrouting Works	30	25-Aug-14	0%	30	29-Sep-14	16-Apr-14	26-May-14	-105	0
PD080030	D8 (D3d) - Erect MTR protective fence / remove existing fence	12	28-Jun-14	0%	12	15-Jul-14	12-Mar-14	25-Mar-14	-67	13
PD080032	D8 (D3d) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	12-Feb-14	25-Mar-14	-105	0
PD080040	D8 (D3d) - Set up piling platform	10	05-Aug-14	0%	10	18-Aug-14	26-Mar-14	08-Apr-14	-80	0
Pier D9 (D3c)										
Preliminary Works for Land Piling										
PD090010	D9 (D3c) - Erect MTR boundary fence / remove existing fence	12	04-Jun-14 A	40%	7	04-Jul-14	15-Mar-14	24-Mar-14	-59	0
PD090012	D9 (D3c) - Install Geo. Instru. & Baseline Monitoring	36	04-Jul-14	0%	36	15-Aug-14	25-Mar-14	12-May-14	-79	0
PD090020	D9 (D3c) - Set up piling platform	10	15-Aug-14	0%	10	29-Aug-14	13-May-14	26-May-14	-59	24
Pier D10 (D3b)										
Preliminary Works for Land Piling										
PD100010	D10 (D3b) - Erect boundary fence / water filled barrier / remove existing fence	10	04-Jun-14 A	40%	6	30-Jun-14	08-Mar-14	14-Mar-14	-66	0
PD100012	D10 (D3b) - Install Geo. Instru. & Baseline Monitoring	36	02-Jul-14	0%	36	12-Aug-14	15-Mar-14	30-Apr-14	-85	1
PD100020	D10 (D3b) - Set up piling platform	10	14-Aug-14	0%	10	26-Aug-14	02-May-14	17-May-14	-64	0
PD100030	D10 (D3b) - Complete Civil Preparation Works for piling to commence	0		0%	0	26-Aug-14		17-May-14	-64	0
Socketted H-Pile Installation										
GFXX460-1	D10 (D3b) - Predrilling	17	27-Aug-14*	0%	17	16-Sep-14	19-May-14	07-Jun-14	-84	0
GFXX460-4	D10 (D3b) - Confirm Rockhead Levels	8	17-Sep-14	0%	8	25-Sep-14	22-Jul-14	30-Jul-14	-48	0
Pier D11 (D3a)										
Preliminary Works for Land Piling										



Actual Work
Planned Bar
Critical Bar
Milestone

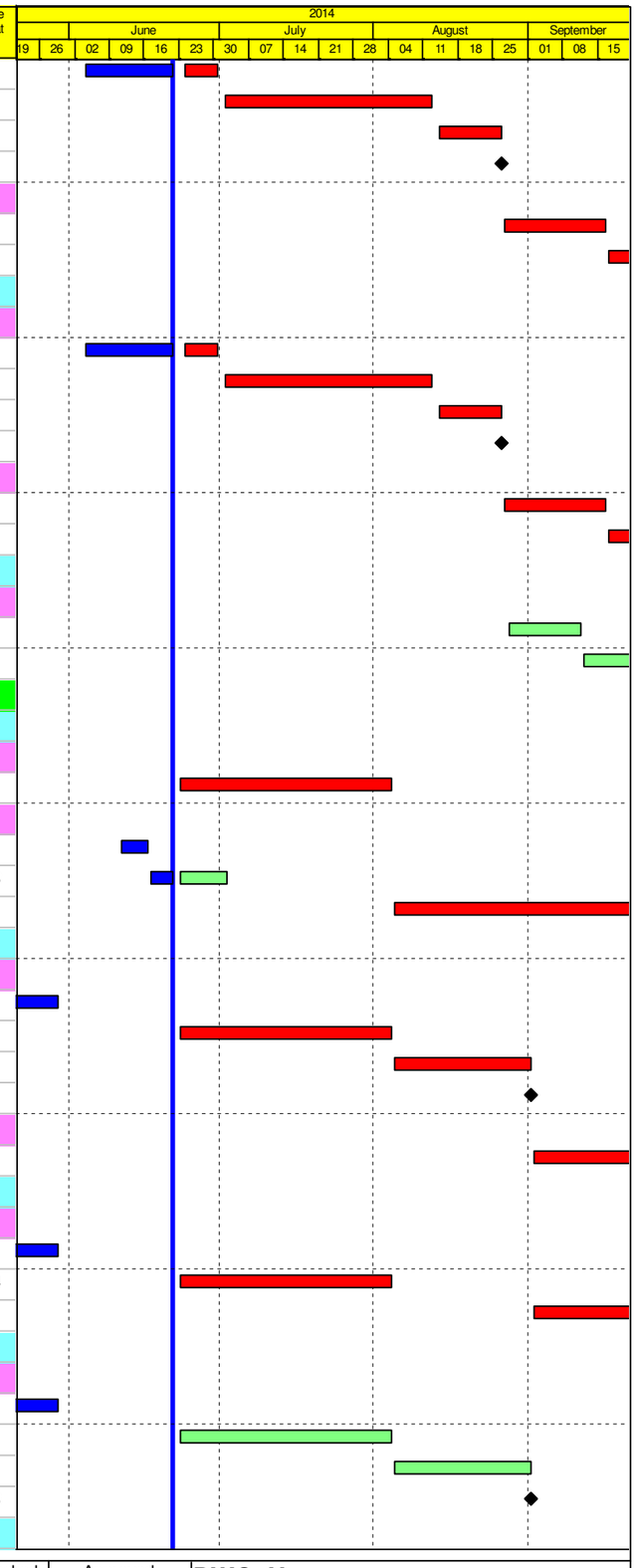
Project ID: J3518DWPrD1-M13
Layout: J3518-DWP-3MRP submission - M13
Filter: TASK filters: 3-Month Lookahead, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 22 of 27 Pages)
(Progress as of 21-Jun-14)

Date	Revision	Checked	Approved
28-Jun-14		FZ	

DWG. No.:
J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
PD110010	D11 (D3a) - Erect boundary fence / water filled barrier / remove existing fence	10	04-Jun-14 A	40%	6	30-Jun-14	08-Mar-14	14-Mar-14	-66	0
PD110012	D11 (D3a) - Install Geo. Instru. & Baseline Monitoring	36	02-Jul-14	0%	36	12-Aug-14	15-Mar-14	30-Apr-14	-85	1
PD110020	D11 (D3a) - Set up piling platform	10	14-Aug-14	0%	10	26-Aug-14	02-May-14	17-May-14	-64	0
PD110030	D11(D3a) - Complete Civil Preparation Works for piling to commence	0		0%	0	26-Aug-14		17-May-14	-64	0
Socketted H-Pile Installation										
GFXX460-2	D11 (D3a) - Predrilling	17	27-Aug-14	0%	17	16-Sep-14	19-May-14	07-Jun-14	-84	0
GFXX460-5	D11 (D3a) - Confirm Rockhead Levels	8	17-Sep-14	0%	8	25-Sep-14	09-Jun-14	17-Jun-14	-84	0
Pier D12 (D2e)										
Preliminary Works for Land Piling										
PD120010	D12 (D2e) - Erect boundary fence / water filled barrier / remove existing fence	10	04-Jun-14 A	40%	6	30-Jun-14	05-Jun-14	17-Jun-14	-8	0
PD120012	D12 (D2e) - Install Geo. Instru. & Baseline Monitoring	36	02-Jul-14	0%	36	12-Aug-14	19-Jun-14	31-Jul-14	-10	1
PD120020	D12 (D2e) - Set up piling platform	10	14-Aug-14	0%	10	26-Aug-14	01-Aug-14	15-Aug-14	-8	0
PD120030	D12 (D2e) - Complete Civil Preparation Works for piling to commence	0		0%	0	26-Aug-14		15-Aug-14	-8	0
Socketted H-Pile Installation										
GFXX460-3	D12 (D2e) - Predrilling	17	27-Aug-14	0%	17	16-Sep-14	16-Aug-14	04-Sep-14	-9	0
GFXX460-6	D12 (D2e) - Confirm Rockhead Levels	8	17-Sep-14	0%	8	25-Sep-14	05-Sep-14	15-Sep-14	-9	0
Pier D13 (D2d)										
Preliminary Works for Land Piling										
PD130010	D13 (D2d) - Erect boundary fence / water filled barrier	10	28-Aug-14	0%	10	11-Sep-14	05-Nov-14	15-Nov-14	52	0
PD130012	D13 (D2d) - Install Geo. Instru. & Baseline Monitoring	36	12-Sep-14	0%	36	25-Oct-14	17-Nov-14	30-Dec-14	54	0
Bridge D1										
Pier D14 (D2c)										
Preliminary Works for Land Piling										
PD140012	D14 (D2c) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	04-Jun-14	16-Jul-14	-16	0
Socketted H-Pile Installation										
GFXX445-1A	D14 (D2c) - Predrilling	18	11-Jun-14 A	100%	0	16-Jun-14 A				
GFXX445-1A1	D14 (D2c) - Confirm Rockhead Levels	8	17-Jun-14 A	0%	8	02-Jul-14	08-Jul-14	16-Jul-14	12	28
GFXX446-1A	D14 (D2c) - Installation of SH Pile (10 nr)	121	05-Aug-14	0%	121	29-Dec-14	17-Jul-14	08-Dec-14	-16	0
Pier D15 (D2b)										
Preliminary Works for Land Piling										
PD150010	D15 (D2b) - Erect boundary fence / water filled barrier / remove existing fence	12	24-Apr-14 A	100%	0	29-May-14 A				
PD150012	D15 (D2b) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	21-Feb-14	03-Apr-14	-97	0
PD150020	D15 (D2b) - Set up piling platform	20	05-Aug-14	0%	20	01-Sep-14	04-Apr-14	10-May-14	-73	0
PD150030	D15 (D2b) - Complete Civil Preparation Works for piling to commence	0		0%	0	01-Sep-14		12-Jun-14	-53	0
Socketted H-Pile Installation										
GFXX445-2	D15 (D2b) - Predrilling	18	02-Sep-14	0%	18	23-Sep-14	13-Jun-14	04-Jul-14	-68	0
Pier D16 (D2a)										
Preliminary Works for Land Piling										
PD160010	D16 (D2a) - Erect boundary fence / water filled barrier / remove existing fence	12	24-Apr-14 A	100%	0	29-May-14 A				
PD160012	D16 (D2a) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	24-Mar-14	10-May-14	-71	24
PD160020	D16 (D2a) - Set up piling platform	20	02-Sep-14	0%	20	27-Sep-14	12-May-14	12-Jun-14	-73	0
Pier D17 (D1d)										
Preliminary Works for Land Piling										
PD170010	D17 (D1d) - Erect boundary fence / water filled barrier / remove existing fence	12	24-Apr-14 A	100%	0	29-May-14 A				
PD170012	D17 (D1d) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	18-Sep-14	31-Oct-14	73	0
PD170020	D17 (D1d) - Set up piling platform	20	05-Aug-14	0%	20	01-Sep-14	01-Nov-14	24-Nov-14	65	0
PD170030	D17 (D1d) - Complete Civil Preparation Works for piling to commence	0		0%	0	01-Sep-14		24-Nov-14	65	43
Pier D18 (D1c)										



Actual Work
Planned Bar
Critical Bar
Milestone

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Layout: J3518-DWP-3MRP submission - M13
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Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 23 of 27 Pages)
(Progress as of 21-Jun-14)

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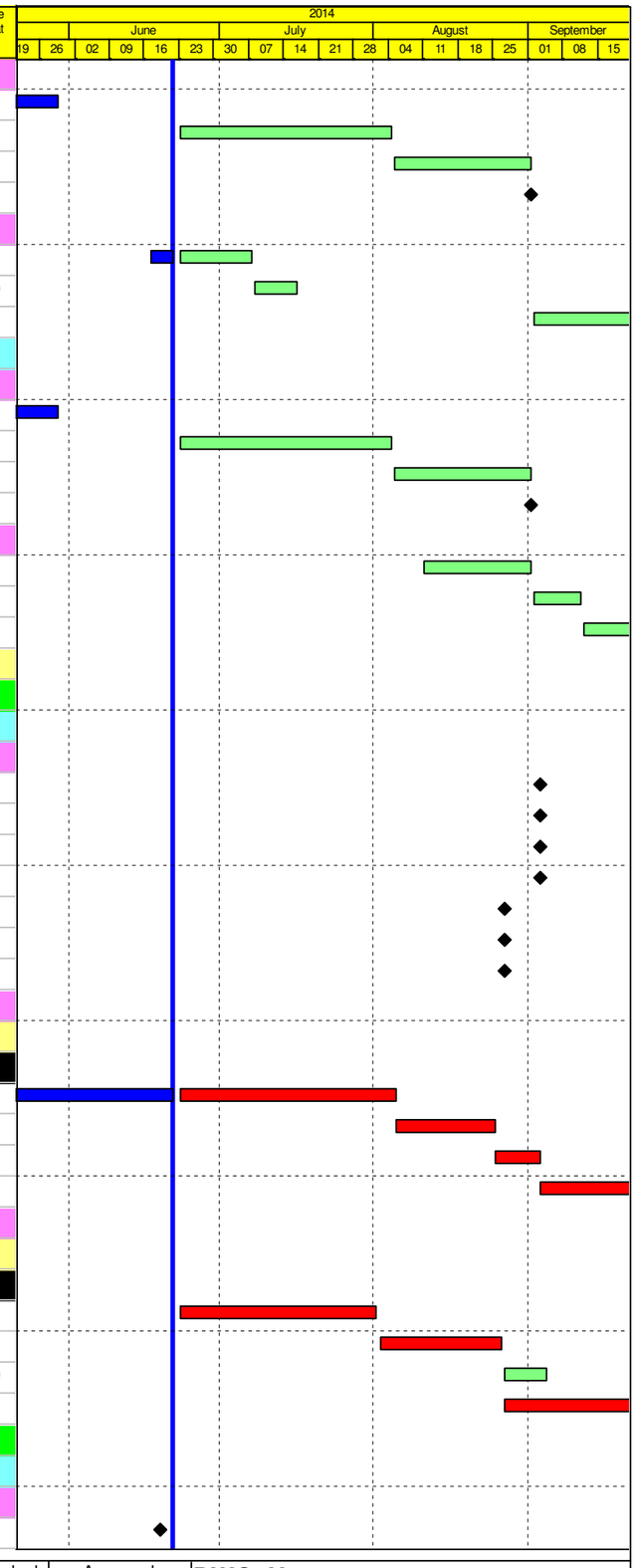
Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
Preliminary Works for Land Piling										
PD180010	D18 (D1c) - Erect boundary fence / water filled barrier / remove existing fence	12	24-Apr-14 A	100%	0	29-May-14 A				
PD180012	D18 (D1c) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	29-Aug-14	13-Oct-14	57	0
PD180020	D18 (D1c) - Set up piling platform	20	05-Aug-14	0%	20	01-Sep-14	14-Oct-14	06-Nov-14	50	0
PD180030	D18 (D1c) - Complete Civil Preparation Works for piling to commence	0		0%	0	01-Sep-14		06-Nov-14	50	0
Socketted H-Pile Installation										
GFXX438-2	D18 (D1c) - Predrilling	17	17-Jun-14 A	29.41%	12	07-Jul-14	15-Oct-14	28-Oct-14	94	0
GFXX438-7	D18 (D1c) - Confirm Rockhead Levels	8	08-Jul-14	0%	8	16-Jul-14	29-Oct-14	06-Nov-14	94	40
GFXX439-2	D18 (D1c) - Installation of SH Pile (10 nr)	70	02-Sep-14	0%	70	25-Nov-14	07-Nov-14	30-Jan-15	54	0
Pier D19 (D1b) & Abutment D										
Preliminary Works for Land Piling										
PD190010	D19 (D1b) & Abut D- Erect MTR boundary fence / water filled barrier / remove existing fence	12	24-Apr-14 A	100%	0	29-May-14 A				
PD190012	D19 (D1b) - Install Geo. Instru. & Baseline Monitoring	36	23-Jun-14	0%	36	04-Aug-14	01-Sep-14	15-Oct-14	59	0
PD190020	D19 (D1b) - Set up piling platform	20	05-Aug-14	0%	20	01-Sep-14	16-Oct-14	07-Nov-14	51	0
PD190030	D19 (D1b) - Complete Civil Preparation Works for piling to commence	0		0%	0	01-Sep-14		07-Nov-14	51	0
Socketted H-Pile Installation										
GFXX438-3	D19 (D1b) - Predrilling	19	11-Aug-14	0%	19	01-Sep-14	17-Oct-14	07-Nov-14	55	0
GFXX438-8	D19 (D1b) - Confirm Rockhead Levels	8	02-Sep-14	0%	8	11-Sep-14	08-Nov-14	17-Nov-14	55	0
GFXX439-3	D19 (D1b) - Installation of SH Pile (6 nr)	70	12-Sep-14	0%	70	04-Dec-14	18-Nov-14	10-Feb-15	55	0
Viaduct E										
Viaduct E1										
Bridge E1 - Piling & Substructure										
Milestones										
GFXX023A-1	E1D (E1a1) - Start date for piling	0	03-Sep-14	0%	0		10-Jun-14		-72	0
GFXX023A-2	E1C (E1a2) - Start date for piling	0	03-Sep-14	0%	0		10-Jun-14		-72	0
GFXX023A-3	E1B (E1a3) - Start date for piling	0	03-Sep-14	0%	0		10-Jun-14		-72	0
GFXX023A-4	E1A (E1a4) - Start date for piling	0	03-Sep-14	0%	0		10-Jun-14		-72	0
GFXX028A-1	E2C/E2D (E1b2/E1b1) - Start date for piling	0	27-Aug-14	0%	0		17-Jul-14		-35	0
GFXX028A-2	E2B (E1b3) - Start date for piling	0	27-Aug-14	0%	0		17-Jul-14		-35	0
GFXX028A-3	E2A (E1b4) - Start date for piling	0	27-Aug-14	0%	0		17-Jul-14		-35	0
E1A, E1B, E1C & E1D (E1a1-2-3-4)										
Foundation Works E1A, E1B, E1C & E1D										
Foundation Works										
GFXX021	E1A/E1B/E1C/E1D (E1a4/3/2/1) - Inst.Temp.Working Platforms (Heavy & Light)	38	21-May-14 A	4%	36	05-Aug-14	19-Mar-14	07-May-14	-74	0
GFXX022-1	E1A/E1B/E1C/E1D (E1a4/3/2/1) - Predrilling (8 nos)	17	05-Aug-14	0%	17	25-Aug-14	08-May-14	27-May-14	-74	0
GFXX022-2	E1A/E1B/E1C/E1D (E1a4/3/2/1) - Confirm Rockhead levels	8	25-Aug-14	0%	8	03-Sep-14	28-May-14	06-Jun-14	-74	0
GFXX023-1	E1A/E1B/E1C/E1D (E1a4/3/2/1) - Bored Piles (2.00m dia. x 8 nos)	125	03-Sep-14	0%	125	03-Feb-15	07-Jun-14	04-Nov-14	-74	0
E2A, E2B, E2C & E2D (E1b1-2-3-4)										
Foundation Works - E2A, E2B, E2C & E2D										
Foundation Works										
GFXX026-1	E2A/E2B/E2C/E2D (E1b4/3/2/1) - Inst.Temp.Working Platforms (Heavy & Light)	34	23-Jun-14	0%	34	01-Aug-14	12-May-14	20-Jun-14	-35	0
GFXX027-1	E2A/E2B/E2C/E2D (E1b4/3/2/1) - Predrilling (7 nos)	21	02-Aug-14	0%	21	26-Aug-14	21-Jun-14	16-Jul-14	-35	0
GFXX027-4	E2A/E2B/E2C/E2D (E1b4/3/2/1) - Confirm Rockhead levels	8	27-Aug-14	0%	8	04-Sep-14	22-Oct-14	30-Oct-14	45	80
GFXX028-1	E2A/E2B/E2C/E2D (E1b4/3/2/1) - Bored Piles (2.00m dia. x 7 nr)	88	27-Aug-14	0%	88	10-Dec-14	17-Jul-14	30-Oct-14	-35	0
Viaduct E2										
Bridge E2 - Piling & Substructure										
Milestones										
GFXX042-1	E4 (E2b) - Start date for piling	0	19-Jun-14 A	100%	0					



Actual Work
Planned Bar
Critical Bar
Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection
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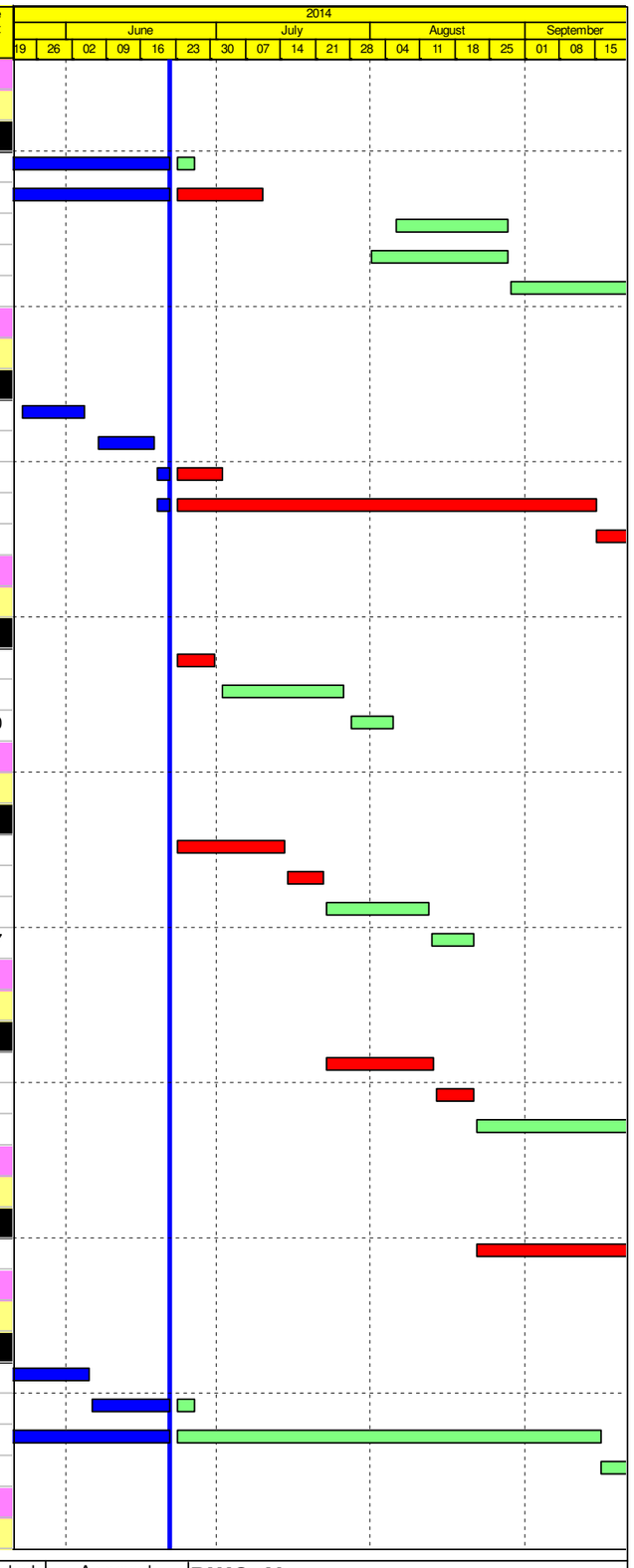
E3A, E3B, E3C & E3D (E2a - 1/2/3/4)										
Foundation Works - E3A, E3B, E3C & E3D										
Foundation Works										
GFXX036-1	E3 (E2a) - Confirm Rockhead levels	8	24-Apr-14 A	50%	4	26-Jun-14	12-Jul-14	16-Jul-14	16	10
GFXX037	E3 (E2a) - Bored Piles (2.00m dia. x 6 nos)	90	15-Apr-14 A	84%	14	10-Jul-14	28-Jun-14	16-Jul-14	6	0
GFXX038	E3 (E2a) - Sonic & Interface Coring x6no.	20	06-Aug-14	0%	20	28-Aug-14	04-Sep-14	27-Sep-14	25	0
GFXX038-1	E3 (E2a) - Selection of bored pile for Full Depth Coring	24	01-Aug-14	0%	24	28-Aug-14	30-Aug-14	27-Sep-14	25	0
GFXX038-2	E3 (E2a) - Bored Pile Full Depth Coring & Testing	24	29-Aug-14	0%	24	26-Sep-14	29-Sep-14	28-Oct-14	25	0
E4A & E4B (E2b - 1/2)										
Foundation Works - E4A & E4B										
Foundation Works										
GFXX040-1	E4 (E2b) - Inst.Temp.Working Platform (Light)	18	23-May-14 A	100%	0	04-Jun-14 A				
GFXX041	E4 (E2b) - Predrilling (4 nos)	13	07-Jun-14 A	100%	0	18-Jun-14 A				
GFXX041-1	E4 (E2b) - Confirm Rockhead levels	8	19-Jun-14 A	10%	7	02-Jul-14	13-Jun-14	21-Jun-14	-8	63
GFXX042	E4 (E2b) - Bored Piles (2.20m dia. x 4 nos)	90	19-Jun-14 A	22%	70	15-Sep-14	24-Mar-14	21-Jun-14	-71	0
GFXX043	E4 (E2b) - Sonic & Interface Coring x 4no.	12	15-Sep-14	0%	12	29-Sep-14	11-Jul-14	25-Jul-14	-54	0
E5A & E5B (E2c - 1/2)										
Foundation Works - E5A & E5B										
Foundation Works										
GFXX045-1	E5 (E2c) - Inst.Temp.Working Platform (Light)	7	23-Jun-14	0%	7	30-Jun-14	15-Apr-14	25-Apr-14	-53	0
GFXX046	E5 (E2c) - Predrilling (4 nos)	22	02-Jul-14	0%	22	26-Jul-14	13-Oct-14	06-Nov-14	85	0
GFXX046-1	E5 (E2c) - Confirm Rockhead levels	8	28-Jul-14	0%	8	05-Aug-14	07-Nov-14	15-Nov-14	85	120
E6A & E6B (E2d - 1/2)										
Foundation Works - E6A & E6B										
Foundation Works										
GFXX050	E6 (E2d) - Inst.Temp.Working Platform (Heavy)	18	23-Jun-14	0%	18	14-Jul-14	01-Apr-14	25-Apr-14	-64	0
GFXX050-1	E6 (E2d) - Inst.Temp.Working Platform (Light)	7	15-Jul-14	0%	7	22-Jul-14	26-Apr-14	05-May-14	-64	0
GFXX051	E6 (E2d) - Predrilling (4 nos)	18	23-Jul-14	0%	18	12-Aug-14	27-Nov-14	17-Dec-14	106	0
GFXX051-1	E6 (E2d) - Confirm Rockhead levels	8	13-Aug-14	0%	8	21-Aug-14	18-Dec-14	29-Dec-14	106	217
E7A & E7B (E2e - 1/2)										
Foundation Works - E7A & E7B										
Foundation Works										
GFXX055	E7 (E2e) - Inst.Temp.Working Platforms (Heavy)	19	23-Jul-14	0%	19	13-Aug-14	07-May-14	28-May-14	-64	0
GFXX055-1	E7 (E2e) - Inst.Temp.Working Platforms (Light)	7	14-Aug-14	0%	7	21-Aug-14	29-May-14	06-Jun-14	-64	0
GFXX056	E7 (E2e) - Predrilling (5 nos)	26	22-Aug-14	0%	26	22-Sep-14	18-Oct-14	17-Nov-14	46	0
E8A & E8B (E2f - 1/2)										
Foundation Works - E8A & E8B										
Foundation Works										
GFXX060	E8 (E2f) - Inst.Temp.Working Platforms (Heavy)	32	22-Aug-14	0%	32	29-Sep-14	07-Jun-14	15-Jul-14	-64	0
E9A & E9B (E2g - 1/2)										
Foundation Works - E9A & E9B										
Foundation Works										
GFXX066	E9 (E2g) - Predrilling (6 nos)	22	12-Mar-14 A	100%	0	05-Jun-14 A				
GFXX066-1	E9 (E2g) - Confirm Rockhead levels	8	06-Jun-14 A	50%	4	26-Jun-14	28-Feb-15	04-Mar-15	205	67
GFXX067	E9 (E2g) - Bored Piles (2.00m dia. x 6 nr)	105	17-May-14 A	32%	71	16-Sep-14	04-Dec-14	04-Mar-15	138	0
GFXX068	E9 (E2g) - Sonic & Interface Coring	12	16-Sep-14	0%	12	30-Sep-14	05-Mar-15	18-Mar-15	138	0
E10A & E10B (E2h - 1/2)										
Foundation Works - E10A & E10B										



Actual Work
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Milestone

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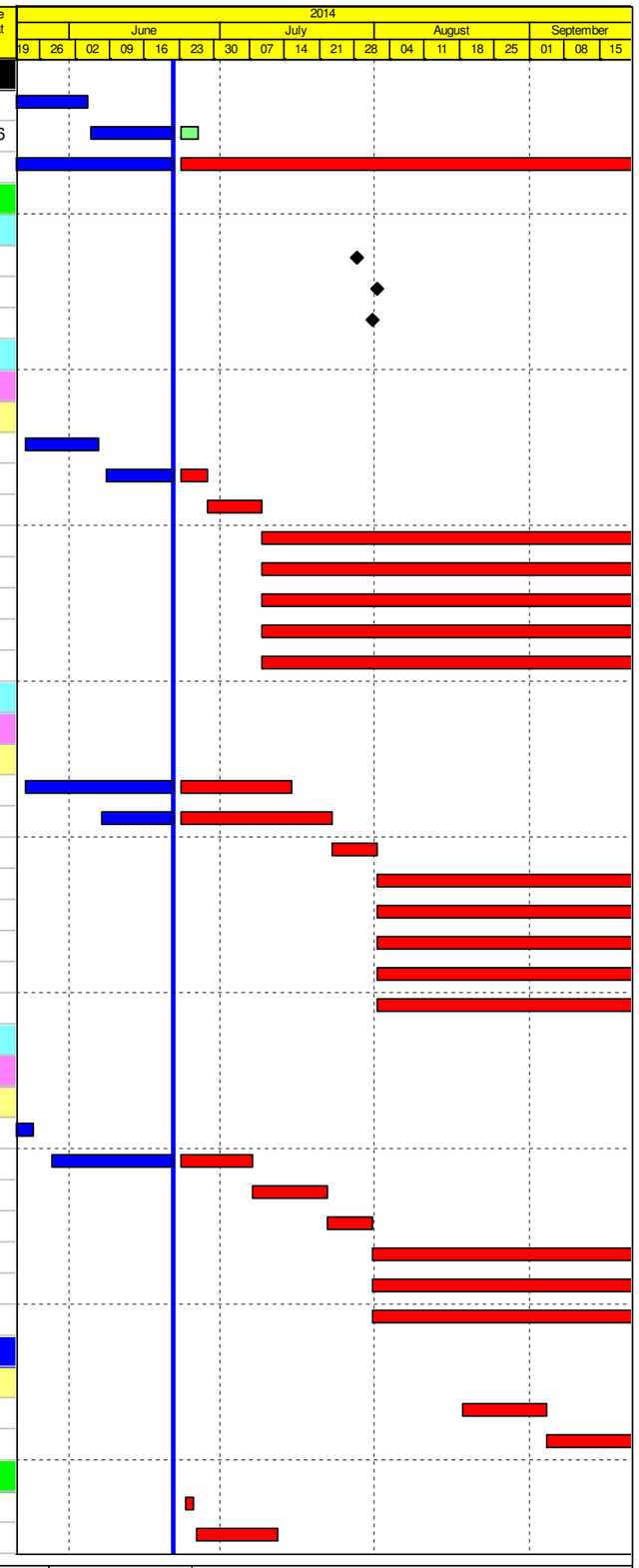
Foundation Works										
GFXX071	E10 (E2h) - Predrilling (8 nos)	11	12-May-14 A	100%	5	04-Jun-14 A				
GFXX071-1	E10 (E2h) - Confirm Rockhead levels	8	05-Jun-14 A	50%	4	26-Jun-14	31-Oct-14	04-Nov-14	108	106
GFXX072	E10 (E2h) - Bored Piles (2.20m dia. x 6 nr)	132	15-May-14 A	17%	110	01-Nov-14	25-Jun-14	04-Nov-14	2	0
Viaduct E5, E6, E7 & E8										
Milestones - Marine Foundation										
GFXX084-1	E11 (E5E6a/E7E8a) - Start date for piling	0	28-Jul-14	0%	0		21-Mar-14		-102	0
GFXX089-1	E12 (E5b/E6b/E7b/E8b + Dolphins) - Start date for piling	0	01-Aug-14	0%	0		17-Mar-14		-111	0
GFXX095-1	E13C/D (E6c/E5c+ dolphin) - Start date for piling	0	31-Jul-14	0%	0		10-Apr-14		-90	0
E11A & E11B (E5E6a/E7E8a)										
Foundation Works - E11A & E11B										
Foundation Works										
GFXX082-1	E11 (E5E6a/E7E8a) - Inst.Temp.Working Platform (Lightweight)	24	23-May-14 A	100%	0	06-Jun-14 A				
GFXX083	E11 (E5E6a/E7E8a) - Predrilling (7 nos)	17	08-Jun-14 A	67%	6	28-Jun-14	05-Mar-14	11-Mar-14	-87	0
GFXX083-1	E11 (E5E6a/E7E8a) - Confirm Rockhead levels	8	28-Jun-14	0%	8	09-Jul-14	12-Mar-14	20-Mar-14	-87	0
GFXX084	E11 (E5E6a/E7E8a) - Bored Piles (2.35m dia. x 7 nr)	130	09-Jul-14	0%	130	11-Dec-14	21-Mar-14	28-Aug-14	-87	0
GFXX084-5C	E11 (E5E6a/E7E8a) - Bored Piles (2.35m dia. x 2 nr (Total 7 Nr))	130	09-Jul-14	0%	130	11-Dec-14	21-Mar-14	28-Aug-14	-87	0
GFXX084-6C	E11 (E5E6a/E7E8a) - Bored Piles (2.35m dia. x 2 nr (Total 7 Nr))	130	09-Jul-14	0%	130	11-Dec-14	21-Mar-14	28-Aug-14	-87	0
GFXX084-7C	E11 (E5E6a/E7E8a) - Bored Piles (2.35m dia. x 2 nr(Total 7 Nr))	130	09-Jul-14	0%	130	11-Dec-14	21-Mar-14	28-Aug-14	-87	0
GFXX084-8C	E11 (E5E6a/E7E8a) - Bored Piles (2.35m dia. x 1 nr(Total 7 Nr))	130	09-Jul-14	0%	130	11-Dec-14	21-Mar-14	28-Aug-14	-87	0
E12A, E12B, E12C & E12D (E8b/E7b/E6b/E5b)										
Foundation Works - E12										
Foundation Works										
GFXX087-1	E12 (E5b/E6b, E7b/E8b + Dolphins) - Inst.Temp.Working Platform (Lightweight)	37	23-May-14 A	50%	19	15-Jul-14	13-Feb-14	06-Mar-14	-104	7
GFXX088-1	E12 (E5b/E6b, E7b/E8b + Dolphins) - Predrilling (20 nos)	27	07-Jun-14 A	5%	26	23-Jul-14	05-Feb-14	06-Mar-14	-111	0
GFXX088-6	E12 (E5b/E6b, E7b/E8b + Dolphins) - Confirm Rockhead levels	8	23-Jul-14	0%	8	01-Aug-14	07-Mar-14	15-Mar-14	-111	0
GFXX089	E12 (E5b/E6b/E7b/E8b + Dolphins) - Bored Piles (2.35m dia. x 14 nr ; 2.00m dia x 6 nr)	216	01-Aug-14	0%	216	25-Apr-15	17-Mar-14	05-Dec-14	-111	0
GFXX089-5C	E12D (E5b+ Dolphins) - Bored Piles (2.35m dia. x 4 nr (total 14) ; 2.00m dia x 3 nr (total 6))	216	01-Aug-14	0%	216	25-Apr-15	17-Mar-14	05-Dec-14	-111	0
GFXX089-6C	E12C (E6b) - Bored Piles (2.35m dia. x 3 nr)	216	01-Aug-14	0%	216	25-Apr-15	17-Mar-14	05-Dec-14	-111	0
GFXX089-7C	E12B (E7b) - Bored Piles (2.35m dia. x 3 nr)	216	01-Aug-14	0%	216	25-Apr-15	17-Mar-14	05-Dec-14	-111	0
GFXX089-8C	E12A (E8b + Dolphins) - Bored Piles (2.35m dia. x 4 nr (total 14) ; 2.00m dia x 3 nr (total 6))	216	01-Aug-14	0%	216	25-Apr-15	17-Mar-14	05-Dec-14	-111	0
E13A, E13B, E13C & E13D (E8c/E7c/E6c/E5c)										
Foundation Works - E13										
Foundation Works - E13C (E6c) & E13D (E5c)										
GFXX093	E13C/D (E6c/E5c + Dolphin) - Inst.Temp.Working Platform (Heavy)	29	22-Apr-14 A	100%	0	24-May-14 A				
GFXX093-1	E13C/D (E6c/E5c + Dolphin) - Inst.Temp.Working Platform (Lightweight)	29	28-May-14 A	60%	12	07-Jul-14	01-Mar-14	14-Mar-14	-90	0
GFXX094	E13C/D (E6c/E5c + Dolphin) - Predrilling	13	07-Jul-14	0%	13	22-Jul-14	15-Mar-14	29-Mar-14	-90	0
GFXX094-1	E13C/D (E6c/E5c + Dolphin) - Confirm Rockhead levels	8	22-Jul-14	0%	8	31-Jul-14	31-Mar-14	09-Apr-14	-90	0
GFXX095	E13C/D (E6c/E5c + Dolphin) - Bored Piles (2.20m dia. x 8 nr; 2.00m dia x 3nr))	128	31-Jul-14	0%	128	03-Jan-15	10-Apr-14	15-Sep-14	-90	0
GFXX095-1C	E13D (E5c + Dolphin) - Bored Piles (2.20m dia. x 4 nr; 2.00m dia x 3nr))	128	31-Jul-14	0%	128	03-Jan-15	10-Apr-14	15-Sep-14	-90	0
GFXX615-2C	E13C (E6c) - Bored Piles (2.20m dia. x 4 nr)	128	31-Jul-14	0%	128	03-Jan-15	10-Apr-14	15-Sep-14	-90	0
At-Grade Roadworks and Other Works along Cheung Tung Road										
Re-alignment of Cheung Tung Road adjacent to Viaduct B										
RP00010	Apply for relocation of ESS affected by CTR re-alignment adj. to Viaduct B	12	18-Aug-14	0%	12	04-Sep-14	14-Feb-14	27-Feb-14	-124	0
RP00020	Construct new ESS adjacent to Viaduct B	60	04-Sep-14	0%	60	20-Nov-14	28-Feb-14	26-May-14	-124	0
Viaduct B Slope Works										
SWVB0010	Setup TTM for slopework for Slope 9SE-B/C8, B/C9, B/F9	2	24-Jun-14	0%	2	25-Jun-14	04-Jan-14	06-Jan-14	-117	0
SWVB0020	Slope 9SE-B/C8, B/C9, B/F9 - Erect safety fence on CTR	12	26-Jun-14	0%	12	12-Jul-14	07-Jan-14	20-Jan-14	-117	0



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: J3518DWPrD1-M13
Layout: J3518-DWP-3MRP submission - M13
Filter: TASK filters: 3-Month Lookahead, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection

3-Month Rolling Programme (Page 26 of 27 Pages)

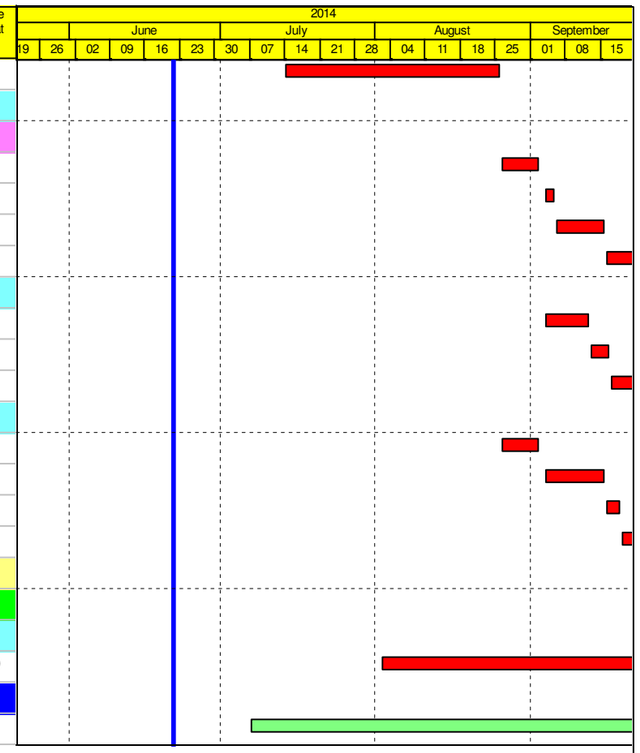
(Progress as of 21-Jun-14)

Date	Revision	Checked	Approved
28-Jun-14		FZ	

DWG. No.:

J3518/GCL/PGM/3MRP-M13

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float
SWVB0030	Slope 9SE-B/C8, B/C9, B/F9 - Form haul road	30	14-Jul-14	0%	30	25-Aug-14	21-Jan-14	27-Feb-14	-117	0
Slope 9SE-B/C9										
Zone A										
SWVB1010	9SE-B/C9 Zone A - Form access track over crest of slope	6	26-Aug-14	0%	6	02-Sep-14	10-Mar-14	15-Mar-14	-109	0
SWVB1020	9SE-B/C9 Zone A - Excav. to +25.00	2	04-Sep-14	0%	2	05-Sep-14	17-Mar-14	18-Mar-14	-109	0
SWVB1030	9SE-B/C9 Zone A - Soil nail pull out test	6	06-Sep-14	0%	6	15-Sep-14	19-Mar-14	25-Mar-14	-109	0
SWVB1040	9SE-B/C9 Zone A - Soil nail 18 nr.@ +26.5	10	16-Sep-14	0%	10	26-Sep-14	26-Mar-14	08-Apr-14	-109	0
Slope 9SE-B/C8										
SWVB2010	9SE-B/C8 - Form access track over crest of slope	6	04-Sep-14	0%	6	12-Sep-14	07-Mar-14	13-Mar-14	-117	0
SWVB2020	9SE-B/C8 -Soil nail pull out test	3	13-Sep-14	0%	3	16-Sep-14	14-Mar-14	17-Mar-14	-117	0
SWVB2030	9SE-B/C8 -Soil nail 39 nr. @ +21.0	10	17-Sep-14	0%	10	27-Sep-14	18-Mar-14	28-Mar-14	-117	0
Slope 9SE-B/F9										
SWVB3010	9SE-B/F9 - Form access track over crest of slope & remove loose fill less than 1m thick	6	26-Aug-14	0%	6	02-Sep-14	28-Feb-14	06-Mar-14	-117	0
SWVB3020	9SE-B/F9 - Excav. to +10.5	8	04-Sep-14	0%	8	15-Sep-14	07-Jul-14	17-Jul-14	-41	0
SWVB3030	9SE-B/F9 - Soil nail pull out test	3	16-Sep-14	0%	3	18-Sep-14	18-Jul-14	21-Jul-14	-41	0
SWVB3040	9SE-B/F9 - Soil nail 16 nr.	8	19-Sep-14	0%	8	27-Sep-14	22-Jul-14	01-Aug-14	-41	0
Re-alignment of Cheung Tung Road adjacent to Viaduct C										
East Portion										
ESS Sub-Station										
RP10010	Apply for relocation of ESS near Viaduct C	90	02-Aug-14	0%	90	28-Nov-14	15-Apr-14	06-Sep-14	-65	59
Watermains & All Assoc Works from Tung Chung to Southern Landfall										
WM00100	Prepare / submit TTMS for watermain laying along realigned CTR	72	07-Jul-14	0%	72	16-Oct-14	08-Sep-14	06-Dec-14	44	0



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: J3518DWPrD1-M13
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Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 27 of 27 Pages)
(Progress as of 21-Jun-14)

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28-Jun-14		FZ	

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Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

(In reference to CINOTECH (2011) Agreement No. CE35/2011 EP Baseline Environmental Monitoring for Hong Kong-Zhuhai-Macao BridgeTuen Mun-Chep Lap Kok Link – Investigation. UpdatedEM&A Manual for Tuen Mun-Chek Lap Kok Link)

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 eight 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	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		✓

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		✓
NOISE									
5.11	Section 4	Noise monitoring	All existing representative sensitive receivers / during North Lantau Viaduct construction	Contractor	EM&A Manual		Y		✓
WATER QUALITY									
General Marine Works									
6.10	-	Bored piling to be undertaken within a metal casing.	Marine viaducts of TM-CLKL and HKLR/ bored piling	Contractor	TM-EIAO		Y		✓
6.10	-	Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
6.10	-	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
Temporary Staging work									
	5.2	Regular inspection for the accumulation of floating refuse and collection of floating refuse if required	During temporary staging works	Contractor			Y		✓
	5.2	Provision of temporary drainage system on the temporary staging for collection of construction site runoff to allow appropriate treatment before discharge into the sea	During temporary staging works	Contractor			Y		✓
	5.2	Wastewater generated from construction works such as bored / drilling water will be collected, treated, neutralized and de-silted through silt trap or sedimentation tank before disposal	During temporary staging works	Contractor			Y		✓
	5.2	One additional water quality monitoring station is	During temporary	Contractor			Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		proposed at station SR4a In case elevated SS or turbidity is identified during the water quality monitoring, the source of pollution will be tracked down and be removed as soon as possible. In case depletion of dissolved oxygen is identified, artificial aeration will be arranged at the monitoring station SR4a,	staging works						
Land Works									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Sewage effluent and discharges from on- site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm 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		✓
6.10	-	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		Δ

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	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		✓
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Y	✓
6.10	Section 5	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
Water Quality Monitoring									
6.10	Section 5	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen. Nutrients and metal parameters shall also be measured for Mf sediment operations (only HKBCF and HKLR required handling of Mf sediment) during baseline, backfilling and post construction period. One year operation phase water quality monitoring at designated stations	Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality monitoring for a year.	Contractor	EM&A Manual		Y	Y	✓
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	Specification for bored piling monitoring	Detailed Design	Design Consultant	TMEIA	Y			✓
8.14	6.3	Implement any recommendations of the bored piling monitoring	Southern marine viaduct/Throughout	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
			construction during bored piling						
8.14	6.3,6.5	Avoidance of peak CWD calving season in May and June for driving of metal caissons during bored piling works	Southern marine viaduct/ May and June during bored piling	Contractor	TMEIA		Y		n/a
8.14	6.3,6.5	Specification and implementation of 250m dolphin exclusion zone.	All marine bored piling and temporary staging works areas/Detailed Design/during all marine bored piling and temporary staging works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.3, 6.5	Specification and deployment of an artificial reef of an area of 3,600 m² 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 enforced 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 marine bored piling and the whole lifespan of temporary staging works.	All areas/ Detailed Design/during marine bored piling and temporary staging works	Design Consultant/ Contractor	TMEIA	Y	Y		<>
8.15	6.3, 6.4	Pre-construction phase survey and coral translocation	Tai Ho Wan (donar site) and Yam Tsui Wan (receptor site) /Detailed Design/Prior to construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.5	Audit coral translocation success	Yam Tsui Wan (receptor site)/Post translocation	Contractor	TMEIA		Y		**n/a**
7.13	6.5	Undertaken gabion wall works in Stream NL1 in the dry season	North Lantau slope works/dry	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
			season/construction phase						
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. To be approved by AFCD/LCSD
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	Round angle, patterned finishes, and oval shaped pier were considered in the viaduct design, and further details will be developed under ACABAS submission (DM3)	All areas/detailed design	Design Consultant	TMEIA	Y			n/a
10.9	7.6	Details of the street furniture will be developed in the detailed design stage (DM4)	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	Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage) (CM1)							
10.9	7.6	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme (CM2)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Hillside and roadside screen planting to proposed roads, associated structures and slope works (CM3).	All areas/detailed design/ during construction/post construction	Design Consultant/	TMEIA	Y	Y		✓
10.9	7.6	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone) (CM4)	All areas/detailed design/ during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/detailed design/ during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		n/a
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		<>
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Recycle/Reuse all felled trees and vegetation, e.g.	All areas/detailed	Design	TMEIA	Y	Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		mulching (CM9)	design/ during construction	Consultant/ Contractor					
10.9	7.6	Compensatory tree planting shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006 (CM10).	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Re-vegetation of affected woodland/shrubland with native species (OM1)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/ L CSD
10.9	7.6	Tall buffer screen tree / shrub / climber planting should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a To be implemented by HyD/LCSD
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill (OM3)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and	All areas/detailed design/ during	Design Consultant/	TMEIA	Y	Y	Y	n/a. To be

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		finishes	construction / during operation	Contractor					implemented by HyD
WASTE									
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous 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		✓

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	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		<>
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	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	All areas / throughout	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		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.	construction period						
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: - suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; - Having a capacity of <450L unless the specifications have been approved by the EPD; and - Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. Clearly labelled and used solely for the storage of chemical wastes; - Enclosed with at least 3 sides; - 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; - Adequate ventilation; - Sufficiently covered to prevent rainfall entering	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.							
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

Notes:

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

Status:

✓	Compliance of Mitigation Measures
<>	Compliance of Mitigation but need improvement
x	Non-compliance of Mitigation Measures
▲	Non-compliance of Mitigation Measures but rectified by Contractor
Δ	Deficiency of Mitigation Measures but rectified by Contractor
n/a	Not Applicable in Reporting Period

Appendix D

Summary of Action and Limit Levels

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

Parameters	Action	Limit
24 Hour TSP Level in µg/m³	ASR9A/ASR8A = 178 ASR9C/ASR8 = 178	260
1 Hour TSP Level in µg /m³	ASR9A/ASR8A = 394 ASR9C/ASR8 = 393	500

Table D2 ***Action and Limit Levels for Construction Noise (0700-1900 hrs of normal weekdays)***

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)

Table D3 ***Action and Limit Levels for Water Quality***

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

Notes:

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

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

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

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

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

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

Table D4 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 D5 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	[STG < 2.4 & ANI <8.9] and [STG < 3.9 & ANI <17.9]	

Appendix E

EM&A Monitoring Schedules

HY/2012/07 - Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Marine Water Quality Monitoring (WQM) Schedule (June14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun	07-Jun
		WQM Mid-Flood 9:22 (07:37 - 11:07) Mid-Ebb 16:28 (14:43 - 18:13)		**WQM** Mid-Flood 11:02 (09:17 - 12:47) Mid-Ebb 17:53 (16:08 - 19:38)		**WQM** Mid-Ebb 8:37 (06:52 - 10:22) Mid-Flood 14:06 (12:21 - 15:51)
08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun
		WQM Mid-Ebb 10:59 (09:14 - 12:44) Mid-Flood 17:40 (15:55 - 19:25)		**WQM** Mid-Ebb 12:20 (10:35 - 14:05) Mid-Flood 19:22 (17:37 - 21:07)		**WQM** Mid-Ebb 13:47 (12:02 - 15:32) Mid-Flood 21:00 (19:15 - 22:45)
15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun
		WQM Mid-Flood 9:20 (07:35 - 11:05) Mid-Ebb 16:10 (14:25 - 17:55)		**WQM** Mid-Flood 11:33 (09:48 - 13:18) Mid-Ebb 18:00 (16:15 - 19:45)		**WQM** Mid-Ebb 8:34 (06:49 - 10:19) Mid-Flood 14:22 (12:37 - 16:07)
22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun
		WQM Mid-Ebb 11:14 (09:29 - 12:59) Mid-Flood 18:03 (16:18 - 19:48)		**WQM** Mid-Ebb 12:33 (10:48 - 14:18) Mid-Flood 19:33 (17:48 - 21:18)		**WQM** Mid-Ebb 13:47 (12:02 - 15:32) Mid-Flood 20:46 (19:03 - 22:33)
29-Jun	30-Jun	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul

HY/2012/07 - Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Marine Water Quality Monitoring (WQM) Schedule (July14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Jul	02-Jul	03-Jul	04-Jul	05-Jul
		WQM Mid-Flood 8:33 (06:48 - 10:18) Mid-Ebb 15:28 (13:43 - 17:13)		**WQM** Mid-Flood 9:52 (08:07 - 11:37) Mid-Ebb 16:34 (14:49 - 18:19)		**WQM** Mid-Flood 11:48 (10:03 - 13:33) Mid-Ebb 18:00 (16:15 - 19:45)
06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul
		WQM Mid-Ebb 9:38 (07:53 - 11:23) Mid-Flood 16:29 (14:44 - 18:14)		**WQM** Mid-Ebb 11:16 (09:31 - 13:01) Mid-Flood 18:25 (16:40 - 20:10)		**WQM** Mid-Ebb 12:49 (11:04 - 14:34) Mid-Flood 19:59 (18:14 - 21:44)
13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul
		WQM Mid-Flood 8:23 (06:38 - 10:08) Mid-Ebb 15:08 (13:23 - 16:53)		**WQM** Mid-Flood 10:15 (08:30 - 12:00) Mid-Ebb 16:41 (14:56 - 18:26)		**WQM** Mid-Flood 12:37 (10:52 - 14:22) Mid-Ebb 18:30 (16:45 - 20:15)
20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul
		WQM Mid-Ebb 10:09 (08:24 - 11:54) Mid-Flood 17:12 (15:27 - 18:57)		**WQM** Mid-Ebb 11:39 (09:54 - 13:24) Mid-Flood 18:43 (16:58 - 20:28)		**WQM** Mid-Ebb 12:53 (11:08 - 14:38) Mid-Flood 19:47 (18:02 - 21:32)
27-Jul	28-Jul	29-Jul	30-Jul	31-Jul		
		WQM Mid-Flood 7:45 (06:00 - 09:30) Mid-Ebb 14:32 (12:47 - 16:17)		**WQM** Mid-Flood 8:59 (07:14 - 10:44) Mid-Ebb 15:31 (13:46 - 17:16)		

HY/2012/07 - Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Marine Water Quality Monitoring (WQM) Schedule (August 14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Aug	02-Aug
						WQM Mid-Flood 10:25 (08:40 - 12:10) Mid-Ebb 16:38 (16:15 - 19:45)
03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug
		WQM Mid-Flood 14:42 (12:57 - 16:27) Mid-Ebb 20:11 (18:26 - 21:56)		**WQM** Mid-Ebb 10:01 (08:16 - 11:46) Mid-Flood 17:33 (15:38 - 19:08)		**WQM** Mid-Ebb 11:46 (10:01 - 13:31) Mid-Flood 18:55 (17:10 - 20:40)
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
		WQM Mid-Ebb 14:04 (12:19 - 15:49) Mid-Flood 20:52 (19:07 - 22:37)		**WQM** Mid-Flood 9:11 (07:26 - 10:56) Mid-Ebb 15:31 (13:45 - 17:15)		**WQM** Mid-Flood 11:08 (09:23 - 12:53) Mid-Ebb 16:57 (15:12 - 18:42)
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug
		WQM Mid-Ebb 8:31 (06:46 - 10:16) Mid-Flood 15:58 (14:13 - 17:43)		**WQM** Mid-Ebb 10:35 (08:50 - 12:20) Mid-Flood 17:51 (16:06 - 19:36)		**WQM** Mid-Ebb 11:56 (10:11 - 13:41) Mid-Flood 18:48 (17:03 - 20:33)
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
		WQM Mid-Ebb 13:36 (11:51 - 15:21) Mid-Flood 20:00 (18:15 - 21:45)		**WQM** Mid-Flood 8:12 (06:27 - 09:57) Mid-Ebb 14:34 (12:49 - 16:19)		**WQM** Mid-Flood 9:31 (07:46 - 11:16) Mid-Ebb 15:38 (13:53 - 17:23)
31-Aug						

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Tentative Impact Noise Monitoring Schedule (1 Jun to 30 Jun 2014)

Noise Monitoring at the rooftop of Pak Mong Village Watch Tower

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun	07-Jun
		Noise Monitoring				
08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun
	Noise Monitoring				Noise Monitoring	
15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun
				Noise Monitoring		
22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun
			Noise Monitoring			
29-Jun	30-Jun					
	Noise Monitoring					

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

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Tentative Impact Air Quality Monitoring Schedule (1 Jun to 30 Jun 2014)

Air Quality Monitoring at WA4 and rooftop of Pak Mong Village Watch Tower

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun	07-Jun
		1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				
08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun
	1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*	
15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun
				1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*		
22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun
			1-hour TSP - 3 times 24-hour TSP - 1 time *Impact AQM*			
29-Jun	30-Jun					
	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/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Noise Monitoring Schedule (1 July to 31 July 2014)

Noise Monitoring at the rooftop of Pak Mong Village Watch Tower

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Public Holiday 01-Jul	02-Jul	03-Jul	04-Jul	05-Jul
						Noise Monitoring
06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul
					Noise Monitoring	
13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul
				Noise Monitoring		
20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul
			Noise Monitoring			
27-Jul	28-Jul	29-Jul	30-Jul	31-Jul		
		Noise Monitoring				

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Air Quality Monitoring Schedule (1 July to 31 July 2014)

Air Quality Monitoring at WA4 and rooftop of Pak Mong Village Watch Tower

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

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Tentative Impact Noise Monitoring Schedule (1 August to 31 August 2014)

Noise Monitoring at rooftop of Pak Mong Village Watch Tower

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

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/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Tentative Impact Air Quality Monitoring Schedule (1 August to 31 August 2014)

Air Quality Monitoring at WA4 and rooftop of Pak Mong Village Watch Tower

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

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/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 June to 31 June 2014)

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

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/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 July to 31 July 2014)

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

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.

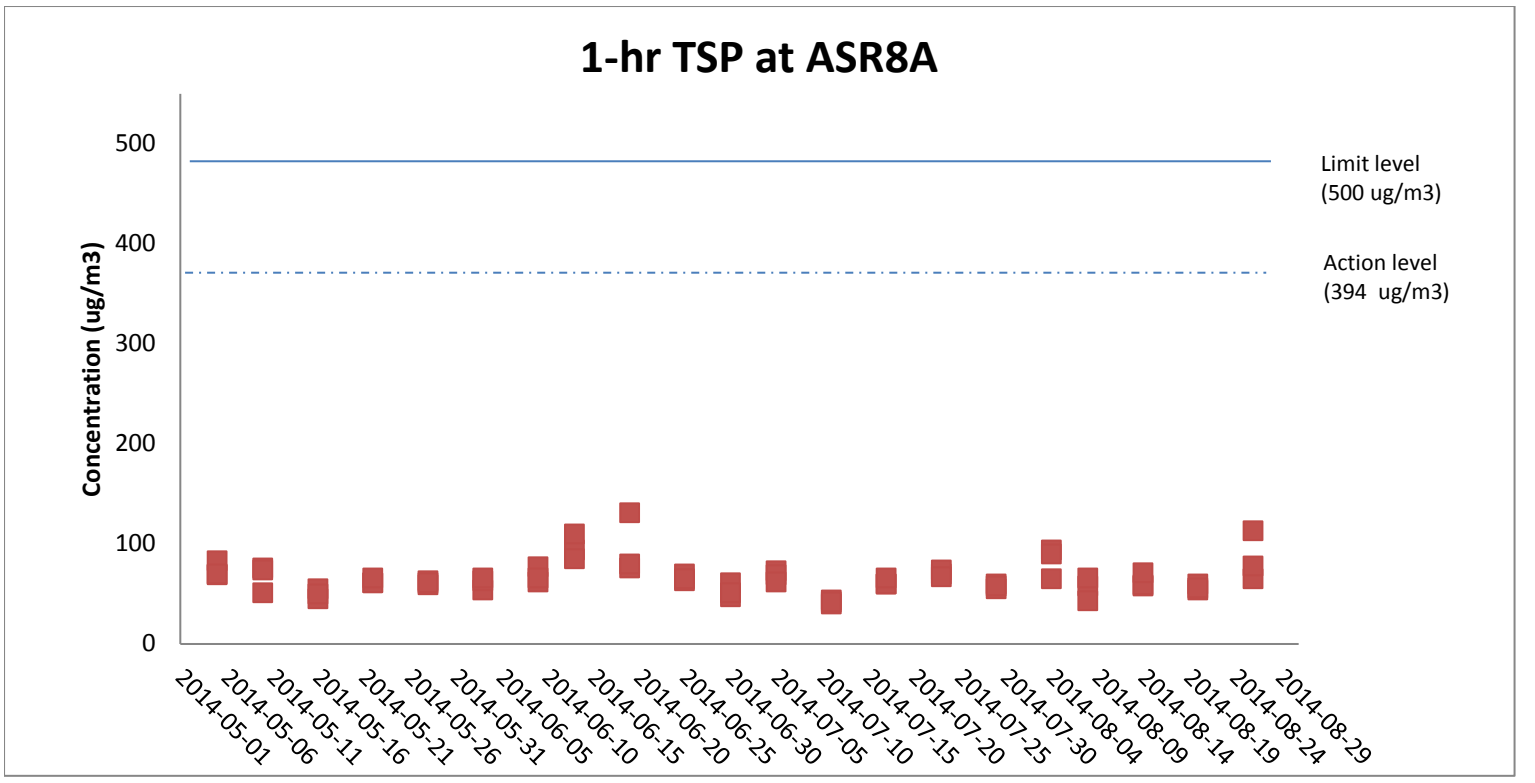
HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 August to 31 August 2014)

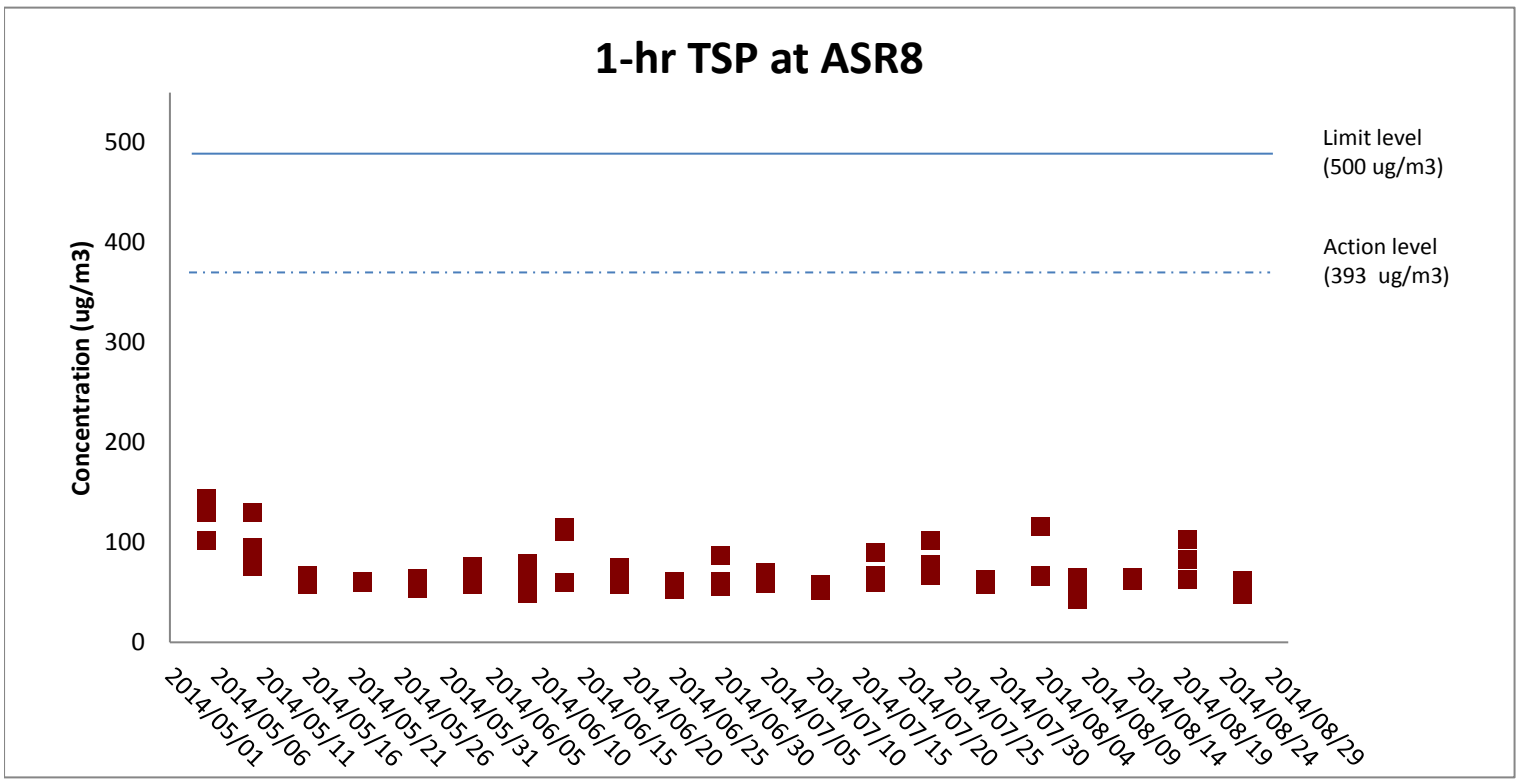
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Aug	02-Aug
03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug
		Impact Dolphin Monitoring	Impact Dolphin Monitoring			
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
					Impact Dolphin Monitoring	
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug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

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

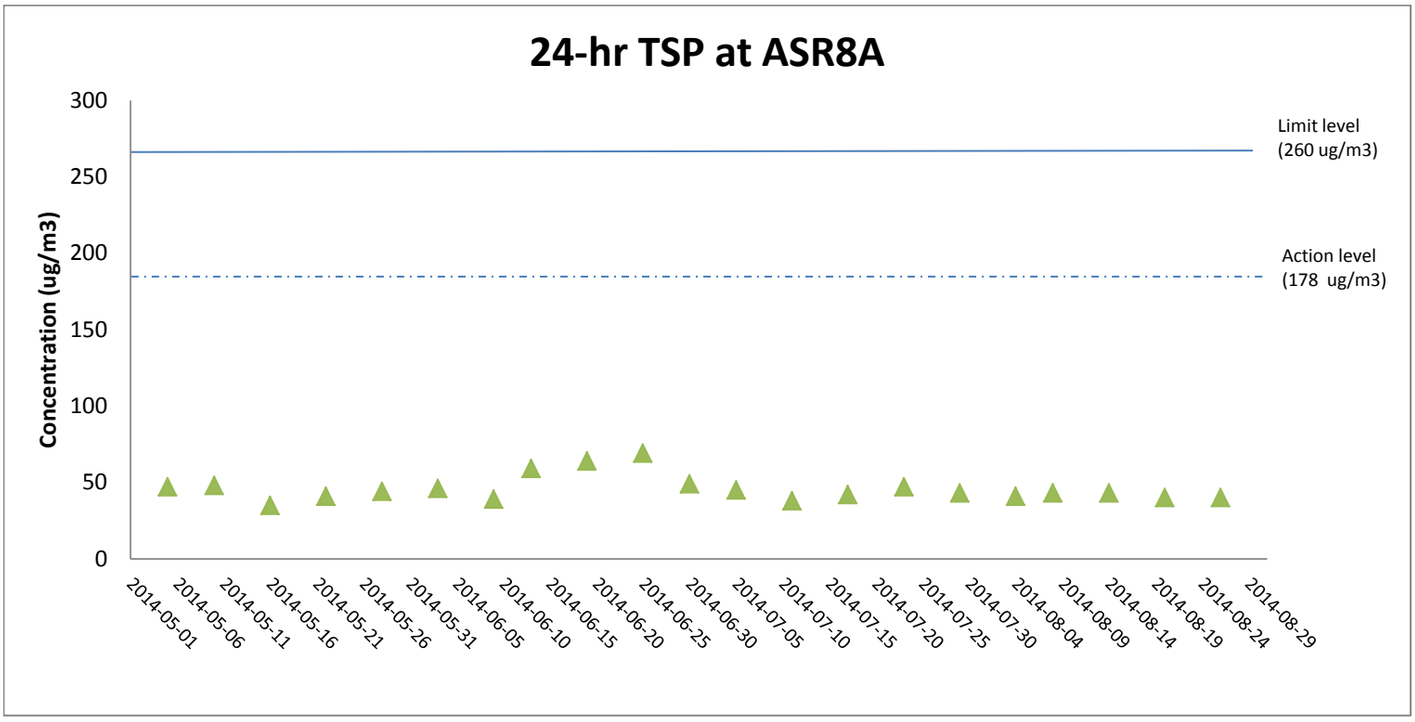
Appendix F

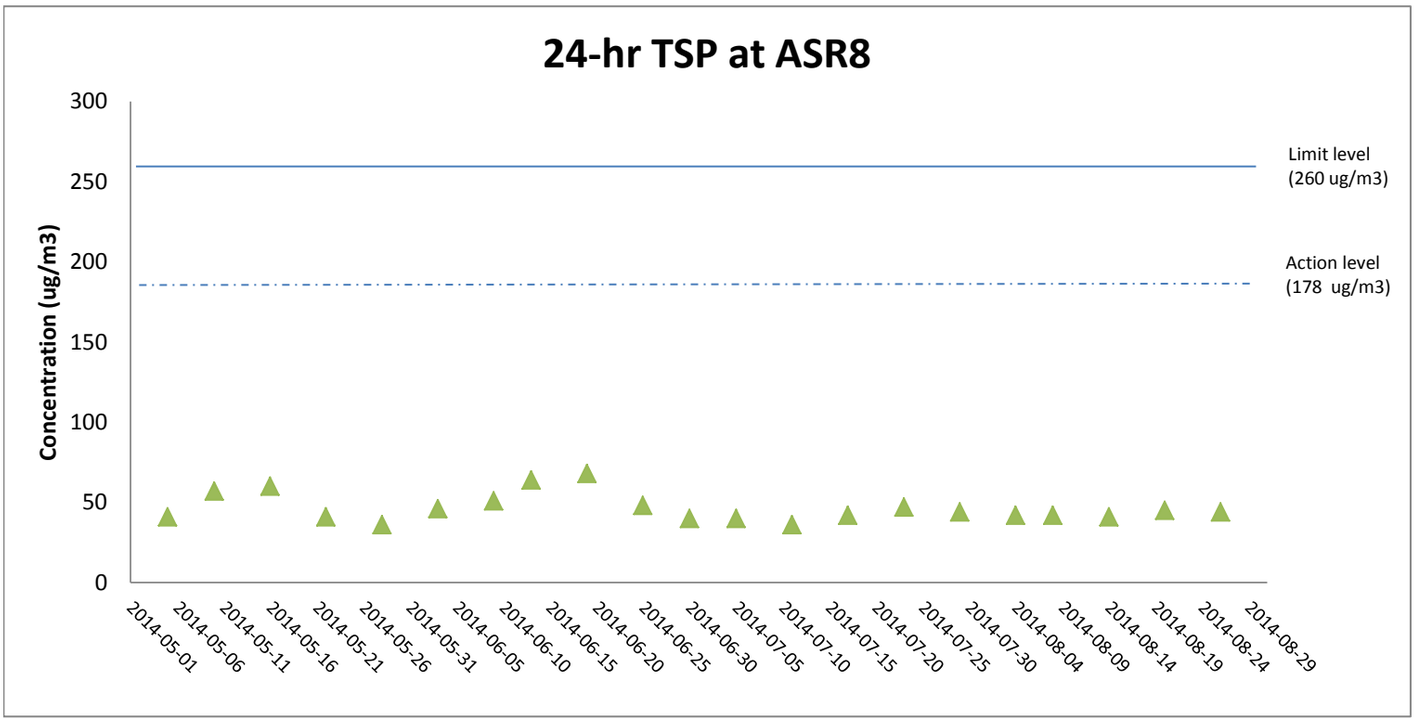
Impact Air Quality Monitoring Graphical Presentation





Weather condition within the reporting period varied between sunny to rainy.
Major construction works undertaken within the reporting period include construction of pile cap superstructure of Viaduct B; fence installation and relocation of Area 2, Viaducts A, B, C & D; land piling at Viaduct B&D; piling platform installation for Viaducts B, C, D and E; site formation of workshop at Area 1; additional land GI, trial pits & lab testing; utility surveys; and slope work of Slope 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.
Marine works within the reporting period include construction of Pile caps at Viaduct B; marine piling platform installation; marine piling at Viaducts B, D & E; construction of rockfill platform at Viaduct D landing; and additional marine ground investigation (GI) and laboratory testing.

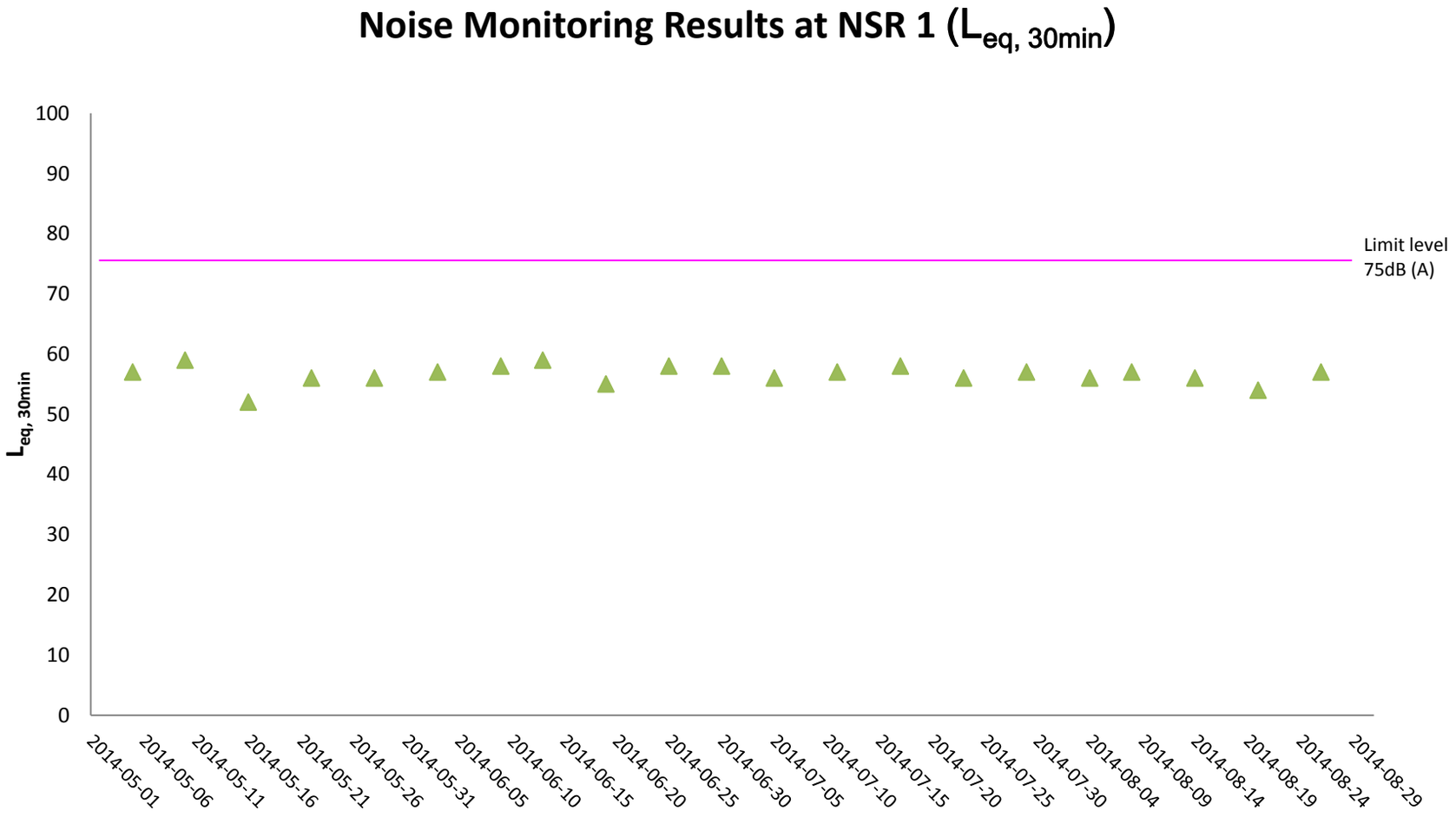




Weather condition within the reporting period varied between sunny to rainy.
Major construction works undertaken within the reporting period include construction of pile cap superstructure of Viaduct B; fence installation and relocation of Area 2, Viaducts A, B, C & D; land piling at Viaduct B&D; piling platform installation for Viaducts B, C, D and E; site formation of workshop at Area 1; additional land GI, trial pits & lab testing; utility surveys; and slope work of Slope 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.
Marine works within the reporting period include construction of Pile caps at Viaduct B; marine piling platform installation; marine piling at Viaducts B, D & E; construction of rockfill platform at Viaduct D landing; and additional marine ground investigation (GI) and laboratory testing.

Appendix G

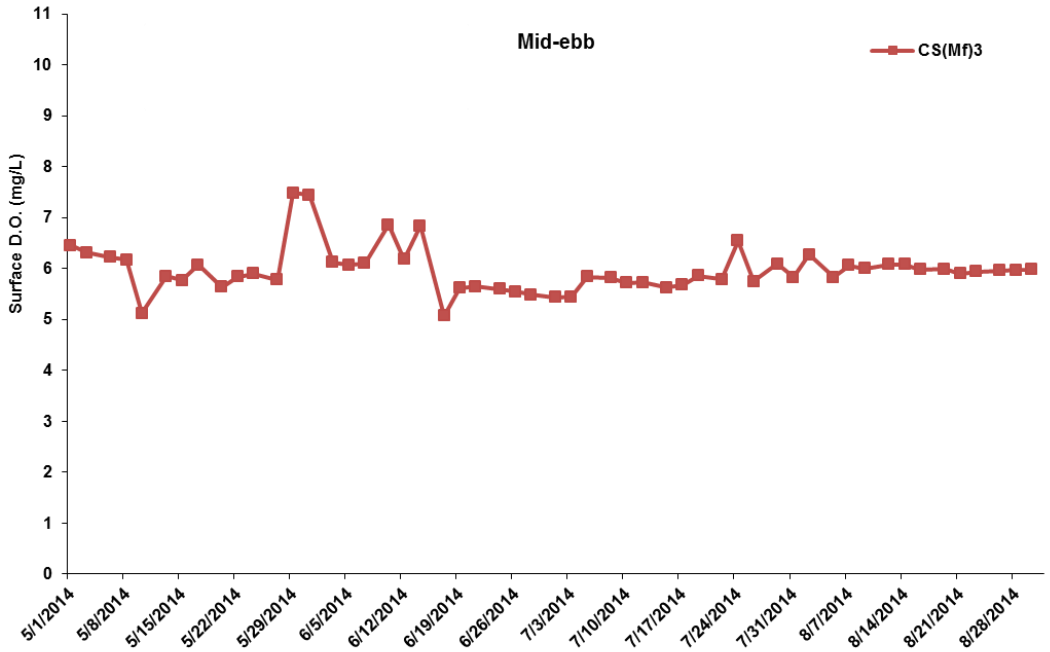
Impact Noise Monitoring Graphical Presentation



Weather condition within the reporting period varied between sunny to rainy.
Major construction works undertaken within the reporting period include construction of pile cap superstructure of Viaduct B; fence installation and relocation of Area 2, Viaducts A, B, C & D; land piling at Viaduct B&D; piling platform installation for Viaducts B, C, D and E; site formation of workshop at Area 1; additional land GI, trial pits & lab testing; utility surveys; and slope work of Slope 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.
Marine works within the reporting period include construction of Pile caps at Viaduct B; marine piling platform installation; marine piling at Viaducts B, D & E; construction of rockfill platform at Viaduct D landing; and additional marine ground investigation (GI) and laboratory testing.

Appendix H

Impact Water Quality Monitoring Graphical Presentation



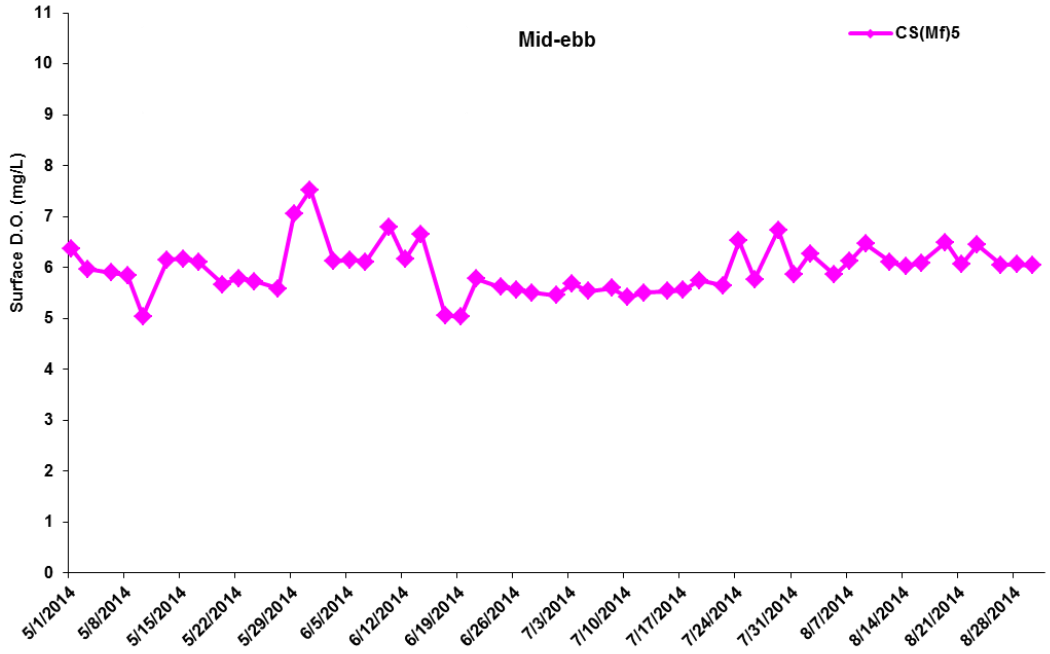
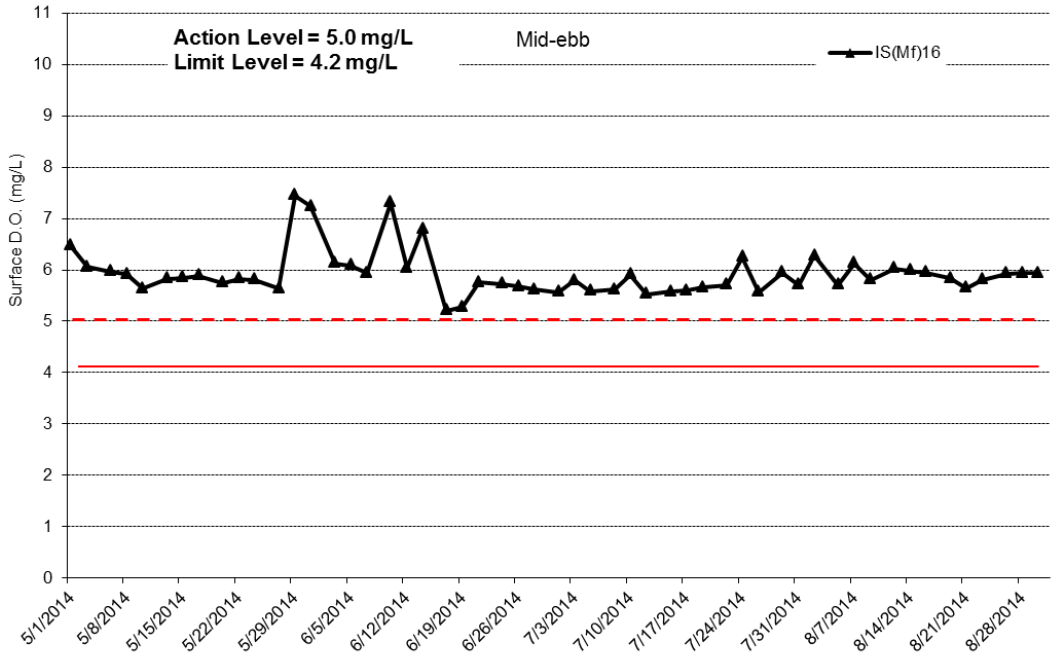


Figure H1 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



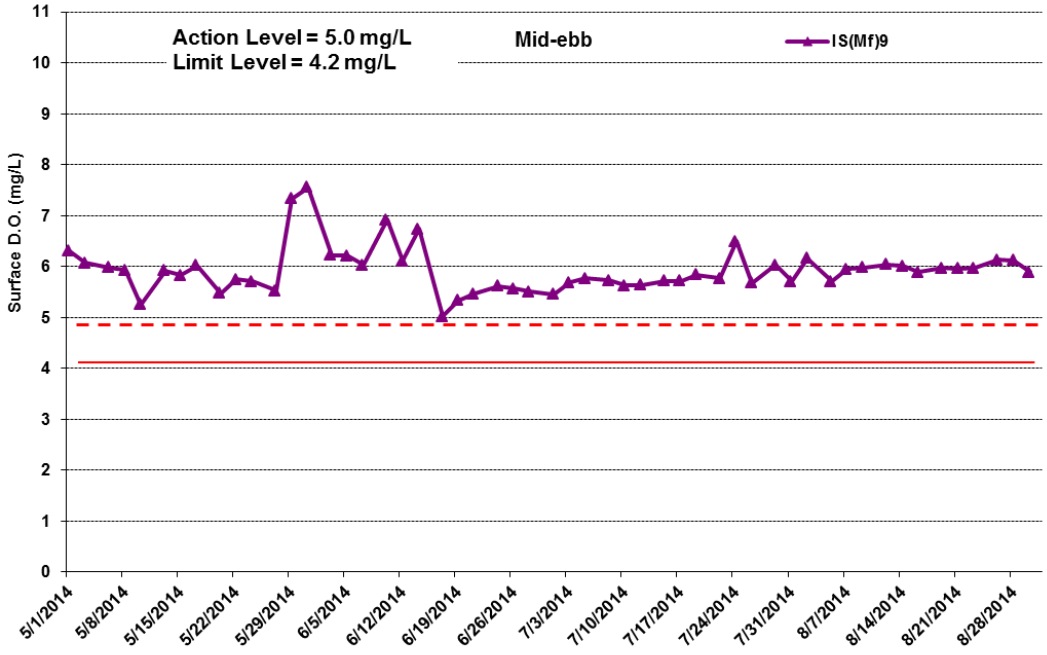
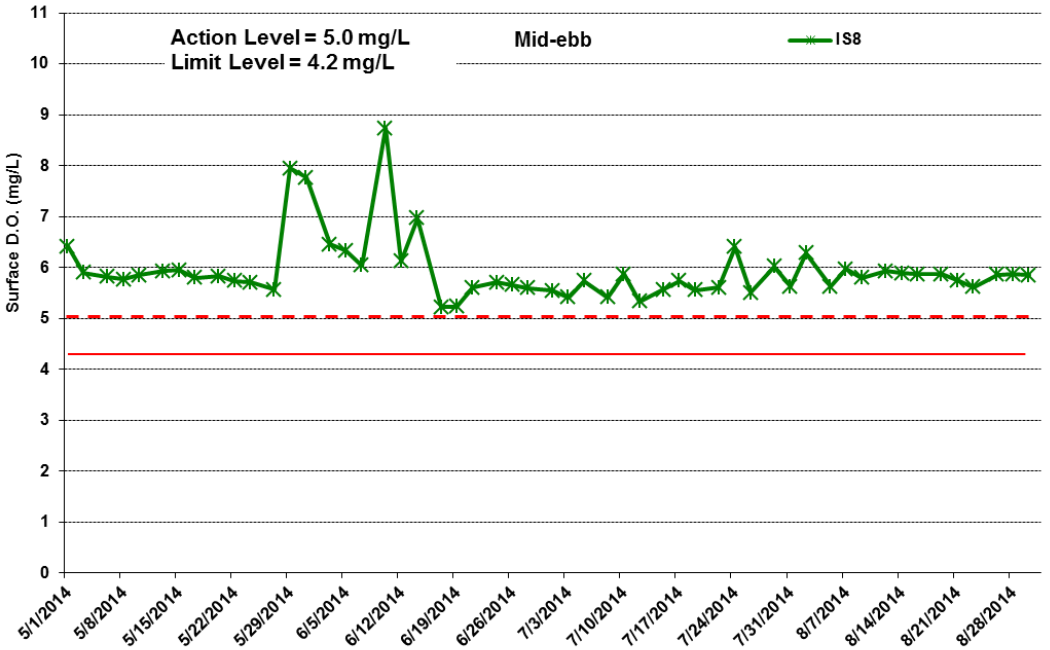


Figure H2 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



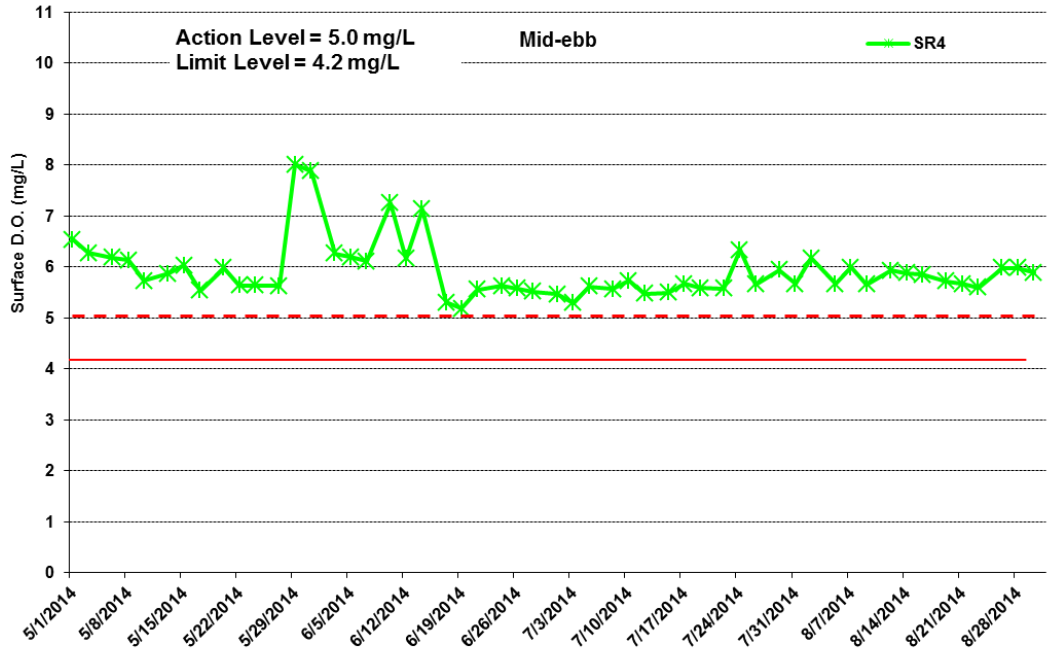


Figure H3 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

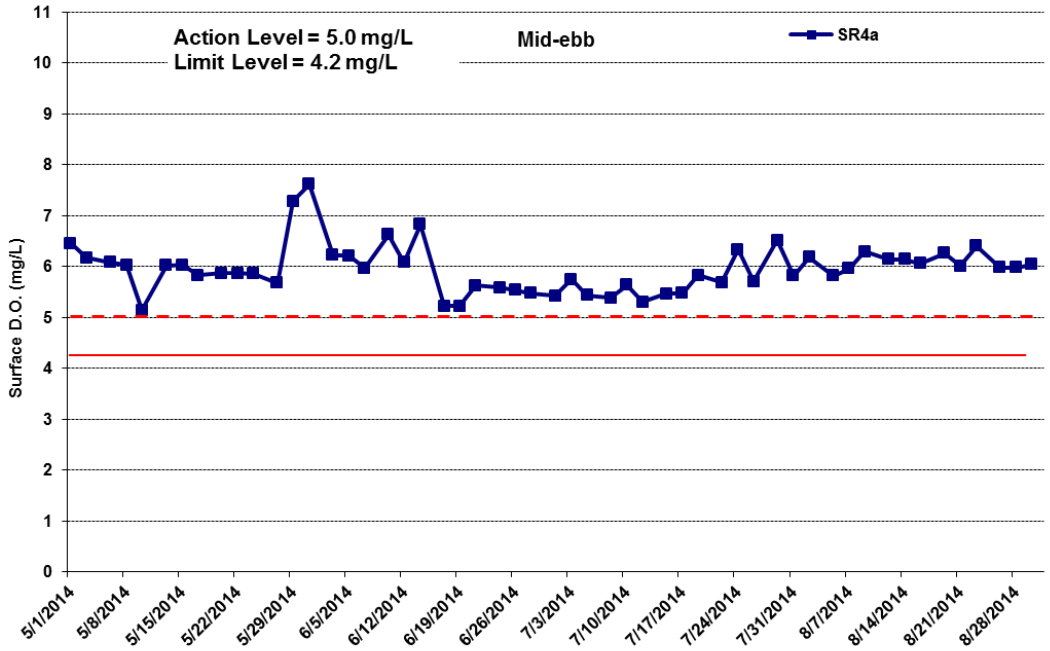


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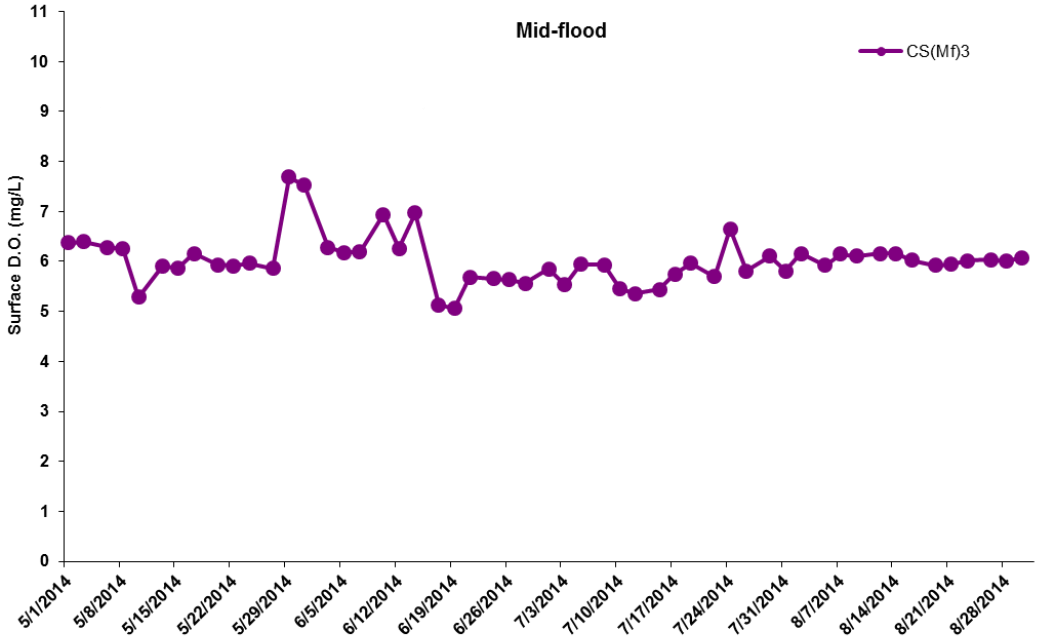
Figure H4 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



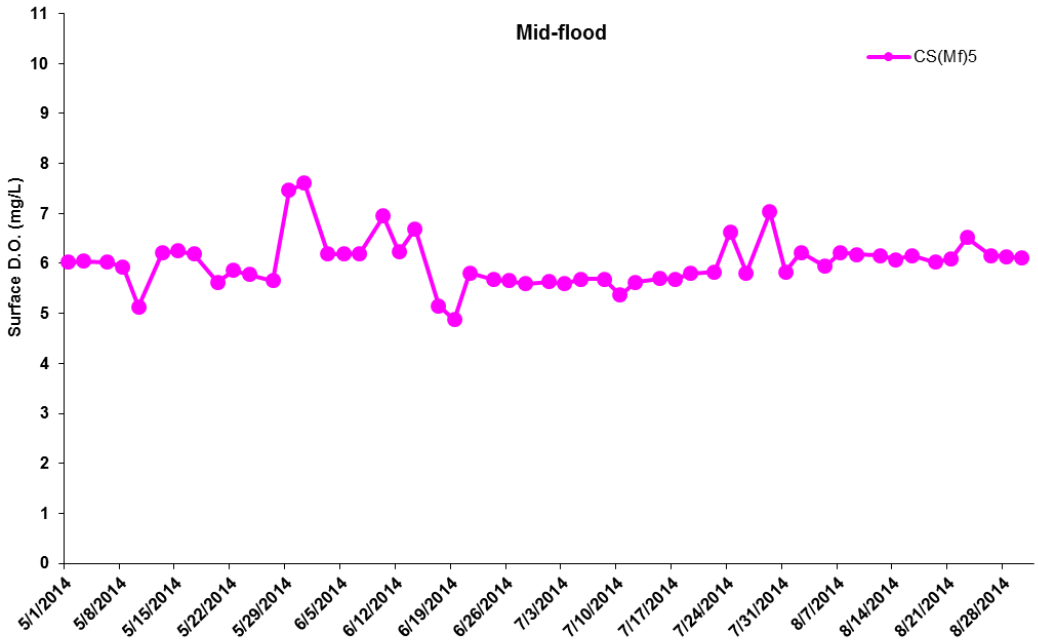
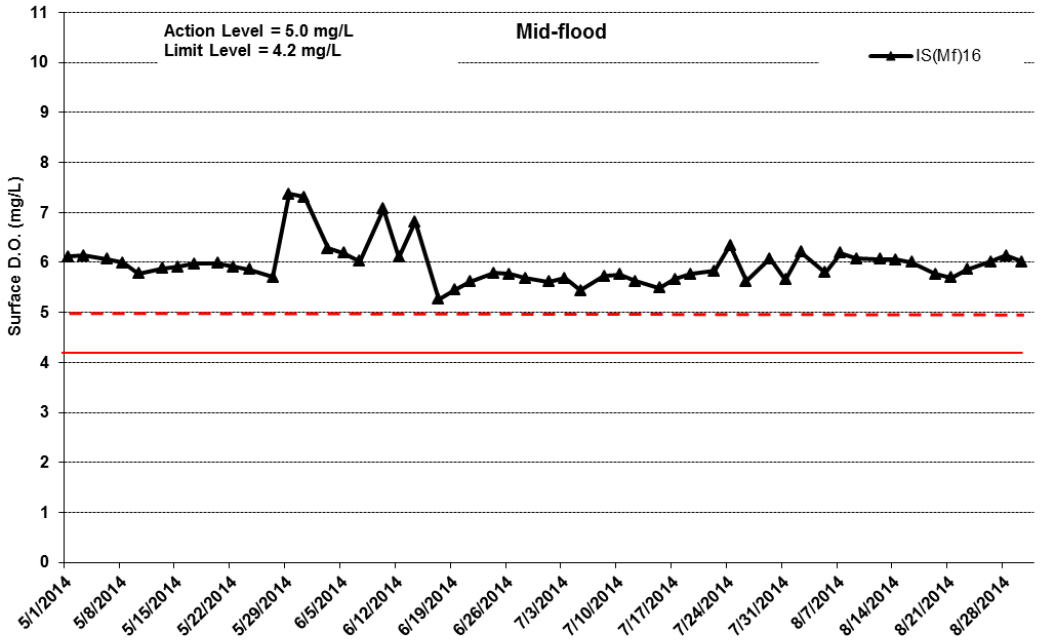


Figure H5 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



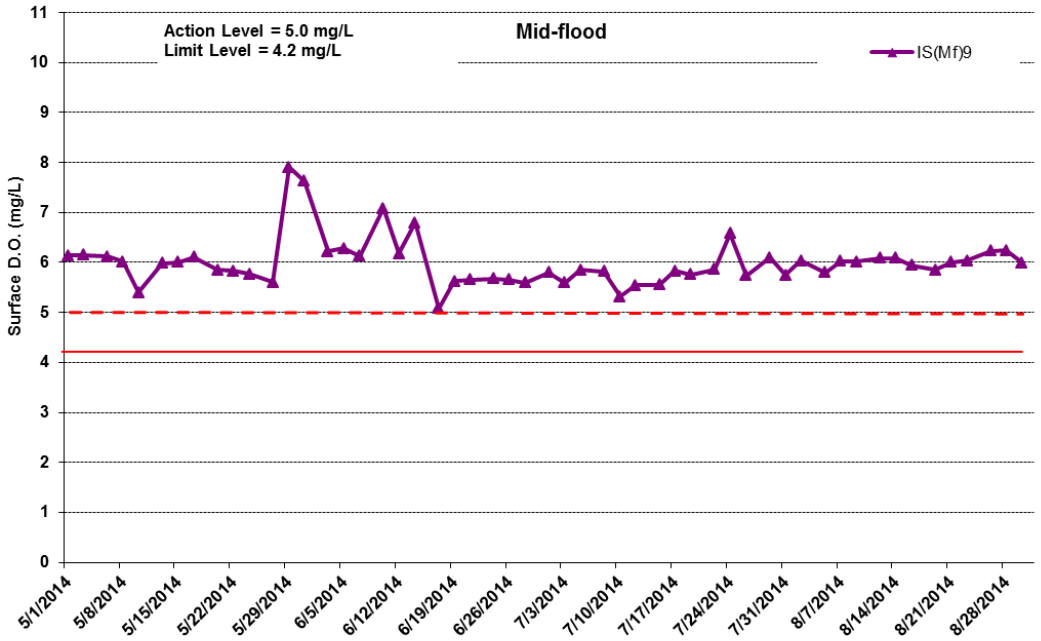
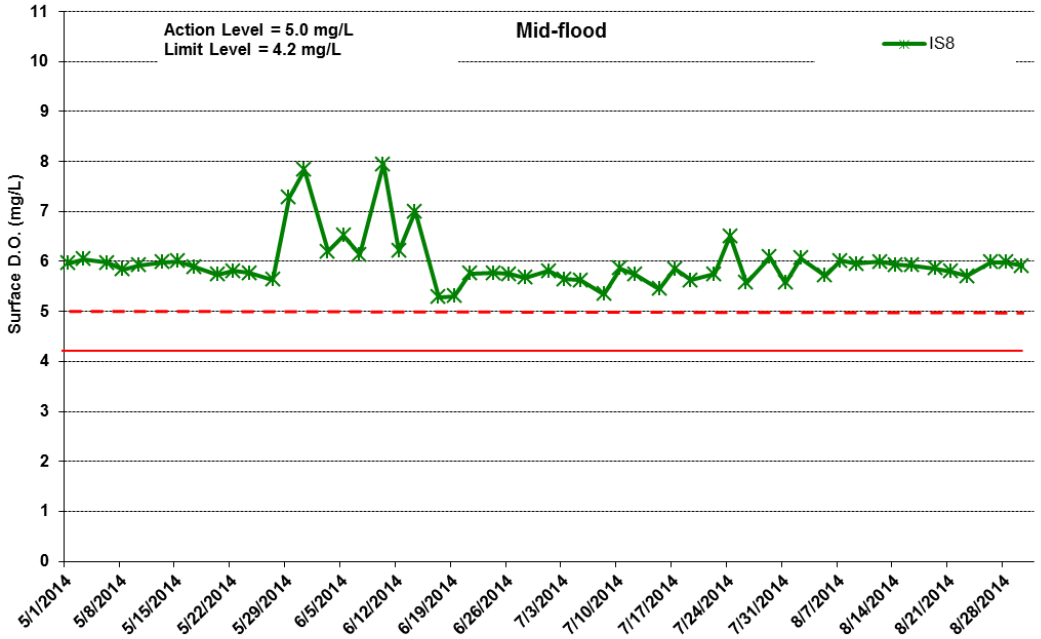


Figure H6 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



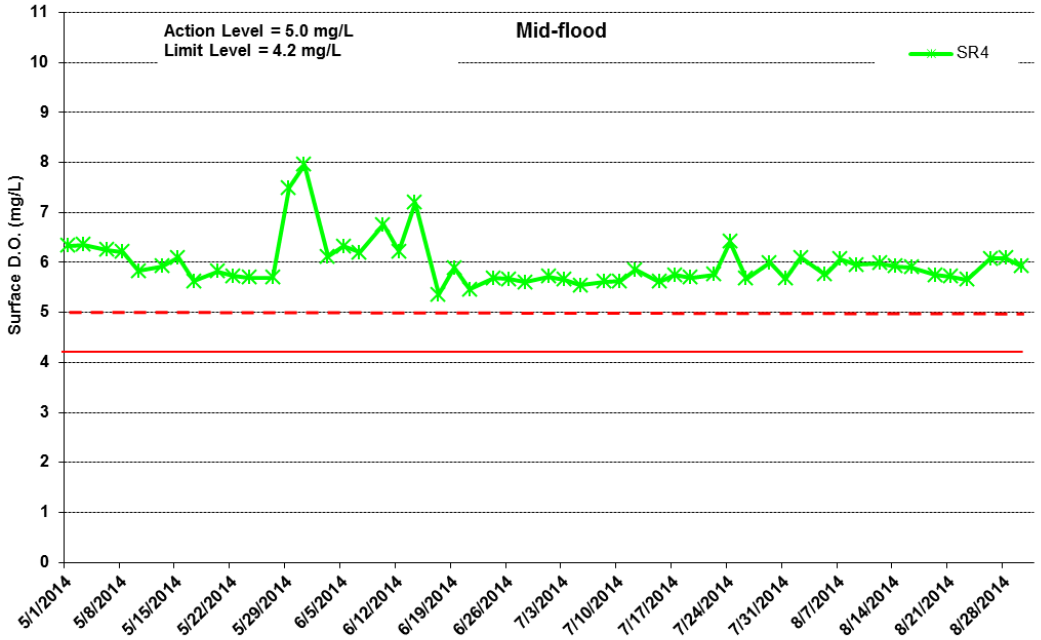


Figure H7 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

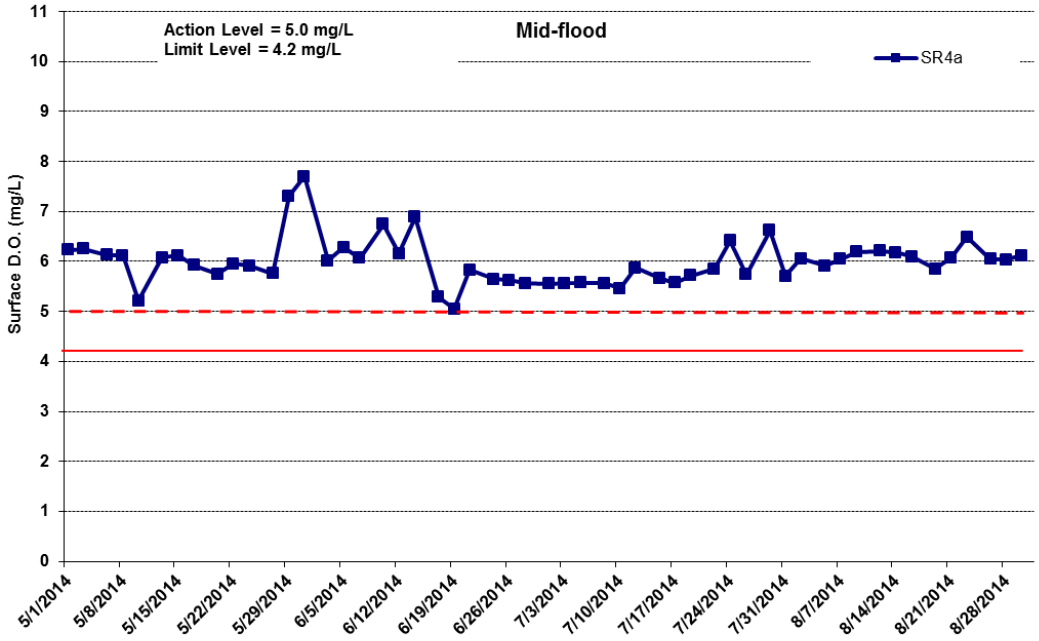
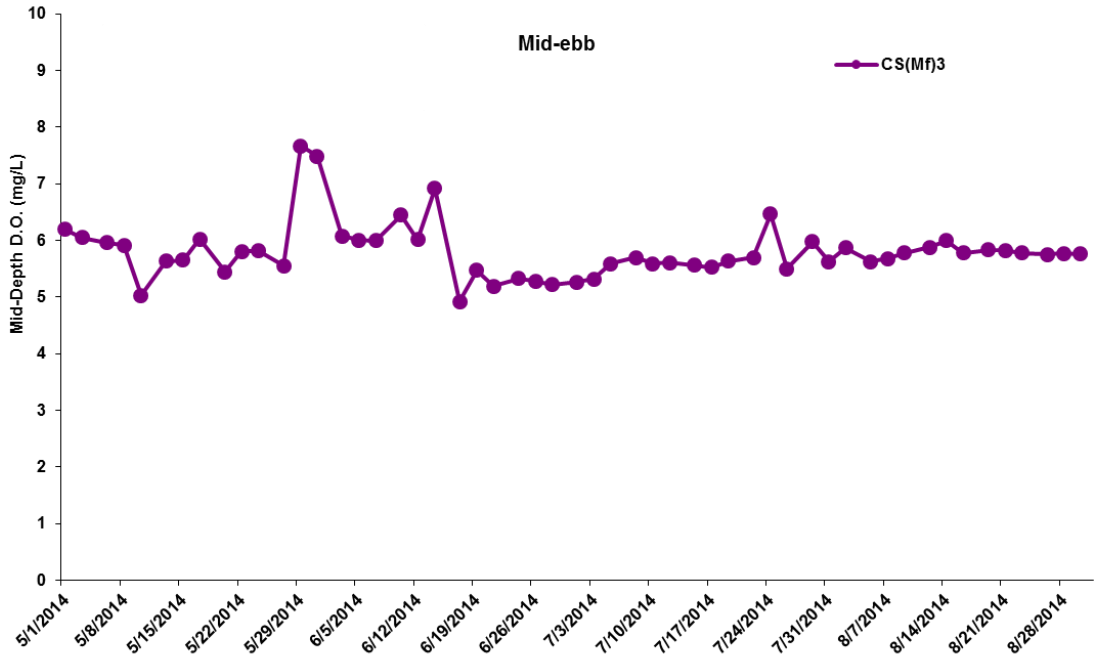


Figure H8 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



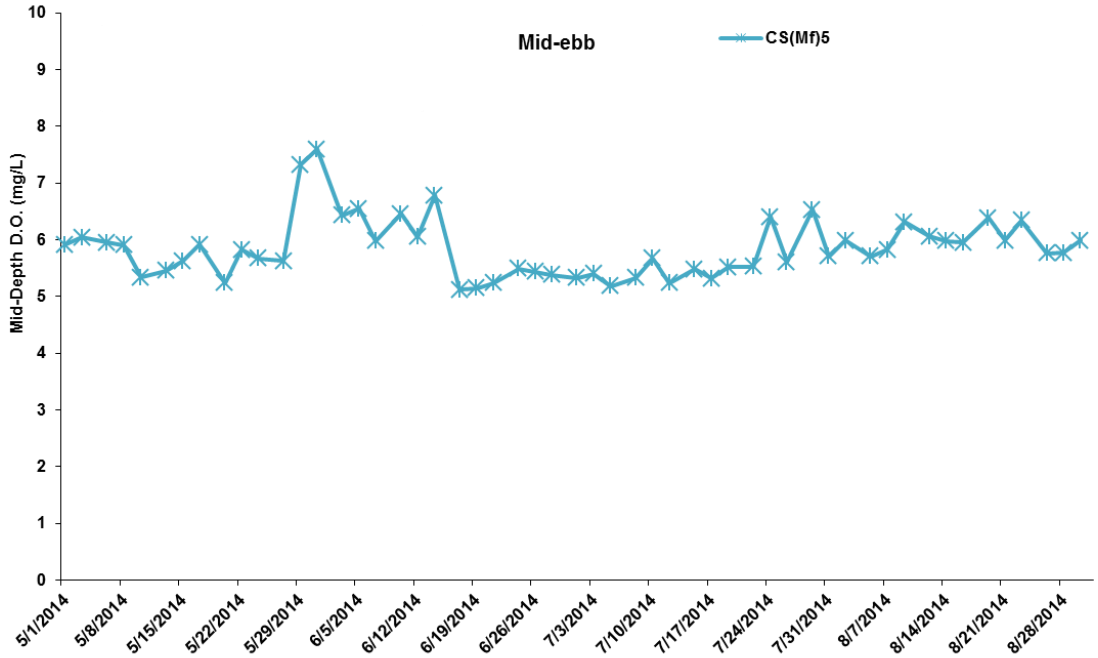


Figure H9 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-ebb tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

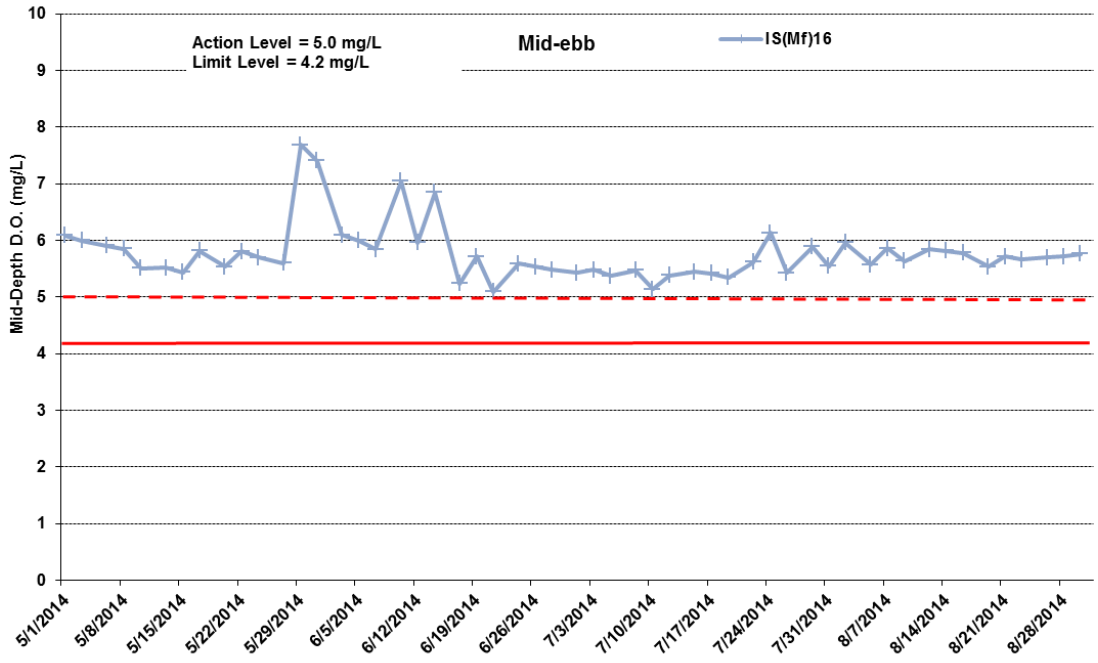


Figure H10 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-ebb tide between 1 May and 31 August 2014 at IS(Mf)16.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

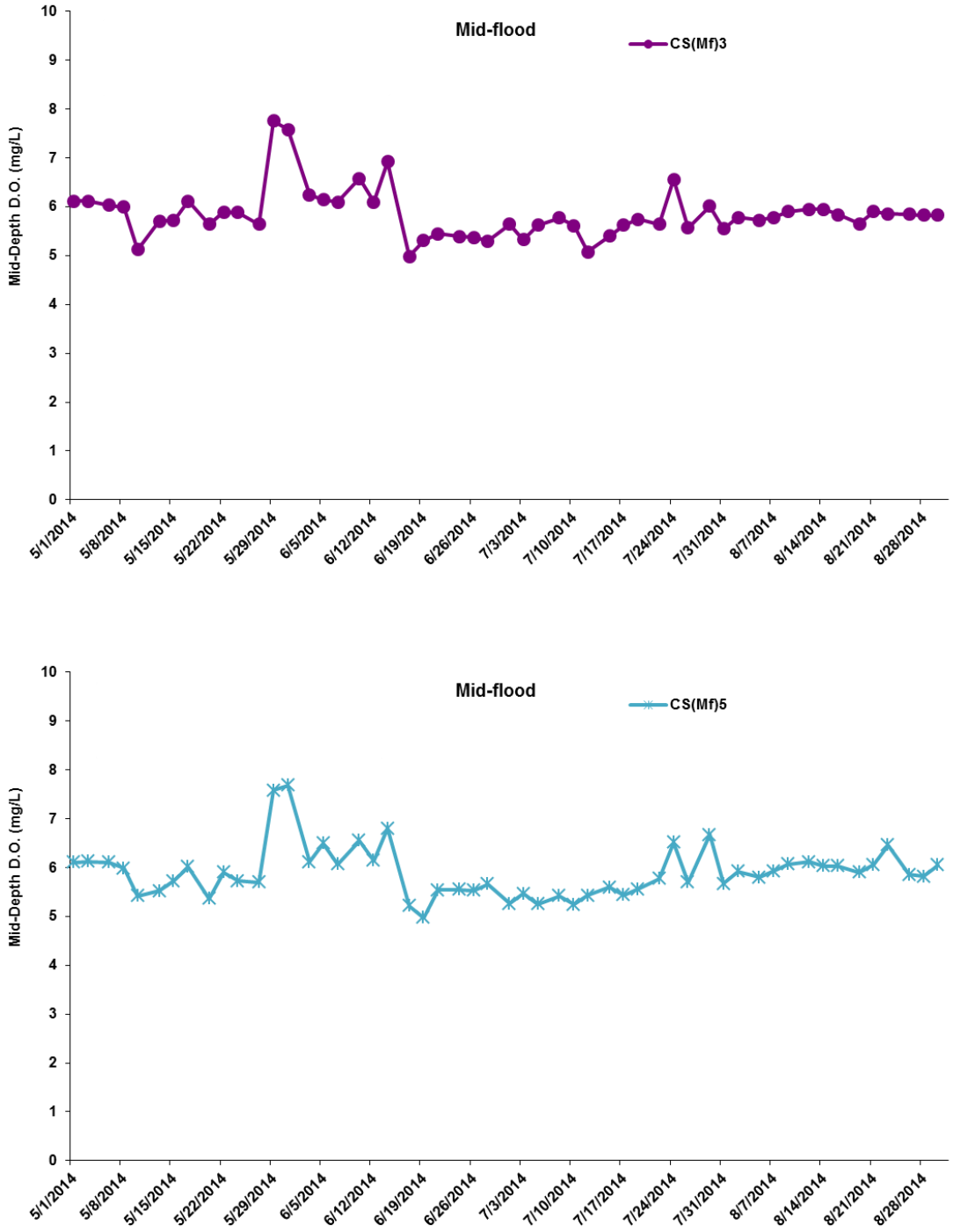


Figure H11 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-flood tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

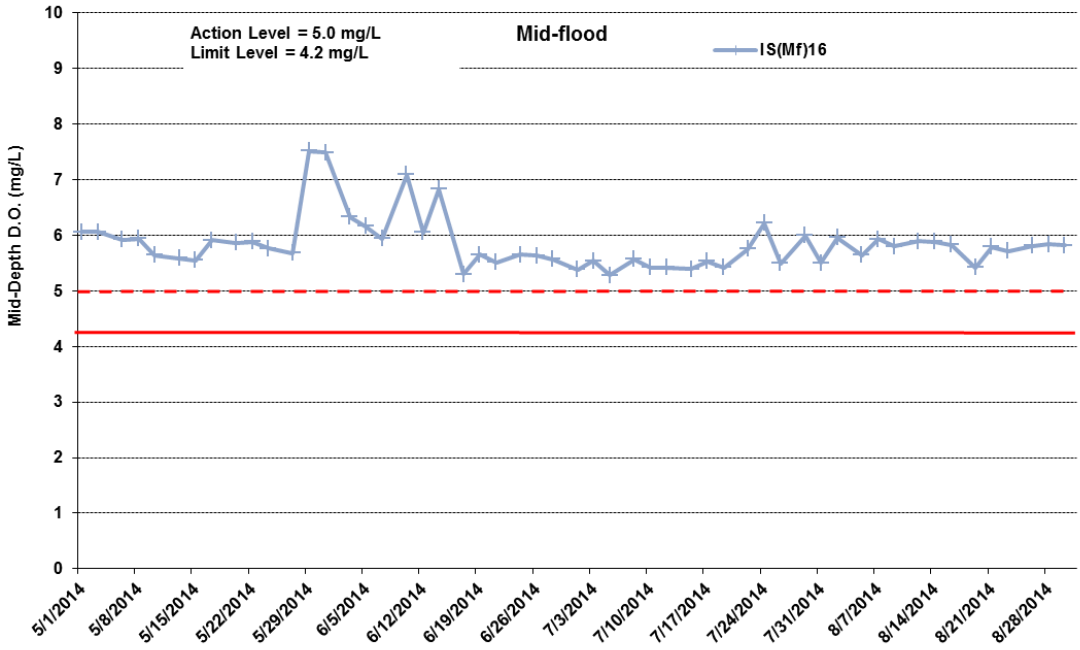


Figure H12 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-flood tide between 1 May and 31 August 2014 at IS(Mf)16.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

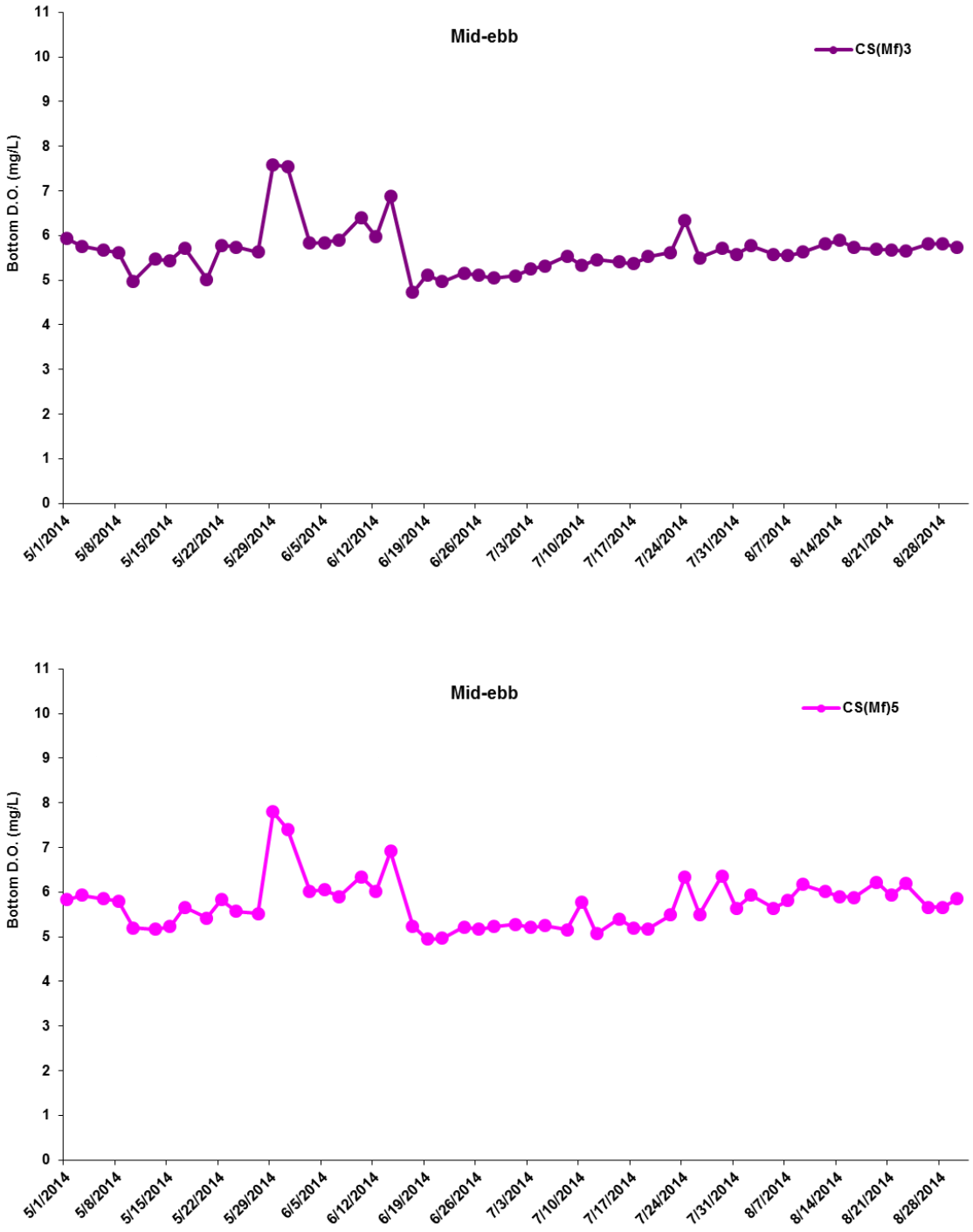


Figure H13 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

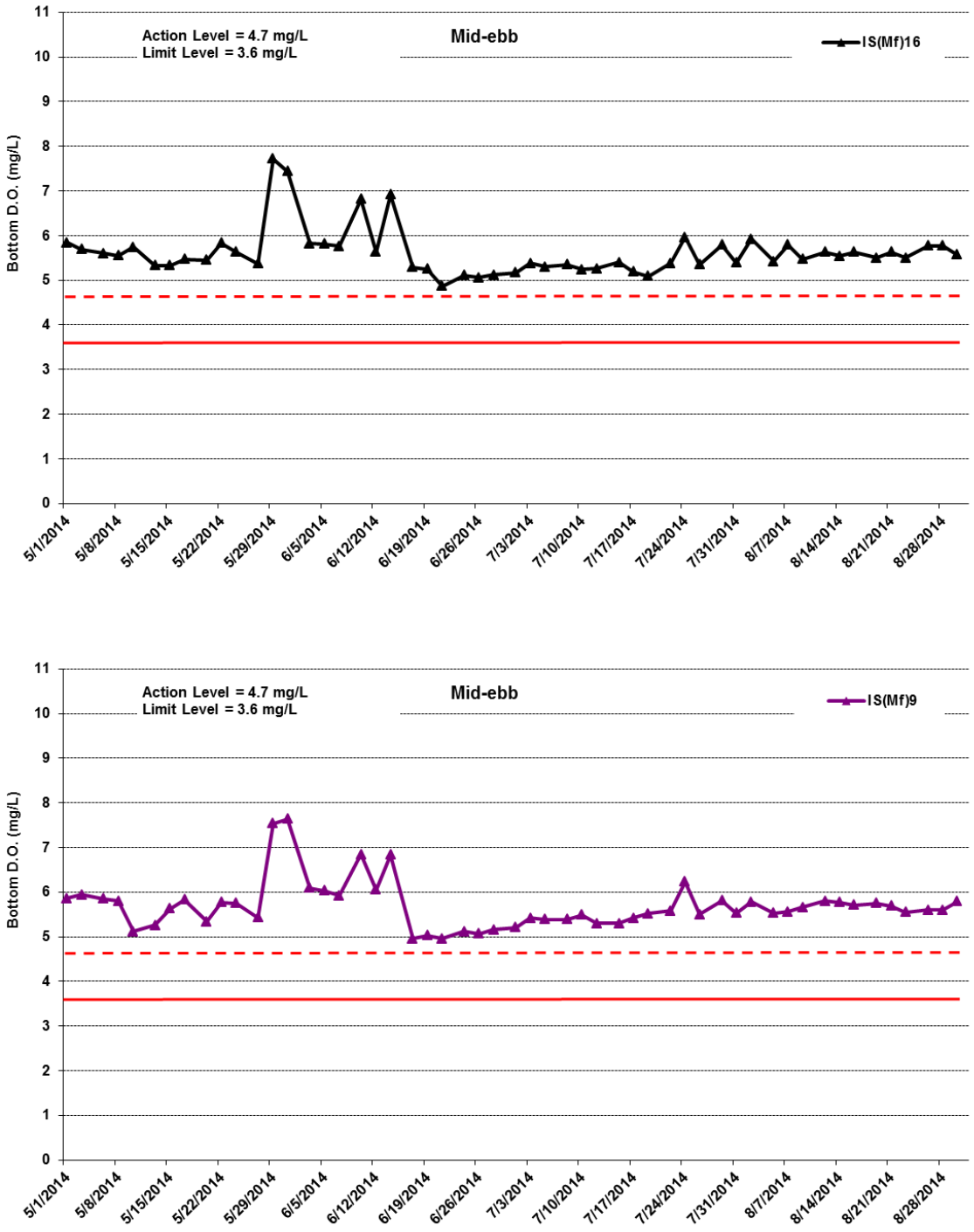


Figure H14 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

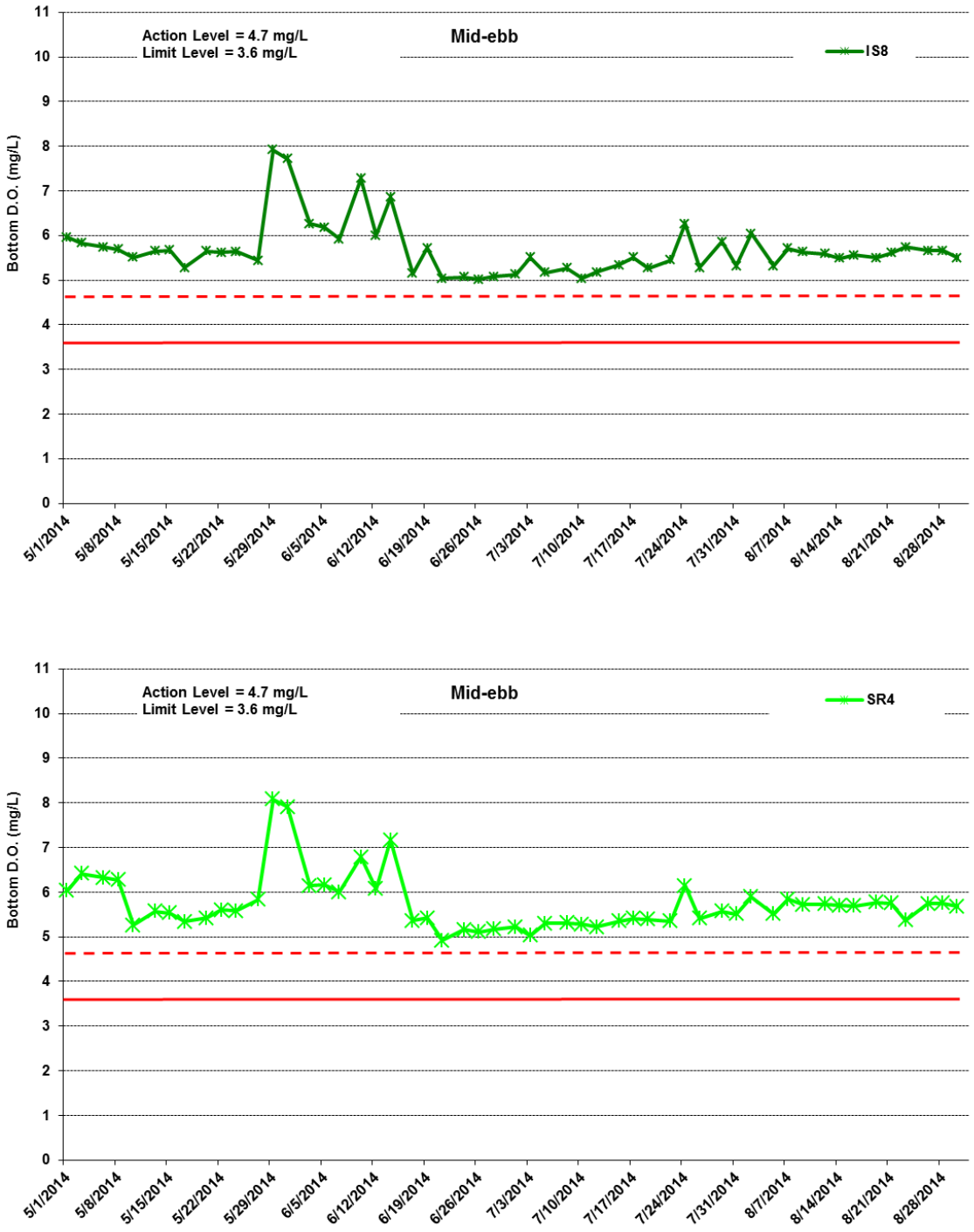


Figure H15 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM

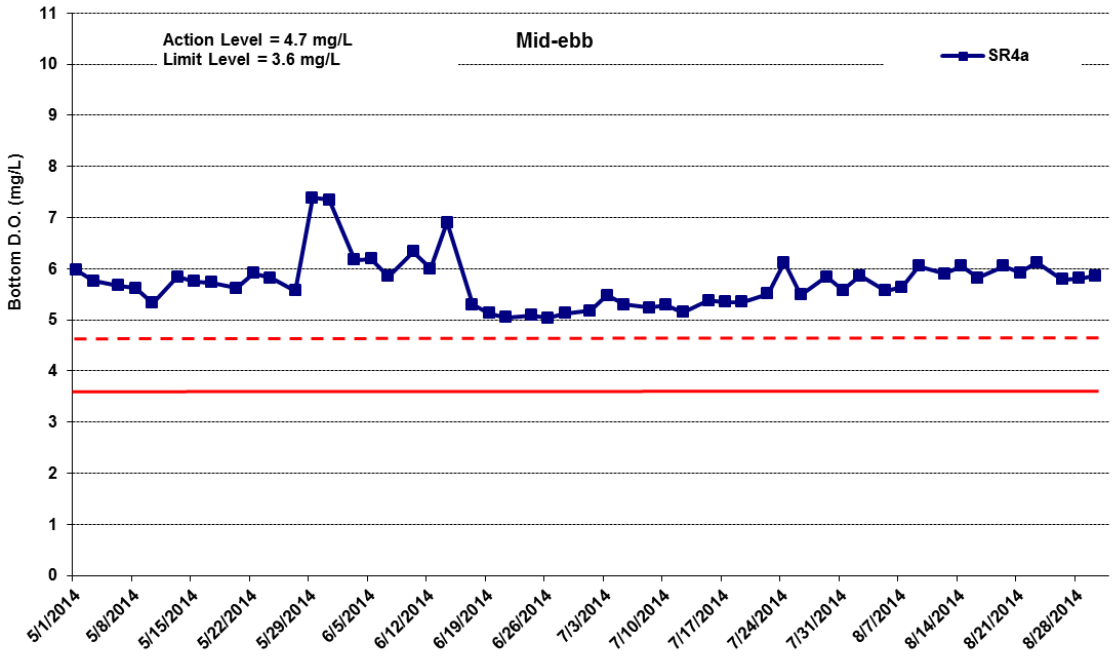
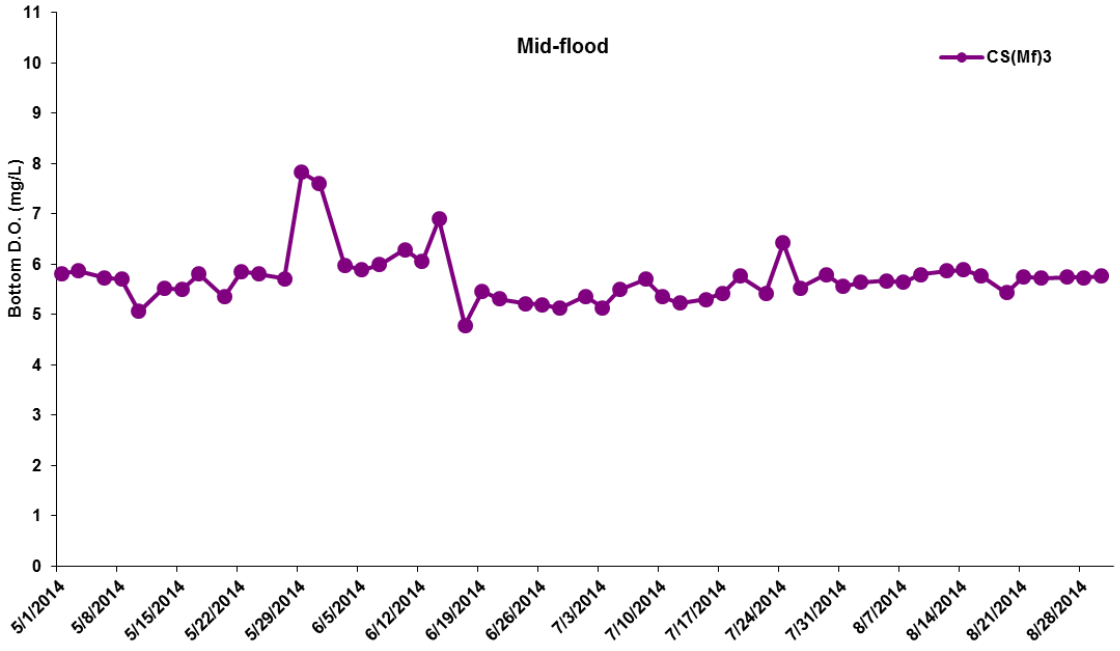


Figure H16 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



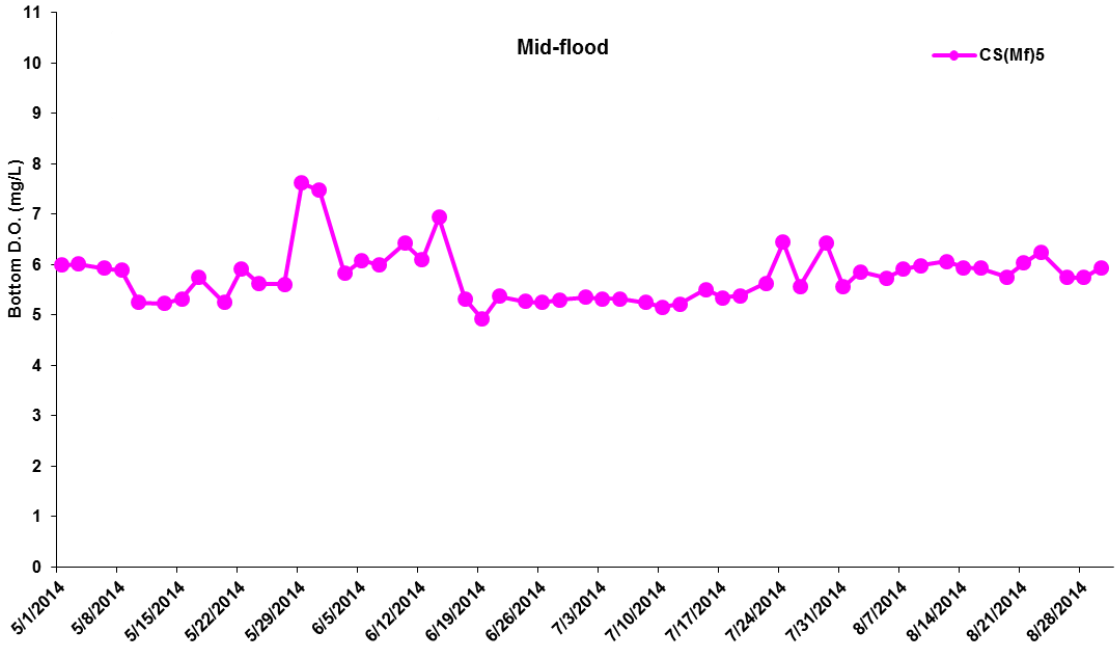
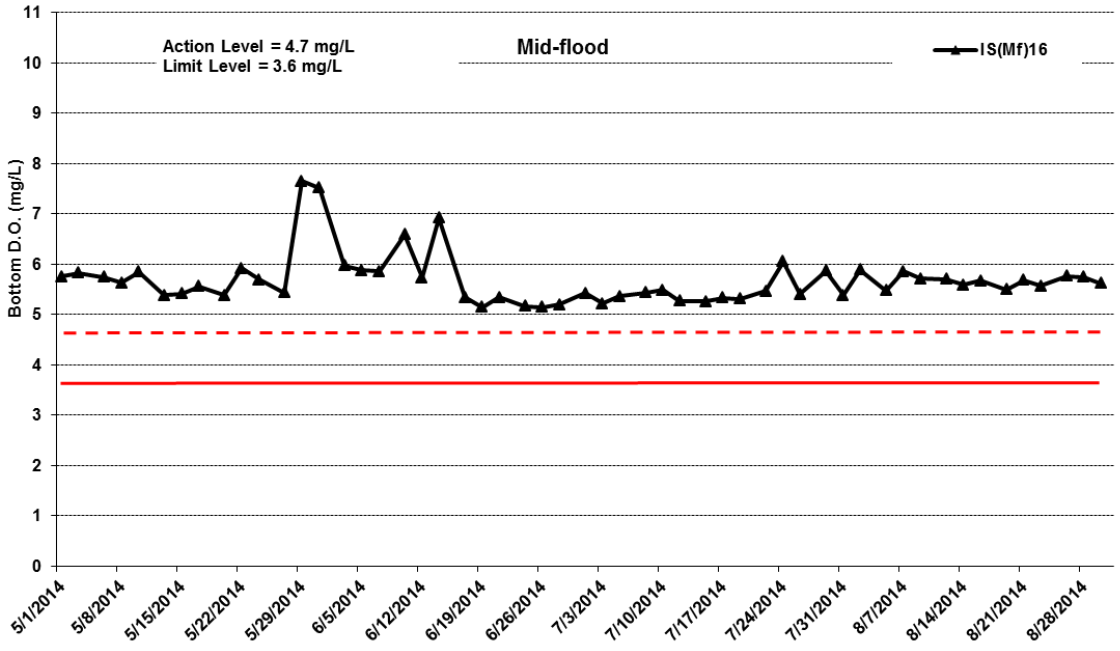


Figure H17 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



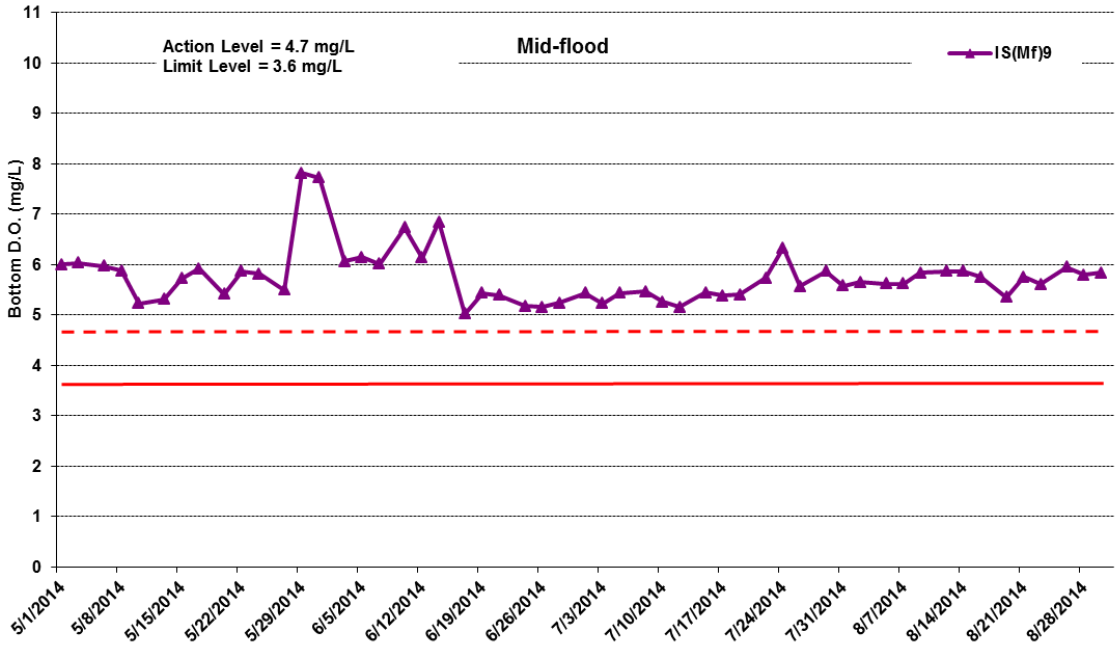
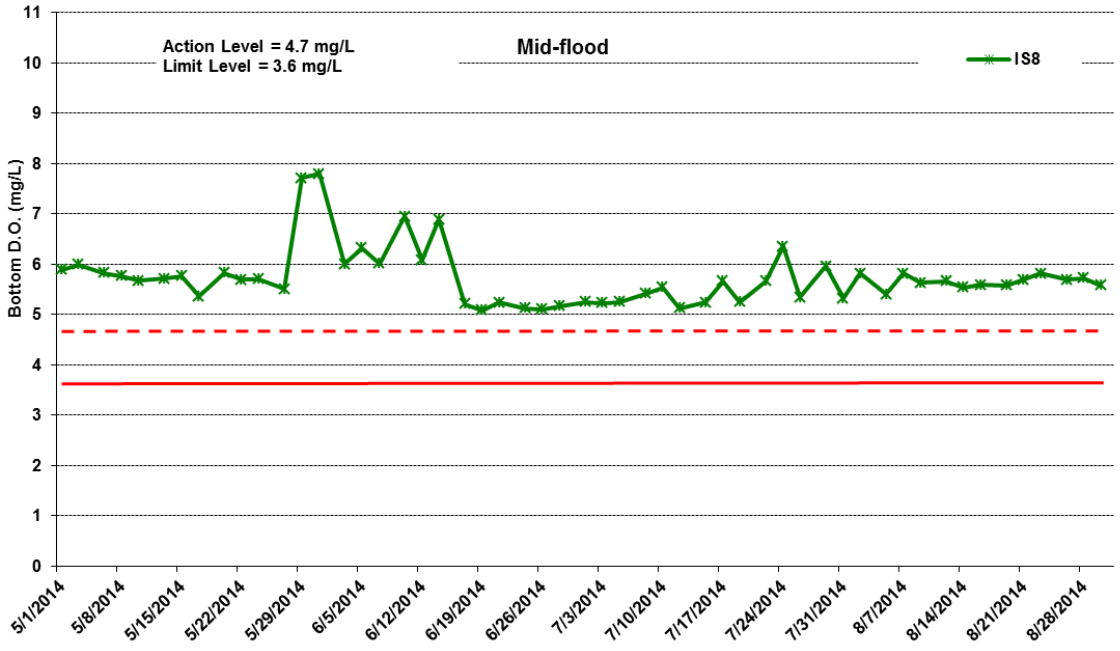


Figure H18 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

ERM



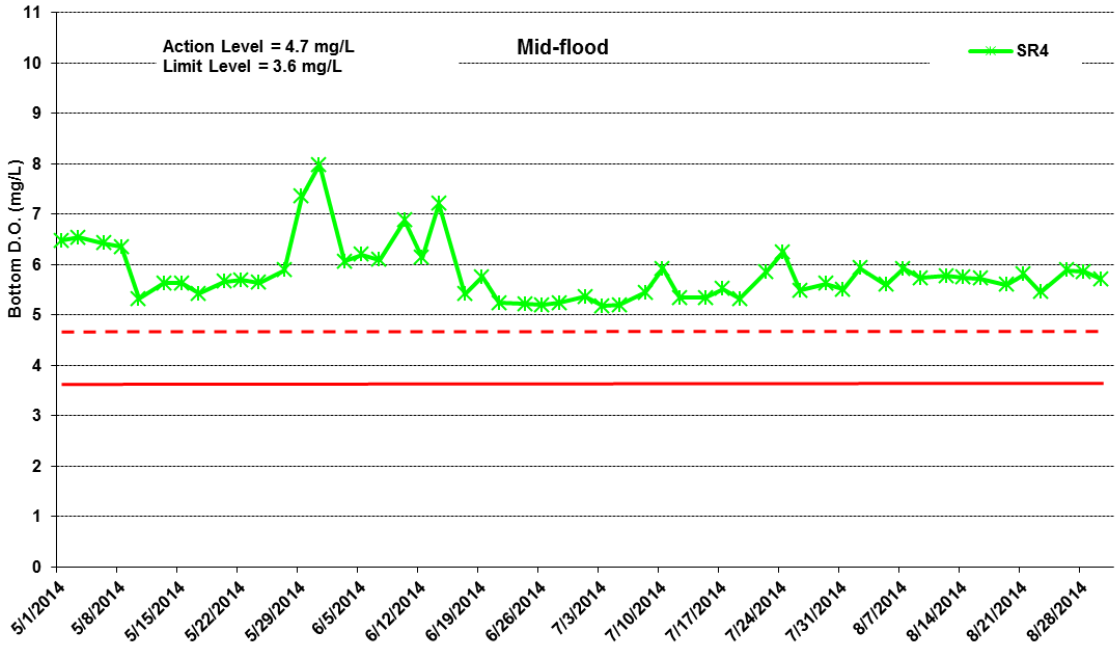


Figure H19 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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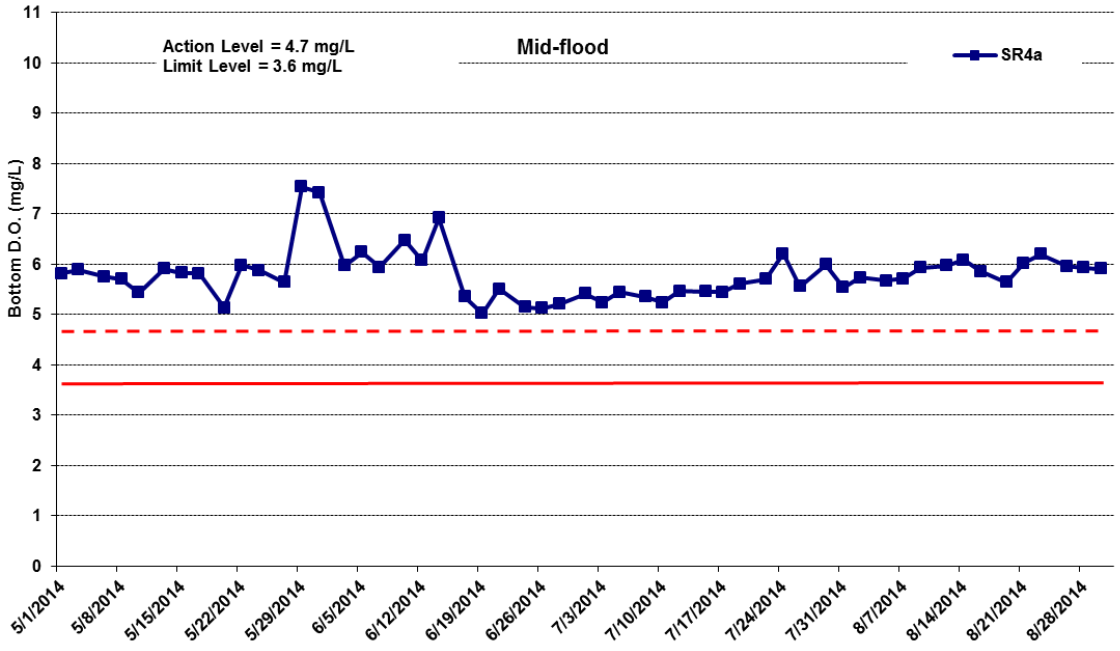

Figure H20 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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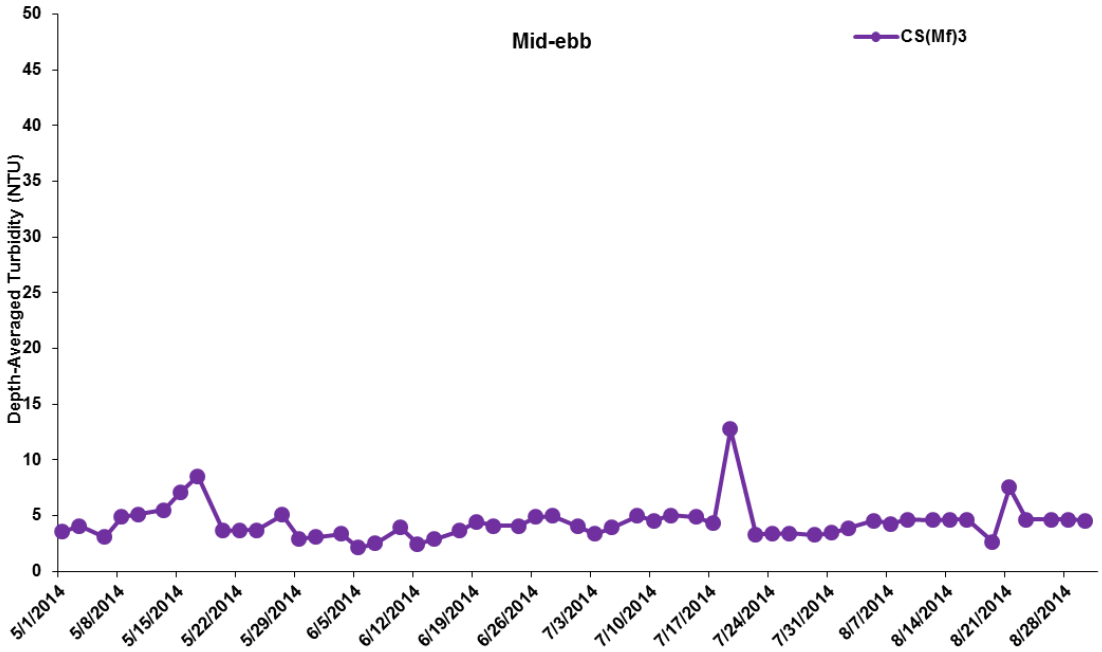

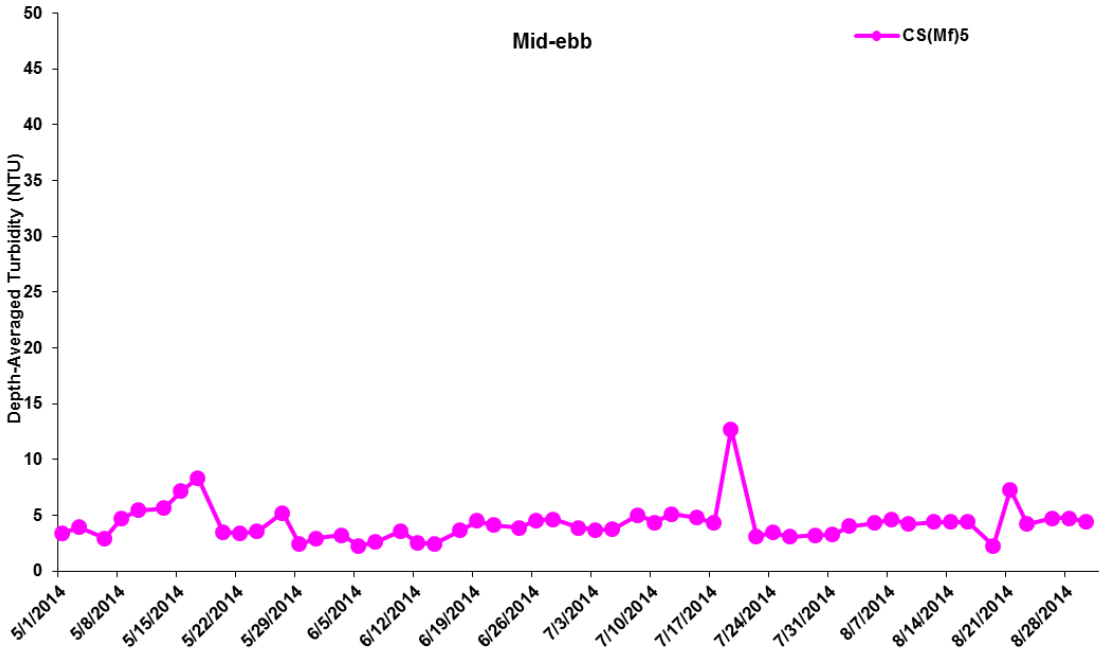

Figure H21 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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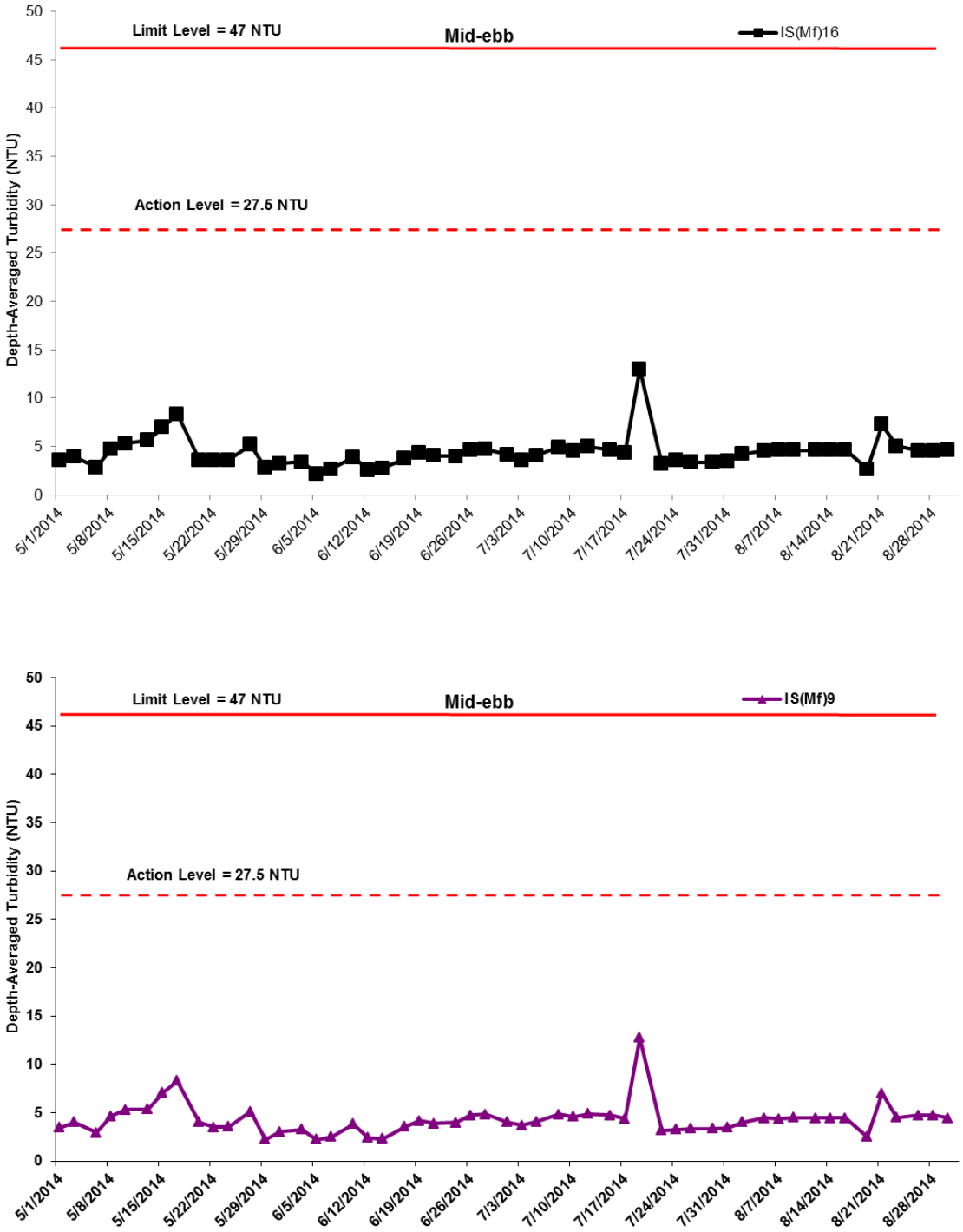

Figure H22 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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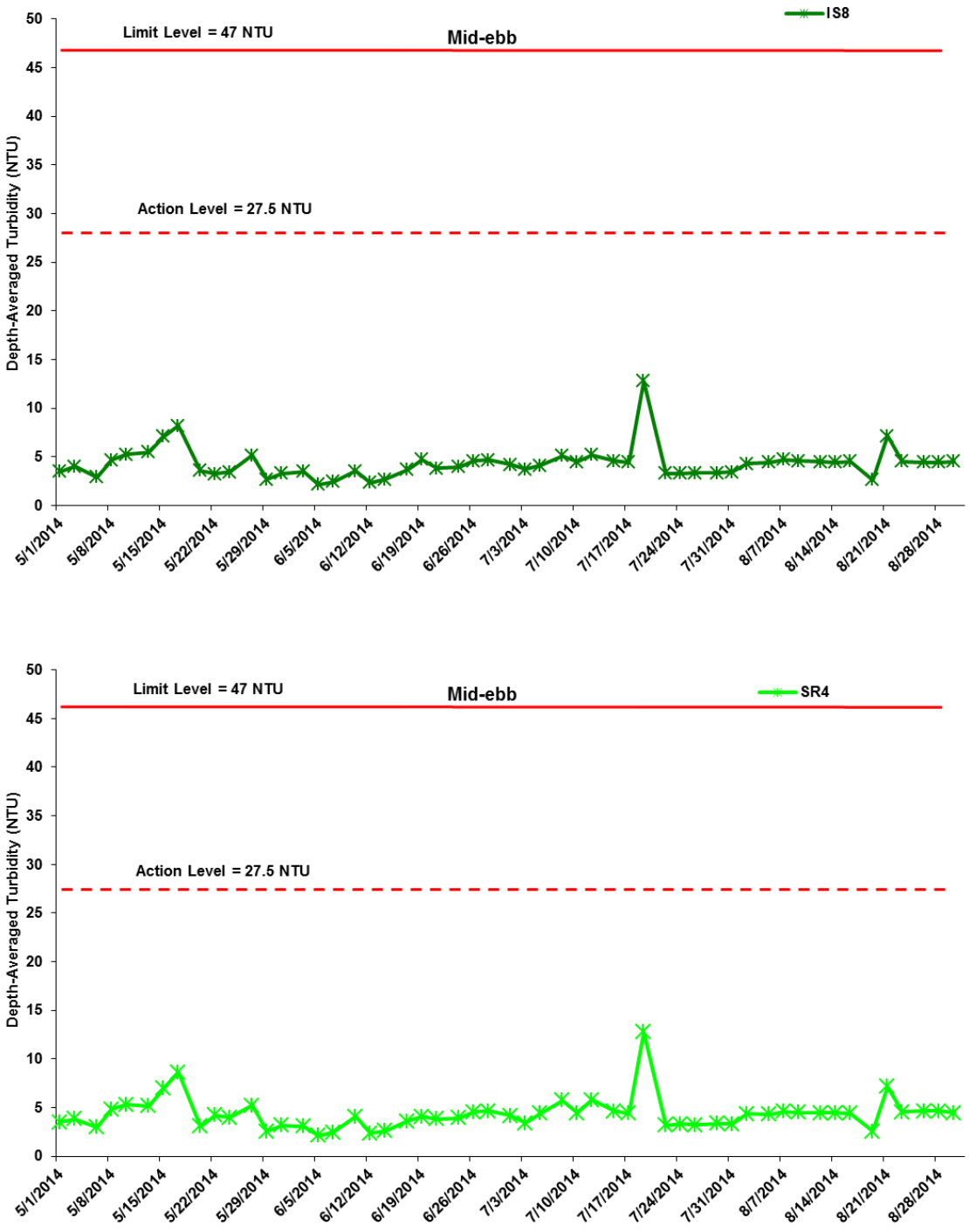

Figure H23 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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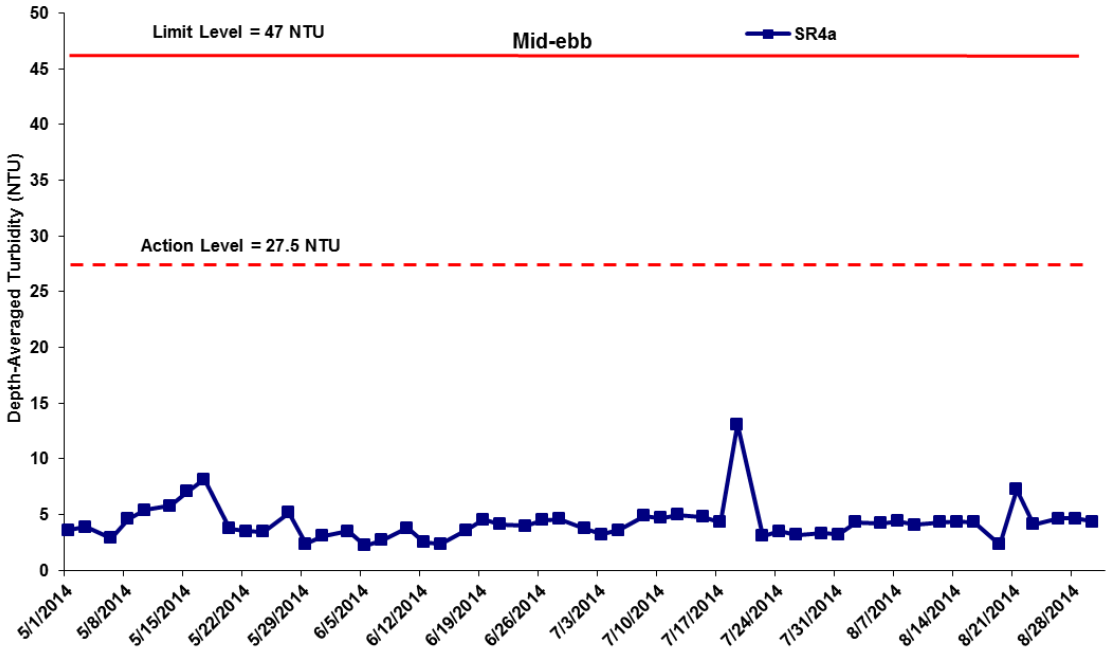

Figure H24 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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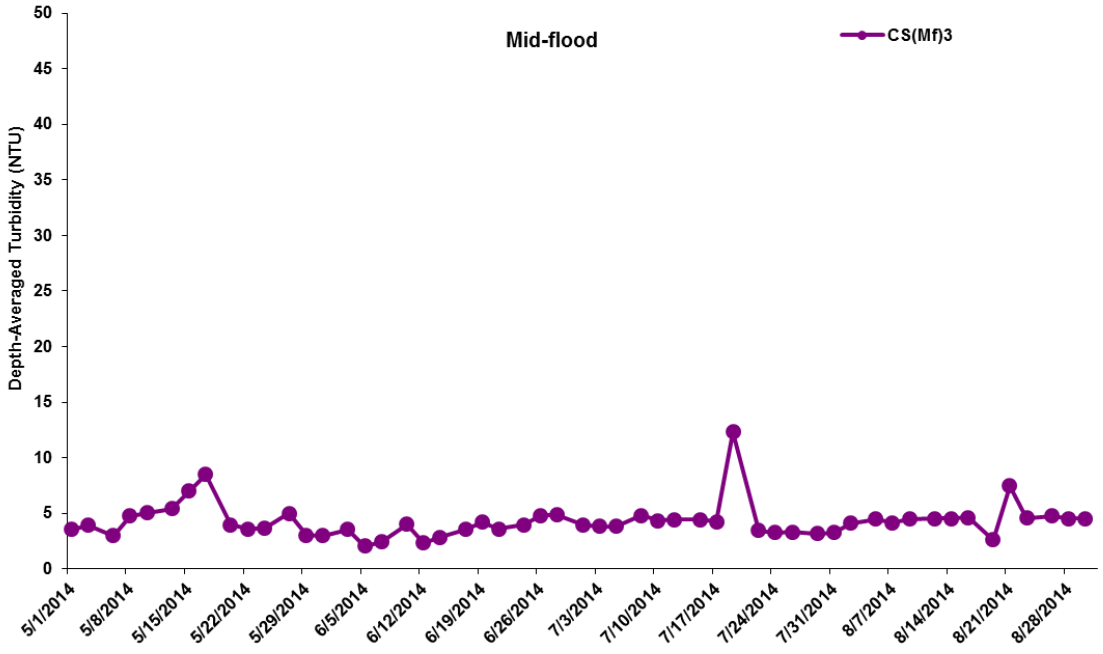

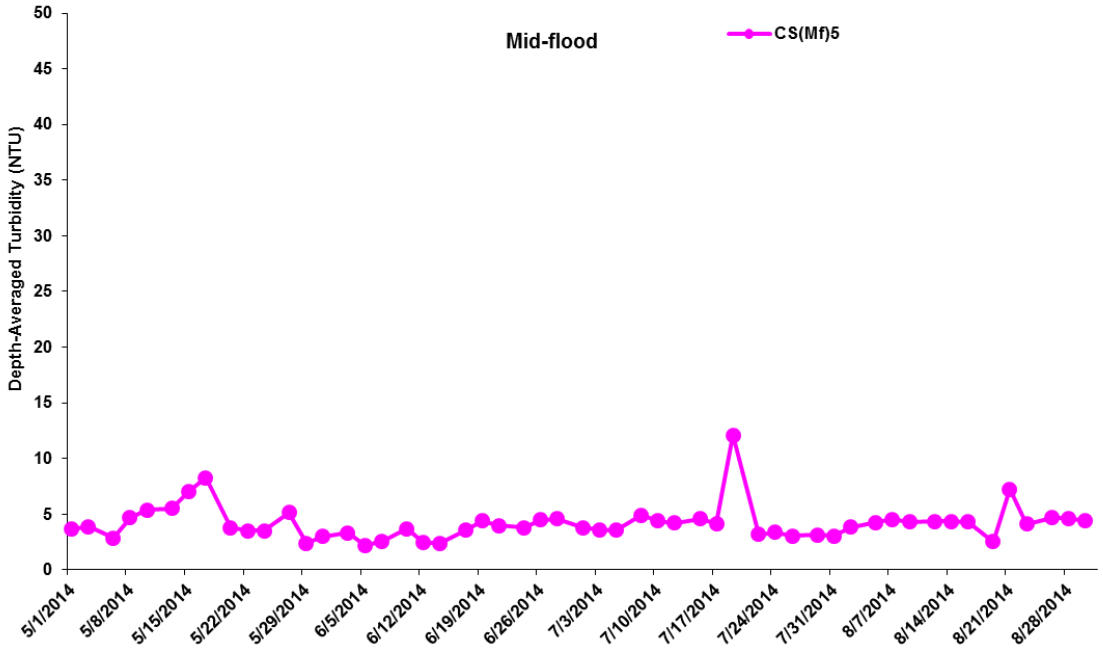

Figure H25 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(MF)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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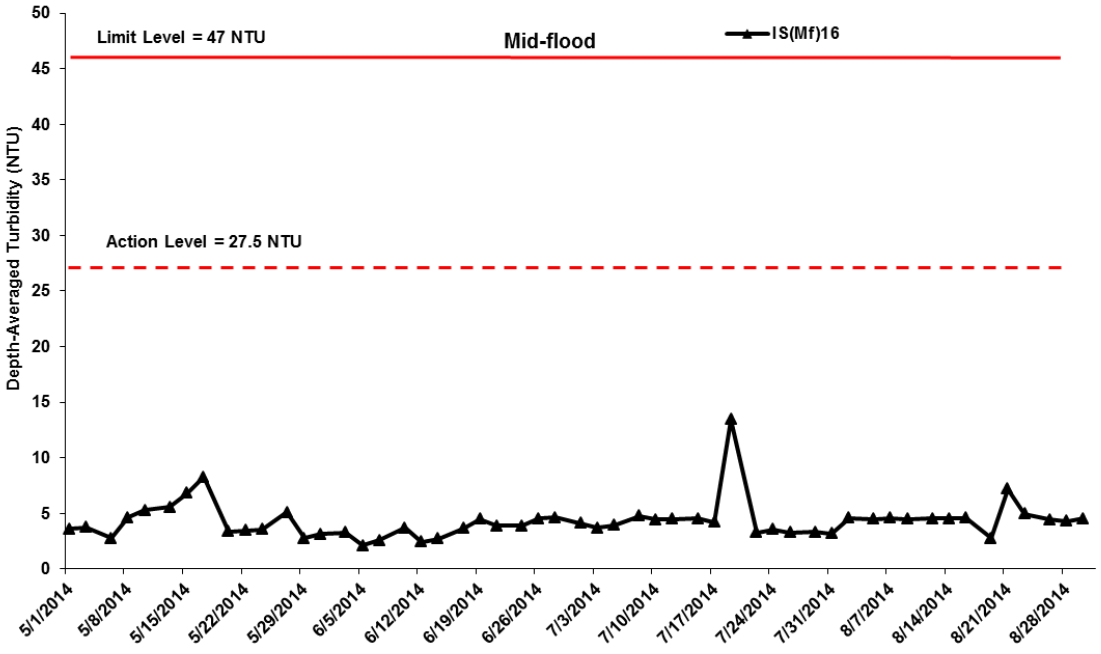

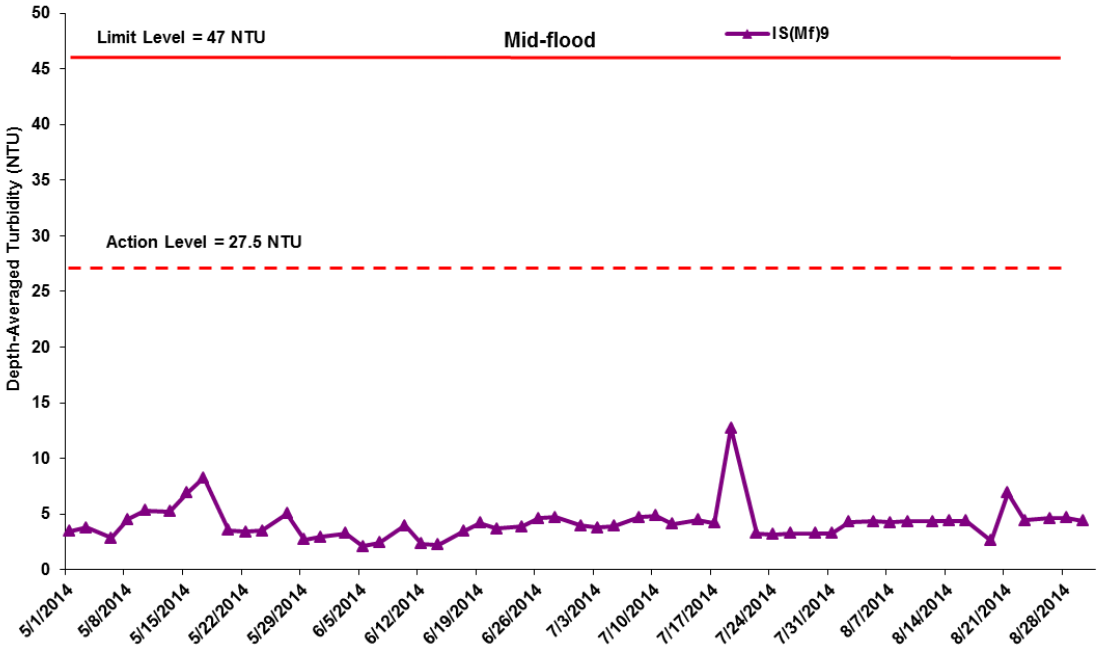

Figure H26 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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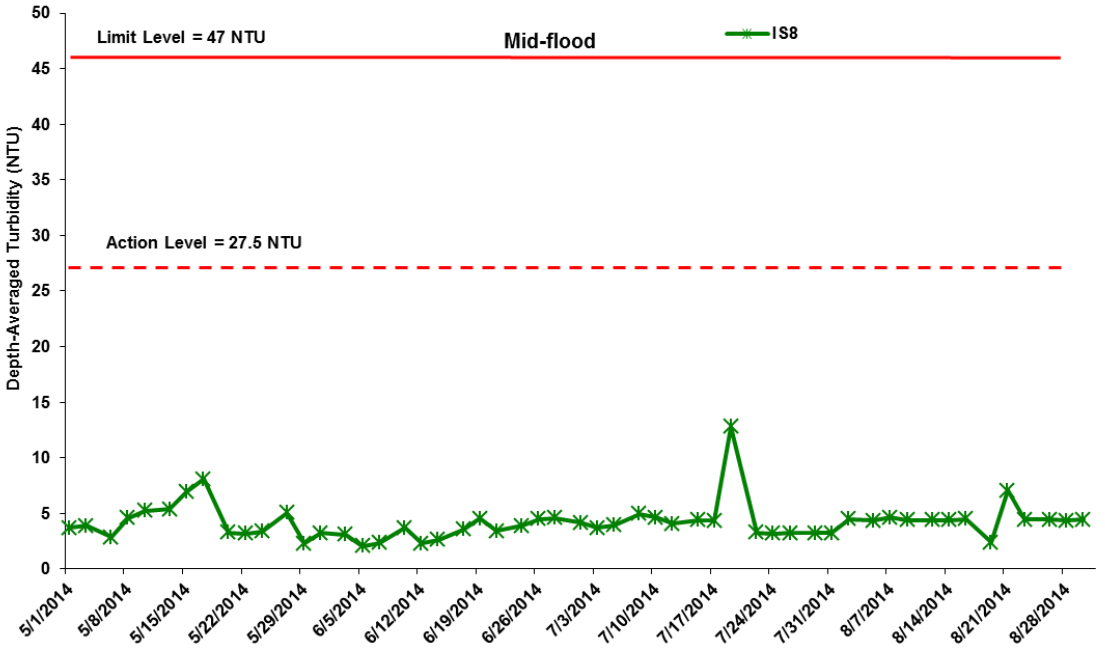

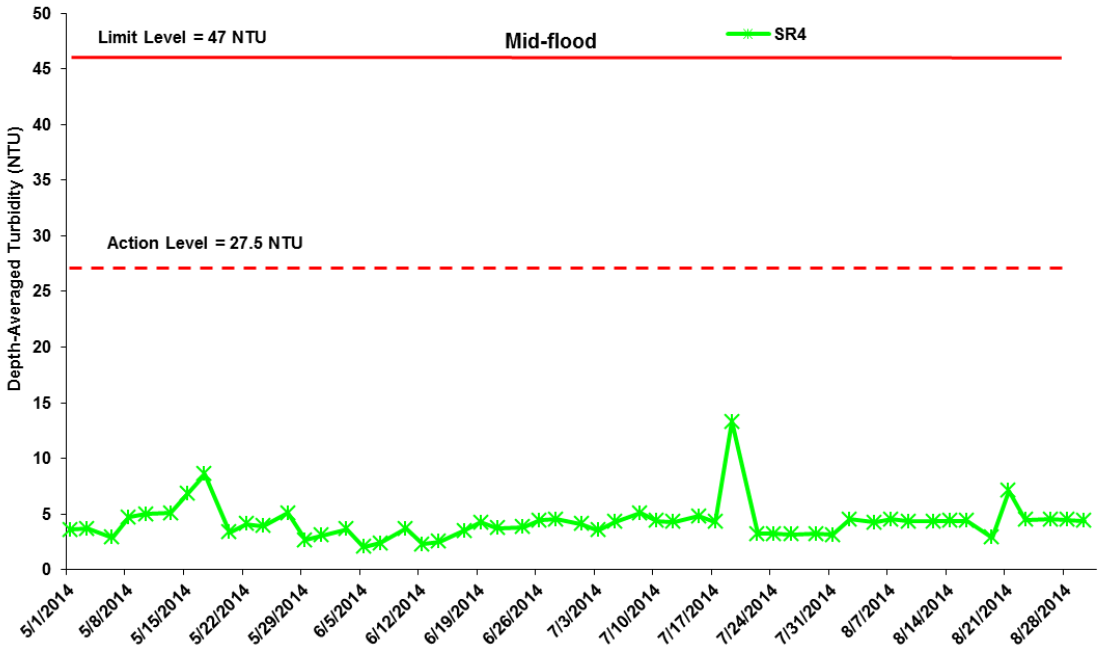

Figure H27 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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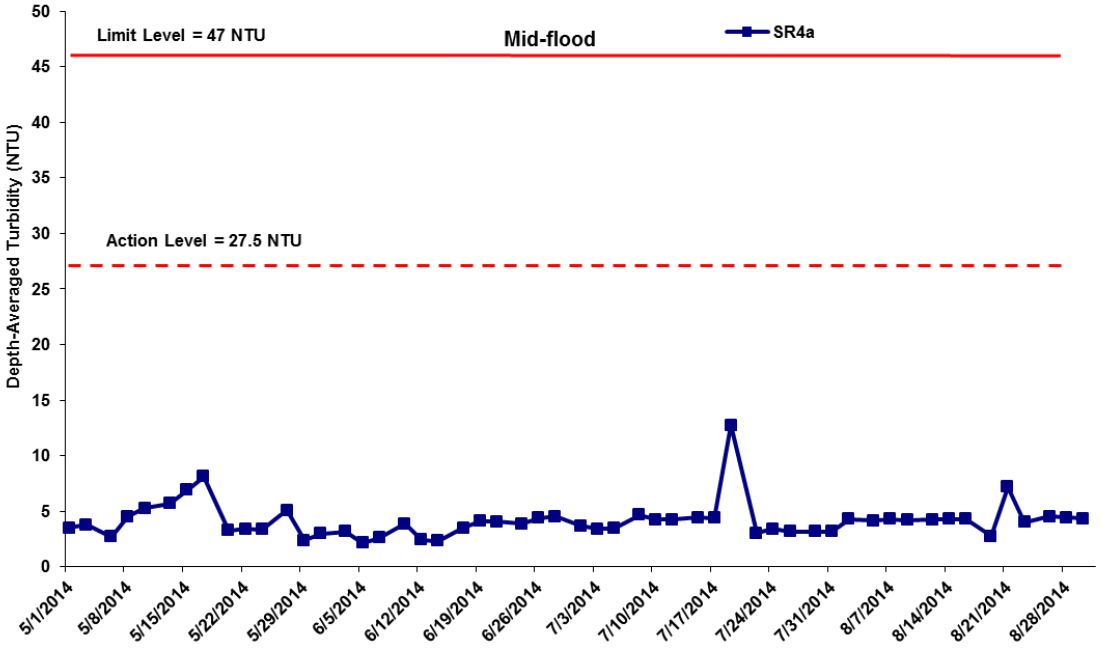

Figure H28 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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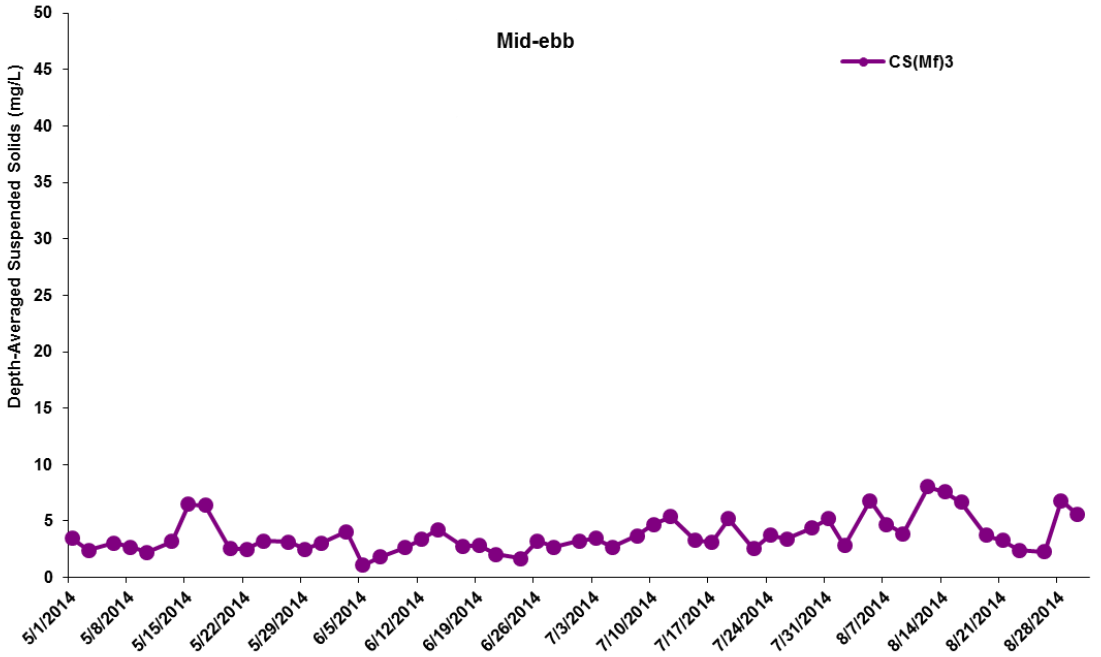

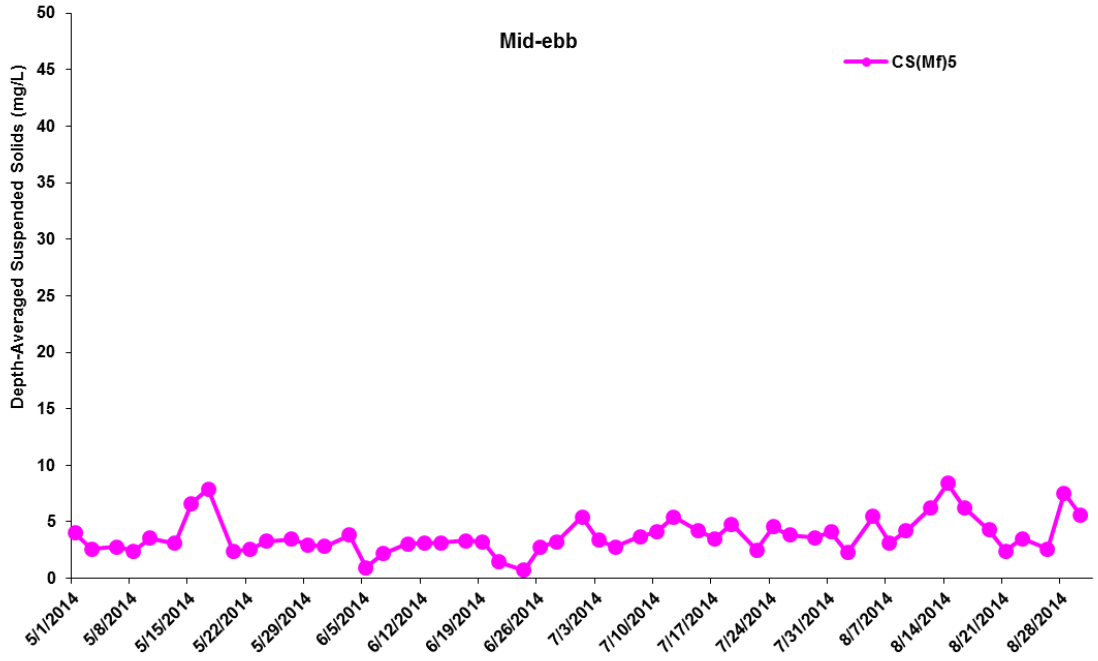

Figure H29 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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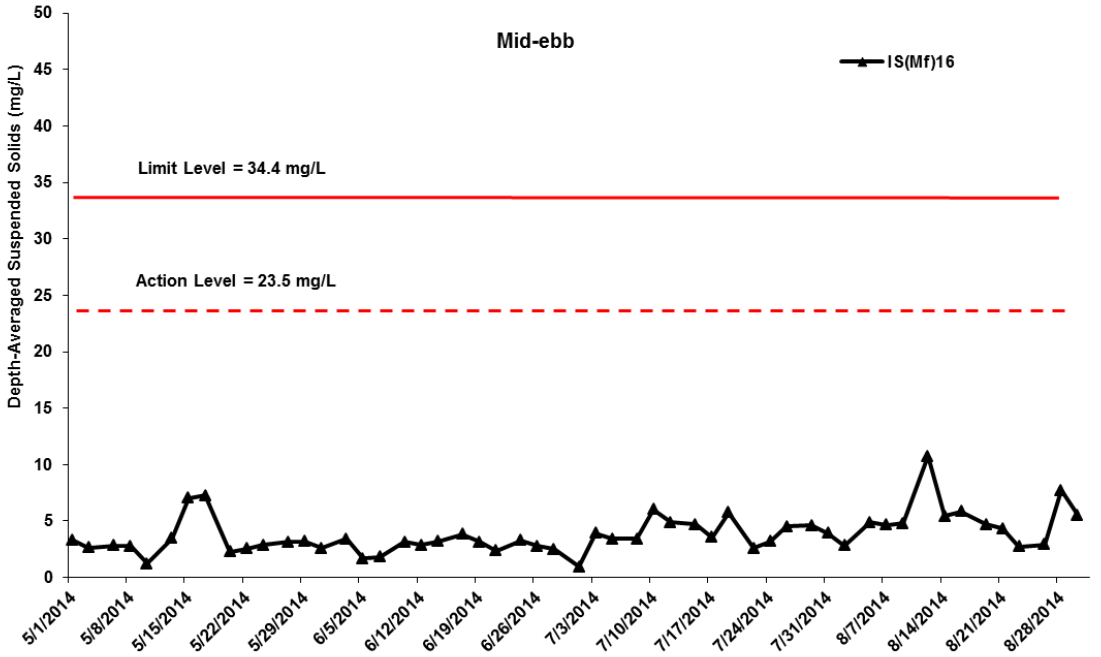

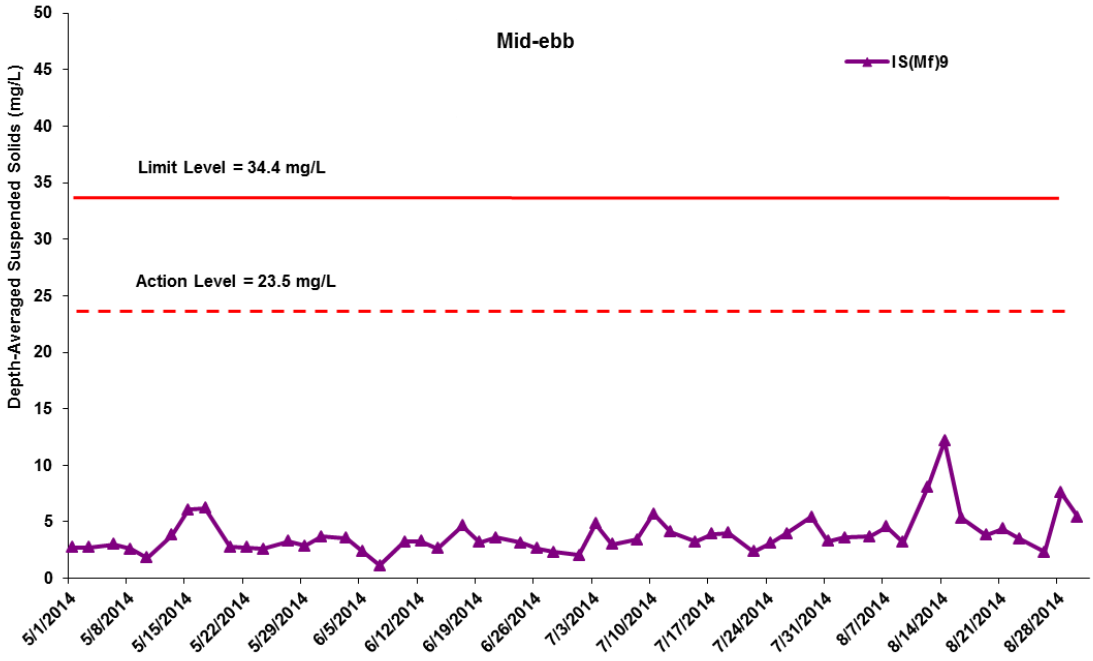

Figure H30 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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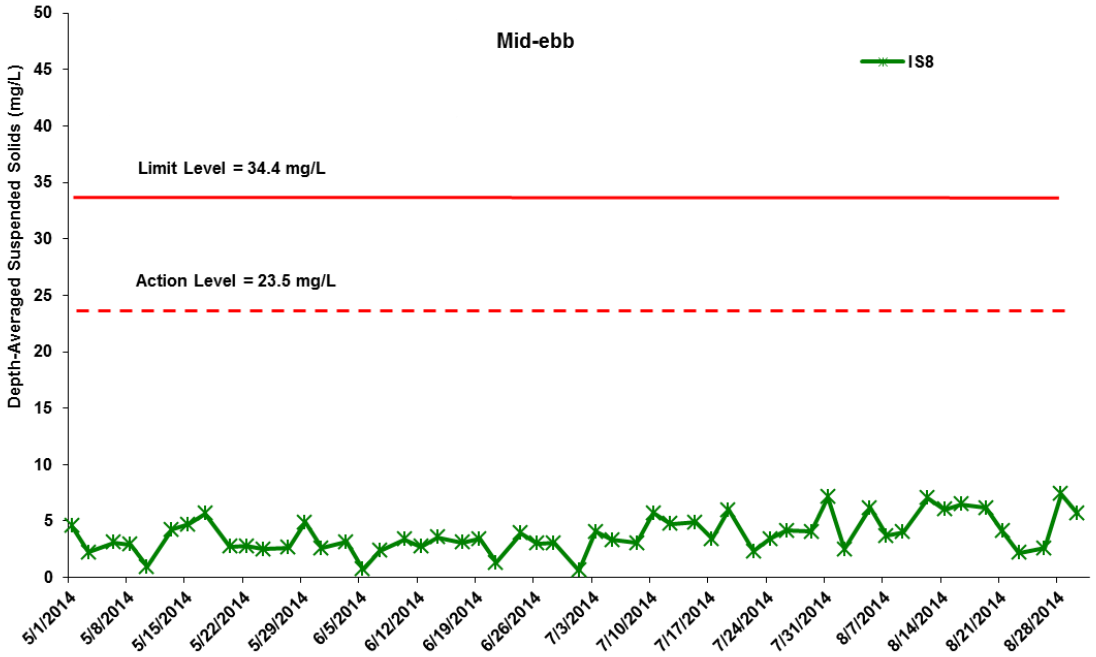

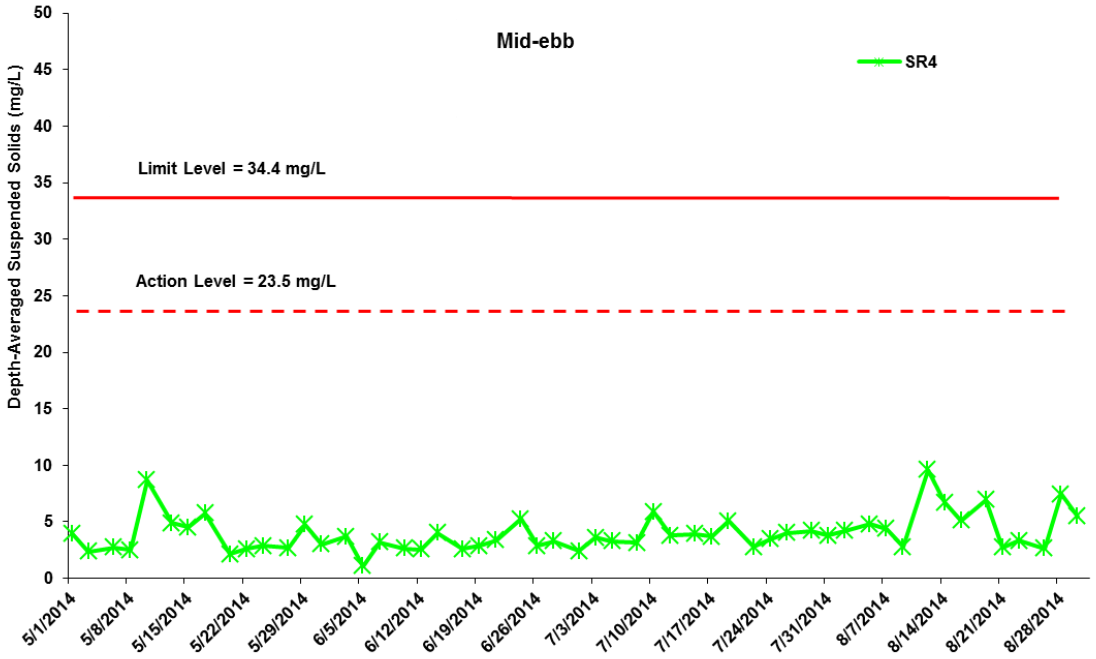

Figure H31 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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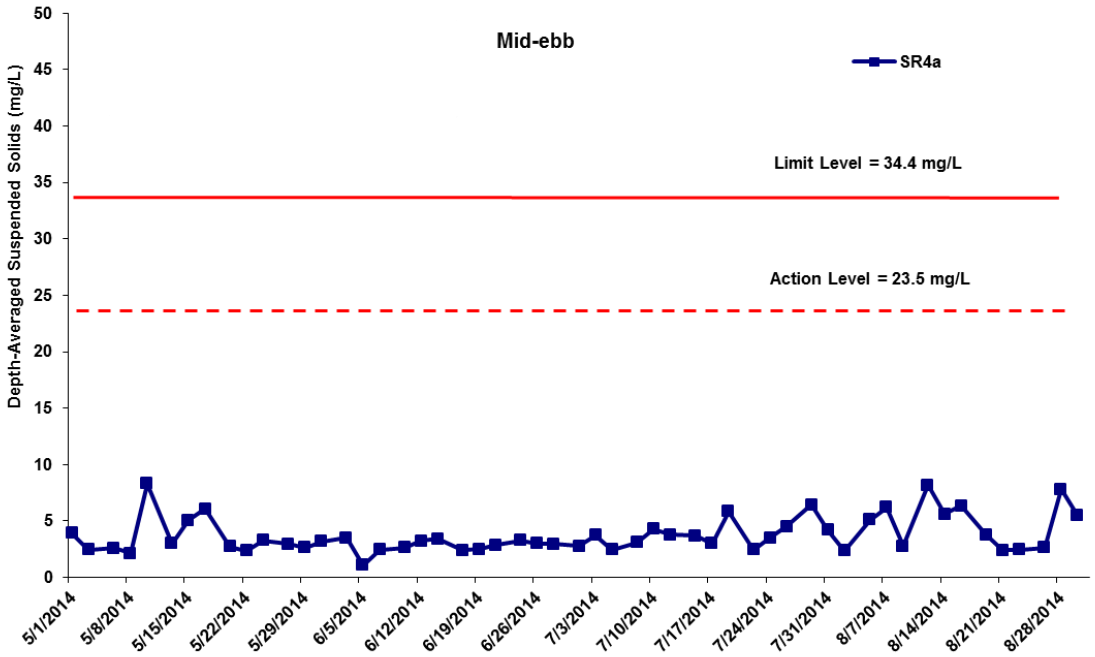

Figure H32 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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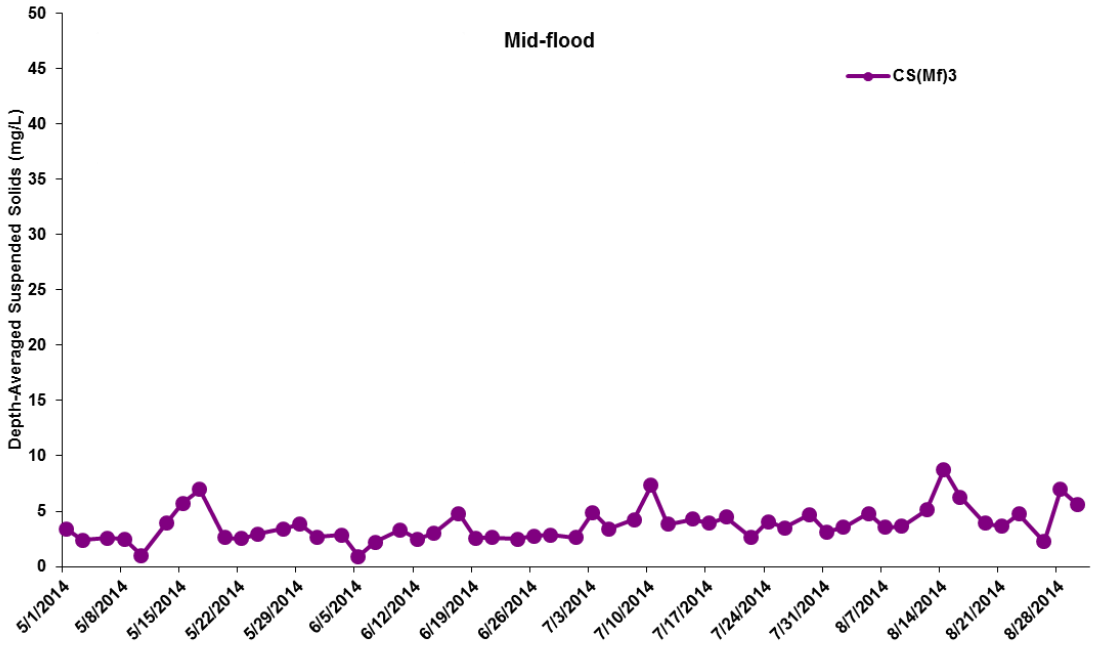

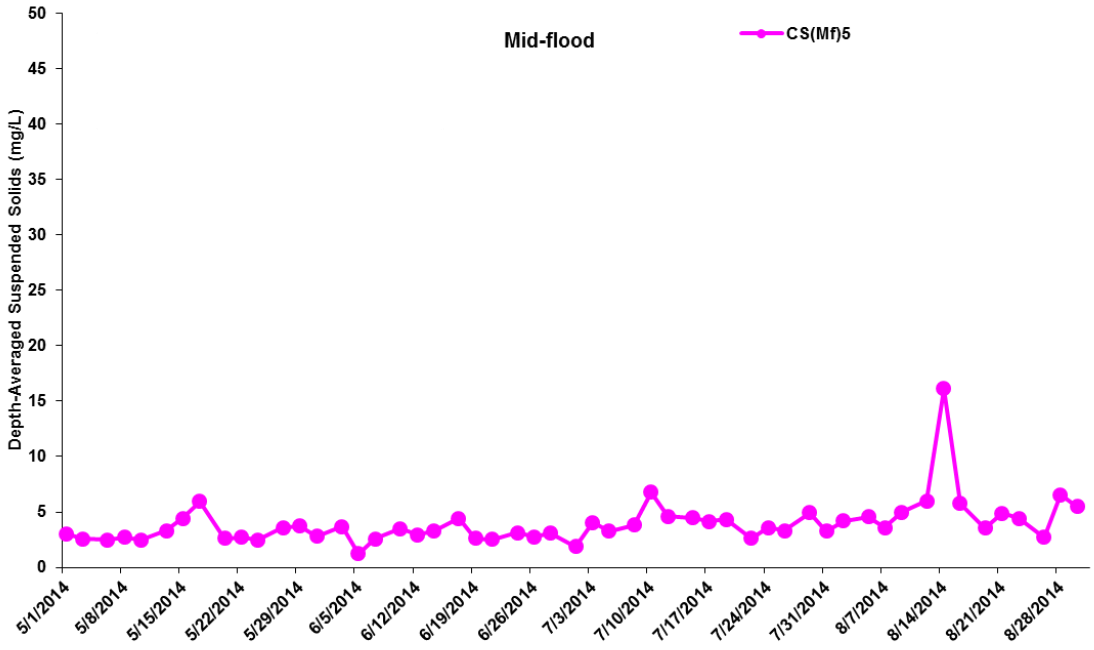

Figure H33 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2014 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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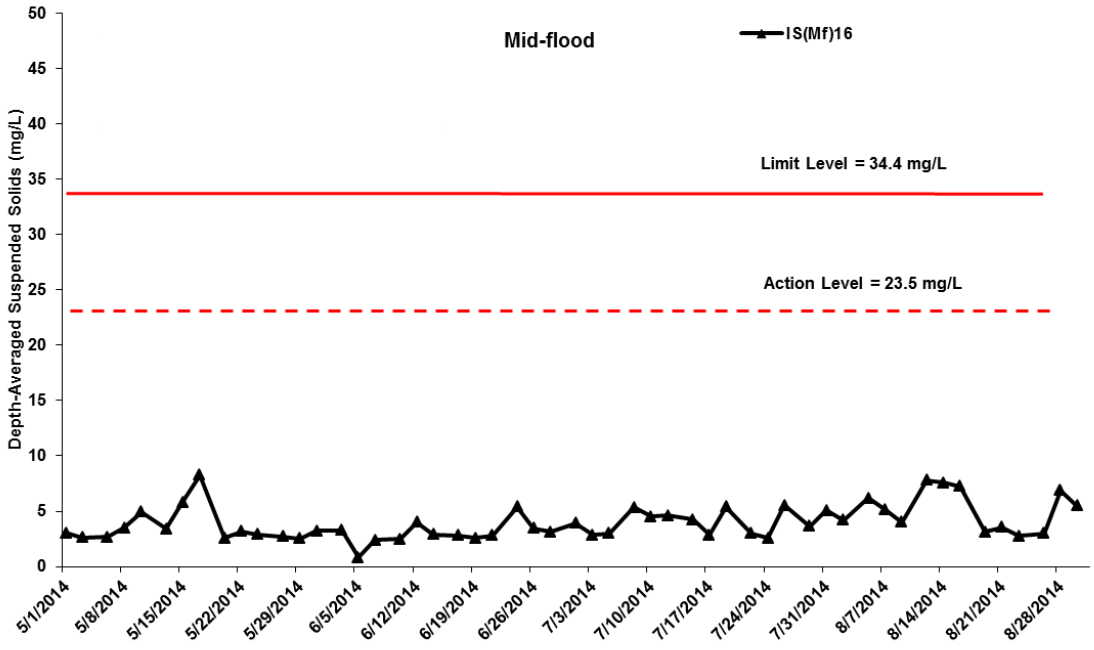

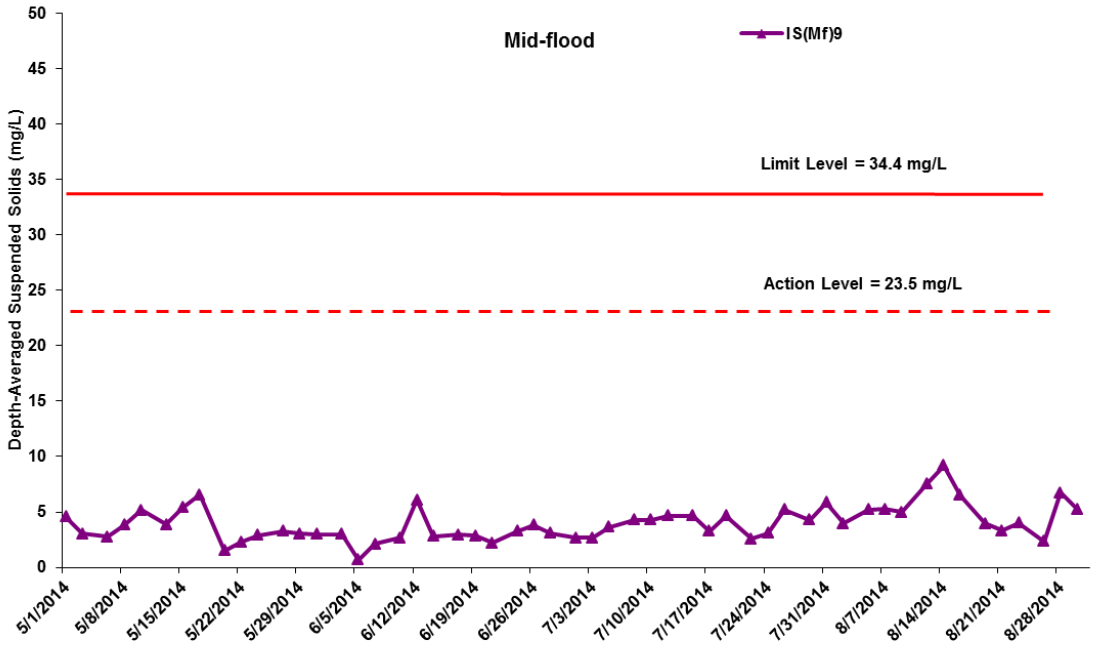

Figure H34 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2014 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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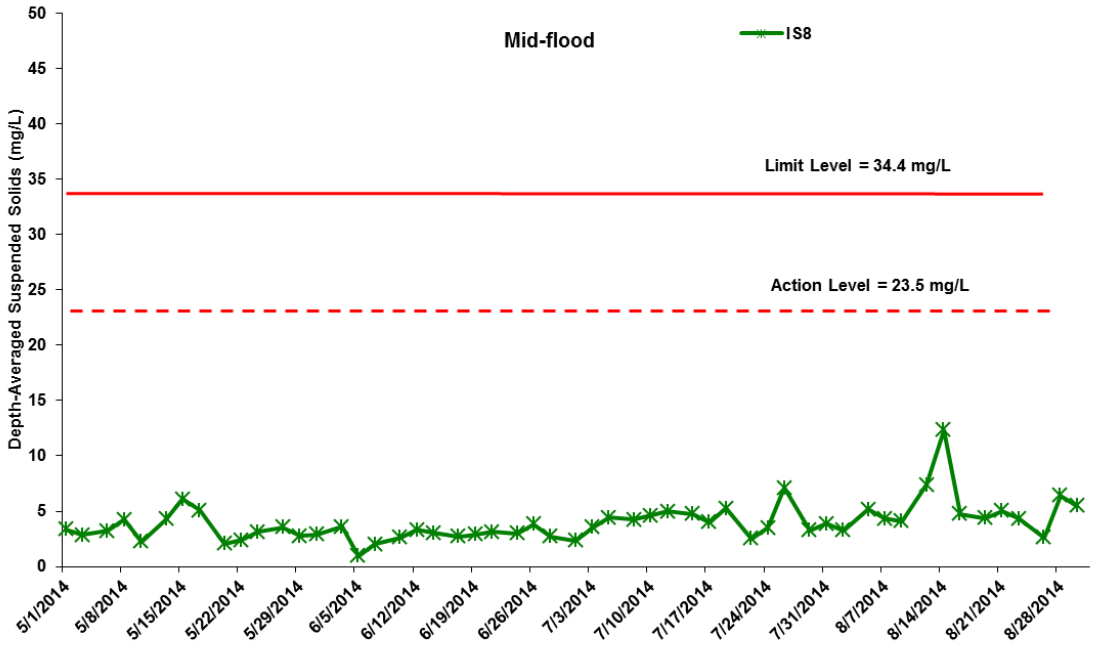

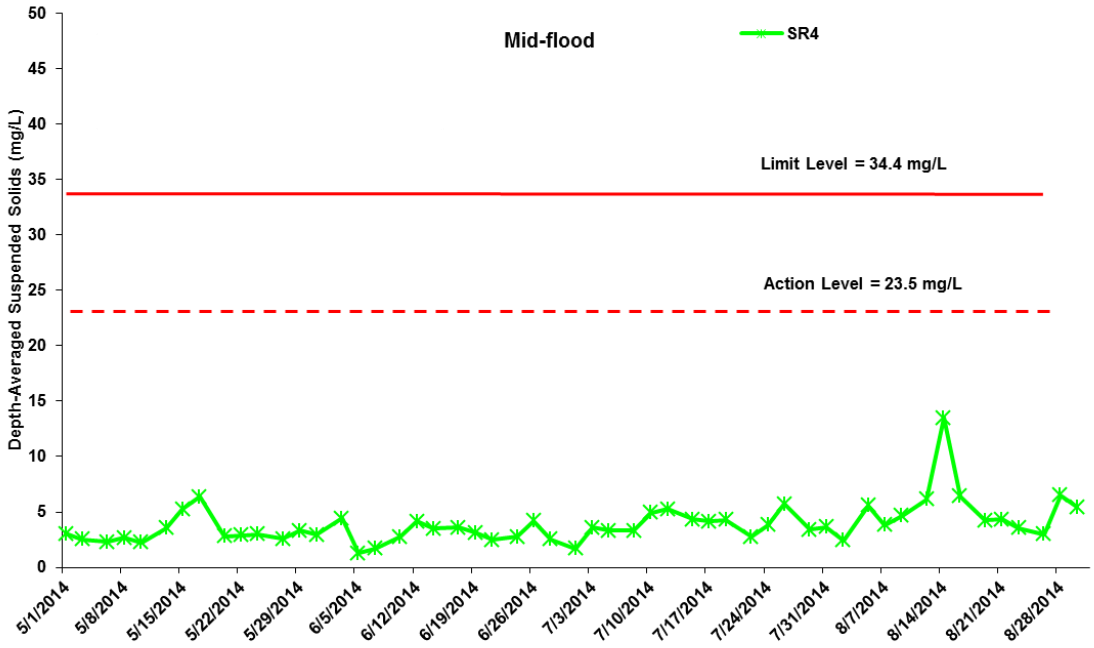

Figure H35 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2014 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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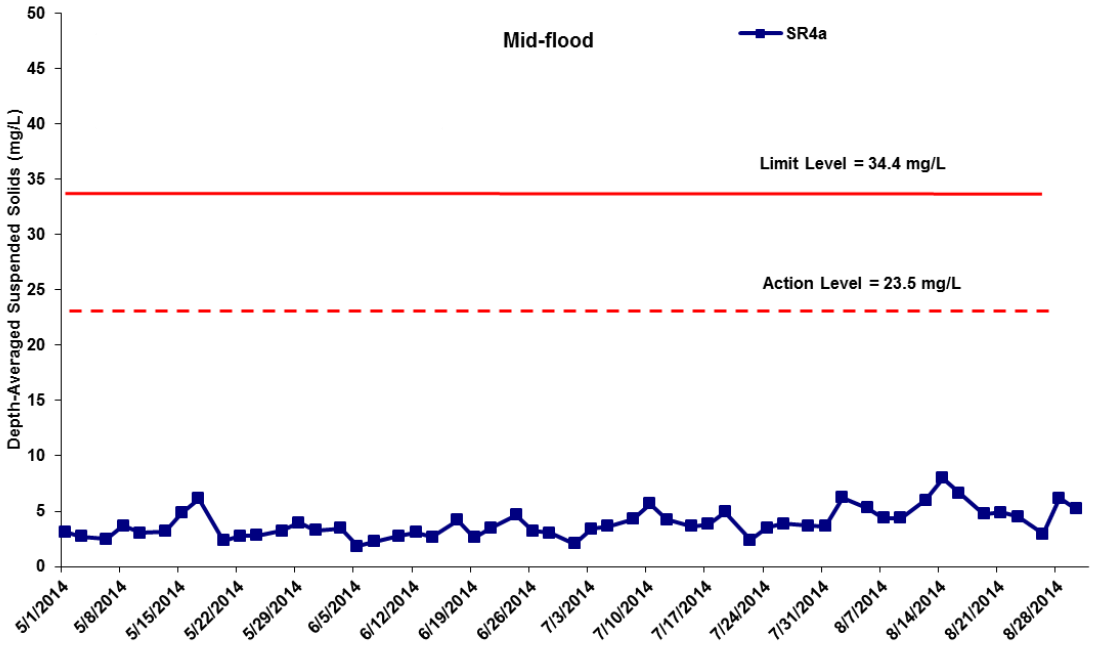

Figure H36 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2014 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.)

Environmental Resources Management

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Appendix I

Impact Dolphin Monitoring Survey Results

CONTRACT NO. HY/2012/07
Hong Kong-Zhuhai-Macao Bridge Tuen Mun – Chek Lap Kok Link (Southern Connection Viaduct Section)
Dolphin Quarterly Monitoring

3rd Quarterly Progress Report (June-August 2014)
submitted to Gammon Construction Limited

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

27 October 2014

1. Introduction

1.1. The Tuen Mun-Chek Lap Kok Link (TM-CLKL) comprises a 1.6 km long dual 2-lane viaduct section between the Hong Kong Boundary Crossing Facilities (HKBCF) and the North Lantau Highway and associated roads at Tai Ho. Gammon Construction Limited (hereinafter called the "Contractor") was awarded as the main contractor of "Contract No. HY/2012/07 – Hong Kong-Zhuhai-Macao Bridge Tuen Mun-Chek Lap Kok Link – Southern Connection Viaduct Section".

1.2. According to the updated Environmental Monitoring and Audit (EM&A) Manual (for TM-CLKL), monthly line-transect vessel surveys for Chinese White Dolphin should be conducted to cover the Northwest (NWL) and Northeast Lantau (NEL) survey areas as in AFCD annual marine mammal monitoring programme. However, as such surveys have been undertaken by the HKLR03 and HKBCF projects in the same areas (i.e. NWL and NEL), a combined monitoring approach is recommended by the Highways Department, that the TM-CLKL EM&A project can utilize the monitoring data collected by HKLR03 or HKBCF project to avoid any redundancy in monitoring effort. Such exemption for the dolphin monitoring will end upon the completion of the dolphin monitoring carried out by HKLR03 contract as well as the TM-CLKL Northern Connection Sub-Sea Tunnel Section (HY/2012/08)

1.3. In November 2013, the Director of Hong Kong Cetacean Research Project (HKCRP), Dr. Samuel Hung, has been appointed by Gammon Construction Limited as the dolphin specialist for the TM-CLKL Southern Viaduct Section EM&A project. He is responsible for the dolphin monitoring study, including the data collection on Chinese White Dolphins during the construction phase (i.e. impact period) of the TM-CLKL project in Northwest Lantau (NWL) and Northeast Lantau (NEL) survey areas.

1.4. During the construction period of HKLR, the dolphin specialist would be in charge of reviewing and collating information collected by HKLR03 dolphin monitoring programme to

examine any potential impacts of TM-CLKL construction works on the dolphins.

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

1.6. This report is the third quarterly progress report under the TM-CLKL construction phase dolphin monitoring programme submitted to the Gammon Construction Limited, summarizing the results of the surveys findings during the period of June to August 2014 utilizing the survey data collected by HKLR03 project.

2. Monitoring Methodology

2.1. Vessel-based Line-transect Survey

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

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

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

10	Start Point	813525	820872		22	Start Point	806464	824033
10	End Point	813525	824657		22	End Point	806464	829598
11	Start Point	814556	818449		23	Start Point	814559	821739
11	End Point	814556	820992		23	End Point	814559	824768
12	Start Point	815542	818807					
12	End Point	815542	824882					

2.1.2. The HKLR03 survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 16 years of marine mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2013, 2014). For each monitoring vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) was used to make observations from the flying bridge area.

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

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

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

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

2.1.7. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as “primary” survey effort, while the survey effort conducted along the connecting lines between parallel lines was labeled as “secondary” survey effort. According to HKCRP long-term dolphin monitoring data, encounter rates of Chinese white dolphins deduced from effort and sighting data collected

along primary and secondary lines were similar in NEL and NWL survey areas. Therefore, both primary and secondary survey effort were presented as on-effort survey effort in this report.

2.2. Photo-identification Work

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

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

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

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

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

2.3. Data Analysis

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

2.3.2. Encounter rate analysis – Encounter rates of Chinese white dolphins (number of on-effort sightings per 100 km of survey effort, and total number of dolphins sighted on-effort per 100 km of survey effort) were calculated in NEL and NWL survey areas in relation to the amount of survey effort conducted during each month of monitoring survey. Only data

collect under Beaufort 3 or below condition would be used for the encounter rate analyses. Dolphin encounter rates were calculated in two ways for comparisons with the HZMB baseline monitoring results as well as to AFCD long-term marine mammal monitoring results.

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

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

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

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

$$SPSE = ((S / E) \times 100) / SA\%$$
$$DPSE = ((D / E) \times 100) / SA\%$$

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

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

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

3. Monitoring Results

3.1. Summary of survey effort and dolphin sightings

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

3.1.2. From these HKLR03 surveys, a total of 894.40 km of survey effort was collected, with 93.6% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas, 343.21 km and 551.19 km of survey effort were conducted in NEL and NWL survey areas respectively.

3.1.3. The total survey effort conducted on primary lines was 647.96 km, while the effort on secondary lines was 246.44 km. Both survey effort conducted on primary and secondary lines were considered as on-effort survey data. Summary table of the survey effort is shown in Appendix I.

3.1.4. During the six sets of HKLR03 monitoring surveys from June to August 2014, a total of 28 groups of 96 Chinese White Dolphins were sighted. All except two dolphin sightings were made during on-effort search. Twenty on-effort sightings were made on primary lines, while another six on-effort sightings were made on secondary lines. In this quarterly period, almost all dolphin groups were sighted in NWL, with the exception of one group of four dolphins being sighted in NEL. Summary table of the dolphin sightings is shown in Appendix II.

3.2. Distribution

3.2.1. Distribution of dolphin sightings made during the HKLR03 monitoring surveys in June to August 2014 is shown in Figure 1. The majority of dolphin sightings were made in the western end of the North Lantau region, with higher concentration within and adjacent to the Sha Chau and Lung Kwu Chau Marine Park (Figure 1). Other dolphin sightings were scattered to the west and northeast of airport platform. The lone sighting made in NEL was located to the north of Yam O at the eastern end of the survey area (Figure 1).

3.2.2. Notably, none of the dolphin groups were sighted in the vicinity of TMCLKL southern viaduct or northern landfall section, as well as the HKLR03/HKBCF reclamation sites (Figure 1).

3.2.3. Sighting distribution of the present impact phase monitoring period (June to August 2014) was compared to the one during the baseline monitoring period (September to November 2011). In the present quarter, dolphins have mostly avoided the NEL region, which was in stark contrast to their frequent occurrence around the Brothers Islands and in the vicinity of HKBCF reclamation site during the baseline period (Figure 1). The nearly abandonment of NEL region by the dolphins have been consistently recorded in the past six quarters.

3.2.4. Dolphin occurrence in the northwestern portion of North Lantau region was somewhat different between the baseline and impact phase quarters. During the present impact monitoring period, there appeared to be much fewer dolphins occurred in the middle portion of North Lantau region than during the baseline period, where dolphins supposedly moved between their core areas around Lung Kwu Chau and the Brothers Islands (Figure 1). Moreover, more dolphins were sighted between Black Point and Lung Kwu Chau during the baseline period than during the present impact monitoring period (Figure 1). A number of dolphin sightings were made to the west of Chek Lap Kok airport (especially near the HKLR09 alignment) during the baseline period, but only two sightings were made there during the present impact phase period.

3.2.5. As the baseline monitoring period was in the autumn season while the present monitoring period was in the summer season, a direct comparison in dolphin distribution between the two quarterly periods of summer months in 2013 and 2014 was also made to avoid the potential bias contributed by seasonal variation in distribution (Figure 2).

3.2.6. Among the two summer periods, only one dolphin sighting was made in NEL in the summer of 2014, while there were five sightings made there in the summer of 2013. Moreover, a lot more dolphin sightings were made in the middle and western portions of North Lantau waters (especially near Black Point, Pillar Point, to the north of airport platform and near the HKLR09 alignment) in the summer of 2013 than in the summer of 2014.

3.3. Encounter rate

3.3.1. During the present quarterly period, the encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data from the primary transect lines

under favourable conditions (Beaufort 3 or below) for each set of the HKLR03 surveys in NEL and NWL are shown in Table 2. The average encounter rates deduced from the six sets of HKLR03 surveys were also compared with the ones deduced from the baseline monitoring period (September – November 2011) (Table 3).

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

SURVEY AREA	HKLR03 DOLPHIN MONITORING DATES	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	Primary Lines Only
Northeast Lantau	Set 1 (3 & 5 Jun 2014)	0.00	0.00
	Set 2 (10 & 16 Jun 2014)	0.00	0.00
	Set 3 (3, 9 & 10 Jul 2014)	2.54	10.16
	Set 4 (14 & 21 Jul 2014)	0.00	0.00
	Set 5 (5 & 6 Aug 2014)	0.00	0.00
	Set 6 (15 & 19 Aug 2014)	0.00	0.00
Northwest Lantau	Set 1 (3 & 5 Jun 2014)	1.67	5.00
	Set 2 (10 & 16 Jun 2014)	0.00	0.00
	Set 3 (3, 9 & 10 Jul 2014)	3.03	10.61
	Set 4 (14 & 21 Jul 2014)	8.40	26.60
	Set 5 (5 & 6 Aug 2014)	5.63	22.52
	Set 6 (15 & 19 Aug 2014)	9.70	40.40

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

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	June - August 2014	September - November 2011	June - August 2014	September - November 2011
Northeast Lantau	0.42 ± 1.04	6.00 ± 5.05	1.69 ± 4.15	22.19 ± 26.81
Northwest Lantau	4.74 ± 3.84	9.85 ± 5.85	17.52 ± 15.12	44.66 ± 29.85

3.3.2. To facilitate the comparison with the AFCD long-term monitoring results, the encounter rates were also calculated for the present quarter using both primary and secondary survey effort. The encounter rates of sightings (STG) and dolphins (ANI) in NWL were 5.04 sightings and 17.54 dolphins per 100 km of survey effort respectively, while the encounter rates of sightings (STG) and dolphins (ANI) in NEL were 0.29 sightings and

1.17 dolphins per 100 km of survey effort respectively.

3.3.3. In NEL, the average dolphin encounter rates (both STG and ANI) in the present three-month impact monitoring period was only a small fraction of the baseline value (i.e. less than 10%), and such low occurrence of dolphins in NEL have been consistently recorded in the past six quarters (Table 4).

Table 4. Comparison of average dolphin encounter rates in Northeast Lantau survey area from all quarters of impact monitoring period and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)
September-November 2011 (Baseline)	6.00 ± 5.05	22.19 ± 26.81
December 2012-February 2013 (Impact)	3.14 ± 3.21	6.33 ± 8.64
March-May 2013 (Impact)	0.42 ± 1.03	0.42 ± 1.03
June-August 2013 (Impact)	0.88 ± 1.36	3.91 ± 8.36
September-November 2013 (Impact)	1.01 ± 1.59	3.77 ± 6.49
December 2013-February 2014 (Impact)	0.45 ± 1.10	1.34 ± 3.29
March-May 2014 (Impact)	0.00	0.00
June-August 2014 (Impact)	0.42 ± 1.04	1.69 ± 4.15

Table 5. Comparison of average dolphin encounter rates in Northwest Lantau survey area from all quarters of impact monitoring period and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)
September-November 2011 (Baseline)	9.85 ± 5.85	44.66 ± 29.85
December 2012-February 2013 (Impact)	8.36 ± 5.03	35.90 ± 23.10
March-May 2013 (Impact)	7.75 ± 3.96	24.23 ± 18.05
June-August 2013 (Impact)	6.56 ± 3.68	27.00 ± 18.71
September-November 2013 (Impact)	8.04 ± 1.10	32.48 ± 26.51
December 2013-February 2014 (Impact)	8.21 ± 2.21	32.58 ± 11.21
March-May 2014 (Impact)	6.51 ± 3.34	19.14 ± 7.19
June-August 2014 (Impact)	4.74 ± 3.84	17.52 ± 15.12

3.3.4. It is a serious concern that dolphin occurrence in NEL in the past six quarters (0.0-1.0 for

ER(STG) and 0.0-3.9 for ER(ANI)) have been exceptionally low when compared to the baseline period (Table 4). In fact, the present quarter was the seventh consecutive quarters being accessed that have triggered the Action Level under the Event and Action Plan. As discussed recently in Hung (2014), the dramatic decline in dolphin usage of NEL waters in 2012 and 2013 (including the declines in abundance, encounter rate and habitat use in NEL, as well as shifts of individual core areas and ranges away from NEL waters) was possibly related to the HZMB construction works that were commenced in 2012.

3.3.5. Moreover, the average dolphin encounter rates (STG and ANI) in NWL during the present impact phase monitoring period were also much lower (reductions of 52% and 61% respectively) than the ones recorded in the 3-month baseline period, indicating a noticeable decline in dolphin usage of this survey area during the present construction period. In fact, both dolphin encounter rates in summer 2014 have dropped to the lowest since the commencement of the HKLR03 dolphin monitoring (Table 5).

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

3.3.7. For the comparison between the baseline period and the present quarter (seventh quarter of the impact phase being assessed), the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.0199 and 0.0597 respectively. If the alpha value is set at 0.1, significant difference was detected between the baseline and present quarters in both dolphin encounter rates of STG and ANI.

3.3.8. For the comparison between the baseline period and the cumulative quarters in impact phase (i.e. first seven quarters of the impact phase being assessed), the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.0037 and 0.0013 respectively. Even if the alpha value is set at 0.01, significant differences were detected in both the average dolphin encounter rates of STG and ANI (i.e. between the two periods and the locations).

3.4. Group size

3.4.1. Group size of Chinese White Dolphins ranged from one to eight individuals per group in North Lantau region during June – August 2014. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in Table 6.

Table 6. Comparison of average dolphin group sizes from impact monitoring period (June – August 2014) and baseline monitoring period (September – November 2011)

	Average Dolphin Group Size	
	June – August 2014	**September – November 2011**
Overall	3.43 ± 1.95 (n = 28)	3.72 ± 3.13 (n = 66)
Northeast Lantau	4.00 ± 0.00 (n = 1)	3.18 ± 2.16 (n = 17)
Northwest Lantau	3.41 ± 1.99 (n = 27)	3.92 ± 3.40 (n = 49)

3.4.2. The average dolphin group sizes in the entire North Lantau region as well as in NWL waters during June – August 2014 were lower than the ones recorded during the three-month baseline period (Table 6). In fact, 17 of the 28 groups were composed of 1-3 individuals only, while no dolphin group was composed of more than 10 individuals.

3.4.3. Distribution of dolphins with larger group sizes (five individuals or more per group) during the present quarter is shown in Figure 3, with comparison to the one in baseline period. During the summer of 2014, distribution of all larger dolphin groups were concentrated within and around the Sha Chau and Lung Kwu Chau Marine Park (Figure 3). This distribution pattern was quite different from the baseline period, when the larger dolphin groups were distributed more evenly in NWL waters with a few more sighted in NEL waters (Figure 3).

3.5. Habitat use

3.5.1. From June to August 2014, the most heavily utilized habitats by Chinese White Dolphins mainly concentrated within and around the marine park area (Figures 4a and 4b). Only one grid in NEL recorded the presence of dolphins. Moreover, all grids near TMCLKL and HKLR09 alignments as well as the HKLR03/HKBCF reclamation sites did not record any presence of dolphins during on-effort search in the present quarterly period.

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

3.5.3. When compared with the habitat use patterns during the baseline period, dolphin usage in NEL was dramatically different from the present impact monitoring period (Figure 5). During the baseline period, nine grids between Siu Mo To and Shum Shui Kok recorded moderately high to high dolphin densities, which was in stark contrast to the very rare occurrence of dolphins during the present impact phase period (Figure 5).

3.5.4. The density patterns between the baseline and impact phase monitoring periods were also

different in NWL, with higher dolphin usage near Black Point, as well as between Pillar Point and airport platform during the baseline period (Figure 5).

3.6. Mother-calf pairs

3.6.1. During the three-month study period, only three unspotted juveniles (UJ) were sighted in NWL survey areas. These young calves comprised of 3.1% of all animals sighted, which was much lower than the percentage recorded during the baseline monitoring period (6.8%).

3.6.2. The few young calves were found near Lung Kwu Chau, Sha Chau and Shum Wat (Figure 6), which was very different from their distribution pattern during the baseline period when young calves were sighted throughout the NWL survey area as well as a few sighted in NEL waters. None of these young calves were sighted in the vicinity of the HKLR09/TMCLKL alignments and HKBCF/HKLR03 reclamation sites during the present quarter (Figure 6).

3.7. Activities and associations with fishing boats

3.7.1. A total of four dolphin sightings were associated with socializing and traveling activities during the three-month study period. Notably, no feeding activity of dolphin was observed during the present quarter, which was in contrast to the relatively high percentage of feeding activities recorded during the baseline period (11.6%). On the contrary, the percentage of socializing activities during the present impact phase monitoring period (7.1%) was slightly higher than the one recorded during the baseline period (5.4%).

3.7.2. Distribution of dolphins engaged in socializing and traveling activities during the present three-month period is shown in Figure 7. The two sightings associated with socializing activities occurred near Sha Chau, while the two sightings associated with traveling activities were found adjacent to Lung Kwu Chau (Figure 7). Distribution of dolphin sightings associated with these activities during the impact phase was drastically different from the distribution pattern of these activities during the baseline period (Figure 7).

3.7.3. During the three-month period, none of the 28 dolphin groups was found to be associated with an operating fishing vessels in North Lantau waters. The rare events of fishing boat association in the present and previous quarters were consistently found, and were likely related to the recent trawl ban being implemented in December 2012 in Hong Kong waters.

3.8. Summary of photo-identification works

3.8.1. From June to August 2014, over 2,000 digital photographs of Chinese White Dolphins were taken during the impact phase monitoring surveys for the photo-identification work.

3.8.2. In total, 32 individuals sighted 44 times altogether were identified (see summary table in Appendix III and photographs of identified individuals in Appendix IV). All except four of these re-sightings were made in NWL. Four individuals (NL123, NL139, NL261 and NL285) were sighted once during the lone sighting made in NEL in the present quarter.

3.8.3. Almost all identified individuals were sighted only once or twice during the three-month period, with the exception of one individual (NL272) being sighted thrice.

3.8.4. Notably, 11 of these 32 individuals were also sighted in West Lantau waters during the HKLR09 monitoring surveys during the same three-month period, showing their extensive movement between North and West Lantau regions. In particular, two individuals (NL139 and NL261) were sighted in both NEL and WL during the same quarter.

3.8.5. Six well-recognized females (NL93, NL104, NL123, NL145, NL202 and WL124) were accompanied with their calves during their re-sightings. Most of these mothers were frequently sighted with their calves throughout the HKLR03 impact phase monitoring period since October 2012.

3.9. Individual range use

3.9.1. Ranging patterns of the 32 individuals identified during the three-month study period were determined by fixed kernel method, and are shown in Appendix V.

3.9.2. With the exception of a few individuals, most identified dolphins sighted in this quarter were utilizing their range use in NWL (and some also in WL), but have avoided the NEL waters where many of them have utilized as their core areas in the past (Appendix V). This is in contrary to the extensive movements between NEL and NWL survey areas observed in the earlier impact monitoring quarters as well as during the baseline period.

3.9.3. For many individuals that have previously utilized the Brothers Islands as their major core area of activities, they have apparently shifted their range use away from this important habitat (e.g. NL93, NL123, NL136, NL261; Appendix V). Such shifts of range use and core area use were also documented by Hung (2014), as well as in the past monitoring quarters in 2013 and 2014 under the present study.

4. Conclusion

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

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

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

5. References

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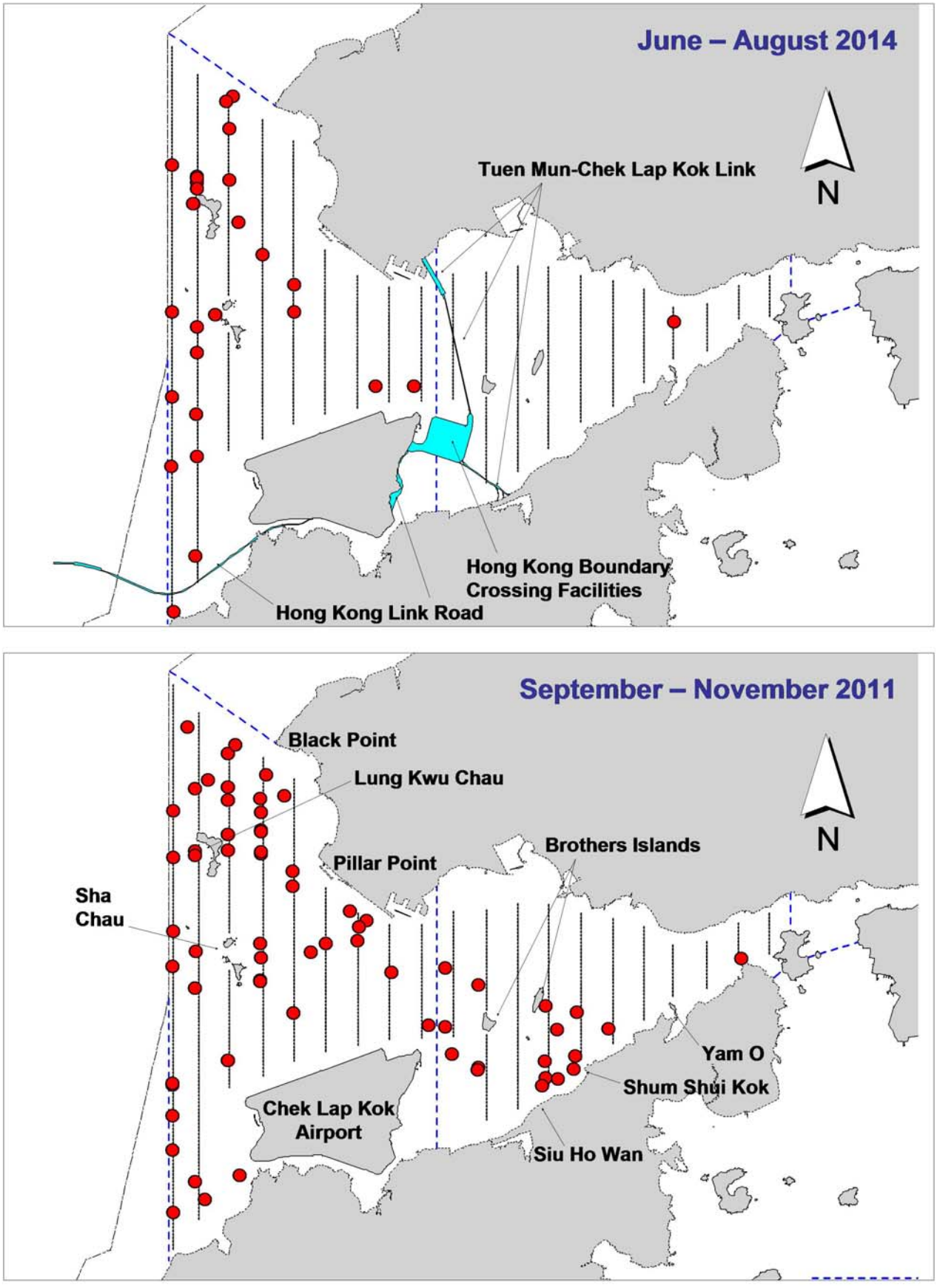


Figure 1. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

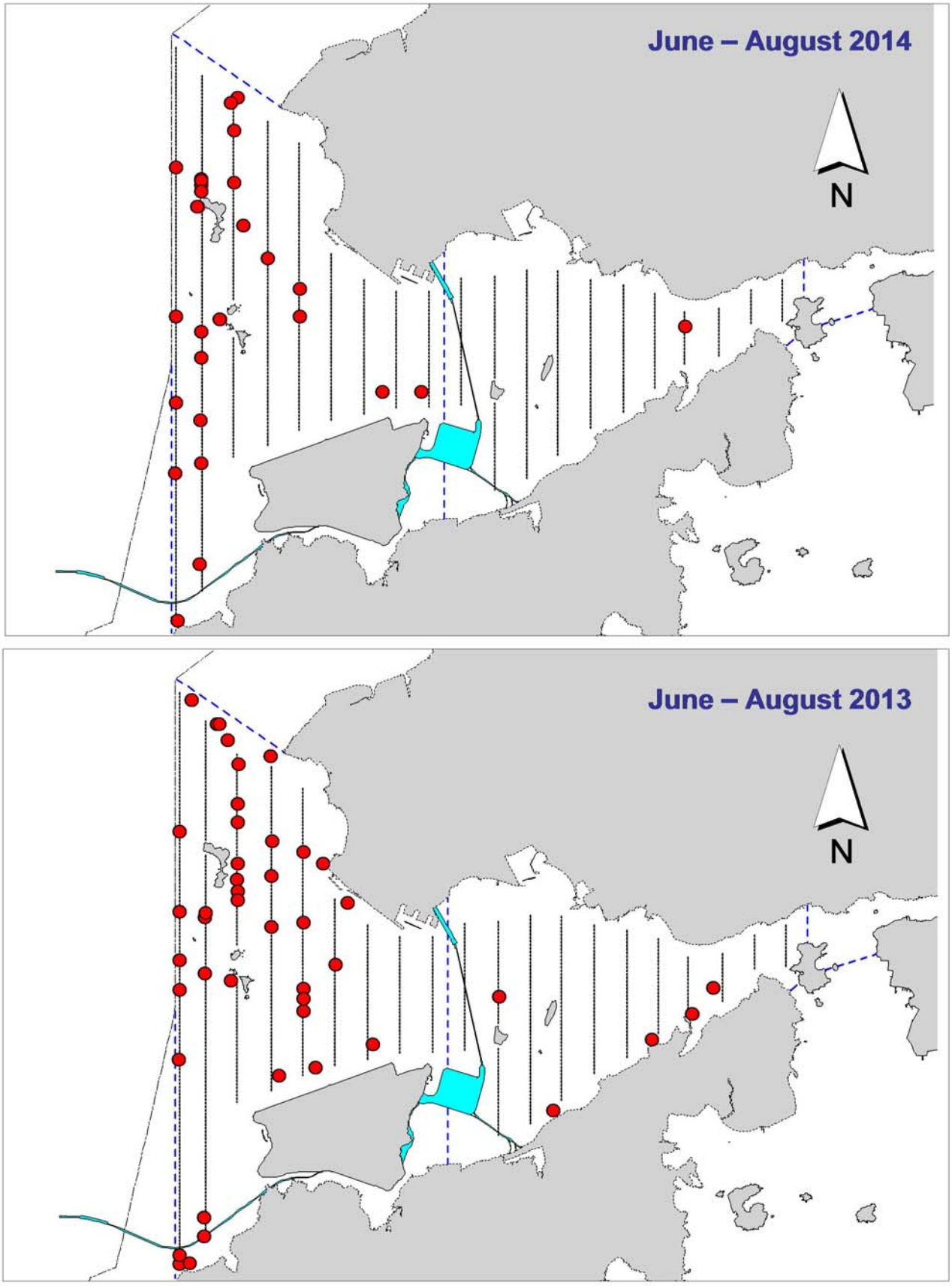


Figure 2. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during the same summer quarters of HKLR03 impact phase in 2014 (top) and 2013 (bottom)

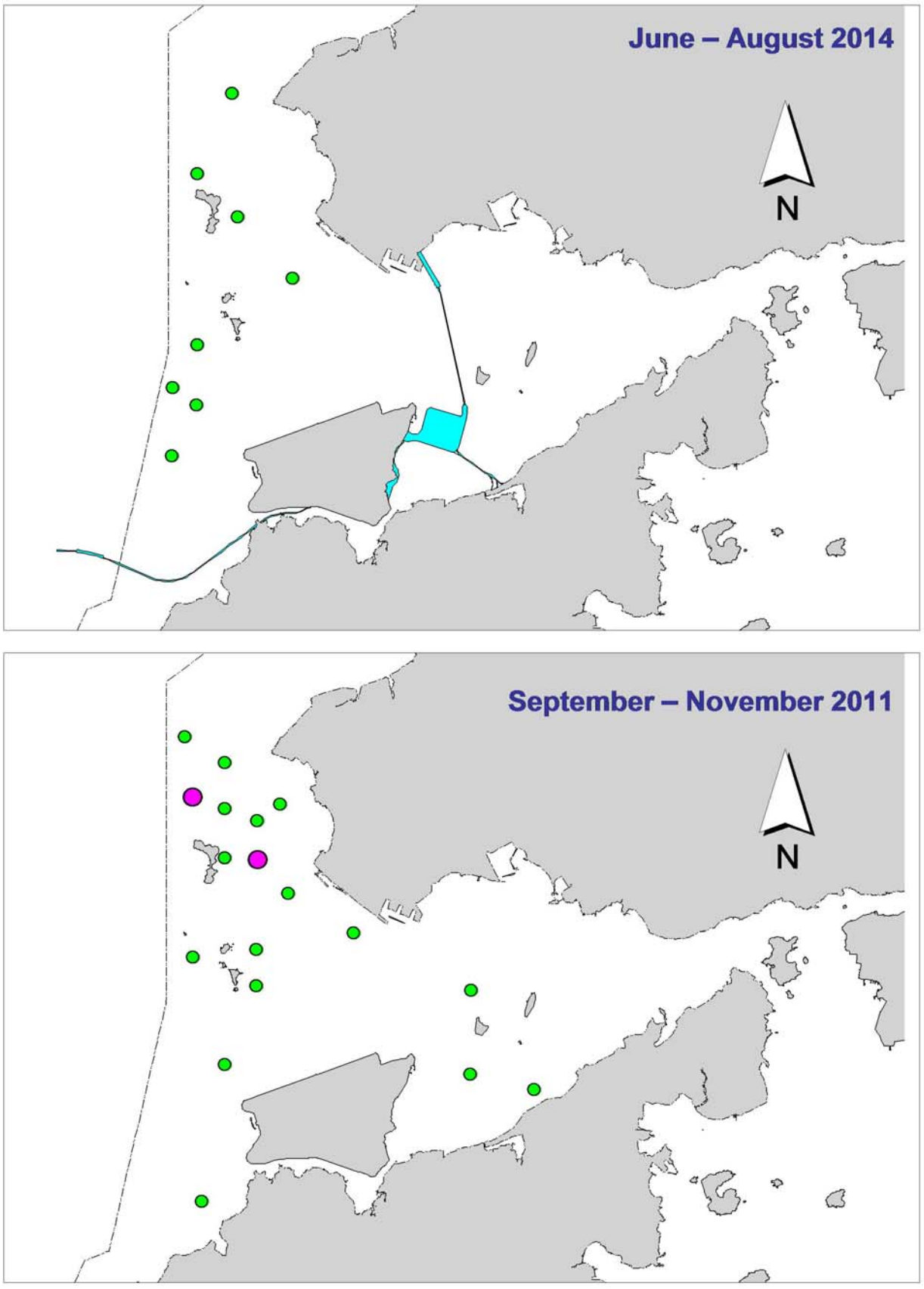


Figure 3. Distribution of Chinese white dolphins with larger group sizes during HKLR03 impact phase (top) and baseline monitoring surveys (bottom) (green dots: group sizes of 5 or more; purple dots: group sizes of 10 or more)

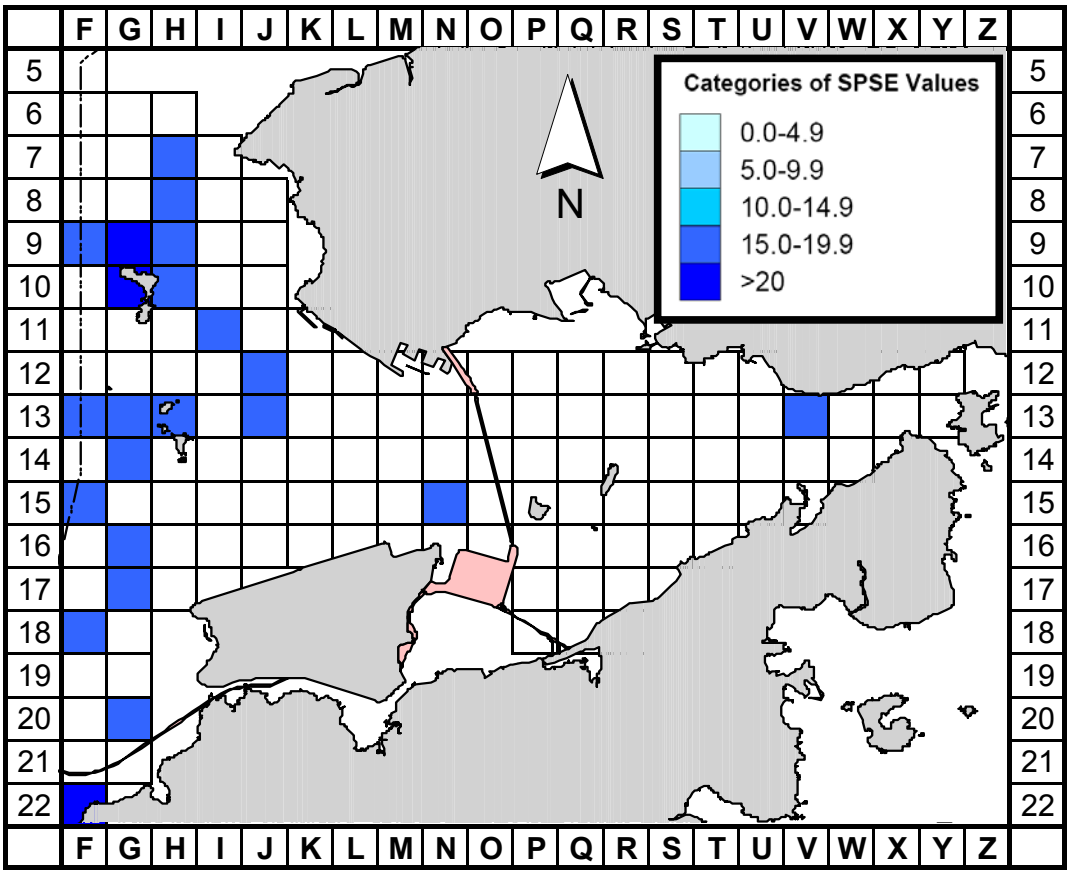


Figure 4a. Sighting density of Chinese white dolphins with corrected survey effort per km^2 in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period monitoring period (Jun-Aug 14) (SPSE = no. of on-effort sightings per 100 units of survey effort)

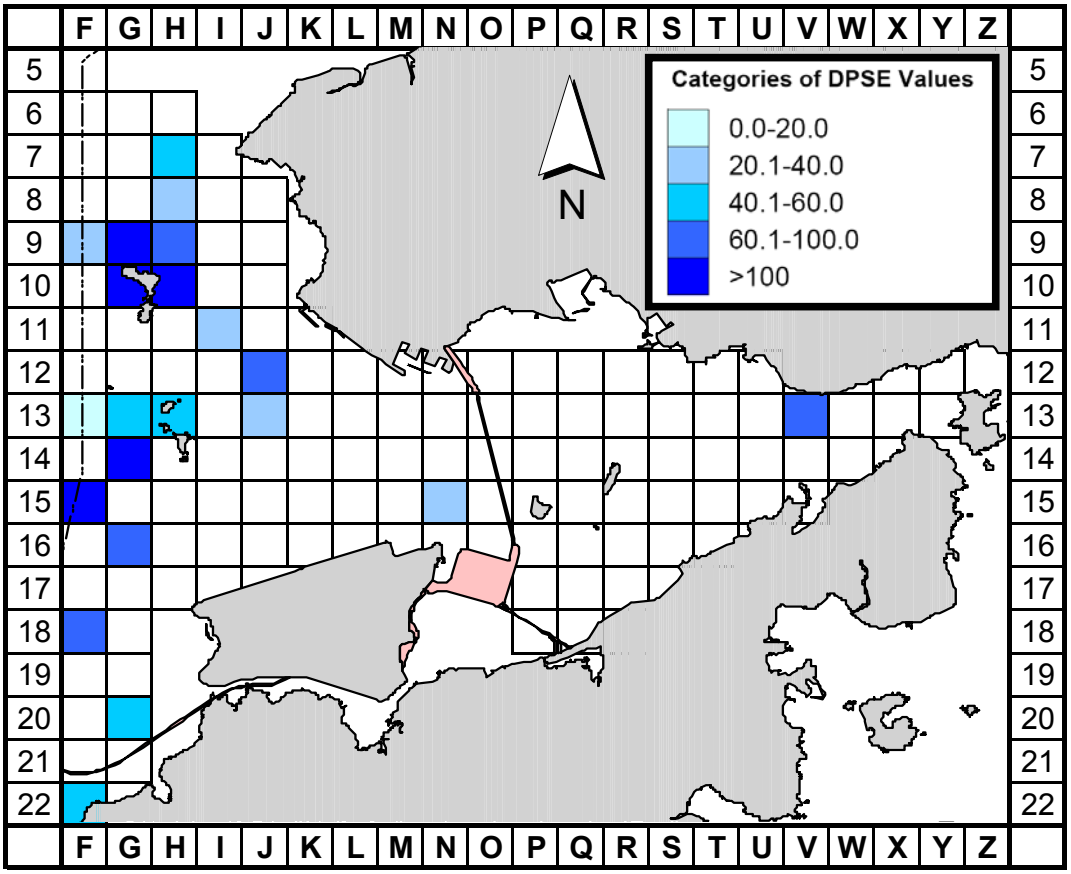


Figure 4b. Density of Chinese white dolphins with corrected survey effort per km^2 in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period (Jun-Aug 14) (DPSE = no. of dolphins per 100 units of survey effort)

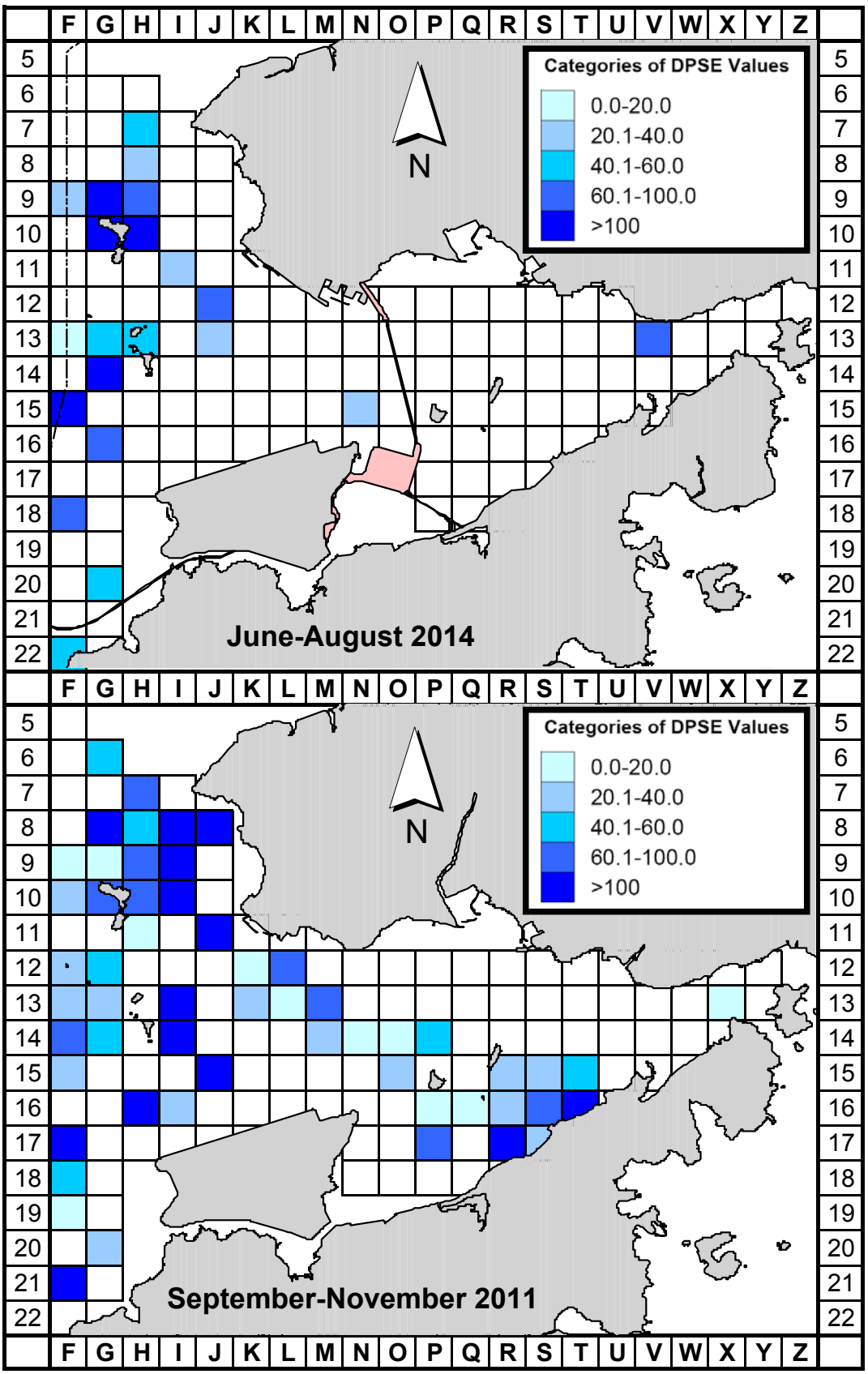


Figure 5. Comparison of density of Chinese white dolphins with corrected survey effort per km^2 in Northwest and Northeast Lantau survey area between the impact monitoring period (June-August 2014) and baseline monitoring period (September-November 2011)
(DPSE = no. of dolphins per 100 units of survey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

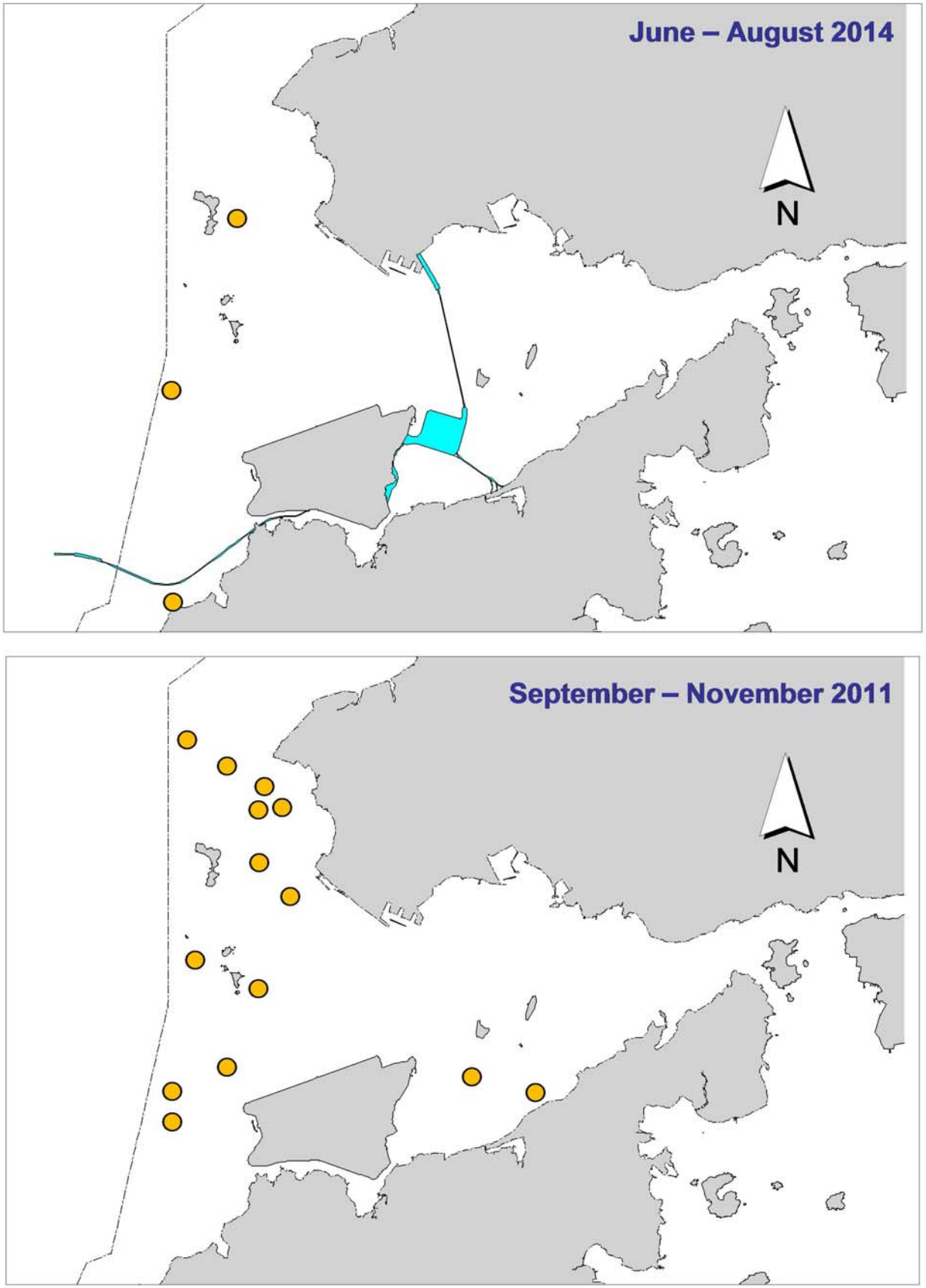


Figure 6. Distribution of young calves of Chinese white dolphins during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

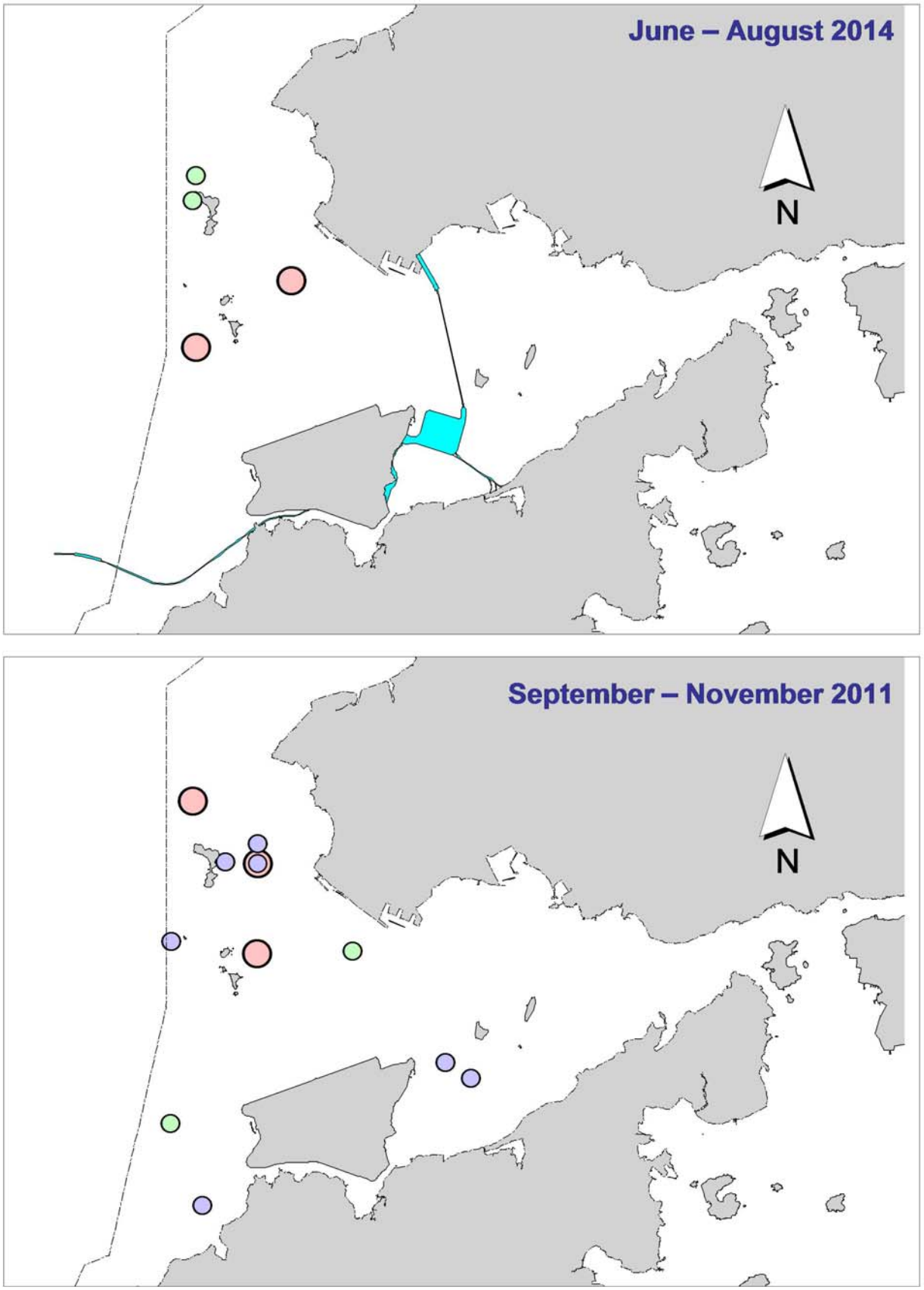


Figure 7. Distribution of Chinese white dolphins engaged in feeding (purple dots), socializing (pink dots) and traveling (green dots) activities during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

Appendix I. HKLR03 Survey Effort Database (June-August 2014)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
3-Jun-14	NE LANTAU	2	14.31	SUMMER	STANDARD31516	HKLR	P
3-Jun-14	NE LANTAU	3	2.60	SUMMER	STANDARD31516	HKLR	P
3-Jun-14	NE LANTAU	2	10.89	SUMMER	STANDARD31516	HKLR	S
3-Jun-14	NW LANTAU	2	6.52	SUMMER	STANDARD31516	HKLR	P
3-Jun-14	NW LANTAU	3	23.00	SUMMER	STANDARD31516	HKLR	P
3-Jun-14	NW LANTAU	4	10.70	SUMMER	STANDARD31516	HKLR	P
3-Jun-14	NW LANTAU	2	3.78	SUMMER	STANDARD31516	HKLR	S
3-Jun-14	NW LANTAU	3	9.70	SUMMER	STANDARD31516	HKLR	S
5-Jun-14	NE LANTAU	1	5.65	SUMMER	STANDARD31516	HKLR	P
5-Jun-14	NE LANTAU	2	10.52	SUMMER	STANDARD31516	HKLR	P
5-Jun-14	NE LANTAU	3	4.20	SUMMER	STANDARD31516	HKLR	P
5-Jun-14	NE LANTAU	1	2.20	SUMMER	STANDARD31516	HKLR	S
5-Jun-14	NE LANTAU	2	6.23	SUMMER	STANDARD31516	HKLR	S
5-Jun-14	NE LANTAU	3	2.10	SUMMER	STANDARD31516	HKLR	S
5-Jun-14	NW LANTAU	2	13.90	SUMMER	STANDARD31516	HKLR	P
5-Jun-14	NW LANTAU	3	16.56	SUMMER	STANDARD31516	HKLR	P
5-Jun-14	NW LANTAU	2	3.70	SUMMER	STANDARD31516	HKLR	S
5-Jun-14	NW LANTAU	3	3.61	SUMMER	STANDARD31516	HKLR	S
10-Jun-14	NW LANTAU	2	6.21	SUMMER	STANDARD31516	HKLR	P
10-Jun-14	NW LANTAU	3	31.70	SUMMER	STANDARD31516	HKLR	P
10-Jun-14	NW LANTAU	4	2.50	SUMMER	STANDARD31516	HKLR	P
10-Jun-14	NW LANTAU	2	9.29	SUMMER	STANDARD31516	HKLR	S
10-Jun-14	NW LANTAU	3	4.10	SUMMER	STANDARD31516	HKLR	S
10-Jun-14	NE LANTAU	2	12.34	SUMMER	STANDARD31516	HKLR	P
10-Jun-14	NE LANTAU	3	3.50	SUMMER	STANDARD31516	HKLR	P
10-Jun-14	NE LANTAU	2	10.53	SUMMER	STANDARD31516	HKLR	S
10-Jun-14	NE LANTAU	3	0.73	SUMMER	STANDARD31516	HKLR	S
16-Jun-14	NW LANTAU	2	3.11	SUMMER	STANDARD31516	HKLR	P
16-Jun-14	NW LANTAU	3	13.98	SUMMER	STANDARD31516	HKLR	P
16-Jun-14	NW LANTAU	4	14.31	SUMMER	STANDARD31516	HKLR	P
16-Jun-14	NW LANTAU	3	4.28	SUMMER	STANDARD31516	HKLR	S
16-Jun-14	NW LANTAU	4	3.43	SUMMER	STANDARD31516	HKLR	S
16-Jun-14	NE LANTAU	1	1.40	SUMMER	STANDARD31516	HKLR	P
16-Jun-14	NE LANTAU	2	18.35	SUMMER	STANDARD31516	HKLR	P
16-Jun-14	NE LANTAU	1	0.30	SUMMER	STANDARD31516	HKLR	S
16-Jun-14	NE LANTAU	2	10.55	SUMMER	STANDARD31516	HKLR	S
3-Jul-14	NE LANTAU	2	1.89	SUMMER	STANDARD31516	HKLR	P
3-Jul-14	NE LANTAU	2	2.14	SUMMER	STANDARD31516	HKLR	S
3-Jul-14	NW LANTAU	2	7.87	SUMMER	STANDARD31516	HKLR	P
3-Jul-14	NW LANTAU	3	23.09	SUMMER	STANDARD31516	HKLR	P
3-Jul-14	NW LANTAU	4	5.90	SUMMER	STANDARD31516	HKLR	P
3-Jul-14	NW LANTAU	2	2.90	SUMMER	STANDARD31516	HKLR	S
3-Jul-14	NW LANTAU	3	7.84	SUMMER	STANDARD31516	HKLR	S
3-Jul-14	NW LANTAU	4	0.60	SUMMER	STANDARD31516	HKLR	S
9-Jul-14	NW LANTAU	1	1.80	SUMMER	STANDARD31516	HKLR	P
9-Jul-14	NW LANTAU	2	9.28	SUMMER	STANDARD31516	HKLR	P
9-Jul-14	NW LANTAU	2	3.22	SUMMER	STANDARD31516	HKLR	S
10-Jul-14	NW LANTAU	1	8.81	SUMMER	STANDARD31516	HKLR	P
10-Jul-14	NW LANTAU	2	12.85	SUMMER	STANDARD31516	HKLR	P
10-Jul-14	NW LANTAU	3	2.29	SUMMER	STANDARD31516	HKLR	P
10-Jul-14	NW LANTAU	1	0.73	SUMMER	STANDARD31516	HKLR	S

Appendix I. (cont'd)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
10-Jul-14	NW LANTAU	2	6.69	SUMMER	STANDARD31516	HKLR	S
10-Jul-14	NE LANTAU	1	14.94	SUMMER	STANDARD31516	HKLR	P
10-Jul-14	NE LANTAU	2	16.33	SUMMER	STANDARD31516	HKLR	P
10-Jul-14	NE LANTAU	3	6.20	SUMMER	STANDARD31516	HKLR	P
10-Jul-14	NE LANTAU	1	3.93	SUMMER	STANDARD31516	HKLR	S
10-Jul-14	NE LANTAU	2	6.90	SUMMER	STANDARD31516	HKLR	S
10-Jul-14	NE LANTAU	3	0.80	SUMMER	STANDARD31516	HKLR	S
14-Jul-14	NW LANTAU	2	19.59	SUMMER	STANDARD31516	HKLR	P
14-Jul-14	NW LANTAU	3	11.09	SUMMER	STANDARD31516	HKLR	P
14-Jul-14	NW LANTAU	2	2.05	SUMMER	STANDARD31516	HKLR	S
14-Jul-14	NW LANTAU	3	3.80	SUMMER	STANDARD31516	HKLR	S
14-Jul-14	NW LANTAU	4	0.93	SUMMER	STANDARD31516	HKLR	S
14-Jul-14	NE LANTAU	1	2.00	SUMMER	STANDARD31516	HKLR	P
14-Jul-14	NE LANTAU	2	14.57	SUMMER	STANDARD31516	HKLR	P
14-Jul-14	NE LANTAU	3	2.40	SUMMER	STANDARD31516	HKLR	P
14-Jul-14	NE LANTAU	4	1.20	SUMMER	STANDARD31516	HKLR	P
14-Jul-14	NE LANTAU	2	10.51	SUMMER	STANDARD31516	HKLR	S
14-Jul-14	NE LANTAU	3	0.30	SUMMER	STANDARD31516	HKLR	S
21-Jul-14	NW LANTAU	1	5.9	SUMMER	STANDARD31516	HKLR	P
21-Jul-14	NW LANTAU	2	31.1	SUMMER	STANDARD31516	HKLR	P
21-Jul-14	NW LANTAU	3	3.7	SUMMER	STANDARD31516	HKLR	P
21-Jul-14	NW LANTAU	2	7.9	SUMMER	STANDARD31516	HKLR	S
21-Jul-14	NW LANTAU	3	4.9	SUMMER	STANDARD31516	HKLR	S
21-Jul-14	NE LANTAU	1	2.8	SUMMER	STANDARD31516	HKLR	P
21-Jul-14	NE LANTAU	2	13.7	SUMMER	STANDARD31516	HKLR	P
21-Jul-14	NE LANTAU	2	10.7	SUMMER	STANDARD31516	HKLR	S
5-Aug-14	NE LANTAU	1	8.40	SUMMER	STANDARD31516	HKLR	P
5-Aug-14	NE LANTAU	2	5.80	SUMMER	STANDARD31516	HKLR	P
5-Aug-14	NE LANTAU	3	2.10	SUMMER	STANDARD31516	HKLR	P
5-Aug-14	NE LANTAU	1	6.20	SUMMER	STANDARD31516	HKLR	S
5-Aug-14	NE LANTAU	2	4.80	SUMMER	STANDARD31516	HKLR	S
5-Aug-14	NW LANTAU	1	8.00	SUMMER	STANDARD31516	HKLR	P
5-Aug-14	NW LANTAU	2	30.30	SUMMER	STANDARD31516	HKLR	P
5-Aug-14	NW LANTAU	3	1.70	SUMMER	STANDARD31516	HKLR	P
5-Aug-14	NW LANTAU	1	1.50	SUMMER	STANDARD31516	HKLR	S
5-Aug-14	NW LANTAU	2	9.90	SUMMER	STANDARD31516	HKLR	S
6-Aug-14	NW LANTAU	1	4.30	SUMMER	STANDARD31516	HKLR	P
6-Aug-14	NW LANTAU	2	21.55	SUMMER	STANDARD31516	HKLR	P
6-Aug-14	NW LANTAU	3	5.21	SUMMER	STANDARD31516	HKLR	P
6-Aug-14	NW LANTAU	1	2.30	SUMMER	STANDARD31516	HKLR	S
6-Aug-14	NW LANTAU	2	4.05	SUMMER	STANDARD31516	HKLR	S
6-Aug-14	NW LANTAU	3	0.30	SUMMER	STANDARD31516	HKLR	S
6-Aug-14	NE LANTAU	1	17.62	SUMMER	STANDARD31516	HKLR	P
6-Aug-14	NE LANTAU	2	2.26	SUMMER	STANDARD31516	HKLR	P
6-Aug-14	NE LANTAU	1	10.52	SUMMER	STANDARD31516	HKLR	S
15-Aug-14	NW LANTAU	2	7.71	SUMMER	STANDARD31516	HKLR	P
15-Aug-14	NW LANTAU	3	29.93	SUMMER	STANDARD31516	HKLR	P
15-Aug-14	NW LANTAU	3	9.92	SUMMER	STANDARD31516	HKLR	S
15-Aug-14	NW LANTAU	4	2.64	SUMMER	STANDARD31516	HKLR	S
15-Aug-14	NE LANTAU	2	17.22	SUMMER	STANDARD31516	HKLR	P
15-Aug-14	NE LANTAU	3	0.58	SUMMER	STANDARD31516	HKLR	P
15-Aug-14	NE LANTAU	2	8.54	SUMMER	STANDARD31516	HKLR	S
15-Aug-14	NE LANTAU	3	1.26	SUMMER	STANDARD31516	HKLR	S

Appendix I. (cont'd)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
19-Aug-14	NE LANTAU	1	1.46	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NE LANTAU	2	11.20	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NE LANTAU	3	5.91	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NE LANTAU	4	0.80	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NE LANTAU	2	4.35	SUMMER	STANDARD31516	HKLR	S
19-Aug-14	NE LANTAU	3	6.48	SUMMER	STANDARD31516	HKLR	S
19-Aug-14	NW LANTAU	2	1.16	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NW LANTAU	3	23.08	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NW LANTAU	4	3.24	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NW LANTAU	5	3.69	SUMMER	STANDARD31516	HKLR	P
19-Aug-14	NW LANTAU	3	4.32	SUMMER	STANDARD31516	HKLR	S
19-Aug-14	NW LANTAU	4	7.12	SUMMER	STANDARD31516	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (June-August 2014)

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

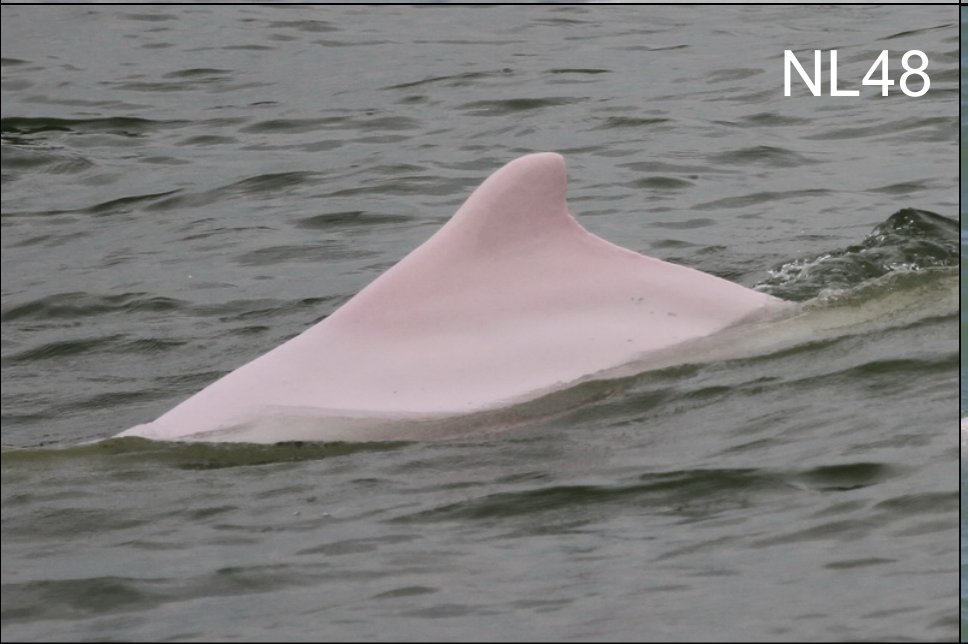
DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
5-Jun-14	1	1400	3	NW LANTAU	3	184	ON	HKLR	827350	805448	SUMMER	NONE	P
5-Jun-14	2	1413	3	NW LANTAU	3	20	ON	HKLR	826719	805344	SUMMER	NONE	S
16-Jun-14	1	1408	1	NW LANTAU	3	ND	OFF	HKLR	827538	805459	SUMMER	NONE	
3-Jul-14	1	958	4	NE LANTAU	2	317	ON	HKLR	823230	820459	SUMMER	NONE	P
3-Jul-14	2	1302	4	NW LANTAU	3	ND	OFF	HKLR	821327	811071	SUMMER	NONE	
3-Jul-14	3	1642	2	NW LANTAU	3	161	ON	HKLR	814628	804722	SUMMER	NONE	P
10-Jul-14	1	1110	5	NW LANTAU	2	588	ON	HKLR	827483	805459	SUMMER	NONE	P
10-Jul-14	2	1150	5	NW LANTAU	2	0	ON	HKLR	829928	806565	SUMMER	NONE	S
14-Jul-14	1	1022	3	NW LANTAU	2	572	ON	HKLR	816276	805395	SUMMER	NONE	P
14-Jul-14	2	1036	1	NW LANTAU	2	866	ON	HKLR	819222	805442	SUMMER	NONE	P
14-Jul-14	3	1044	5	NW LANTAU	2	118	ON	HKLR	820484	805434	SUMMER	NONE	P
14-Jul-14	4	1105	7	NW LANTAU	2	471	ON	HKLR	822311	805448	SUMMER	NONE	P
14-Jul-14	5	1144	2	NW LANTAU	2	819	ON	HKLR	827173	805448	SUMMER	NONE	P
21-Jul-14	1	1113	1	NW LANTAU	2	694	ON	HKLR	823509	804668	SUMMER	NONE	P
21-Jul-14	2	1436	2	NW LANTAU	2	325	ON	HKLR	821325	812267	SUMMER	NONE	S
5-Aug-14	1	1413	8	NW LANTAU	2	428	ON	HKLR	826185	806764	SUMMER	NONE	P
5-Aug-14	2	1435	4	NW LANTAU	2	0	ON	HKLR	827426	806458	SUMMER	NONE	P
5-Aug-14	3	1444	2	NW LANTAU	2	990	ON	HKLR	828943	806461	SUMMER	NONE	P
5-Aug-14	4	1515	2	NW LANTAU	2	452	ON	HKLR	827872	804667	SUMMER	NONE	P
6-Aug-14	1	1110	3	NW LANTAU	3	10	ON	HKLR	826730	805323	SUMMER	NONE	S
6-Aug-14	2	1151	1	NW LANTAU	2	17	ON	HKLR	829773	806359	SUMMER	NONE	S
15-Aug-14	1	1029	5	NW LANTAU	3	393	ON	HKLR	818936	804648	SUMMER	NONE	P
15-Aug-14	2	1041	7	NW LANTAU	3	15	ON	HKLR	821006	804652	SUMMER	NONE	P
15-Aug-14	3	1218	3	NW LANTAU	3	0	ON	HKLR	823429	806027	SUMMER	NONE	S
15-Aug-14	4	1305	2	NW LANTAU	2	749	ON	HKLR	823524	808510	SUMMER	NONE	P
15-Aug-14	5	1310	6	NW LANTAU	3	83	ON	HKLR	824321	808501	SUMMER	NONE	P
19-Aug-14	1	1338	2	NW LANTAU	3	105	ON	HKLR	825220	807514	SUMMER	NONE	P
19-Aug-14	2	1536	3	NW LANTAU	2	113	ON	HKLR	823076	805450	SUMMER	NONE	P

Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in June-August 2014

ID#	DATE	STG#	AREA
CH34	10/07/14	1	NW LANTAU
NL46	05/08/14	2	NW LANTAU
NL48	05/08/14	1	NW LANTAU
	19/08/14	1	NW LANTAU
NL80	14/07/14	4	NW LANTAU
NL93	10/07/14	1	NW LANTAU
	05/08/14	1	NW LANTAU
NL104	05/08/14	1	NW LANTAU
NL123	03/07/14	1	NE LANTAU
	15/08/14	5	NW LANTAU
NL136	05/06/14	2	NW LANTAU
NL139	03/07/14	1	NE LANTAU
NL145	14/07/14	3	NW LANTAU
NL182	10/07/14	2	NW LANTAU
NL202	19/08/14	1	NW LANTAU
	19/08/14	2	NW LANTAU
NL210	10/07/14	2	NW LANTAU
NL242	05/08/14	1	NW LANTAU
NL247	14/07/14	4	NW LANTAU
	15/08/14	2	NW LANTAU
NL259	05/08/14	1	NW LANTAU
NL261	03/07/14	1	NE LANTAU
NL272	05/06/14	1	NW LANTAU
	05/06/14	2	NW LANTAU
	15/08/14	5	NW LANTAU
NL278	15/08/14	2	NW LANTAU
NL284	15/08/14	5	NW LANTAU
NL285	03/07/14	1	NE LANTAU
	15/08/14	5	NW LANTAU
NL286	15/08/14	5	NW LANTAU
	19/08/14	2	NW LANTAU

ID#	DATE	STG#	AREA
NL287	14/07/14	3	NW LANTAU
	15/08/14	5	NW LANTAU
NL300	14/07/14	4	NW LANTAU
NL301	14/07/14	4	NW LANTAU
NL307	15/08/14	5	NW LANTAU
WL28	15/08/14	2	NW LANTAU
WL30	10/07/14	1	NW LANTAU
WL46	15/08/14	2	NW LANTAU
WL124	03/07/14	3	NW LANTAU
	15/08/14	2	NW LANTAU
WL188	06/08/14	1	NW LANTAU
	15/08/14	2	NW LANTAU
WL214	15/08/14	2	NW LANTAU

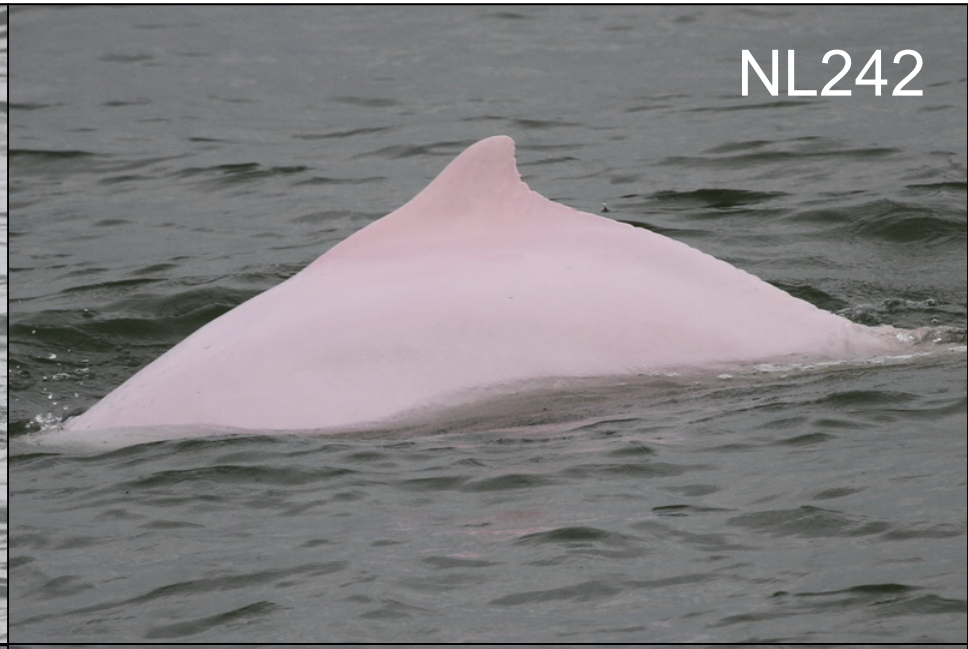
Appendix IV. Thirty-two individual dolphins that were identified during June – August 2014 under HKLR03 impact phase monitoring surveys



Appendix IV. (cont'd)

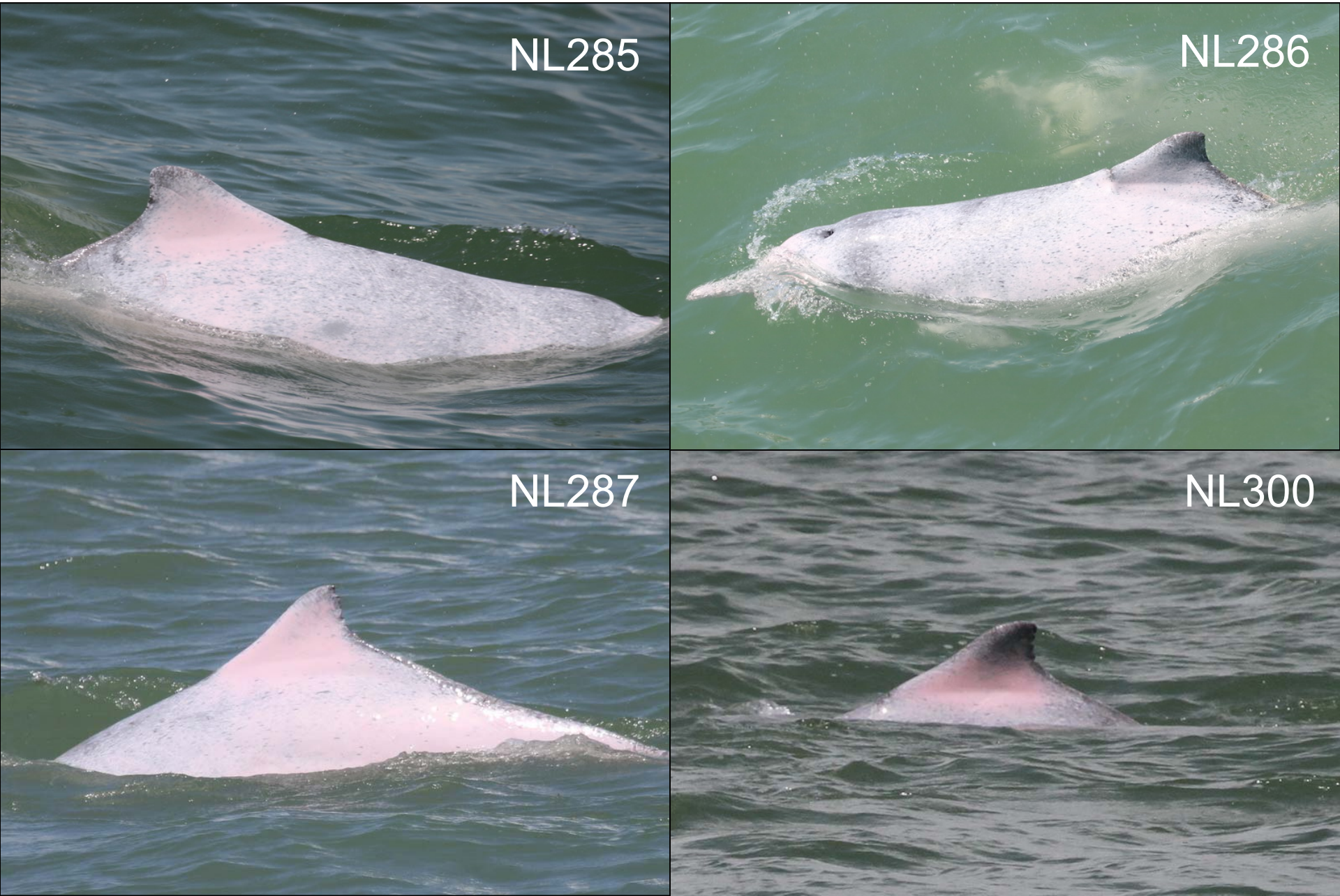
Appendix IV. (cont'd)

Appendix IV. (cont'd)

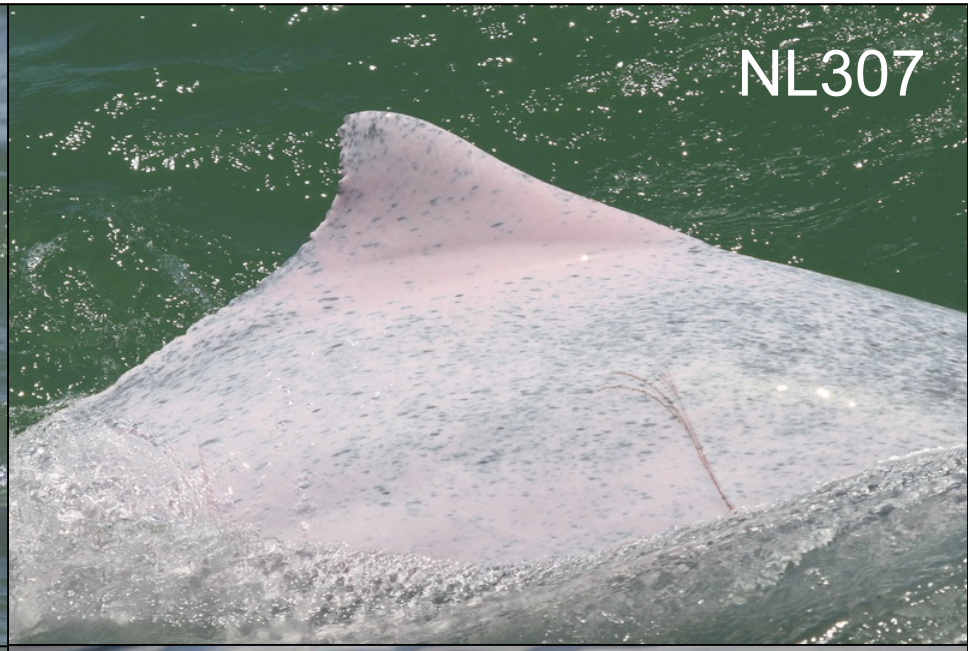


Appendix IV. (cont'd)

Appendix IV. (cont'd)

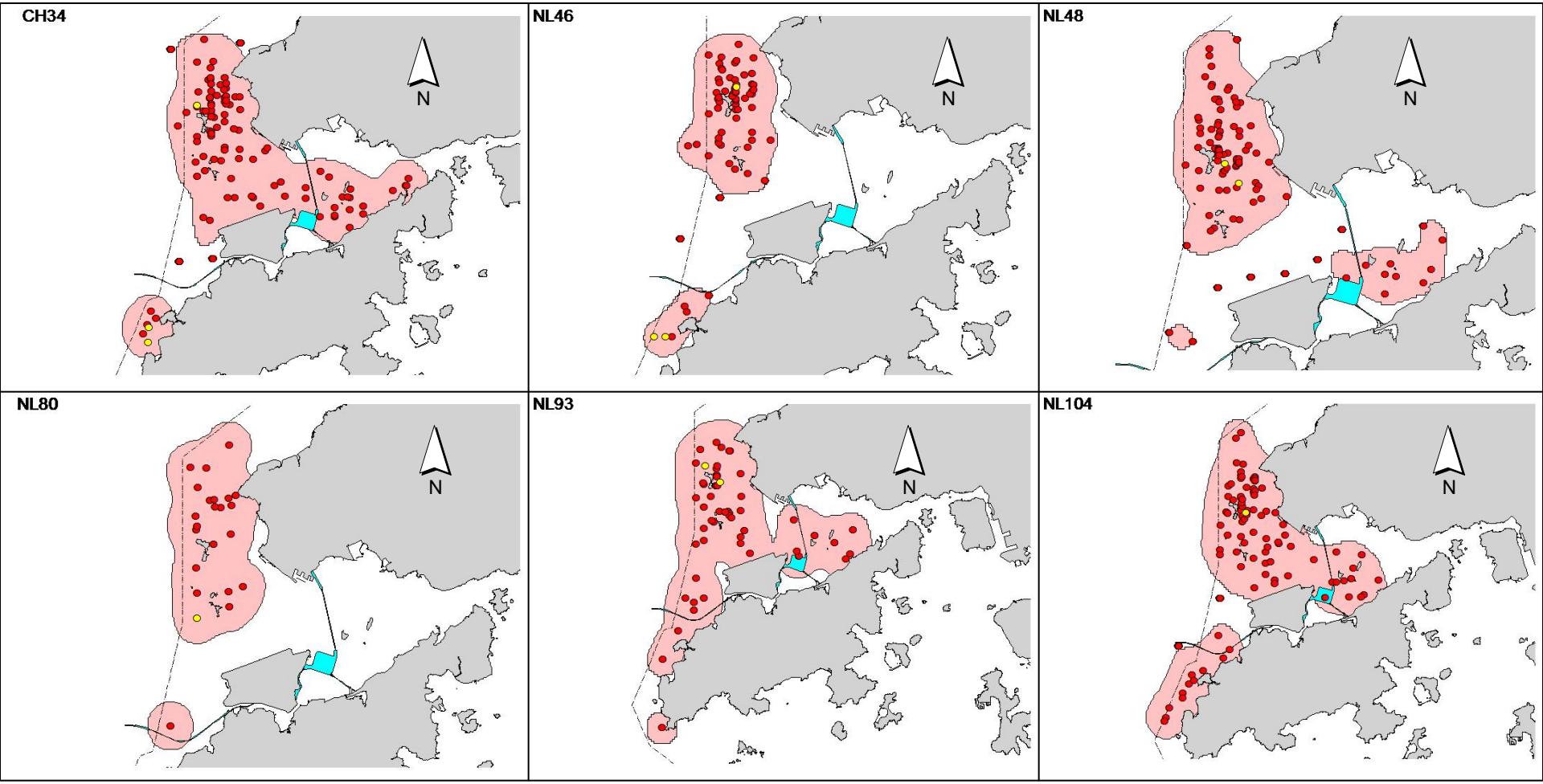


Appendix IV. (cont'd)

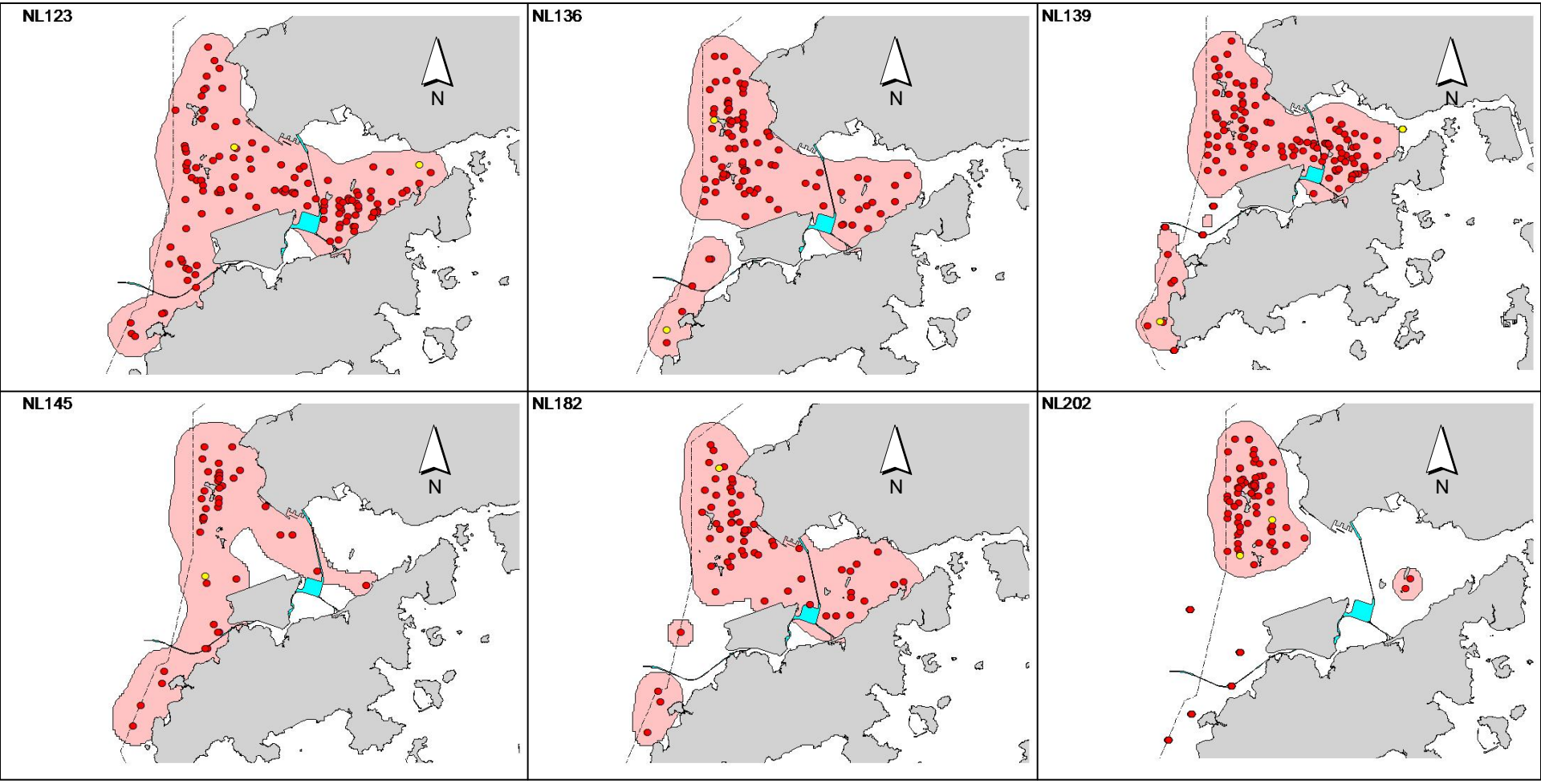


Appendix IV. (cont'd)

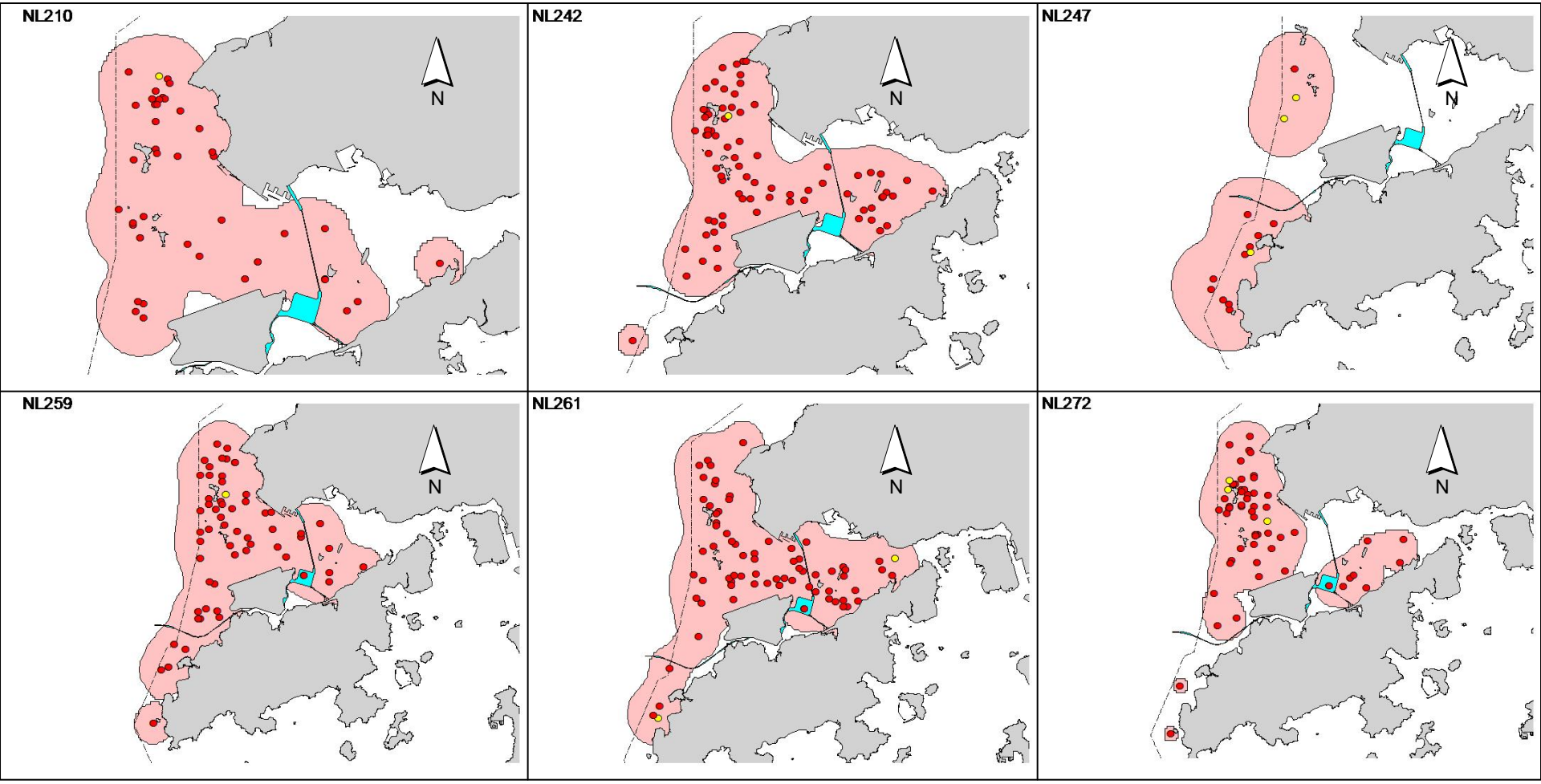
Appendix V. Ranging patterns (95% kernel ranges) of 32 individual dolphins that were sighted during HKLR03 impact phase monitoring period (note: yellow dots indicates sightings made in June – August 2014)



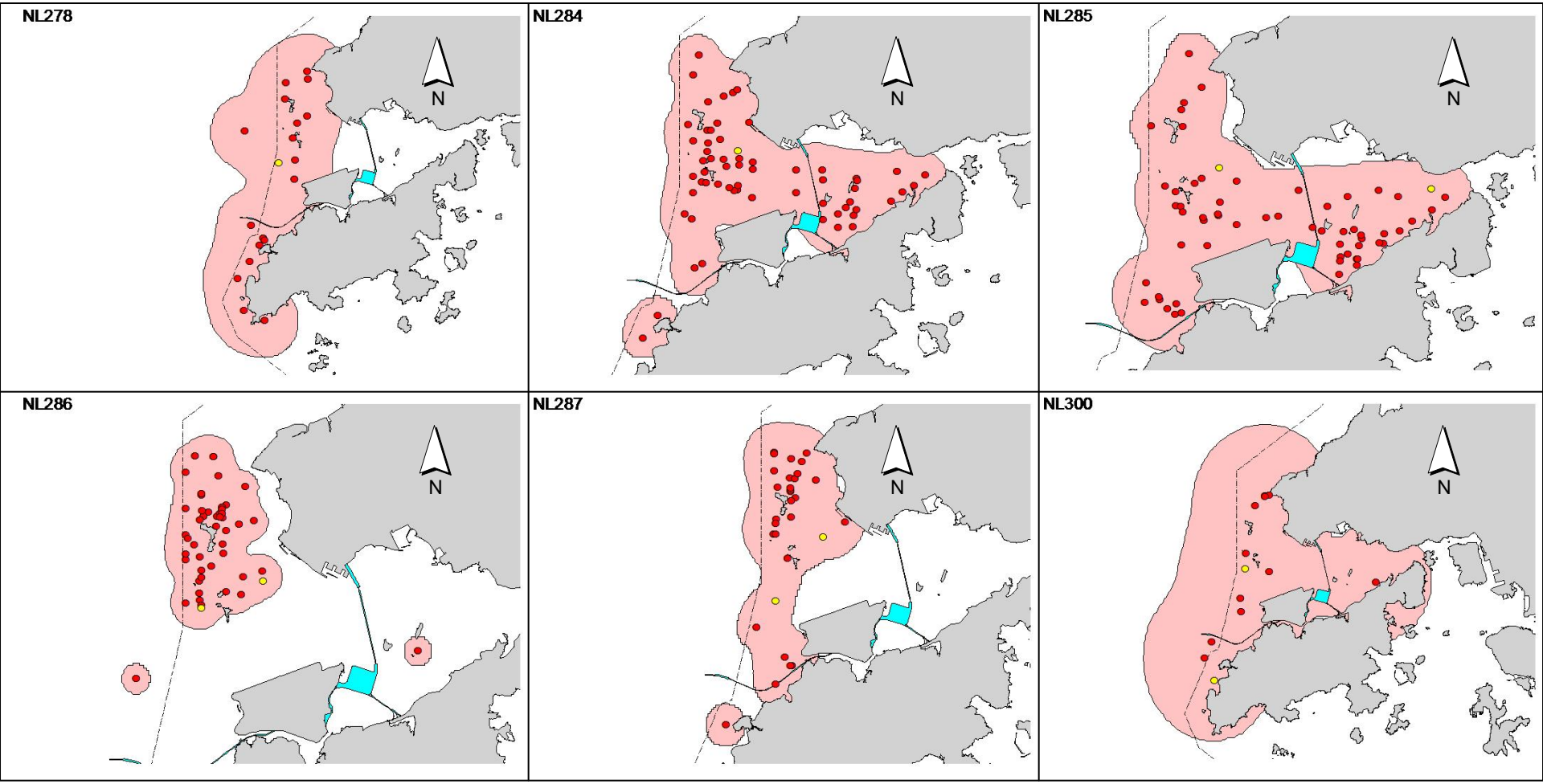
Appendix V. (cont'd)



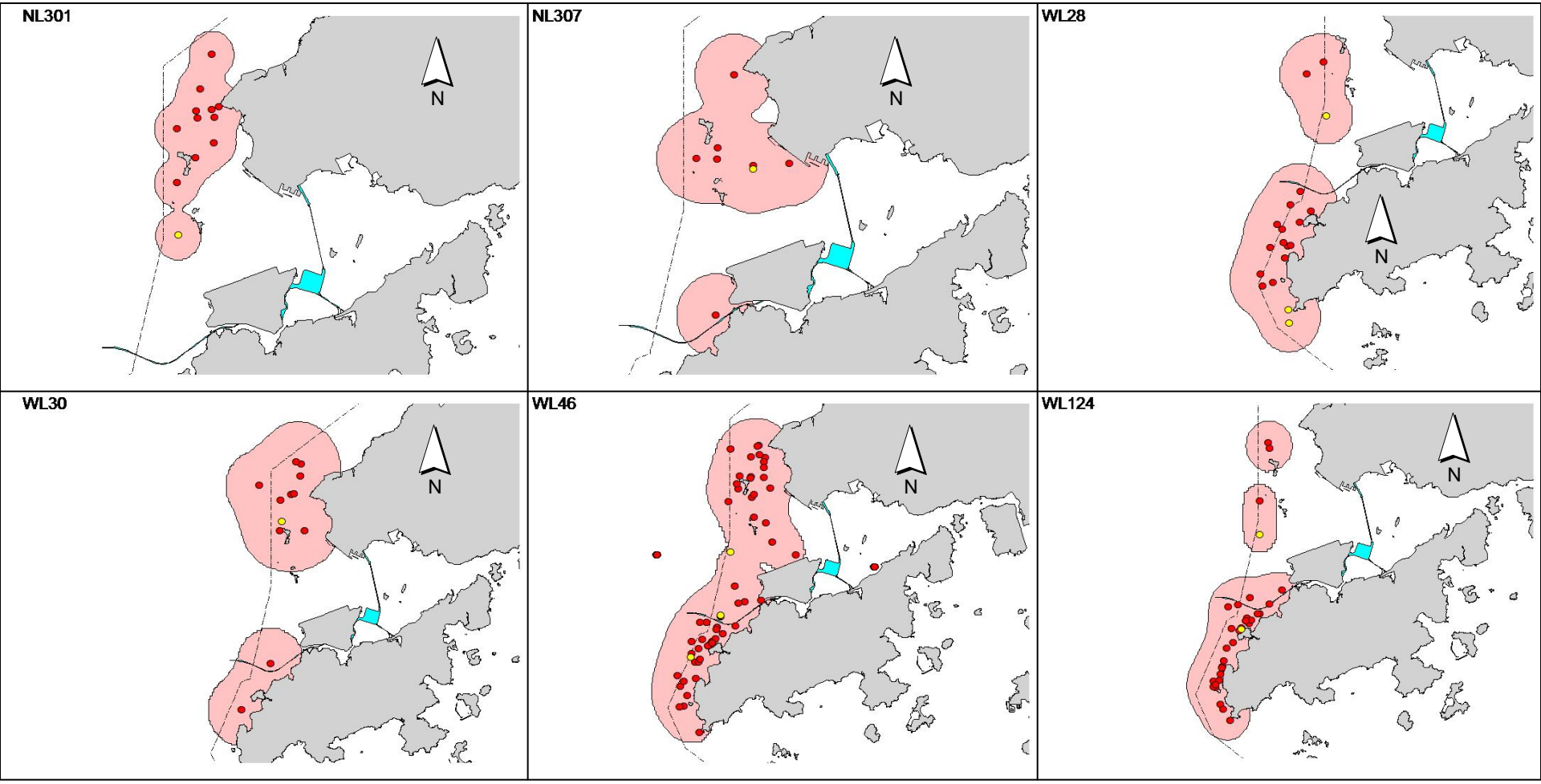
Appendix V. (cont'd)



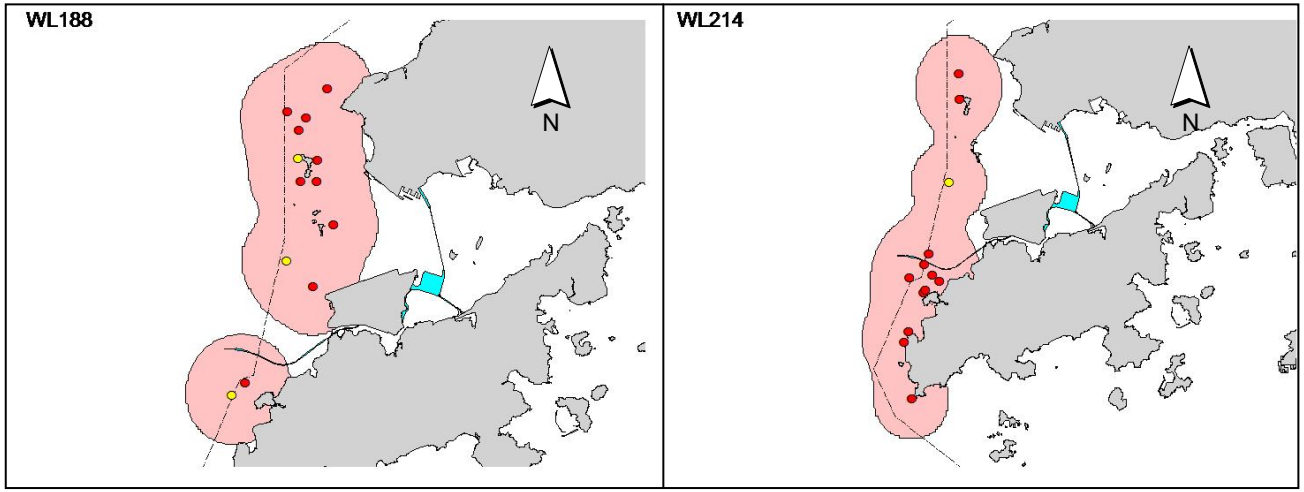
Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix J

Event Action Plan

Appendix J1 Event/ Action Plan for Air Quality

	ACTION			
EVENT	**ET** [(1)]	**IEC** [(1)]	**SOR** [(1)]	**Contractor**
Action Level				
1. Exceedance for one sample	1. Identify the source. 2. Inform the IEC and the SOR. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by the ET. 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	1. Identify the source. 2. Inform the IEC and the SOR. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with the IEC and the Contractor on remedial actions required. 6. If exceedance continues, arrange meeting with the IEC and the SOR. 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working method. 3. Discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervisor implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate

	ACTION			
EVENT	**ET** [(1)]	**IEC** [(1)]	**SOR** [(1)]	**Contractor**
Limit Level				
1. Exceedance for one sample	1. Identify the source. 2. Inform the SOR and the DEP. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results.	1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 3. Discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervisor implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures are properly implemented.	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	1. Notify the IEC, the SOR, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken. 7. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and	1. Discuss amongst the SOR, ET and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. 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. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

	the SOR informed of the results.
	8. If exceedance stops cease additional monitoring.

Appendix J2 Event/ Action Plan for Construction Noise

	ACTION			
EVENT	**ET**	**IEC**	**SOR**	**Contractor**
Action Level	1. Notify the IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET. 2. Review the proposed remedial measures by the Contractor and advise the SOR accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, the SOR, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform the IEC, the SOR and the DEP the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst the SOR, the ET and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 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. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

Appendix J3 Event/ Action Plan for Water Quality

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

Event	ET Leader	IEC	SOR	Contractor
	3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor;	on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the SOR accordingly.	mitigation measures; 3. Request Contractor to review the working methods.	3. Check all plant and equipment and consider changes of working methods; 4. Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR.
Limit level being exceeded by two or more consecutive sampling days	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days;	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the SOR accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. 5. Ensure mitigation measures are properly implemented; 6. 7. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	1. Take immediate action to avoid further exceedance; 2. Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Appendix J4 Implementation of Event-Action Plan for Dolphin Monitoring

Event	ET Leader	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 findings 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.

Event	ET Leader	IEC	SOR	Contractor
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; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary; 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures; 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly; 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly.	1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures; 2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures; 3. Supervise the implementation of additional monitoring and/or any other mitigation measures.	1. Inform the ER/SOR and confirm notification of the non- compliance in writing; 2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures; 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary; 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

Appendix J5 Event and Action Plan on Dolphin Acoustic Behaviour

EVENT	ACTION			
	ET Leader	**IEC**	**SO**	**Contractor**
Action Level With the numerical values presented in *Table 5.7* of *Baseline Monitoring Report*, when any of the response variable for dolphin acoustic behaviour recorded in the construction phase monitoring is 20% lower or higher than that recorded in the baseline monitoring (see *Table5.8* of *Baseline Monitoring Report*), or when there is a difference of 20% in dolphin acoustic signal detection at nighttime period at Site C1 only, the action level should be triggered	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data to ascertain if differences are as a result of natural variation or seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SO and Contractor; 5. Check monitoring data; 6. Carry out audit to ensure all dolphin protective measures are implemented fully and additional measures be proposed if necessary	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring with the ET and the Contractor;	1. Discuss with the IEC the repeat monitoring and any other measures proposed by the ET; 2. Make agreement on measures to be implemented.	1. Inform the SO 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 SO; 3. Implement the agreed measures.

EVENT	ACTION			
	ET Leader	**IEC**	**SO**	**Contractor**
Limit Level With the numerical values presented in *Table 5.7* of *Baseline Monitoring Report*, when any of the response variable for dolphin acoustic behaviour recorded in the construction phase monitoring is 40% lower or higher than that recorded in the baseline monitoring (see *Table 5.8* of *Baseline Monitoring Report*), or when there is a difference of 40% in dolphin acoustic signal detection at nighttime at Site C1 only, the limit level should be triggered	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data to ascertain if differences are as a result of natural variation or seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SO and Contractor; 5. Check monitoring data; 6. Carry out audit to ensure all dolphin protective measures are implemented fully and additional measures be proposed if necessary 7. Discuss additional dolphin monitoring and any other potential mitigation measures (eg consider to temporarily stop relevant portion of construction activity) with the IEC and Contractor.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring with the ET and the Contractor; 3. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise ER accordingly.	1. Discuss with the IEC the repeat monitoring and any other measures proposed by the ET; 2. Make agreement on measures to be implemented.	1. Inform the SO 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 SO; 3. Implement the agreed measures.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, SO – Supervising Office, DEP – Director of Environmental Protection

Appendix K

Quarterly Summary of Waste Flow Table

Contract No. : HY/2012/07

Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section

Monthly Summary Waste Flow Table for 2014 (Year)

Month\Material	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation					Actual Quantities of Recyclables Generation			
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Marine Sediment, Cat. L	Marine Sediment, Cat. Mp	Marine Sediment, Cat. Mf	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
	sub-total	sub-total	sub-total	sub-total	sub-total	sub-total									
Location															
Density (ton/m^3)														7kg/bag	5kg/number
ID no.											(web record)				
Unit	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	0.033	0.011	0.003	-	0.030	-	-	-	-	-	22.380	-	10.240	-	-
Feb	4.716	0.010	0.031	-	0.010	4.674	-	-	-	-	10.670	-	0.780	-	-
Mar	2.559	0.009	0.240	-	0.221	2.098	-	-	-	0.275	12.390	-	46.050	-	-
Apr	1.051	0.000	0.020	-	0.118	0.914	-	-	-	-	87.650	-	15.760	-	-
May	2.008	-	0.010	-	1.546	0.451	0.386	0.267	0.055	-	98.030	-	8.460	0.126	-
Jun	5.318	0.025	0.030	2.473	0.357	2.457	0.338	-	-	-	77.290	-	25.340	0.140	-
SUB-TOTAL	**15.685**	**0.055**	**0.334**	**2.473**	**2.283**	**10.595**	**0.724**	**0.267**	**0.055**	**0.275**	**308.410**	**-**	**106.630**	**0.266**	**-**
Jul	6.303	0.129	0.020	-	4.654	1.629	0.847	0.252	0.051	-	87.810	-	27.370	0.126	-
Aug	4.824	0.003	0.265	1.829	2.441	0.288	0.391	0.131	0.033	-	98.220	-	21.680	0.126	0.475
Sep															
Oct															
Nov	-	-	-	-	-	-									
Dec	-	-	-	-	-	-									
TOTAL	**26.812**	**0.187**	**0.619**	**4.303**	**9.379**	**12.512**	**1.962**	**0.650**	**0.139**	**0.275**	**494.440**	**-**	**155.680**	**0.518**	**0.475**

Notes :

1 - The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

2 - Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

3 - Broken concrete for recycling into aggregates.

4 - Assumed 5 kg per damaged water-filled barrier.

5 - Disposed as Public Fills includes Hard Rock and Large Broken Concrete.

Appendix L

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

Appendix L1 Cumulative Statistics on Exceedances

		Total No. recorded in this quarter	**Total No. recorded since project commencement**
1-Hr TSP	Action	0	0
	Limit	0	0
24-Hr TSP	Action	0	2
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Water Quality	Action	0	1
	Limit	0	0
Impact Dolphin Monitoring	Action	2	5
	Limit	0	0

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

Reporting Period	**Cumulative Statistics**		
	Complaints	Notifications of Summons	Successful Prosecutions
This quarter	1	0	0
Total No. received since project commencement	2	0	0

Email message

Environmental Resources Management

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To	ENVIRON - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/07 Tuen Mun–Chek Lap Kok Link–Southern Connection Viaduct Section
Subject	Notification of Exceedance for Impact Dolphin Monitoring
Date	18 September 2014

ERM

Dear Sir or Madam,

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

0215660_Jun2014/Aug2014_dolphin_STG&ANI_NEL
0215660_Jun2014/Aug2014_dolphin_STG&ANI_NWL

A total of two action level exceedances were recorded in the quarterly impact dolphin monitoring data between June 2014 and August 2014.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07
TUEN MUN – CHEK LAP KOK LINK – SOUTHERN CONNECTION VIADUCT SECTION

Impact Dolphin Monitoring
Notification of Exceedance

Log No.	**0215660_Jun2014/Aug2014_dolphin_STG&ANI_NEL** **0215660_Jun2014/Aug2014_dolphin_STG&ANI_NWL** **[Total No. of Exceedances = 2]**	
Date	June 2014 to August 2014 (monitored) 27 October 2014 (results received by ERM)	
Monitoring Area	Northeast Lantau (NEL) and Northwest Lantau (NWL)	
Parameter(s) with Exceedance(s)	Quarterly encounter rate of dolphin sightings (STG) Quarterly encounter rate of total number of dolphins (ANI)	
Action Levels	North Lantau Social cluster	NEL: STG < 4.2 & ANI < 15.5 or NWL: STG < 6.9 & ANI < 31.3
Limit Levels		NEL: STG < 2.4 & ANI < 8.9 and NWL: STG< 3.9 & ANI < 17.9
Recorded Levels	NEL	STG = 0.4 & ANI = 1.7
	NWL	STG = 4.7 & ANI = 17.5
	Two Action Level Exceedances are recorded in the quarterly impact dolphin monitoring at NEL and NWL between June 2014 and August 2014. The exceedances were reported in the approved *Tenth Monthly EM&A Report* dated 11 September 2014.	
Statistical Analyses	Further to the review of the available and relevant dolphin monitoring data in the EM&A under this Contract, statistical analyses were conducted as follows: • A two-way ANOVA with repeated measures and unequal sample size was conducted using Period (2 levels: baseline vs impact – present impact quarter, June to August 2014) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and present impact monitoring quarter. By setting $\alpha = 0.1$ as the significance level in the statistical tests, significant difference in STG ($p = 0.0199$) and in ANI ($p = 0.0597$) between Period were detected. • A two-way ANOVA with repeated measures and unequal sample size was conducted using Cumulative Period (2 levels: baseline vs impact – cumulative quarters*, December 2012 to August 2014) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and present impact monitoring quarter. By setting $\alpha = 0.1$ as the significance level in the statistical tests, significant difference in STG ($p = 0.0037$) and in ANI ($p = 0.0013$) between Cumulative Period and Location were detected. * Note: The commencement date under *Contract No. HY/2012/07* is 31 October 2013.	
Works Undertaken (in the monitoring quarter)	In the quarter between June 2014 and August 2014, the major marine works under *Contract No. HY/2012/07* included: • Additional marine ground investigation (GI) and laboratory testing; • Marine piling platform installation; • Marine Piling at Viaducts B, D & E; and • Construction of rockfill platform at Viaduct D landing.	

Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is considered to be the natural variation of Chinese white dolphin (CWD) *Sousa chinensis* ranging pattern and unlikely to be due to the Project, in view of the following: • The *Monitoring of Marine Mammals in Hong Kong Waters (2013 – 14)* (1) reported that dolphin usage and traveling activities to the northern side of the airport (dolphin traveling corridor) are affected by frequent high-speed ferry traffic from Sky Pier (not related to this project), which is likely a contributing factor for the decrease in dolphin abundances in NEL. • As per the findings from the EIA report (Section 8.11.9), the major influences on the CWD under this Contract are marine traffics and bored piling works. The Contractor has implemented the marine traffic control as per the requirements in the EP-354/2009/B and the updated EM&A Manual. Likewise, the bored piling works were undertaken within a metal casing as described in the EP and the approved EIA Report. After reviewing of the bored piling records, the bored piling working rates in this quarter are within the allowable working rate described in the EP (*Clause 3.11*), in which construction works were not undertaken at more than 15 piers sites from June to August. Also, no installation of metal caisson into rock was conducted in June to avoid disturbance to CWD calving as required in *Clause 3.2* of the EP. During this quarter of dolphin monitoring, no adverse impact on CWD due to the activities under this Contract was observed. • According to the findings in the quarterly water monitoring results between June and August 2014, the impact mean level of SS (Mid-ebb: 3.9 mg/L; Mid-flood: 4.1 mg/L) in this quarter is well below of the baseline mean level of SS (Mid-ebb: 10.2 mg/L; Mid-flood: 12.1 mg/L). This would imply that no unacceptable impact on SS levels was associated with the marine works under this Contract, and thus no indirect impacts on marine habitat quality due to change in water quality is observed in this Contract. • Seasonal variation in individual ranging pattern which has been well documented in the literatures (2) (3).
Actions Taken / To Be Taken	With reference to the site inspection records in this quarter, the respective marine ecological mitigation measures (including 250 m dolphin exclusion zone, marine bored piling monitoring, underwater acoustic decoupling plan and marine traffic control) have been implemented properly by the Contractor throughout the marine works period. No immediate additional action is considered necessary. The ET will monitor for future trends in exceedance(s).
Remarks	The results of impact water quality and impact dolphin monitoring, the status of implemented marine ecological mitigation measures are documented in the approved *Eighth* to *Tenth EM&A Monthly Reports*.

(1) Hung SKY (2014). Prepared for AFCD. Available from: http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/con_mar_chi_chi.html

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

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