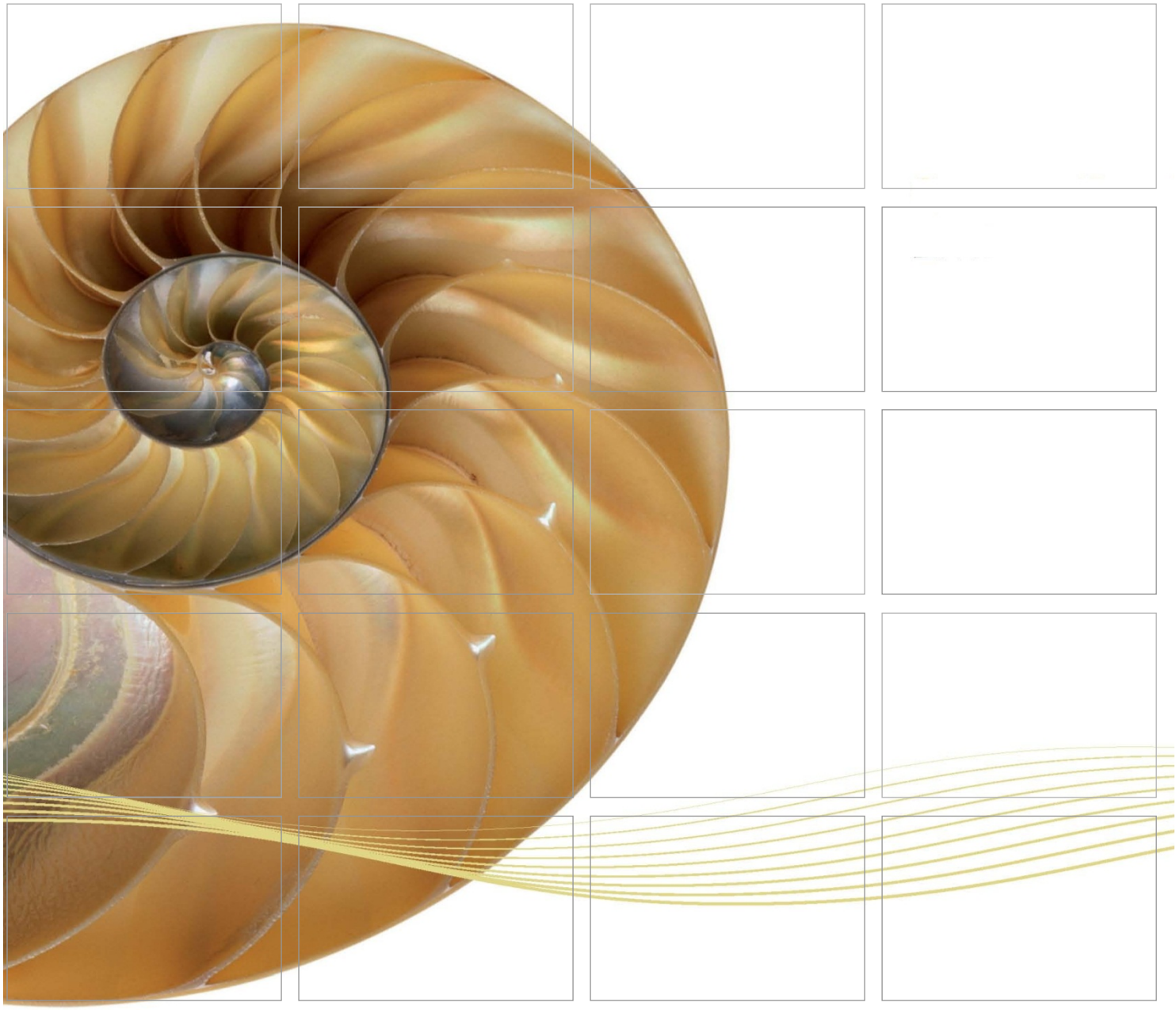
REPORT



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

Forty-Fifth Monthly EM&A Report

10 August 2017

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

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The business of sustainability

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

Forty-Fifth Monthly EM&A Report

Environmental Resources Management

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

Document Code: 0215660_45th Monthly EM&A_20170810.doc

Client: Gammon	Project No: 0215660
Summary: This document presents the Forty-Fifth Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section.	Date: 10 August 2017 Approved by: *Mr Craig Reid* *Partner* Certified by: *Mr Jovy Tam* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	Forty-Fifth Monthly EM&A Report	VAR	JT	CAR	10/08/17

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RAMBOLL ENVIRON

Ref.: HYDHZMBEEM00_0_5695L.17 14 August 2017

AECOM By Fax (3691 2899) and By Post
Supervising Officer's Representative's Office
780 Cheung Tung Road, Lantau, N.T.

Attention: Mr. Daniel Ip

Dear Mr. Ip,

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
45th Monthly EM&A Report for July 2017 (EP-354/2009/D)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report (July 2017) (ET's ref.: "0215660_45th Monthly EM&A_20170810.doc" dated 10 Aug. 2017) certified by the ET Leader and provided to us via e-mail on 10 Aug. 2017.

Please be informed that we have no adverse comments on the captioned Report. We write to verify the captioned submission in accordance with Condition 4.4 of EP-354/2009/D. Please be reminded that our verification of this report does not release any obligations of the ET to comply with the EM&A Manual or the approved monitoring methodologies.

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

Yours sincerely,

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

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
HyD – Mr. Vico Cheung (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, PSC, ENPO Site

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

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). Ramboll 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*. Further applications for variation of environmental permit (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

The southern landfall of TM-CLK Link lies alongside the Hong Kong - Zhuhai - Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) where a reclamation area is constructed by *Contract No. HY/2010/02* under *Environmental Permit No. EP-353/2009/K* and *EP-354/2009/D*. Upon the agreement and confirmation between the Supervising Officer Representatives and Contractors of *HY/2010/02* and *HY/2012/07* in September 2015, part of the reclamation area for southern landfall under *EP-353/2009/K* and *EP-354/2009/D* was handed-over to *Contract No. HY/2012/07*. Another part of the southern landfall area under *EP-354/2009/D* was handed-over to *Contract No. HY/2012/07* after completion of reclamation works by *Contract No. HY/2010/02* in June 2016.

The construction phase of the Contract commenced on 31 October 2013 and will be tentatively 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 Forty-fifth Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 31 July 2017 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:

Marine Works

- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry operation;

- Installation of deck segment and pier head segment; and
- Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).

Land-based Works

- Pier construction;
- Re-alignment of Cheung Tung Road;
- Road works along North Lantau Highway;
- Installation of pier head and deck segments; and
- Slope work of Viaducts A, B & C.

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

24-hour TSP Monitoring	5 sessions
1-hour TSP Monitoring	5 sessions
Water Quality Monitoring[1]	13 sessions
Noise Monitoring	5 sessions
Impact Dolphin Monitoring	2 sessions
Joint Environmental Site Inspection	4 sessions

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Levels was recorded for construction air quality monitoring in the reporting month.

Breaches of Action and Limit Levels for Noise

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

Breaches of Action and Limit Levels for Water Quality

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

[1] Results of impact water quality monitoring were adopted from the published EM&A data of Contract No. HY/2010/02 HKBCF – Reclamation Works. Available at http://www.hzmbenpo.com/

Impact Dolphin Monitoring

During this month of dolphin monitoring, no unacceptable impact from the construction activities of the TM-CLKL Southern Connection Viaduct Section on Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was noticeable from general observations. Due to monthly variation in dolphin occurrence within the Study Area, it would be more appropriate to draw conclusion on whether any impacts on dolphins have been detected related to the construction activities of the TM-CLKL Southern Connection Viaduct Section in the quarterly EM&A reports, in which comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

Daily marine mammal exclusion zone monitoring was undertaken during the period of marine works under this Contract. No sighting of the Chinese White Dolphin was recorded in July 2017 during the exclusion zone monitoring.

Environmental Complaints, Non-compliance & Summons

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

Reporting Change

There was no reporting change in the reporting period.

Upcoming Works for the Next Reporting Period

Works to be undertaken in the next monitoring period of August 2017 include the following:

Marine Works

- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry operation;
- Installation of deck segment and pier head segment; and
- Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).

Land-based Works

- Pier construction;
- Re-alignment of Cheung Tung Road;
- Road works along North Lantau Highway;

- Installation of pier head and deck segments; and
- Slope work of Viaducts A, B & C.

F**uture Key Issues**

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of August 2017 are mainly associated with dust, noise, marine water quality, marine ecology and waste management issues.

1 INTRODUCTION

1.1 BACKGROUND

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

An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. ESB-175/2007) and the *Technical Memorandum of the Environmental Impact Assessment Process* (*EIAO-TM*). The EIA Report was submitted under the Environmental Impact Assessment Ordinance (EIAO) in August 2009. Subsequent to the approval of the EIA Report (EIAO Register Number AEIAR-146/2009), an Environmental Permit (*EP-354/2009*) for TM-CLKL was granted by the Director of Environmental Protection (DEP) on 4 November 2009, and EP variation (*EP-354/2009/A*) was issued on 8 December 2010.

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). Ramboll 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*. Further applications for variation of environmental permit (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

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southern landfall area under *EP-354/2009/D* was handed-over to *Contract No. HY/2012/07* after completion of reclamation works by *Contract No. HY/2010/02* in June 2016.

The construction phase of the Contract commenced on 31 October 2013 and will be tentatively 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.*

1.2 SCOPE OF REPORT

This is the Forty-fifth Monthly 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 in July 2017.

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.

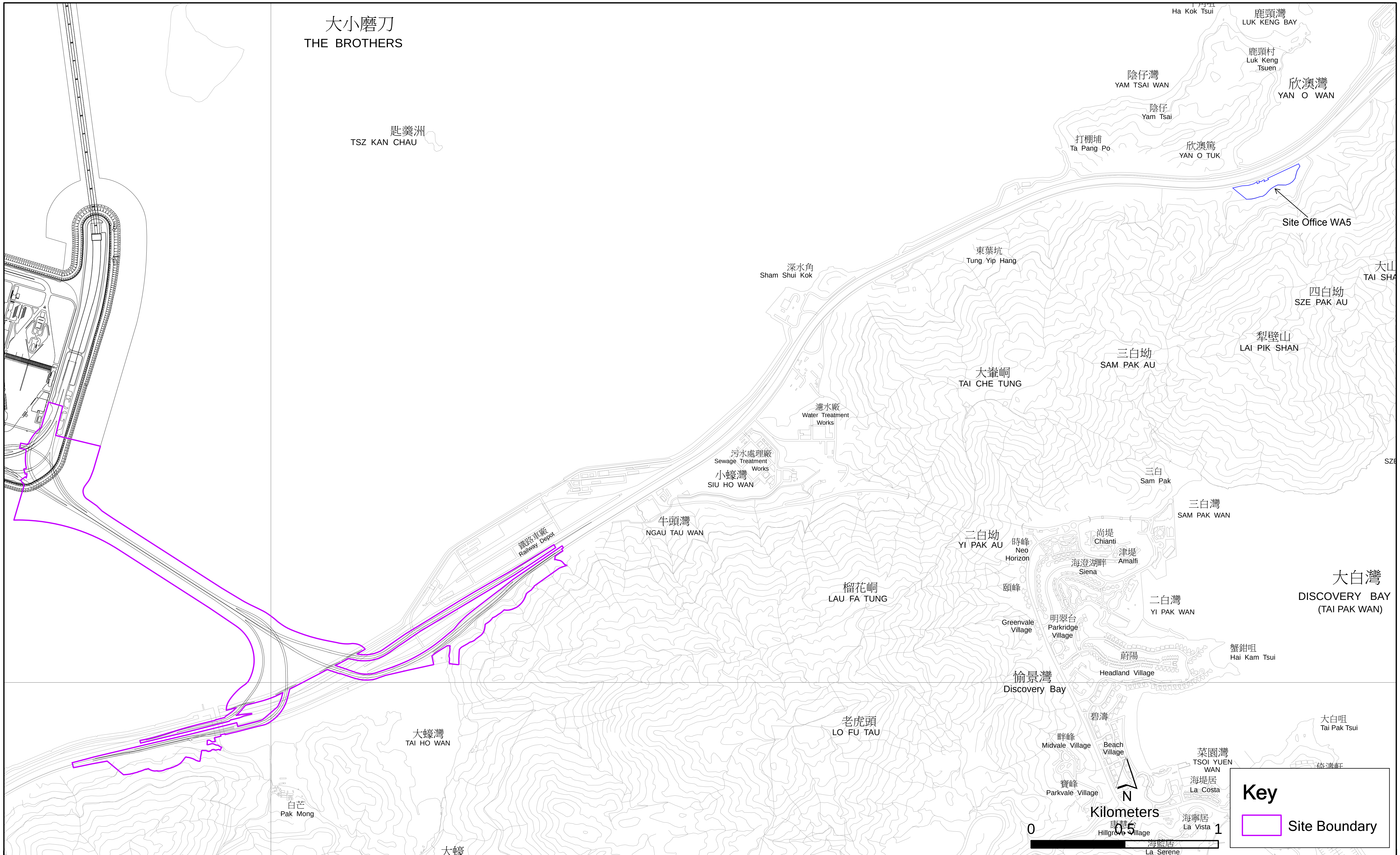

Figure 1.1

General Layout Plan of the Project

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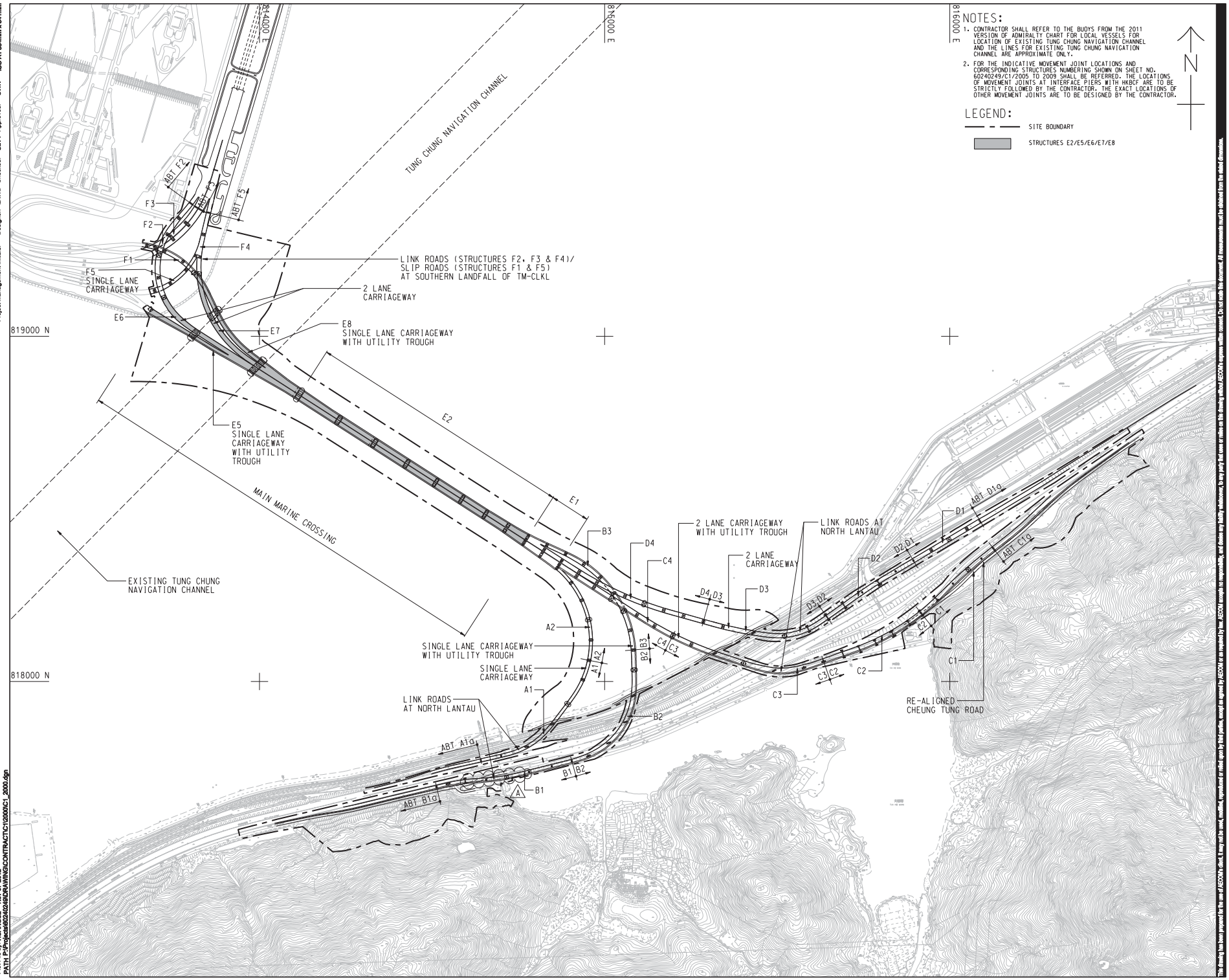
Environmental Resources Management

ERM



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 1.2a

ISSUE/REVISION

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A	NOV. 12	TENDER ADDENDUM NO. 1	CWN
-	OCT. 12	TENDER DRAWING	CWN

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KEY PLAN

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CONTRACT NO.: HY/2012/07

SHEET TITLE
SOUTHERN CONNECTION GENERAL LAYOUT PLAN

SHEET NUMBER
60240249/C1/2000A

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

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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

MATCH LINE
FOR CONTINUATION
SEE DRG J3518/P/OAP/04/01101

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C	SUBMISSION	RC	09/13				

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Checked: DS — Approved: DOP
Scale: 1:1000 @ A1 / 1:2000 @ A3

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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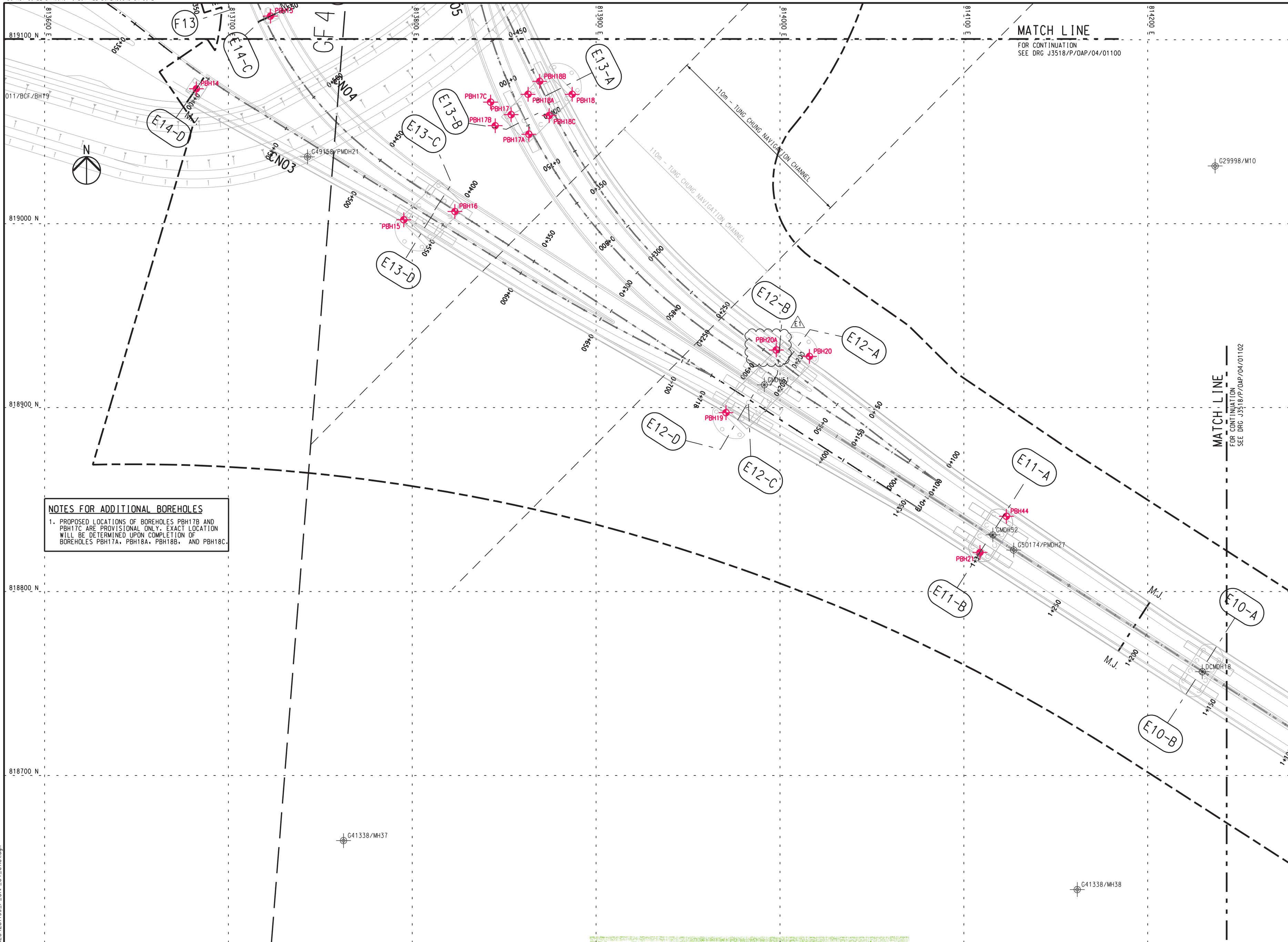

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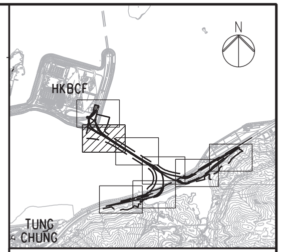

KEY PLAN

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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Supervising Officer: AECOM

Contractor: Gammon

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

Originator: ARUP

Drawing title:

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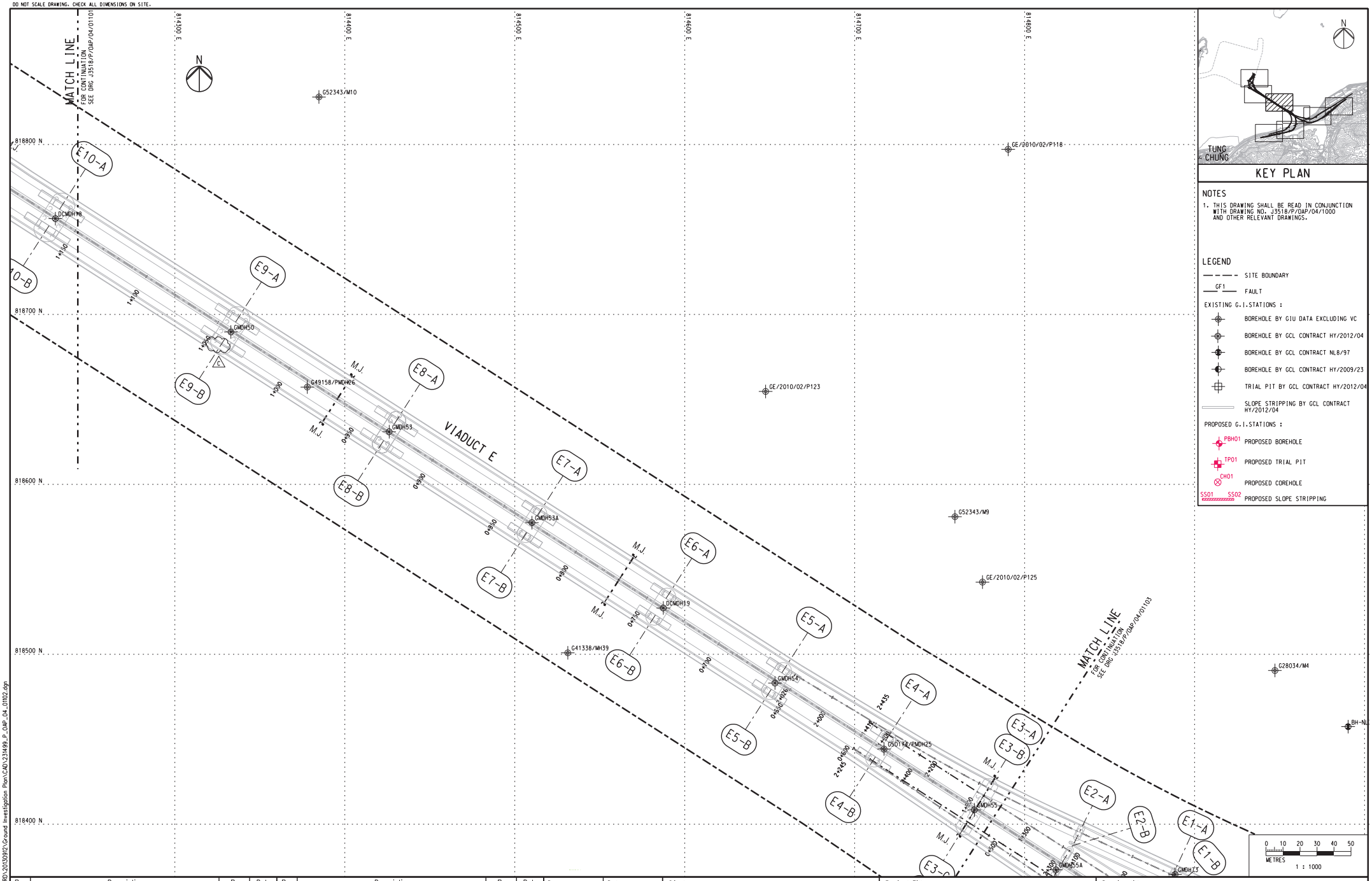
Drawing no. J3518/P/OAP/04/01101 Rev. E1



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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 1.2d**

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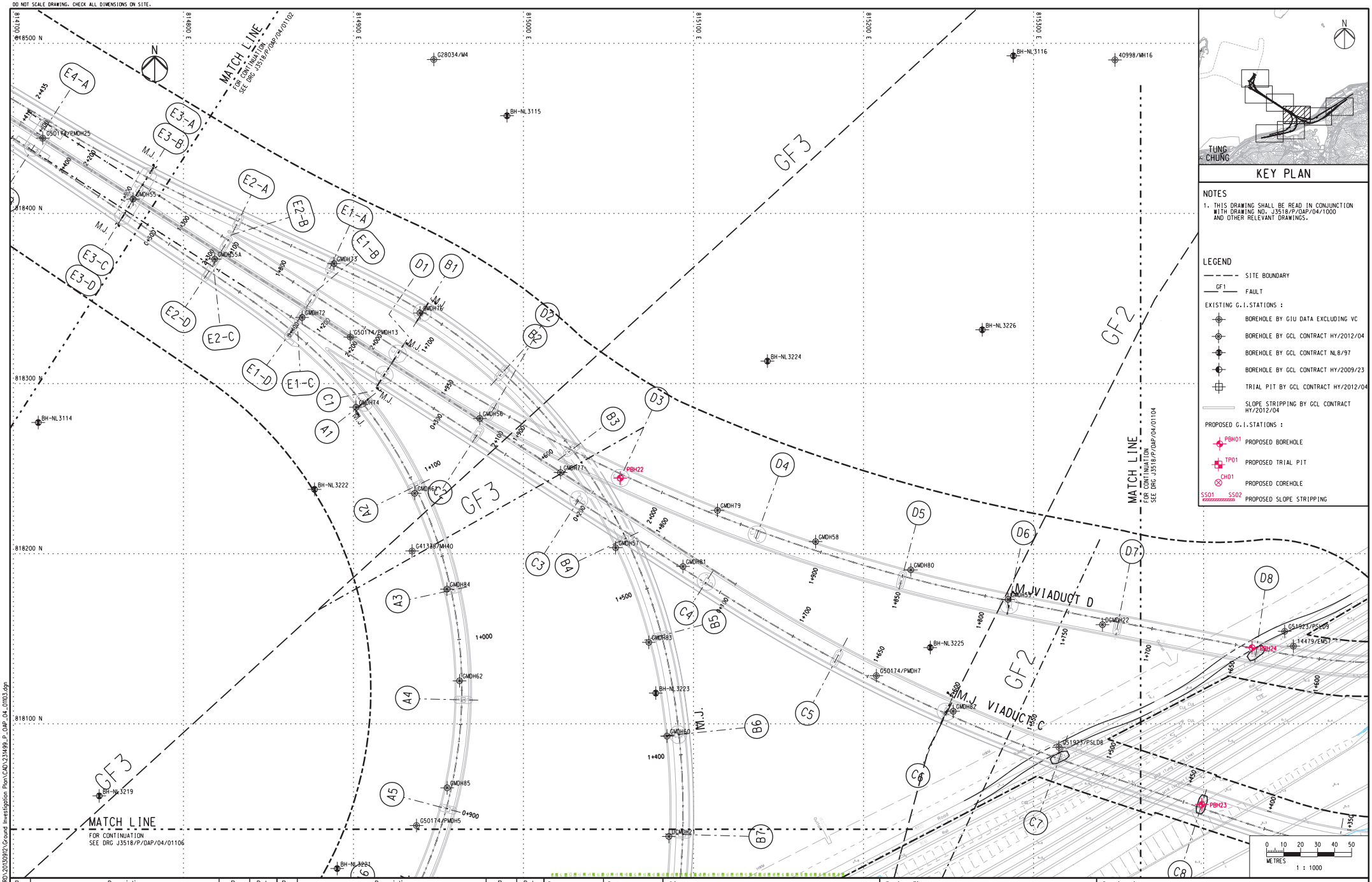

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Client: 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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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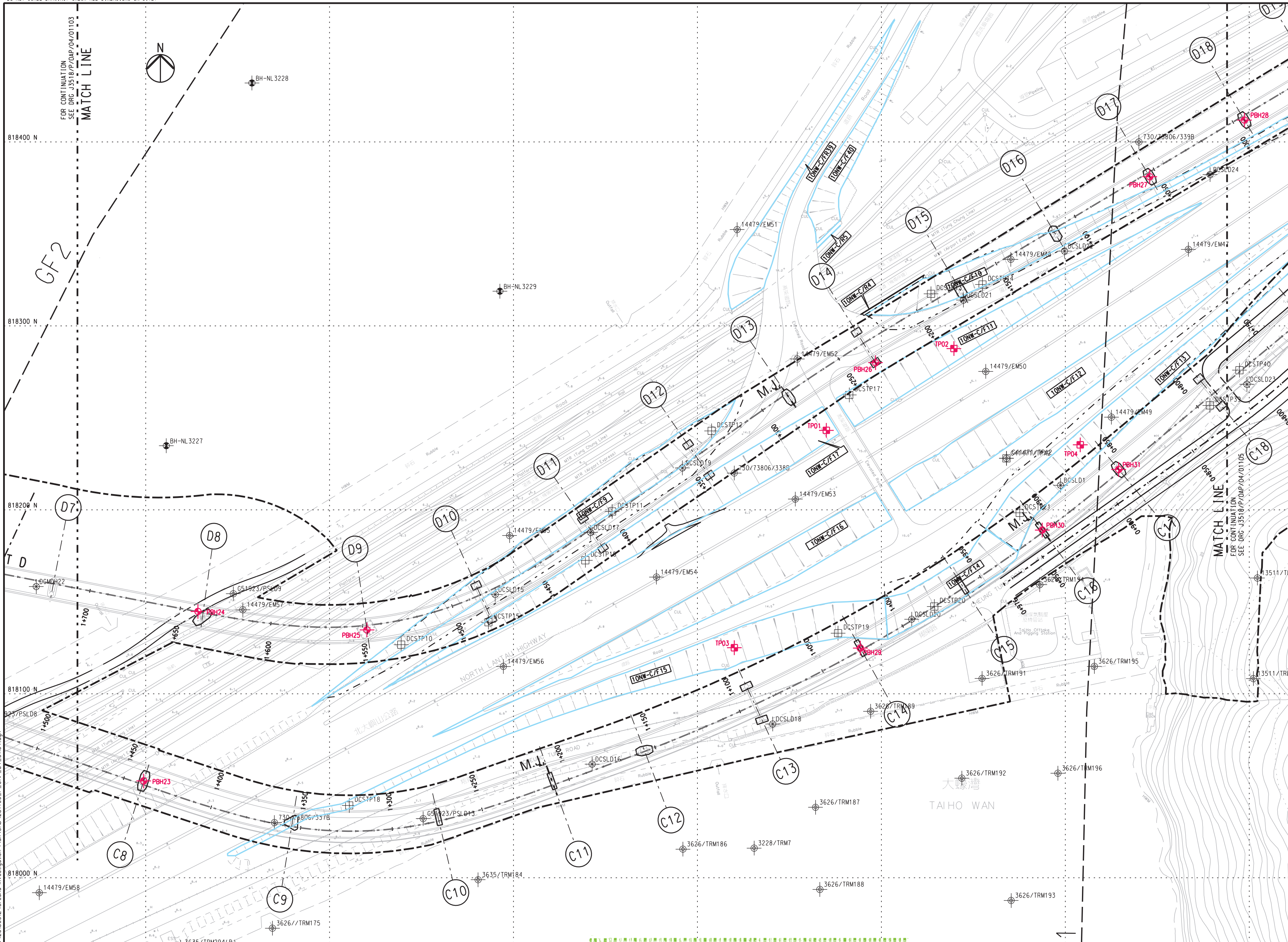

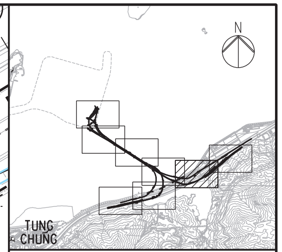

KEY PLAN

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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Checked	Approved
DS	DOP

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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

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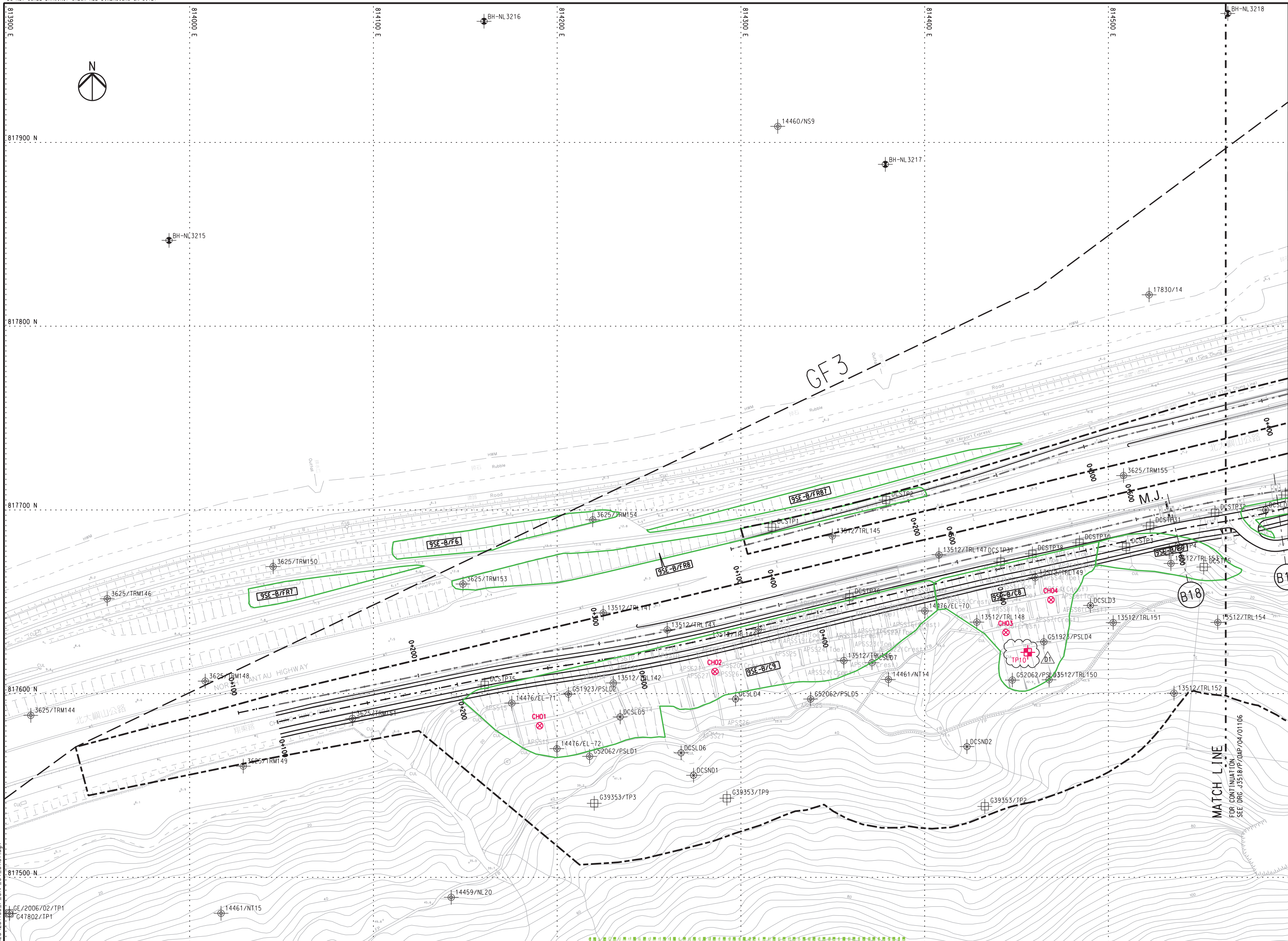

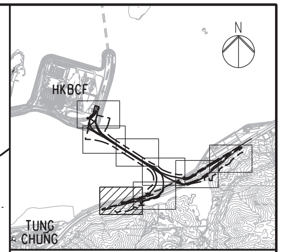

KEY PLAN

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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

Rev	Description	By	Date	Rev	Description	By	Date
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B	SUBMISSION	RC	07/13				
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

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 1.2g

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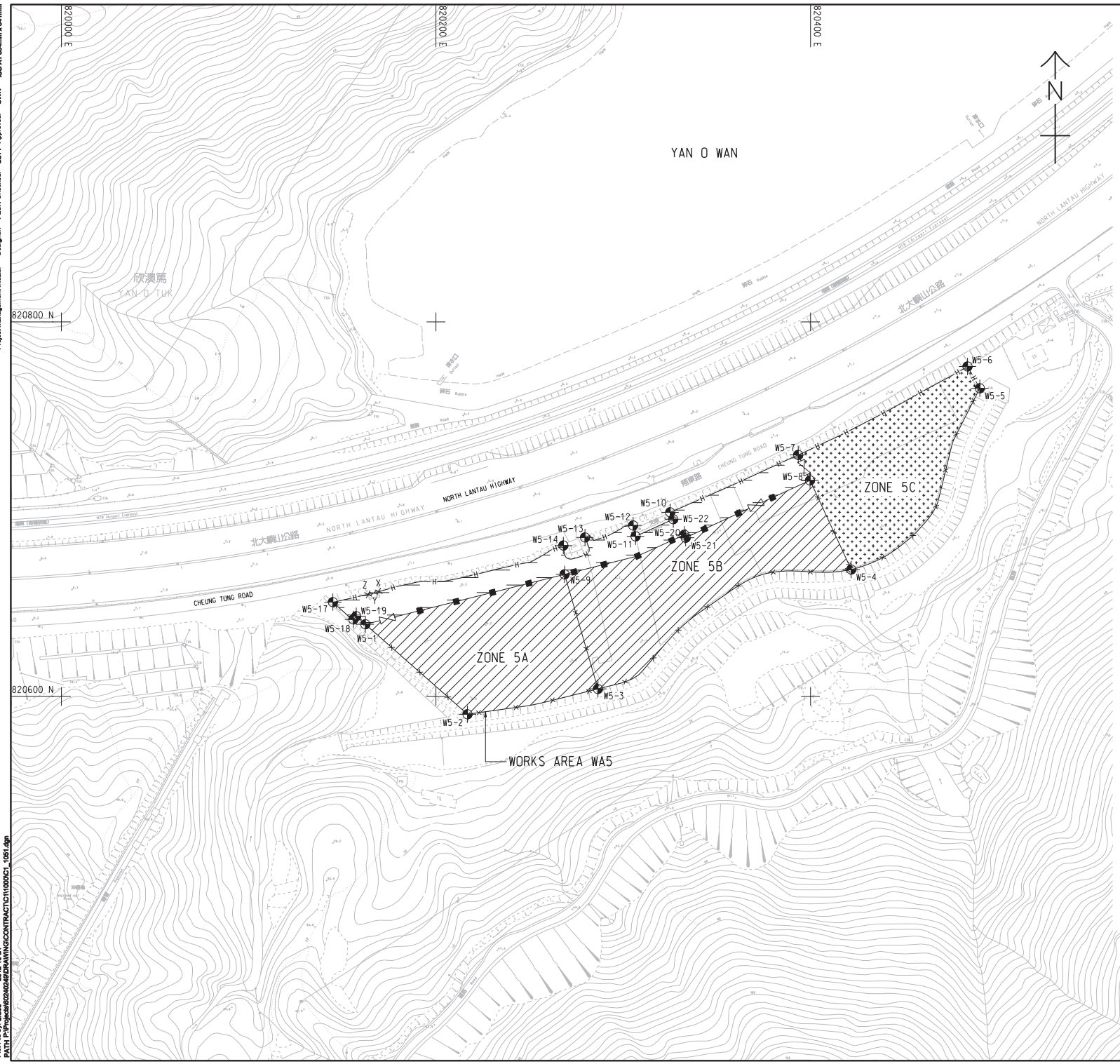

NOTES:

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 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
HIGHWAYS DEPARTMENT
路政署
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
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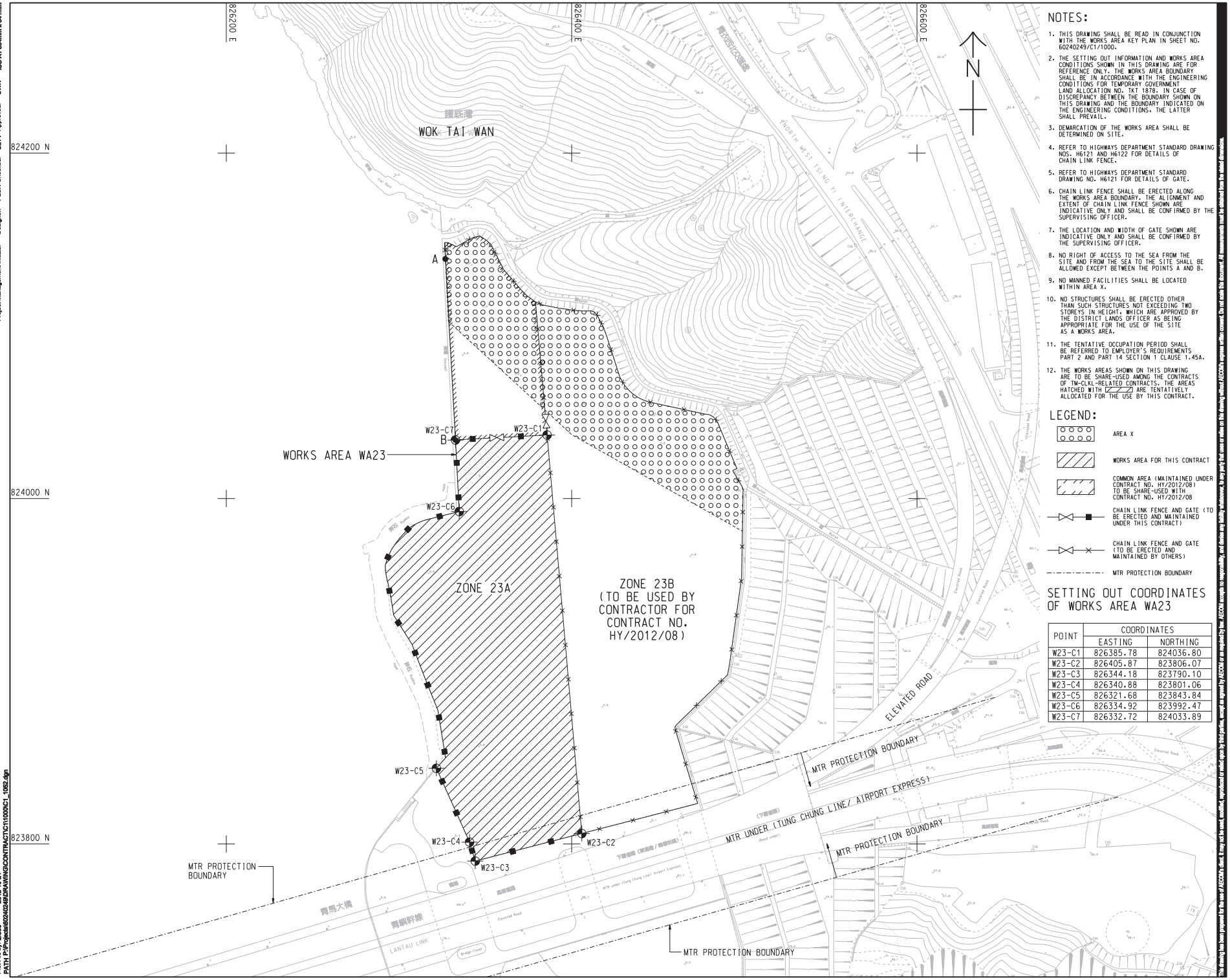

NOTES:

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
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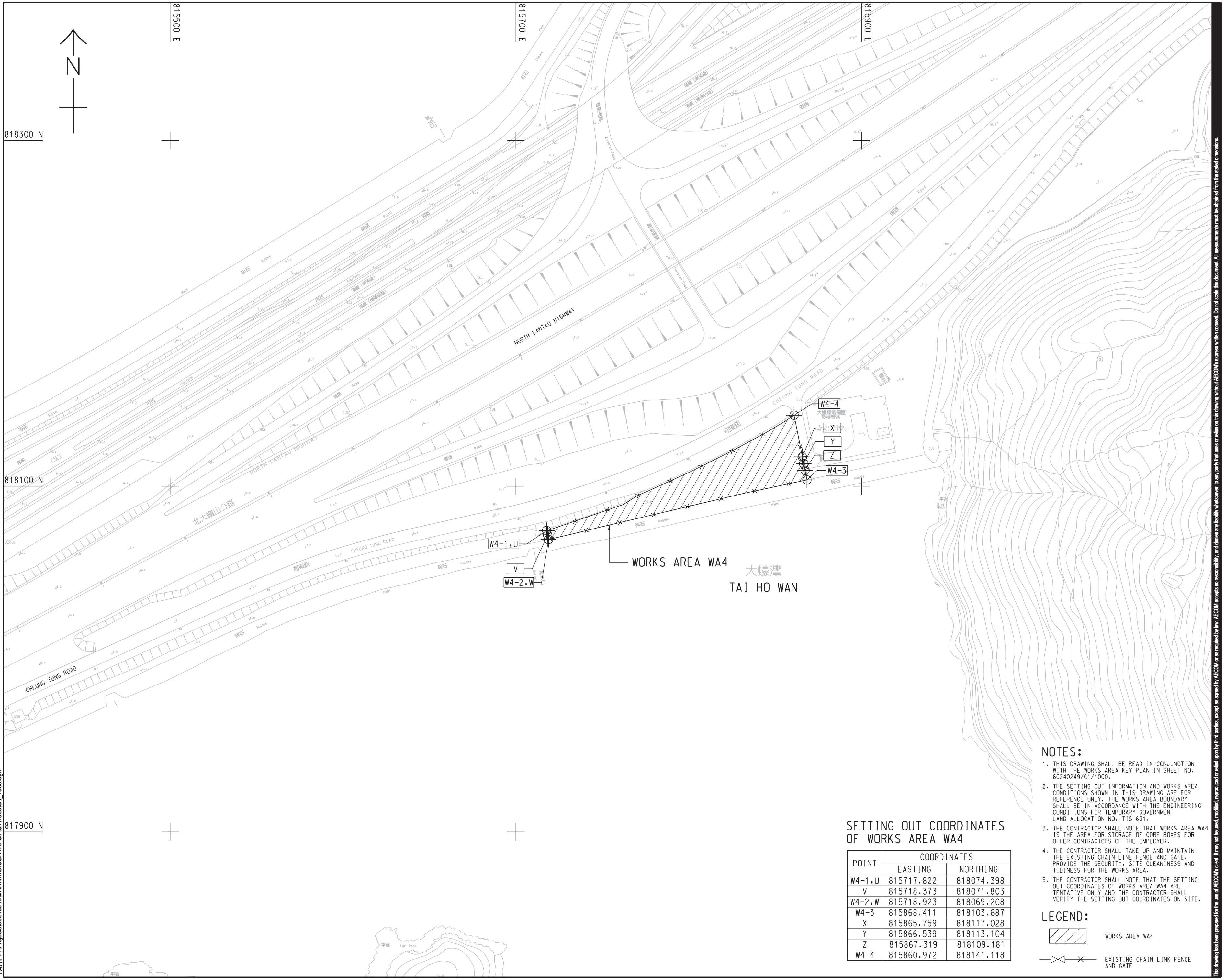


SETTING OUT COORDINATES OF WORKS AREA WA4

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 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 1.2j

ISSUE/REVISION 修訂

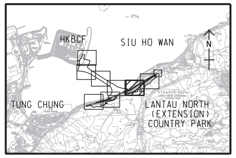
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核
-	NOV. 12	TENDER ADDENDUM NO. 1	CWN

STATUS 階段

SCALE 比例: A1 1 : 1000

DIMENSION UNIT 尺寸單位: METRES

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: WORKS AREA WA4

SHEET NUMBER 圖紙編號: 60240249/C1/1053

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

Plot File by: LIUJ3 2012/11/16
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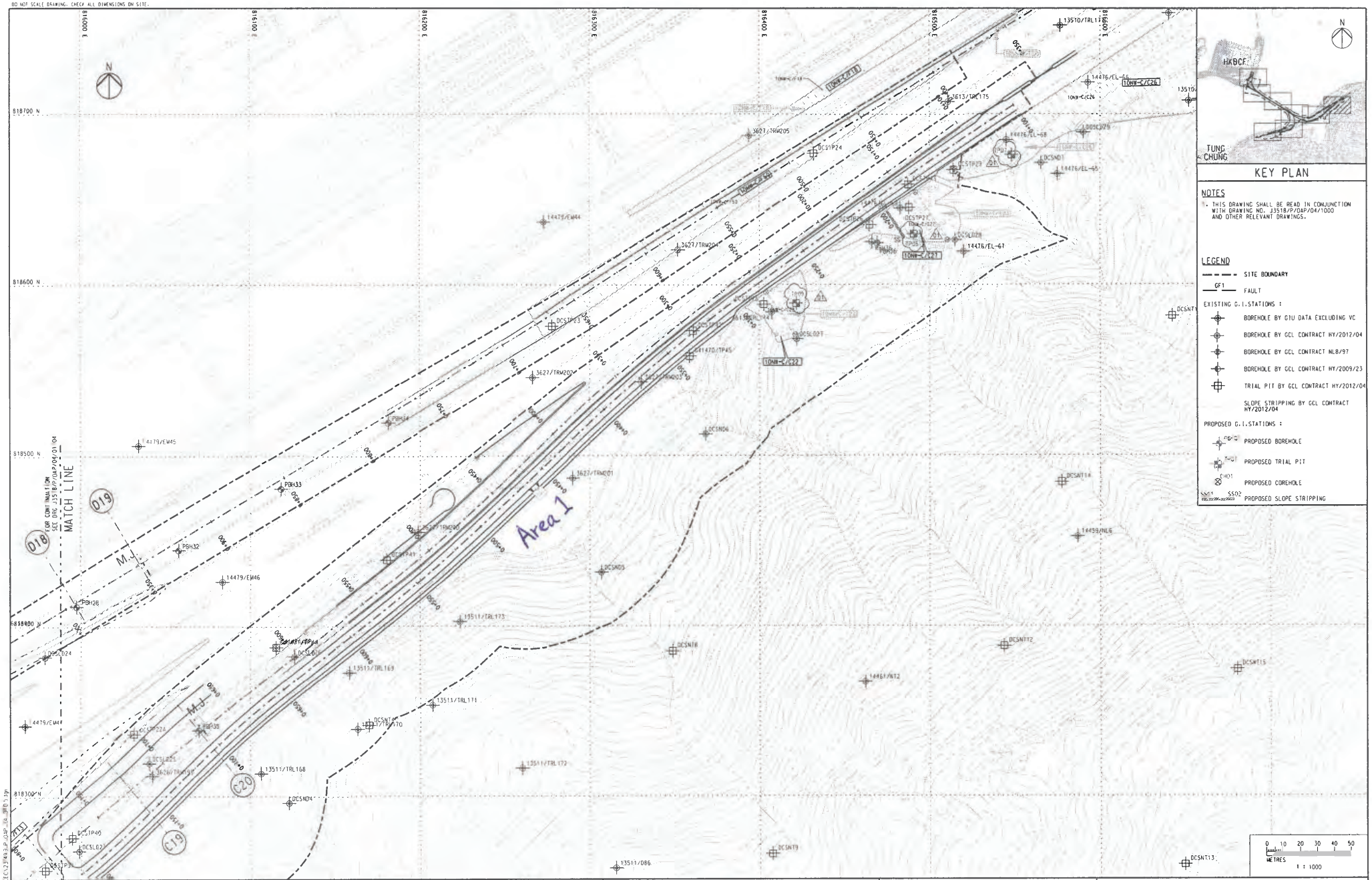


Rev.	Description	By	Date	Rev.	Description	By	Date
A	[illegible]	RL	07/13				
B	[illegible]	RL	07/13				
C	[illegible]	RL	09/13				
D1	ETA INTERNAL REVIEW	RL	10/13				

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

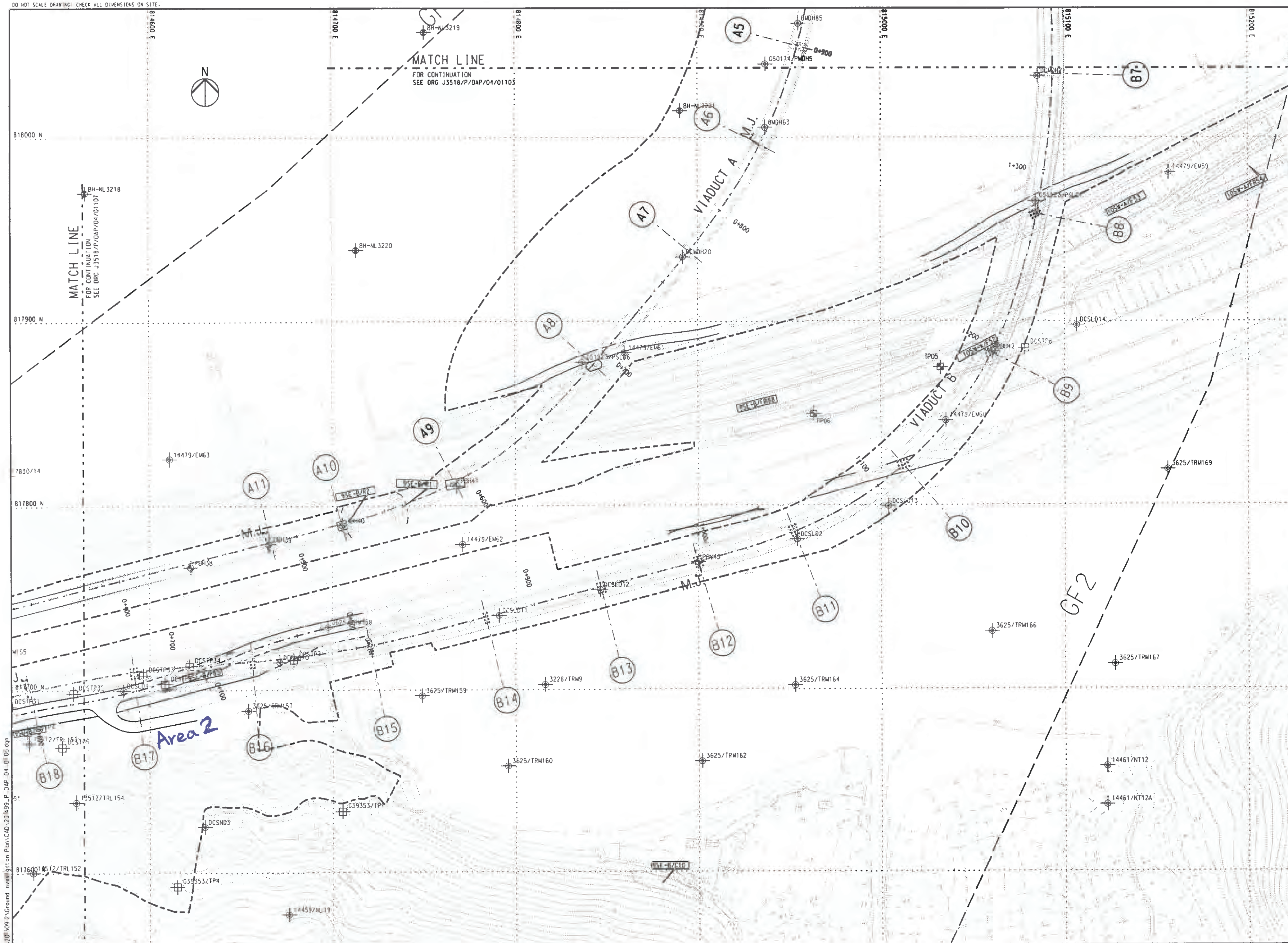
Contractor: Gammon

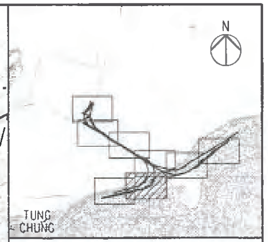
Originator: ARUP

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: 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

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 1.2I**

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

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
HyD (Highways Department)	Project Coordinator	Stanley Chan	2762 3406	3188 6614
	Senior Engineer	Steven Shum	2762 4133	3188 6614
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Daniel Ip	3553 3800	2492 2057
	Resident Engineer	Kingman Chan	3691 3950	3691 2899
ENPO / IEC (Ramboll Environ Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
	IEC	Dr. F.C. Tsang	3465 2851	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 three-month rolling construction programme is shown in Appendix B.

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

Marine Works

- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry operation;
- Installation of deck segment and pier head segment; and
- Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).

Land-based Works

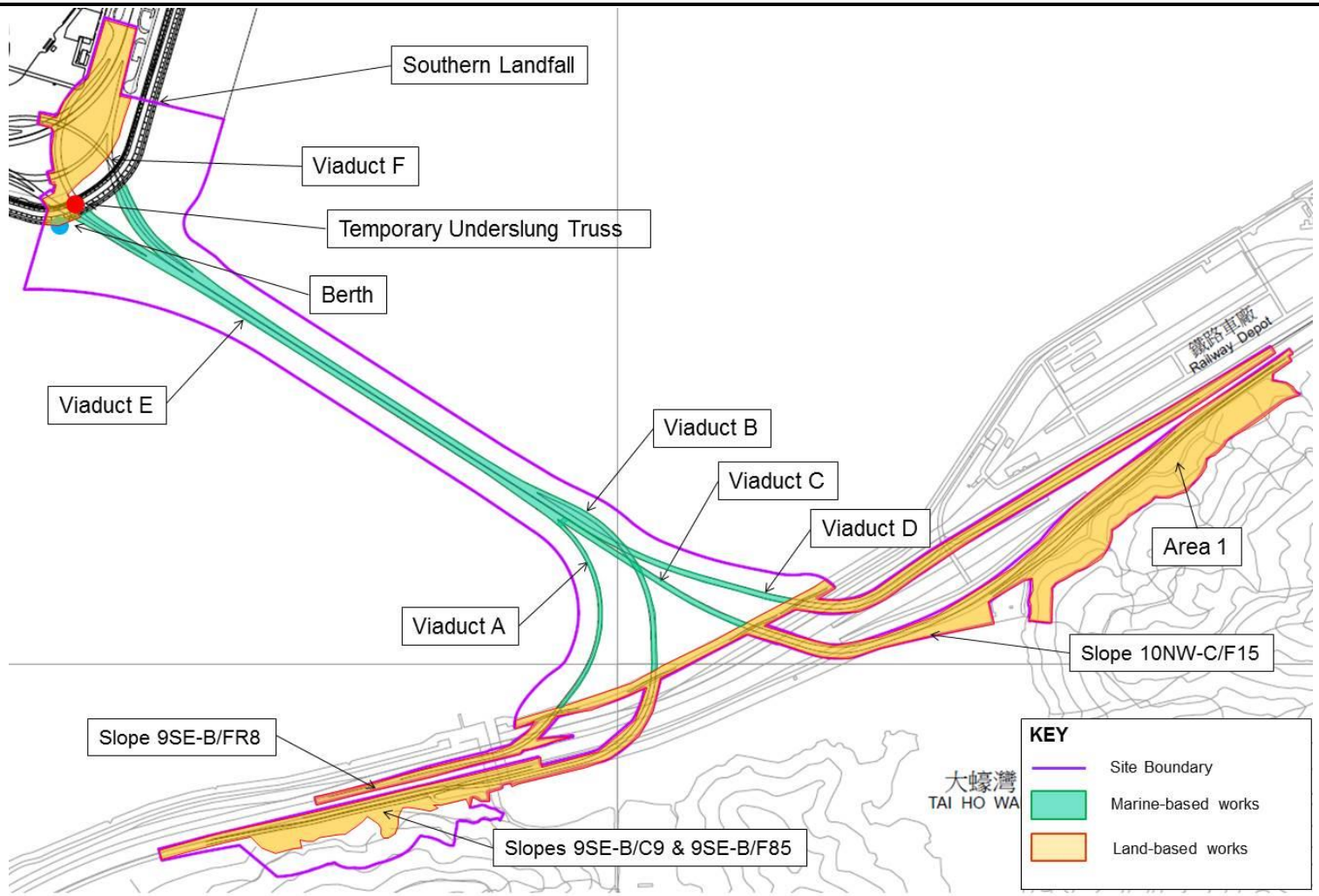
- Pier construction;
- Re-alignment of Cheung Tung Road;

- Road works along North Lantau Highway;
- Installation of pier head and deck segments; and
- Slope work of Viaducts A, B & C.

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*.

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

Figure 1.3 Locations of Major Construction Activities in the Reporting Month



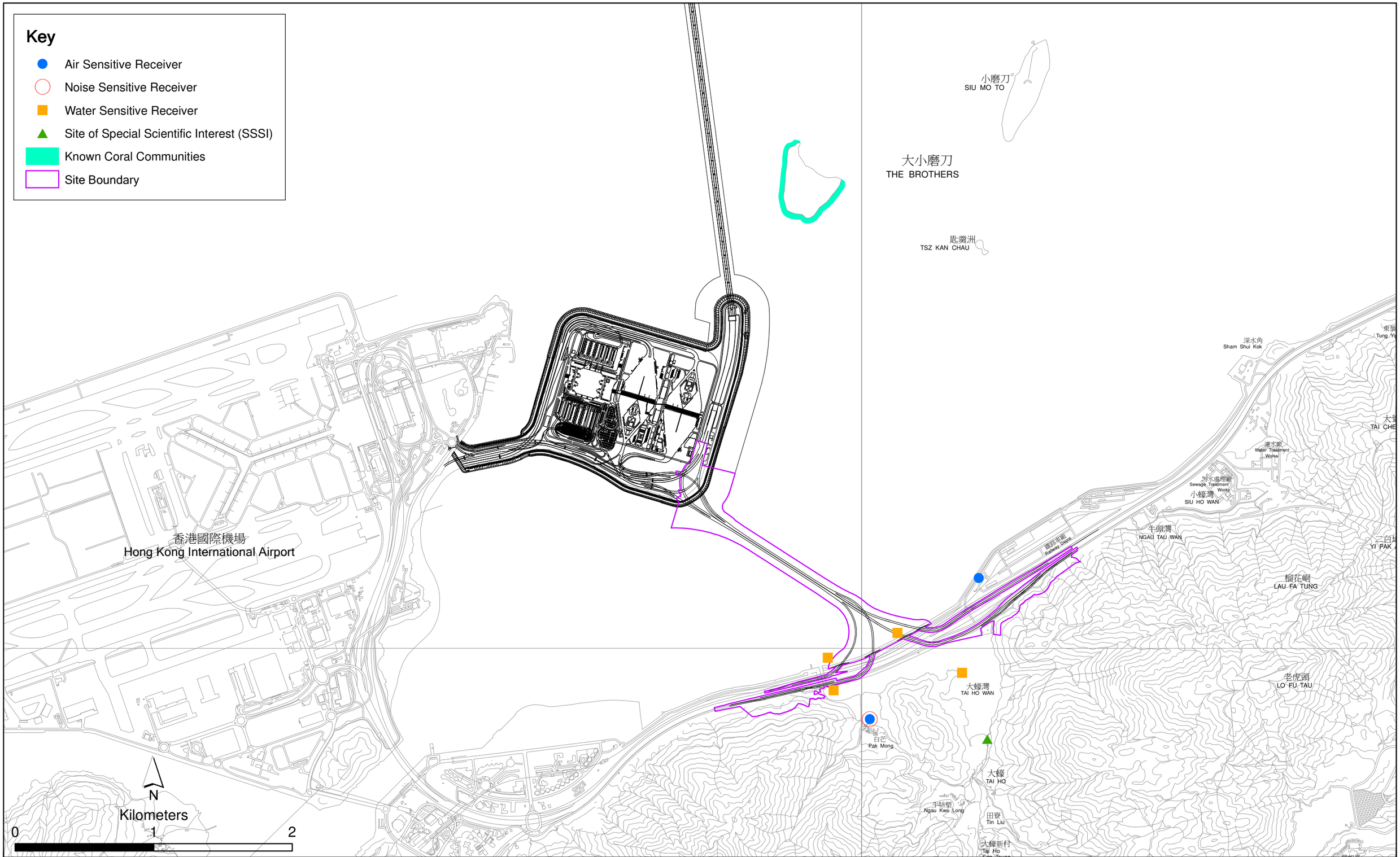


Figure 1.4

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: 18/5/2015

Environmental Resources Management

ERM

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

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 and impact 24-hour TSP monitoring was carried out once every six (6) days when the highest dust impact was expected. The Action and Limit Levels of the air quality monitoring is provided in *Appendix D*.

Table 2.1 Locations of Impact Air Quality Monitoring Stations

Monitoring Station	Location	Description	Monitoring Dates
ASR 9	MTR Depot	On the ground nearby MTR Depot Entrance	5, 11, 17, 20 and 26 July 2017
ASR 8A	Area 4	On ground at the works area, Area 4	5, 11, 17, 20 and 26 July 2017

High Volume Samplers (HVSs) were used for carried out 1-hour and 24-hour TSP monitoring on 5, 11, 17, 20 and 26 July 2017 at ASR8A and ASR9 in accordance with the requirements of the Updated EM&A Manual. The TSP monitoring stations are illustrated in *Figure 2.1* and detailed in *Table 2.1*. Wind meter was deployed at Area 4 for logging wind speed and wind direction. Copies of the calibration certificates for the equipment are presented in *Appendix E*. Details of the deployed equipment are given in *Table 2.2*.

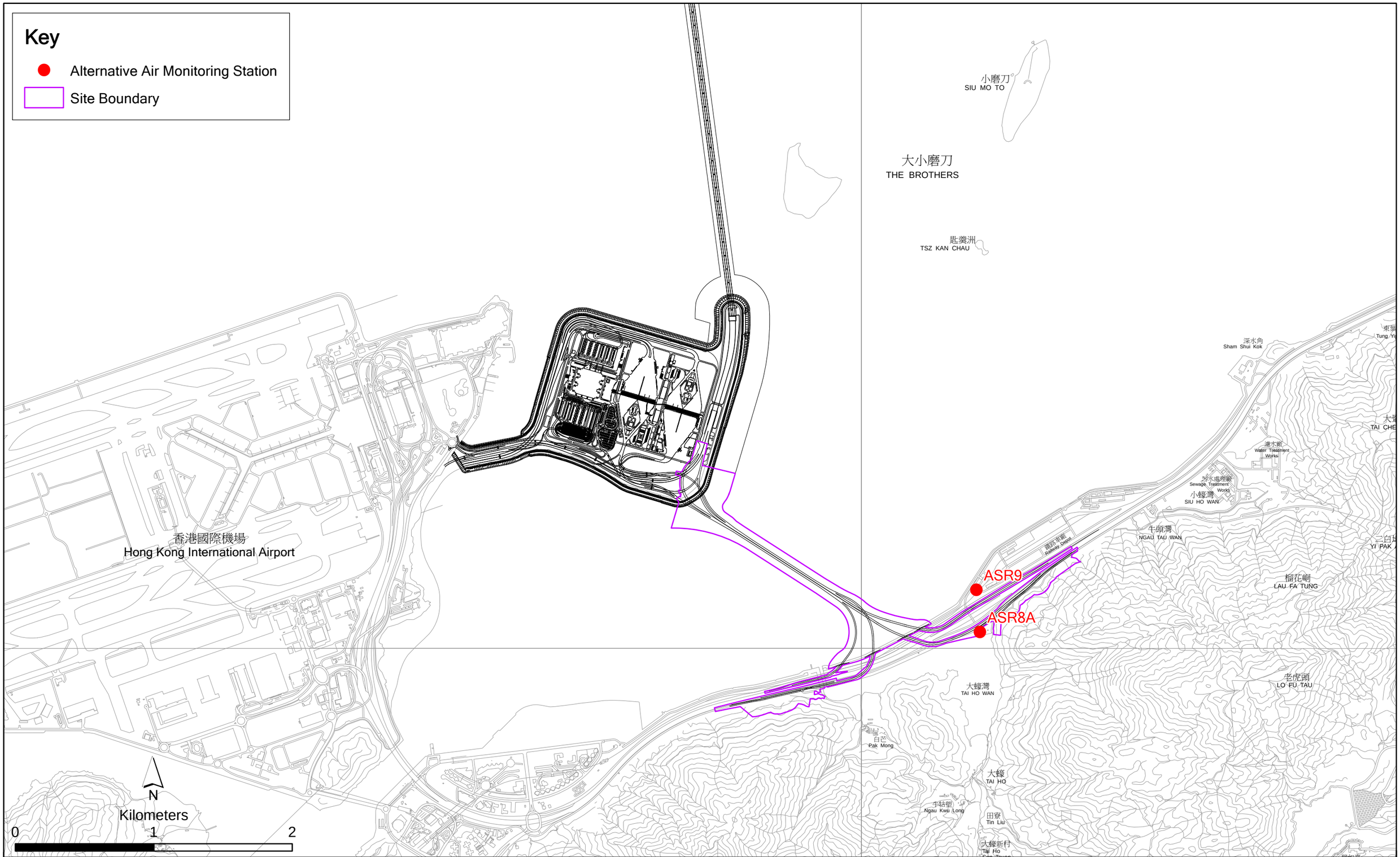


Figure 2.1

Locations of Air Quality Monitoring Stations

File: T:\GIS\CONTRACT\0215660\Mxd\0215660_AQMS.mxd
Date: 7/1/2015

Environmental Resources Management

ERM

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 Monitoring Schedule for the Reporting Month

The schedule for air quality monitoring in July 2017 is provided in *Appendix F*.

2.1.3 Results and Observations

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

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

Monitoring Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
ASR 8A	49	41-61	394	500
ASR 9	63	38-93	393	500

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

Monitoring Station	Average (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
ASR 8A	37	20-43	178	260
ASR 9	41	30-54	178	260

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

All 1-hour and 24-hour TSP results were below the Action and Limit Levels at all monitoring locations in the reporting period. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix K*.

Meteorological information collected at ASR8A including wind speed and wind direction is provided in *Appendix H*.

2.2 NOISE MONITORING

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

Noise monitoring was performed on 5, 11, 17, 20 and 26 July 2017 using sound level meter at the designated monitoring station NSR1A (*Figure 2.2; Table 2.5*) in accordance with the requirements stipulated in the Updated EM&A Manual. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Details of the deployed equipment are provided in *Table 2.6*. Copies of the calibration certificates for the equipment are presented in *Appendix E*.

Table 2.5 Location of Impact Noise Monitoring Station

Monitoring Station	Location	Description	Parameter	Frequency and Duration	Monitoring Dates
NSR 1A	Pak Mong Village Pavilion	On the ground at the village entrance	30-minute 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 per week	5, 11, 17, 20 and 26 July 2017

Table 2.6 Noise Monitoring Equipment

Equipment	Brand and Model
Integrated Sound Level Meter	Rion NL-31 / Rion NL-52
Acoustic Calibrator	Rion NC-73

2.2.2 Monitoring Schedule for the Reporting Month

The schedule for construction noise monitoring in the reporting period is provided in *Appendix F*.

2.2.3 Results and Observations

Results for noise monitoring are summarized in *Table 2.7* and the monitoring data is provided in *Appendix I*.

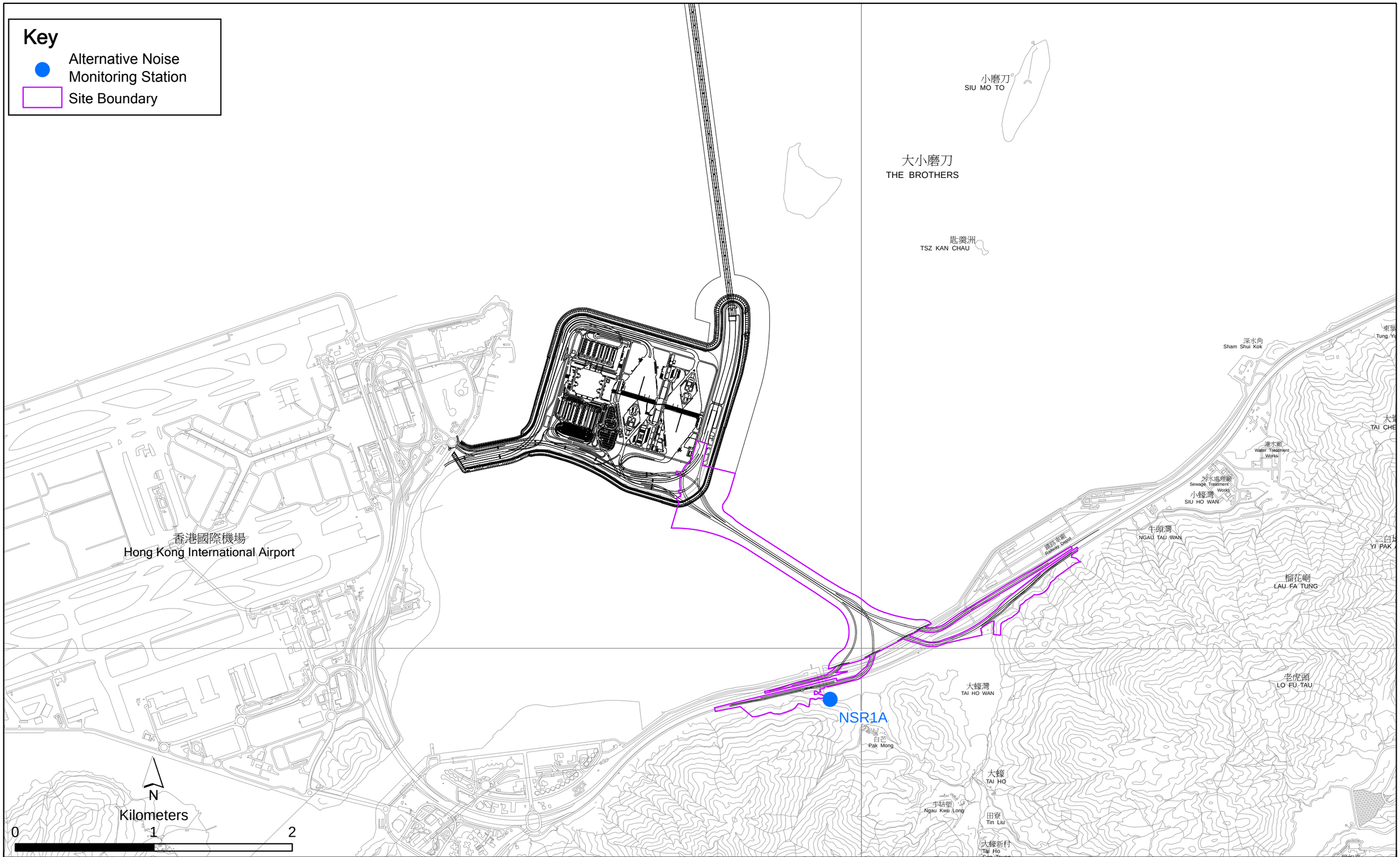


Figure 2.2

Location of Noise Monitoring Station

File: T:\GIS\CONTRACT\0215660\Mxd\0215660_NMS.mxd
Date: 7/1/2015

Environmental Resources Management

ERM

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

	Average , dB(A), $L_{eq\ (30mins)}$	Range, dB(A), $L_{eq\ (30mins)}$	Limit Level, dB(A), $L_{eq\ (30mins)}$
NSR 1A	63	62-63	75

No noise Action or Limit Level exceedance was recorded in the reporting month. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix K*.

Major noise sources during the noise monitoring included noise from crane operation, hammering, nearby traffic noise and aircraft noise.

2.3 WATER QUALITY MONITORING

2.3.1 Monitoring Requirements and Equipment

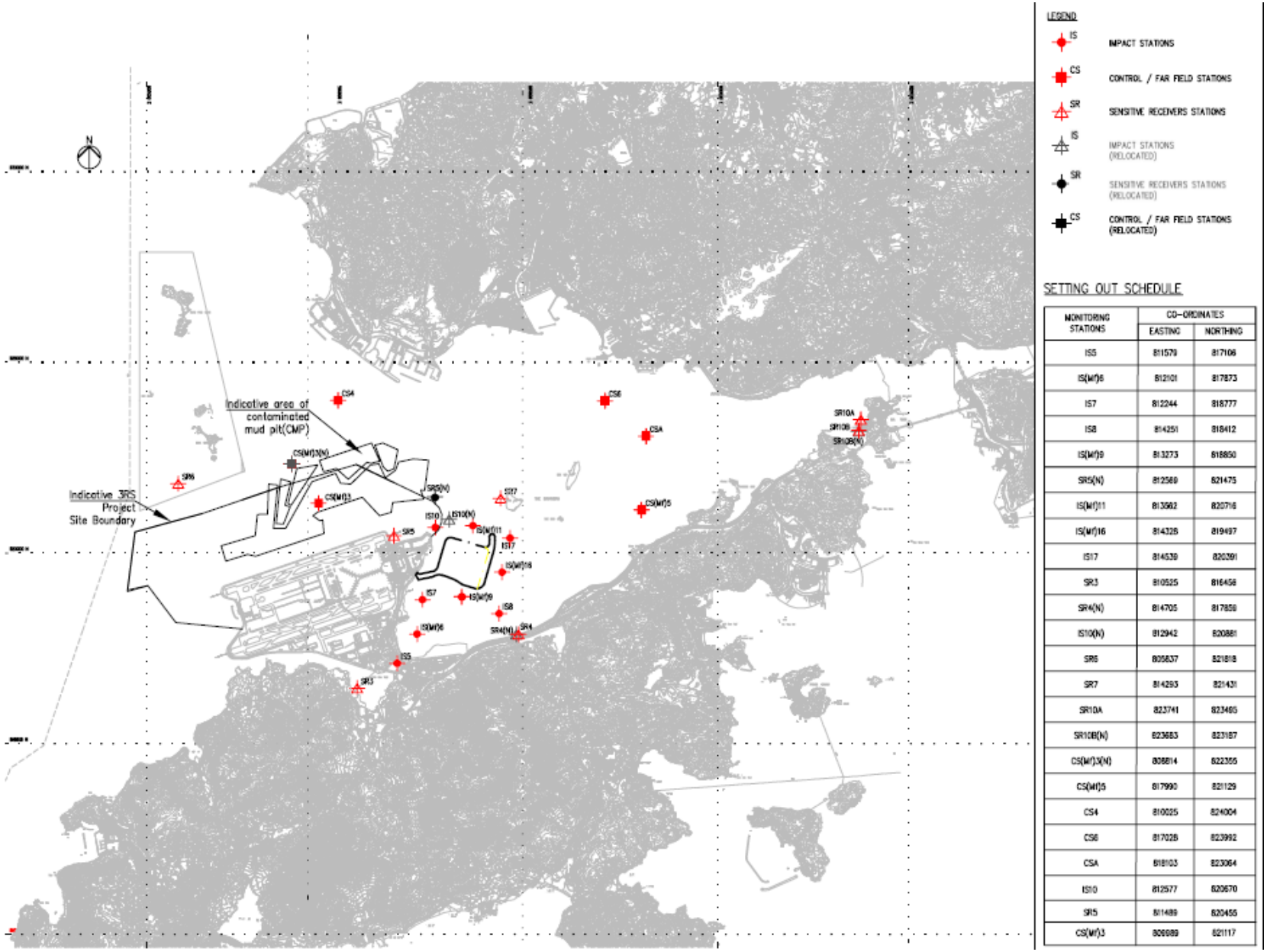
Results of water quality monitoring were adopted from the published EM&A data of *Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works* (1) (2).

The Action and Limit Levels of the water quality monitoring are provided in *Appendix D*.

The locations of the monitoring stations covered by *Contract No. HY/2010/02* are shown in *Figure 2.3* and those overlapped with *Contract No. HY/2012/07* are presented in *Table 2.8*.

(1) Published EM&A data for impact water quality monitoring by *Contract No. HY/2010/02* are available at: http://www.hzmbenpo.com/

(2) Technical issues have been observed from impact monitoring of the Contract and thus published information is adopted from Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works.



SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811570	817106
IS(M1)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(M1)9	813273	818850
SR5(N)	812569	821475
IS(M1)11	813562	820716
IS(M1)16	814328	819497
IS17	814539	820291
SR3	810535	816456
SR4(N)	814705	817859
IS10(N)	812942	820881
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823465
SR10B(N)	823683	823187
CS(M1)3(N)	808814	822355
CS(M1)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064
IS10	812577	820670
SR5	811489	820455
CS(M1)3	809989	821117

Figure 2.3

Locations of Water Quality Monitoring Stations
(Source: Adopted from Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities - Reclamation Works)

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Table 2.8 Locations of Impact Water Quality Monitoring Stations and its Corresponding Monitoring Requirements

Station ID	Type	Coordinates		*Parameters, unit	Frequency	Depth
		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) • Dissolved Oxygen (DO) (mg/L and % of saturation) • Suspended Solid (SS) (mg/L)	Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides during the construction period of the Contract	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
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497			
IS8	Impact Station (Close to HKBCF construction site)	814251	818412			
SR4(N)	Sensitive receiver (Tai Ho)	814705	817859			
CS(Mf)3(N)	Control Station	808814	822355			
CS(Mf)5	Control Station	817990	821129			

*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.

Water Quality Monitoring Station CS(Mf)3 was relocated to CS(Mf)3(N) since 2 May 2017.

Station SR4a is not covered by HY/2010/02. Data from Station SR4(N) is considered representative of those from SR4a since they are located 50m from each other and coral colonies, which is the SR concerned at SR4a, are also presented along the seawall nearby SR4(N).

2.3.2 *Results and Observations*

Results of water quality monitoring were adopted from the published EM&A data of *Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works* (1).

Neither Action nor Limit Levels exceedances was recorded by the Environmental Team of Contract No. *HY/2010/02* during the reporting period. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix K*.

(1) Published EM&A data for impact water quality monitoring by *Contract No. HY/2010/02* are available at: http://www.hzmbenpo.com/

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 Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) from the Contract. 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 2.9 summarizes the equipment used for the impact dolphin monitoring.

Table 2.9 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 and 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 2.10* below.

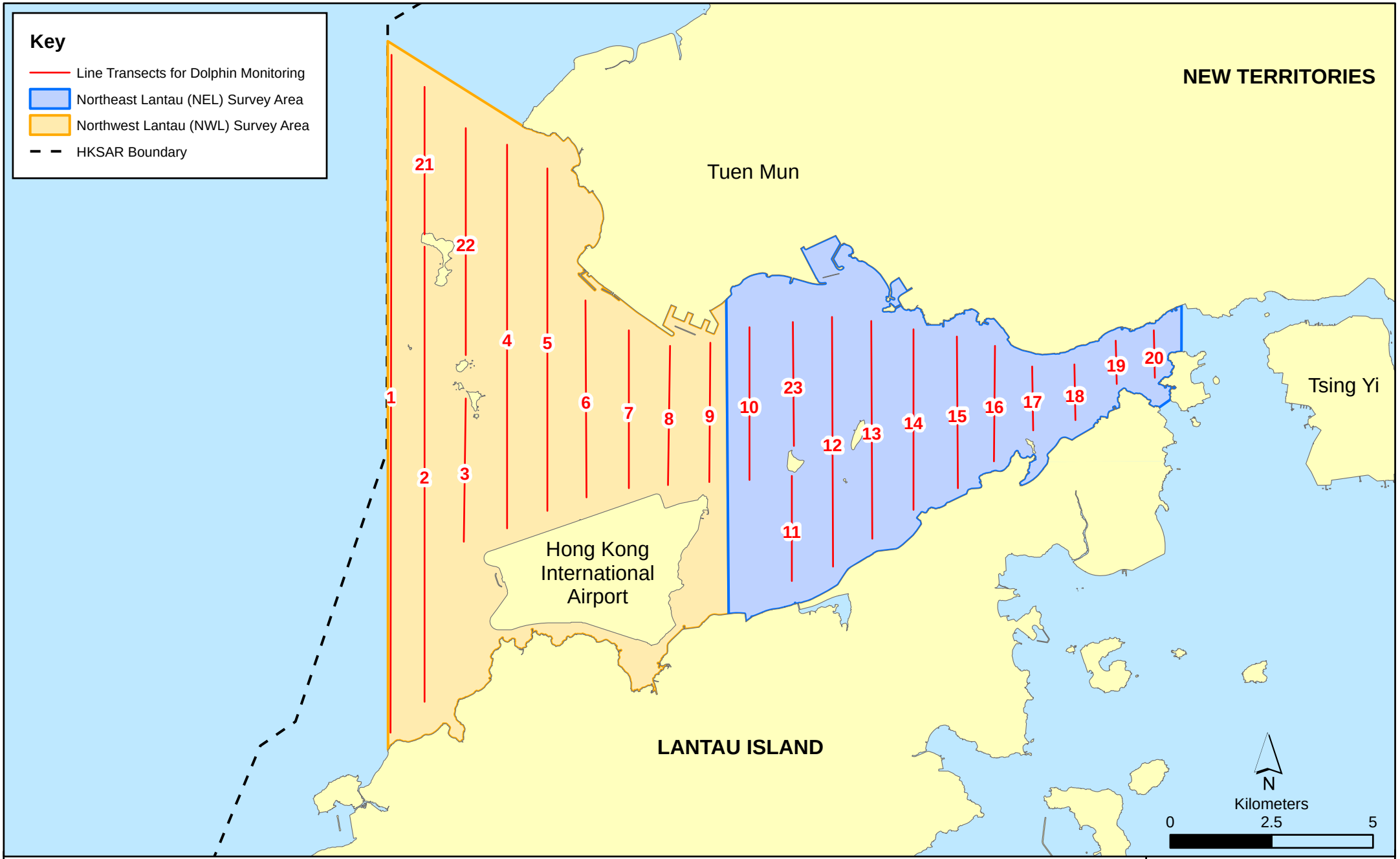

Figure 2.4

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

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Date: 10/12/2013

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Table 2.10 Impact Dolphin Monitoring Line Transect Co-ordinates

Line No.		Easting	Northing	Line No.		Easting	Northing
1	Start Point	804671	815456	13	Start Point	816506	819480
1	End Point	804671	831404	13	End Point	816506	824859
2	Start Point	805475	815913	14	Start Point	817537	820220
2	End Point	805477	826654	14	End Point	817537	824613
3	Start Point	806464	819435	15	Start Point	818568	820735
3	End Point	806464	822911	15	End Point	818568	824433
4	Start Point	807518	819771	16	Start Point	819532	821420
4	End Point	807518	829230	16	End Point	819532	824209
5	Start Point	808504	820220	17	Start Point	820451	822125
5	End Point	808504	828602	17	End Point	820451	823671
6	Start Point	809490	820466	18	Start Point	821504	822371
6	End Point	809490	825352	18	End Point	821504	823761
7	Start Point	810499	820880	19	Start Point	822513	823268
7	End Point	810499	824613	19	End Point	822513	824321
8	Start Point	811508	821123	20	Start Point	823477	823402
8	End Point	811508	824254	20	End Point	823477	824613
9	Start Point	812516	821303	21	Start Point	805476	827081
9	End Point	812516	824254	21	End Point	805476	830562
10	Start Point	813525	820872	22	Start Point	806464	824033
10	End Point	813525	824657	22	End Point	806464	829598
11	Start Point	814556	818853	23	Start Point	814559	821739
11	End Point	814556	820992	23	End Point	814559	824768
12	Start Point	815542	818807				
12	End Point	815542	824882				

2.4.5 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 K*.

2.4.6 Monitoring Schedule for the Reporting Month

Dolphin monitoring was carried out on 20, 24, 27 and 28 July 2017 (*Appendix F*).

2.4.7 Results and Observations

A total of 265.21 km of survey effort was collected, with 99.40% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) during the surveys in July 2017. Among the two areas, 96.30 km and 168.91 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 194.61 km and 70.60 km, respectively. The survey efforts are summarized in *Appendix J*.

Two (2) groups of 11 Chinese White Dolphins were sighted during the two sets of monitoring surveys in July 2017. Both dolphin sightings were made in NWL, while none was sighted in NEL. During the surveys in July 2017, all sightings were made during on-effort search, while one of the two on-effort sighting was made on primary lines. The dolphin group was not associated with operating fishing vessel and was not sighted in the proximity of the Project's alignment. The distribution of dolphin sighting during the reporting month is shown in *Figure 2.5*.

Encounter rates of Chinese White Dolphins are deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below) in July 2017 are shown in *Tables 2.11 & 2.12*.

Table 2.11 Individual Survey Event Encounter Rates

		Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	**Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)**
		Primary Lines Only	Primary Lines Only
NEL	Set 1: July 20th / 24th	0.0	0.0
	Set 2: July 27th / 28th	0.0	0.0
NWL	Set 1: July 20th / 24th	1.64	14.79
	Set 2: July 27th / 28th	0.0	0.0

Note: Dolphin Encounter Rates are deduced from the two sets of surveys (two surveys in each set) in July 2017 in Northeast (NEL) and Northwest Lantau (NWL)

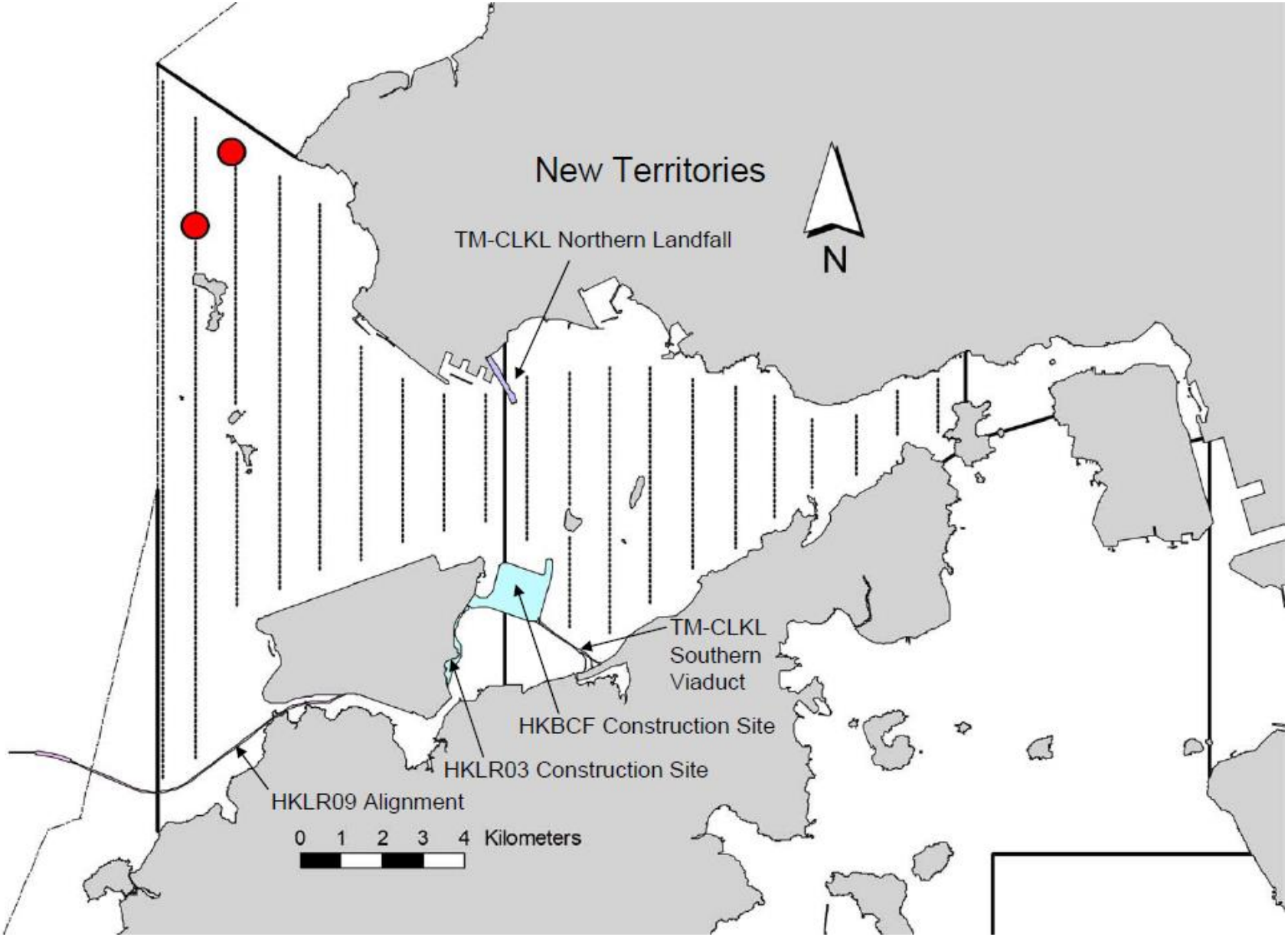

Figure 2.5

Date 7/10/2016

HY/2012/07 TM-CLKL Southern Connection Viaduct Section
The distribution of dolphin sightings during the reporting period
(Source: Adopted from HKLR03 Monitoring Survey in July 2017)

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Table 2.12 Monthly Average Encounter Rates

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	Primary Lines Only	**Both Primary and Secondary Lines**	**Primary Lines Only**	**Both Primary and Secondary Lines**
Northeast Lantau	0.0	0.0	0.0	0.0
Northwest Lantau	0.8	1.2	7.3	6.6

Note: Overall dolphin encounter rates (sightings per 100 km of survey effort) from all four surveys are conducted in July 2017 on primary lines only as well as both primary lines and secondary lines in Northeast and Northwest Lantau

During this month of dolphin monitoring, no unacceptable impact from the construction activities of the TM-CLKL Southern Connection Viaduct Section on Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was noticeable from general observations. Due to monthly variation in dolphin occurrence within the Study Area, it would be more appropriate to draw conclusion on whether any impacts on dolphins have been detected related to the construction activities of the TM-CLKL Southern Connection Viaduct Section in the quarterly EM&A reports, in which comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

2.4.8 Marine Mammal Exclusion Zone Monitoring

Daily 250 m marine mammal exclusion zone monitoring was undertaken during the period of daytime marine works activities. No sighting of Chinese White Dolphin was recorded in July 2017 during the exclusion zone monitoring.

Passive Acoustic Monitoring (PAM) had been decommissioned as no marine piling works was carried out outside the daylight hours since September 2015.

2.5 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting month, four (4) site inspections were carried out on 5, 12, 19 and 27 July 2017.

Key observations during the site inspections are summarized in *Table 2.13*.

Table 2.13 Specific Observations Identified during the Weekly Site Inspections in this Reporting Month

Inspection Date	Environmental Observations	Recommendations/ Remarks
5 July 2017	Viaduct E (Pier E4) • Chemical containers in the deck were observed not placed in drip tray. • NRMM label should be provided on the generator.	Viaduct E (Pier E4) • The Contractor was reminded to place chemical containers in drip tray. • The Contractor was reminded to provide NRMM label on the generator.
12 July 2017	Southern Landfall Portion A (Portion S-c) • Chemical container was observed not placed in drip tray.	Southern Landfall Portion A (Portion S-c) • The Contractor was reminded to place chemical container in drip tray.
19 July 2017	Viaduct E (Pier E12) • General refuse should be cleared regularly. Viaduct E (Pier E11) • Chemical containers were observed not placed in drip tray. • Air compressor was observed not fully placed in drip tray.	Viaduct E (Pier E12) • The Contractor was reminded to clear general refuse regularly. Viaduct E (Pier E11) • The Contractor was reminded to place chemical containers in drip tray. • The Contractor was reminded to fully place the air compressor in drip tray.
27 July 2017	Ramp C (Area I) • Chemical containers on the deck were observed not placed in drip tray. • General refuse should be cleared regularly. Viaduct C (Pier C15) • Stockpile was observed not being fully covered by tarpaulin. Ramp D (Area I) • Chemical containers were observed not placed in drip tray. • Watering should be provided on unpaved road.	Ramp C (Area I) • The Contractor was reminded to place chemical containers on the deck in drip tray. • The Contractor was reminded to clear general refuse regularly. Viaduct C (Pier C15) • The Contractor was reminded to fully cover stockpile by tarpaulin. Ramp D (Area I) • The Contractor was reminded to place chemical containers in drip tray. • The Contractor was reminded to provide watering on unpaved road.

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

2.6 WASTE MANAGEMENT STATUS

The Contractor has 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) and recyclable materials. Reference has been made to the waste flow table prepared by the Contractor (*Appendix L*). The quantities of different types of wastes are summarized in *Table 2.14*.

Table 2.14 Quantities of Different Waste Generated in the Reporting Period

Month/Year	Inert C&D Materials [a] (m^3)	Imported Fill (m^3)	Inert Construction Waste Re-used (m^3)	Non-inert Construction Waste [b] (kg)	Recyclable Materials [c] (kg)	Chemical Wastes (kg)	Marine Sediment (m^3)	
							Category L	Category M (M_p & M_f)
July 2017	4,921	0	696	159,980	91	800	1056	0

Notes:

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

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

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

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

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

2.7 ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.15* below.

Table 2.15 Summary of Environmental Licensing and Permit Status

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Environmental Permit	EP-354/2009/D	13 March 2015	N/A	HyD	Tuen Mun- Chek Lap Kok Link
Environmental Permit	EP-353/2009/K	11 April 2016	N/A	HyD	Hong Kong Boundary Crossing Facilities
Construction Dust Notification	361571	5 Jul 2013	N/A	GCL	
Construction Dust Notification	362093	17 Jul 2013	N/A	GCL	For Area 23
Chemical Waste Registration	5213-961-G2380-13	10 Oct 2013	N/A	GCL	Chemical waste produced in Contract No. HY/2012/07 (Area 1 adjacent to Cheng Tung Road, Siu Ho Wan)
Chemical Waste Registration	5213-961-G2380-14	10 Oct 2013	N/A	GCL	Chemical waste produced in Contract No. HY/2012/07 (Area 2 adjacent to Cheung Tung Road, Pak Mong Village)
Chemical Waste Registration	5213-974-G2588-03	4 Nov 2013	N/A	GCL	Chemical waste produced in Contract No. HY/2012/07 (WA5 adjacent to Cheung Tung Road, Yam O)
Chemical Waste Registration	5213-951-G2380-17	12 Jun 2014	N/A	GCL	Viaducts A, B, C, D & E
Construction Waste Disposal Account	7017735	10 Jul 2013	N/A	GCL	-
Construction Waste Disposal Account	7019470	3 Mar 2014	N/A	GCL	Vessel CHIT Account
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 for night works and works in general holidays	GW-RW0294-17	19 Jun 2017	18 Dec 2017	GCL	General works at WA5
Construction Noise Permit for night works and works in general holidays	GW-RS0540-17	20 Jun 2017	15 Dec 2017	GCL	Broad Permit for Whole Site Areas
Construction Noise Permit for night works and works in general holidays	GW-RS0456-17	31 May 2017	31 Jul 2017	GCL	Broad Permit for Segment Launching at Land Portion
Construction Noise Permit for night works and works in general holidays	GW-RS0408-17	11 May 2017	30 Sept 2017	GCL	Pre-casted pile cap shell installation at E8-E13
Construction Noise Permit for percussive piling	PP-RS0010-17	12 June 2017	15 Sept 2017	GCL	Percussive piling at Portion A
Marine Dumping Permit	EP-MD-18-031	01 Jul 2017	31 Dec 2017	GCL	For dumping Type I sediment
Marine Dumping Permit	EP-MD-17-196	01 Jul 2017	31 Jul 2017	GCL	For dumping Type II sediment

2.8 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.

The landscape and visual (L&V) mitigation measures were also monitored on weekly basis in the reporting period. The monitoring status is summarized in *Appendix C*.

2.9 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

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

Cumulative statistics on exceedances is provided in *Appendix M*.

2.10 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

The Environmental Complaint Handling Procedure is provided in *Figure 2.6*.

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

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

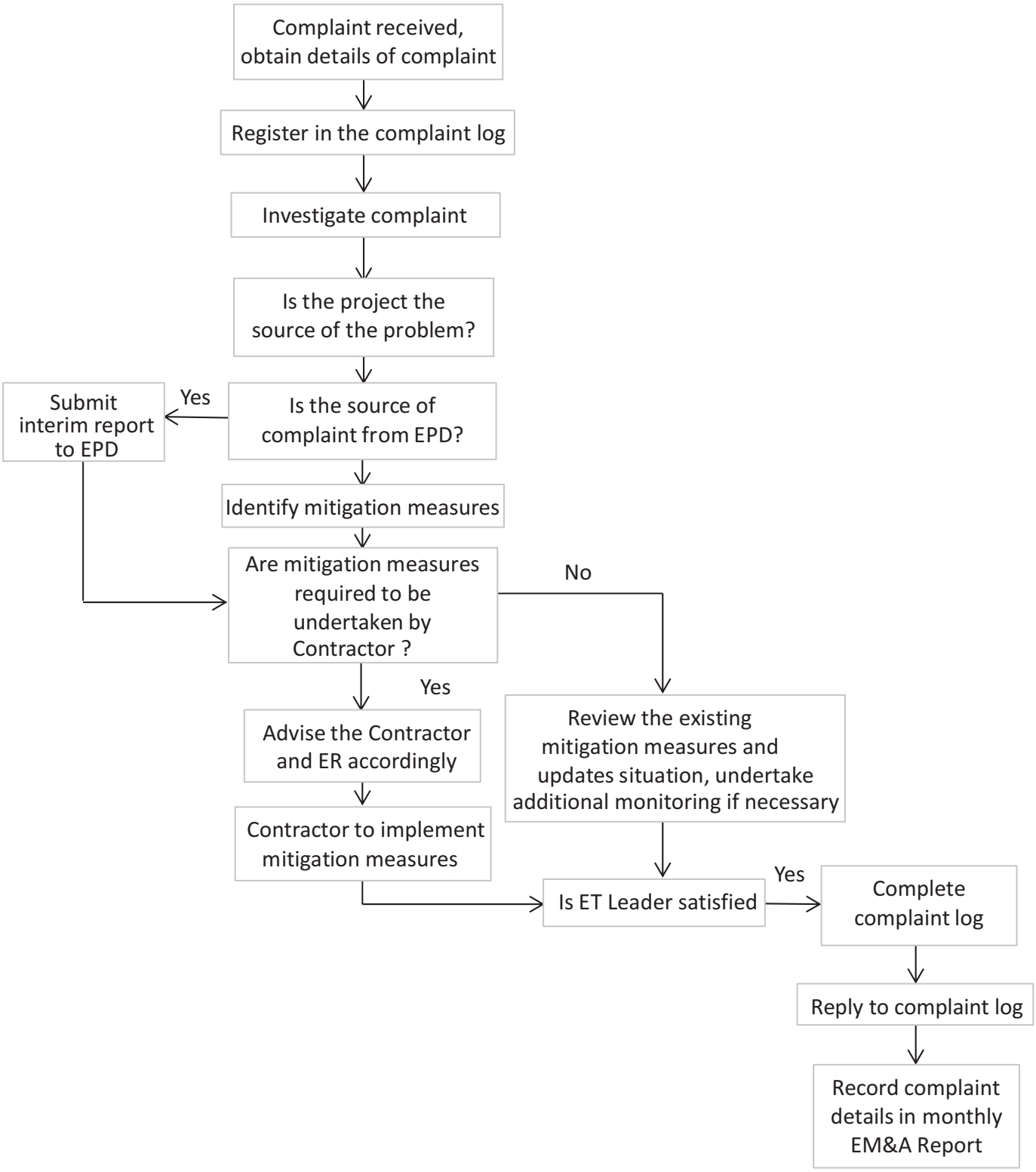

Figure 2.6 Environmental Complaint Handling Procedure

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3 FUTURE KEY ISSUES

3.1 CONSTRUCTION PROGRAMME FOR THE COMING MONTH

As informed by the Contractor, the major works for this Contract in August 2017 will be:

Marine Works

- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry operation; and
- Installation of deck segment and pier head segment; and
- Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).

Land-based Works

- Pier construction;
- Re-alignment of Cheung Tung Road;
- Road works along North Lantau Highway;
- Installation of pier head and deck segments; and
- Slope work of Viaducts A, B & C.

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of August 2017 are mainly associated with dust, noise, marine water quality, marine ecology and waste management issues.

3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedules for environmental monitoring in August 2017 are provided in *Appendix F*.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Forty-fifth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 31 July 2017 in accordance with the Updated EM&A Manual and the requirements of the Environmental Permits (*EP-354/2009/D* and *EP-353/2009/K*).

Air quality (1-hour TSP and 24-hour TSP), noise, water quality (DO, turbidity and SS) and dolphin monitoring were carried out in the reporting month. Results for water quality, air quality and noise monitoring complied with the Action and Limit levels in the reporting period.

Two (2) groups of 11 Chinese White Dolphins were sighted during the two sets of monitoring surveys in July 2017. During this month of dolphin monitoring, no unacceptable impact from the construction activities of the TM-CLKL Southern Connection Viaduct Section on Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was noticeable from general observations.

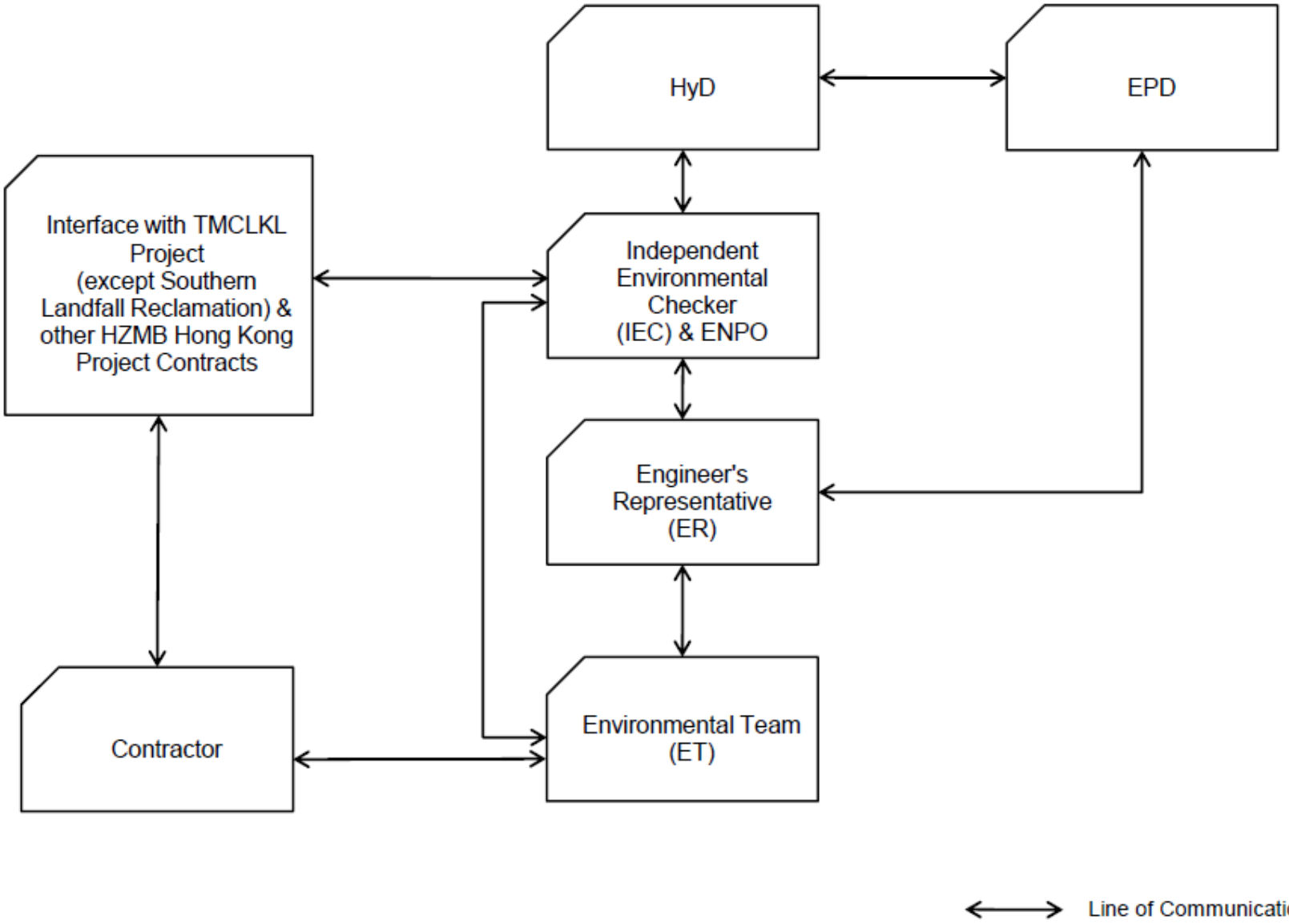
Environmental site inspection was carried out four (4) times in July 2017. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audits.

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

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

Appendix A

Project Organization for Environmental Works



Appendix A1

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

DATE: 06/03/2013

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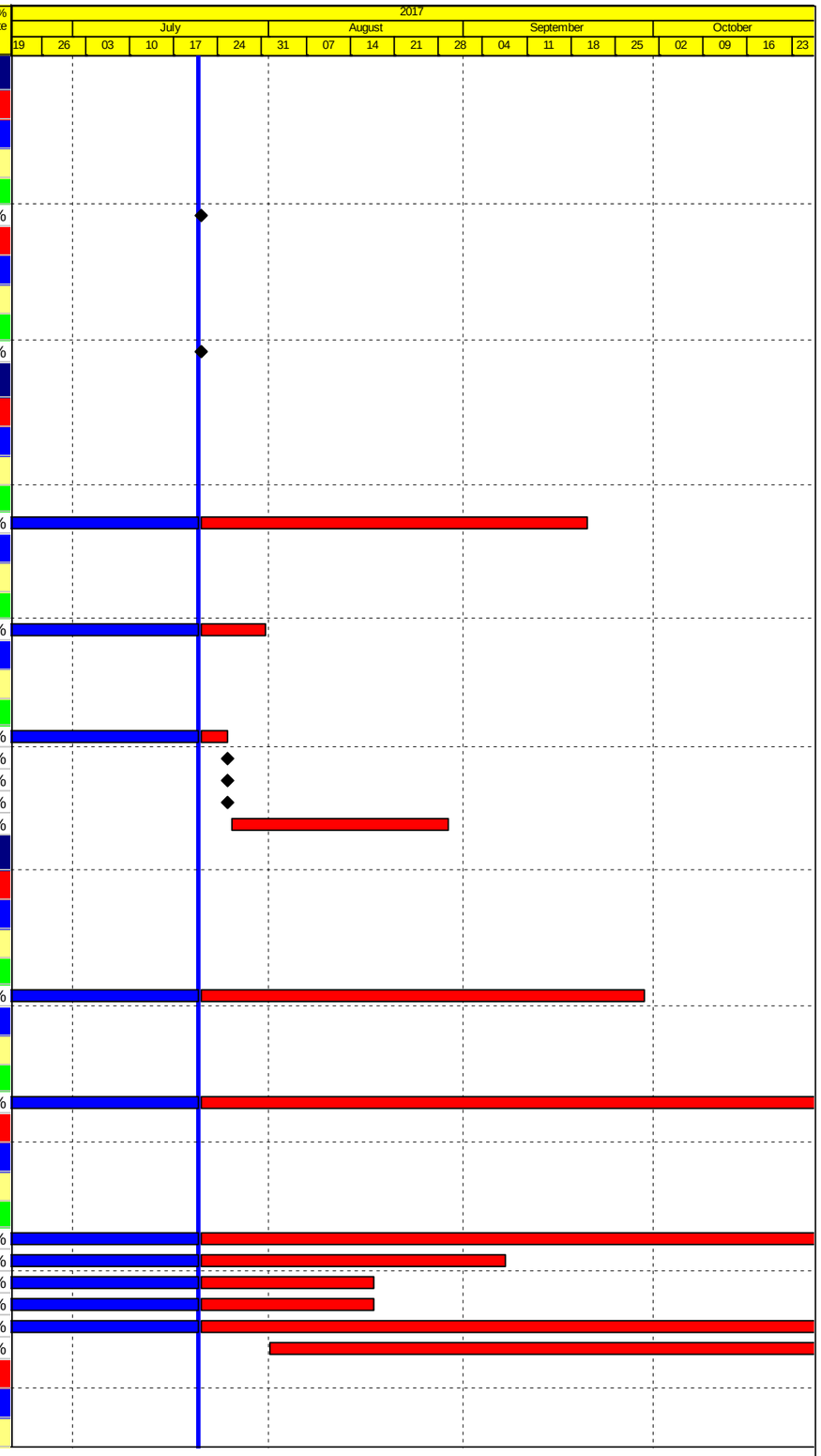
Appendix B

Three-Month Rolling Construction Programme

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
Contract Milestones									
Key Dates for Completion									
Stage of the Works									
Completion Date									
General									
KD03	KD3 - Stage 3: TCSS Along NLH Near Viaduct C, D (EoT 8-Apr-16)	0		0	21-Jul-17*		08-Apr-16	-468	0%
Portion Handover Dates									
Possession of the Works Area									
Access Dates									
General									
POS02-6B	Portion A - Area 6B (To be confirmed)	0	21-Jul-17*	0		18-Jul-20		1094	0%
Design									
Detailed Design									
Slope Works Near Viaduct A									
Feature 9SE-B/FR8, B/R1, B/R2									
Slope Works Design									
ARDD0596-1	IC/SO Approval of Slope Combined AIP/DDA - CP11.01	60	13-Jun-17 A	53	20-Sep-17	16-May-16	18-Jul-16	-351	10%
Slope Works Near Viaduct C									
Feature 10NW-C/C22, C/C26, C/C27, C/F13, C/F14, C/F15									
Slope Works Design									
ARDD0589-2	IC/SO Approval of Combined AIP/DDA - CP13.01	28	01-Jun-17 A	9	31-Jul-17	08-Aug-16	17-Aug-16	-281	70%
Segment Target Geometry & Erection Engineering									
Viaduct F									
Design									
ARDD0754	Viaduct F - Segment Geometry Schedules	10	14-Jun-17 A	4	25-Jul-17	12-Sep-16	15-Sep-16	-251	60%
ARDD0754-1	Viaduct F - Issue of Pierhead Segments Bridge F1, F2, F3, F4 & F5	0		0	25-Jul-17		15-Sep-16	-251	0%
ARDD0754-3	Viaduct F - Issue of Casting Data and Segment Catalogue Bridge F1, F3 (I	0		0	25-Jul-17		15-Sep-16	-251	0%
ARDD0754-4	Viaduct F - Issue of Casting Data and Segment Catalogue Bridge F2, F4, I	0		0	25-Jul-17		15-Sep-16	-251	0%
ARDD0754-5	Viaduct F - Issue Erection Manual	30	26-Jul-17	30	29-Aug-17	17-Sep-16	24-Oct-16	-251	0%
Procurement									
Precast Deck Segments									
Viaduct E - Bridge E5, E6, E7, E8									
Segment Manufacture									
General									
MBEE0130-9	E5-6-7-8: Progressive Segment Manufacture (544Nr)	360	06-May-15 A	61	29-Sep-17	12-Nov-16	25-Jan-17	-201	98%
Viaduct F - Bridge F1-F5									
Segment Manufacture									
General									
MBFE0130-1	F: Progressive Segment Manufacture (300 Nr)	252	27-Oct-16 A	87	02-Nov-17	16-Jan-17	06-May-17	-149	75%
Precast Parapets & Barriers									
Viaduct A to F									
Precast Parapet Manufacture									
General									
PP6011-01	Viaduct A - Precast Parapets/Barriers Production	90	01-Sep-16 A	120	11-Dec-17	12-Sep-16	08-Feb-17	-251	50%
PP6011-02	Viaduct B - Precast Parapets/Barriers Production	120	03-May-16 A	42	07-Sep-17	12-Sep-16	02-Nov-16	-251	75%
PP6011-03	Viaduct C - Precast Parapets/Barriers Production	120	01-Apr-16 A	24	17-Aug-17	16-May-16	13-Jun-16	-351	85%
PP6011-04	Viaduct D - Precast Parapets/Barriers Production	120	01-Mar-16 A	24	17-Aug-17	16-May-16	13-Jun-16	-351	85%
PP6011-05	Viaduct E - Precast Parapets/Barriers Production	180	02-Jul-16 A	180	26-Feb-18	16-May-16	16-Dec-16	-351	40%
PP6011-06	Viaduct F - Precast Parapets/Barriers Production	198	01-Aug-17*	198	29-Mar-18	18-Feb-17	18-Oct-17	-132	0%
Bearings									
Viaduct E									
Bearing Design & Manufacture									



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: TMCLK-DWPI-1-M50
Layout: J3518-DWP-3MRP Submission - M50
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Tuen Mun - Chek Lap Kok Link - Southern Connection
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(Progress as of 21-Jul-17)

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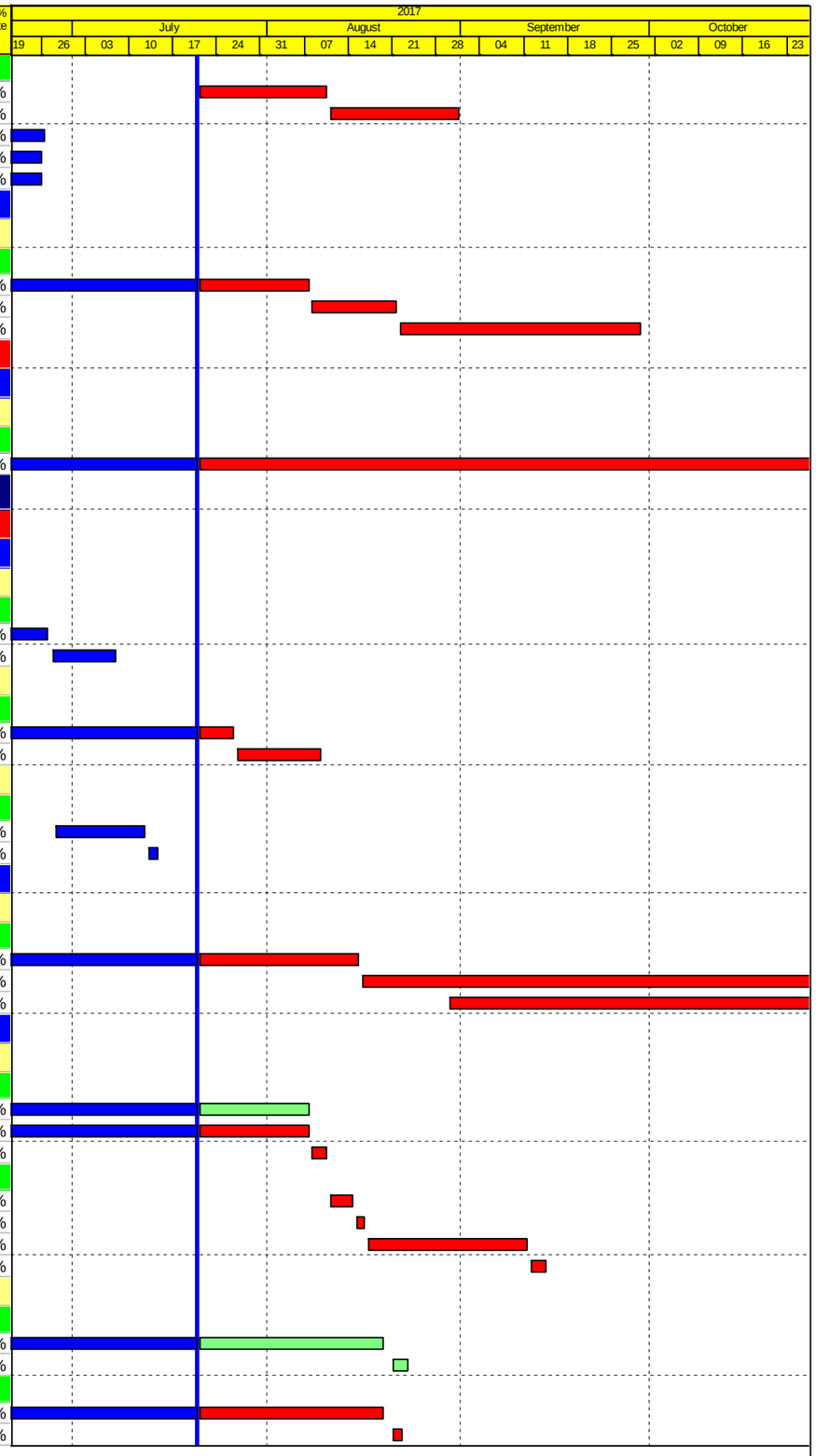
DWG. No.:

J3518/GCL/PGM/3MRP-M50

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
General									
PP7150	Site preparation Bearings for Viaduct E5 & E6	18	21-Jul-17	18	10-Aug-17	19-Dec-16	11-Jan-17	-170	0%
PP7220	Site preparation Bearings for Viaduct E7 & E8	18	11-Aug-17	18	31-Aug-17	12-Jan-17	04-Feb-17	-170	0%
PPBRE7	Manufacture of Bearing - Viaduct E (E1, E2, E5, E6, E7 & E8)	54	02-Jun-14 A	0	26-Jun-17 A				100%
PPBRE8	Testing Bearing - Viaduct E (E1, E2, E5, E6, E7 & E8)	24	03-Aug-15 A	0	26-Jun-17 A				100%
PPBRE9	Bearing Delivery - Viaduct E (E1, E2, E5, E6, E7 & E8)	48	19-Nov-14 A	0	26-Jun-17 A				100%
Viaduct F									
Bearing Design & Manufacture									
General									
PPBRF7	Manufacture of Bearing - Viaduct F	60	28-Mar-17 A	15	07-Aug-17	21-Sep-16	08-Oct-16	-244	80%
PPBRF8	Testing Bearing - Viaduct F	12	08-Aug-17	12	21-Aug-17	11-Oct-16	24-Oct-16	-244	0%
PPBRF9	Bearing Delivery - Viaduct F	34	22-Aug-17	34	29-Sep-17	25-Oct-16	02-Dec-16	-244	0%
Movement Joints									
Viaduct A to F									
MJ Design & Manufacture									
General									
PP6MJ02-2	Manufacture & delivery of MJ	180	01-Apr-17 A	100	17-Nov-17	11-Apr-16	09-Aug-16	-379	25%
Construction									
Foundation & Substructure Works									
Viaduct A - Bridge A1									
Pier A9 (A1c)									
Pier Head Segment									
A09-C5410	A9 - PHS Diaphragm - Rebar, Formwork, Concreting	36	26-Apr-17 A	0	27-Jun-17 A				100%
A09-C5420	A9 - PHS Diaphragm - Curing & Striking of Forms	12	28-Jun-17 A	0	08-Jul-17 A				100%
Pier A10 (A1b)									
Pier Head Segment									
A10-C5410	A10 - PHS Diaphragm - Rebar, Formwork, Concreting	36	10-Jun-17 A	5	26-Jul-17	13-Jun-16	17-Jun-16	-328	90%
A10-C5420	A10 - PHS Diaphragm - Curing & Striking of Forms	12	27-Jul-17	12	09-Aug-17	18-Jun-16	02-Jul-16	-328	0%
Pier A11 (A1a)									
Pier Head Segment									
A11-C5210	A11 - PHS - Temporary Platform	12	28-Jun-17 A	0	12-Jul-17 A				100%
A11-C5310	A11 - Install PH Segment (1nr)	2	13-Jul-17 A	0	14-Jul-17 A				100%
Ramp A									
Abutment & Approach Ramp A									
Ramp Structure									
ARA-C6140	Ramp A - Remaining RE Wall (Bay 7 to 11) with Backfill	111	02-Mar-17 A	22	15-Aug-17	21-Apr-16	18-May-16	-370	85%
ARA-C6142	Ramp A - Remaining RC Wall (Bay Wa2-Wa5 & Bay 9-12) with Backfill	120	16-Aug-17	120	09-Jan-18	24-May-16	15-Oct-16	-366	0%
ARA-C6150	Ramp A - Backfill to Walls	111	30-Aug-17	111	12-Jan-18	07-Jun-16	19-Oct-16	-366	0%
Viaduct B - Bridge B1									
Pier B17 (B1c)									
Pier									
B17-C4110	B17 - Pier Scaffold, Rebar, Formwork, Concrete (1st Lift)	7	17-Jun-17 A	15	07-Aug-17	02-Jul-20	18-Jul-20	872	85%
B17-C4210	B17 - Pier Scaffold, Rebar, Formwork, Concrete (2nd Lift)	10	17-Jun-17 A	15	07-Aug-17	12-Apr-16	28-Apr-16	-378	85%
B17-C4310	B17 - Pier Curing, Remove Formwork	3	08-Aug-17	3	10-Aug-17	29-Apr-16	03-May-16	-378	0%
Pier Head Segment									
B17-C5210	B17 - PHS - Temporary Platform	3	11-Aug-17	3	14-Aug-17	04-May-16	06-May-16	-378	0%
B17-C5310	B17 - Install PH Segment & Fix (1 nr)	2	15-Aug-17	2	16-Aug-17	07-May-16	09-May-16	-378	0%
B17-C5410	B17 - PHS Diaphragm - Rebar, Formwork, Concreting	22	17-Aug-17	22	11-Sep-17	10-May-16	04-Jun-16	-378	0%
B17-C5420	B17 - PHS Diaphragm - Curing & Striking of Forms	3	12-Sep-17	3	14-Sep-17	06-Jun-16	08-Jun-16	-378	0%
Pier B18 (B1b)									
Pier									
B18-C4110	B18 - Pier Scaffold, Rebar, Formwork, Concrete	7	15-Jun-17 A	26	19-Aug-17	13-Jun-20	15-Jul-20	858	35%
B18-C4210	B18 - Pier Curing, Remove Formwork	3	21-Aug-17	3	23-Aug-17	16-Jul-20	18-Jul-20	858	0%
Pier Head Segment									
B18-C5210	B18 - PHS - Construct Abutment Wall	24	15-Jun-17 A	26	19-Aug-17	03-Jun-16	05-Jul-16	-335	35%
B18-C5310	B18 - PHS Lift & Temp Support (1 seg)	2	21-Aug-17	2	22-Aug-17	06-Jul-16	07-Jul-16	-335	0%



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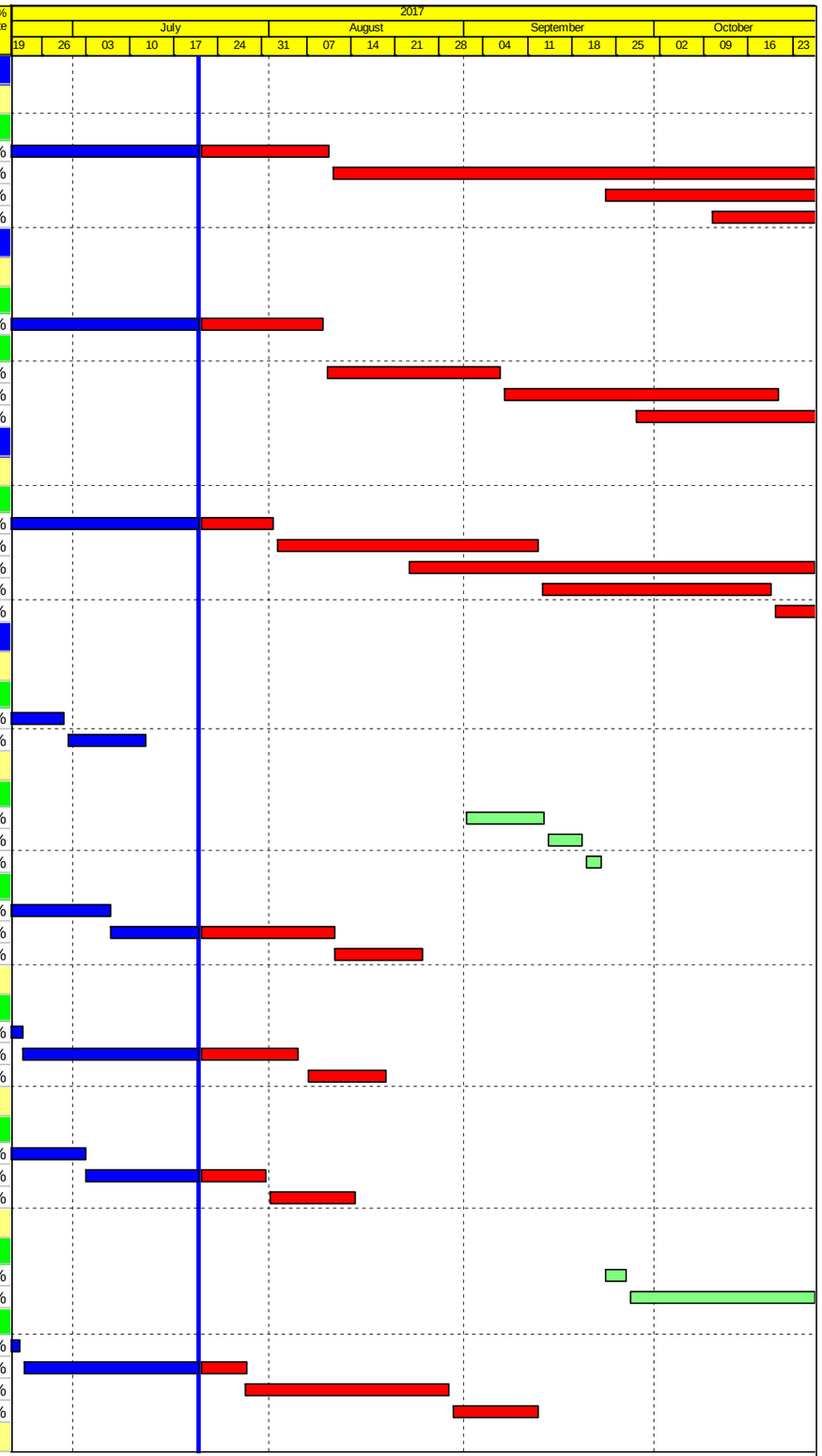
Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
Ramp B									
Abutment & Approach Ramp B									
Ramp Structure									
ARB-C6120	Ramp B - RE Wall - Panel Installation from 1st Row to 2nd Row	66	12-Jun-17 A	18	10-Aug-17	29-Mar-16	19-Apr-16	-389	95%
ARB-C6130	Ramp B - RE Wall - Panel Installation from 3rd Row to 6th Row	66	11-Aug-17	66	30-Oct-17	20-Apr-16	09-Jul-16	-389	0%
ARB-C6140	Ramp B - RC Wall - Base Slab	92	23-Sep-17	92	15-Jan-18	04-Jun-16	22-Sep-16	-389	0%
ARB-C6150	Ramp B - RC Wall - Side Wall	92	10-Oct-17	92	29-Jan-18	20-Jun-16	07-Oct-16	-389	0%
Ramp C									
Abutment & Approach Ramp C									
Ramp Structure									
ARC-C6180	Ramp C - RC Wall - Remaining Bays at 800 Tee	36	29-May-17 A	17	09-Aug-17	09-May-16	28-May-16	-356	50%
Ramp Finishes, E&M & Roadworks									
ARC-C7715	Ramp C - Parapet Panels (Remaining)	24	10-Aug-17	24	06-Sep-17	30-May-16	27-Jun-16	-356	0%
ARC-C7720	Ramp C - Ducting, Gantry & TCSS Provisions (KD4)	36	07-Sep-17	36	20-Oct-17	28-Jun-16	09-Aug-16	-356	0%
ARC-C7810	Ramp C - Drainage, Fire Main & E&M Services	54	28-Sep-17	54	02-Dec-17	20-Jul-16	21-Sep-16	-356	0%
Ramp D									
Abutment & Approach Ramp D									
Ramp Finishes, E&M & Roadworks									
ARD-C7710	Ramp D - Parapet Panels	42	15-Oct-16 A	10	01-Aug-17	20-Jan-16	30-Jan-16	-442	90%
ARD-C7720	Ramp D - Ducting, Gantry & TCSS Provisions (KD4)	36	02-Aug-17	36	12-Sep-17	01-Feb-16	16-Mar-16	-442	0%
ARD-C7810	Ramp D - Drainage, Fire Main & E&M Services	54	23-Aug-17	54	26-Oct-17	25-Feb-16	03-May-16	-442	0%
ARD-C7820	Ramp D - Railings, Light Poles, Signs & Street Furniture	30	13-Sep-17	30	19-Oct-17	17-Mar-16	25-Apr-16	-442	0%
ARD-C7830	Ramp D - Deck Paving & Roadmarking (KD14)	18	20-Oct-17	18	10-Nov-17	26-Apr-16	18-May-16	-442	0%
Viaduct E - Bridge E5, E6, E7, E8									
Pier E11B (E5e6a)									
Pier Head Segment									
E11B-C5145	E11B - Install Infill Segments (6 nr) - THB	24	22-May-17 A	0	29-Jun-17 A				100%
E11B-C5150	E11B - IFS Stitch & Remove Equipment	10	30-Jun-17 A	0	12-Jul-17 A				100%
Pier E12A (E8b)									
Pile Cap Dolphin									
E12A-C3130	E12A- Dolphin - Marine Pile Cap - Fixings, Dewatering & Trim Pile	11	01-Sep-17*	11	13-Sep-17	18-Sep-17	29-Sep-17	14	0%
E12A-C3150	E12A - Dolphin - Marine Pile Cap - Rebar, Concreting	5	14-Sep-17	5	19-Sep-17	30-Sep-17	07-Oct-17	14	0%
E12A-C3160	E12A - Dolphin - Marine Pile Cap - CJ preparation & Curing	3	20-Sep-17	3	22-Sep-17	09-Oct-17	11-Oct-17	14	0%
Pier Head Segment / Infill Segment									
E12A-C5140	E12A - Remove Rail Beams, Spreader Beams, Brackets	15	21-Jun-17 A	0	07-Jul-17 A				100%
E12A-C5145	E12A - Install Infill Segments (6 nr) - THB	26	07-Jul-17 A	18	11-Aug-17	06-Oct-16	28-Oct-16	-231	0%
E12A-C5150	E12A - IFS Stitch & Remove Equipment	12	11-Aug-17	12	25-Aug-17	29-Oct-16	11-Nov-16	-231	0%
Pier E12B (E7b)									
Pier Head Segment / Infill Segment									
E12B-C5140	E12B - Remove Rail Beams, Spreader Beams, Brackets	15	15-Jun-17 A	0	23-Jun-17 A				100%
E12B-C5145	E12B - Install Infill Segments (6 nr) - THB	32	23-Jun-17 A	14	05-Aug-17	13-Mar-17	28-Mar-17	-104	0%
E12B-C5150	E12B - IFS Stitch & Remove Equipment	12	07-Aug-17	12	19-Aug-17	29-Mar-17	12-Apr-17	-104	0%
Pier E12C (E6b)									
Pier Head Segment / Infill Segment									
E12C-C5140	E12C - Remove Rail Beams, Spreader Beams, Brackets, Crane	5	06-Jun-17 A	0	03-Jul-17 A				100%
E12C-C5145	E12C - Install Infill Segments (6 nr) - THB	28	03-Jul-17 A	9	31-Jul-17	12-May-17	22-May-17	-58	0%
E12C-C5150	E12C - IFS Stitch & Remove Equipment	12	01-Aug-17	12	14-Aug-17	23-May-17	06-Jun-17	-58	0%
Pier E12D (E5b)									
Pile Cap Dolphin									
E12D-C3070	E12D Dolphin - Marine Pile Cap - Collar frame to perm. casing of pile	3	23-Sep-17*	3	26-Sep-17	12-Oct-17	14-Oct-17	14	0%
E12D-C3080	E12D Dolphin - Marine Pile Cap - Install precast shell in position	24	27-Sep-17	24	26-Oct-17	16-Oct-17	13-Nov-17	14	0%
Pier Head Segment / Infill Segment									
E12D-C5130	E12D - Diaphragm of PHS - Formwork, Rebar, Concreting	76	07-Mar-17 A	0	22-Jun-17 A				100%
E12D-C5140	E12D - Remove Rail Beams, Spreader Beams, Brackets	15	23-Jun-17 A	7	28-Jul-17	12-Nov-16	19-Nov-16	-201	0%
E12D-C5145	E12D - Install Infill Segments (6 nr) - THB	28	28-Jul-17	28	29-Aug-17	19-Nov-16	21-Dec-16	-201	0%
E12D-C5150	E12D - IFS Stitch & Remove Equipment	12	30-Aug-17	12	12-Sep-17	22-Dec-16	07-Jan-17	-201	0%
Pier E13A (E8c)									



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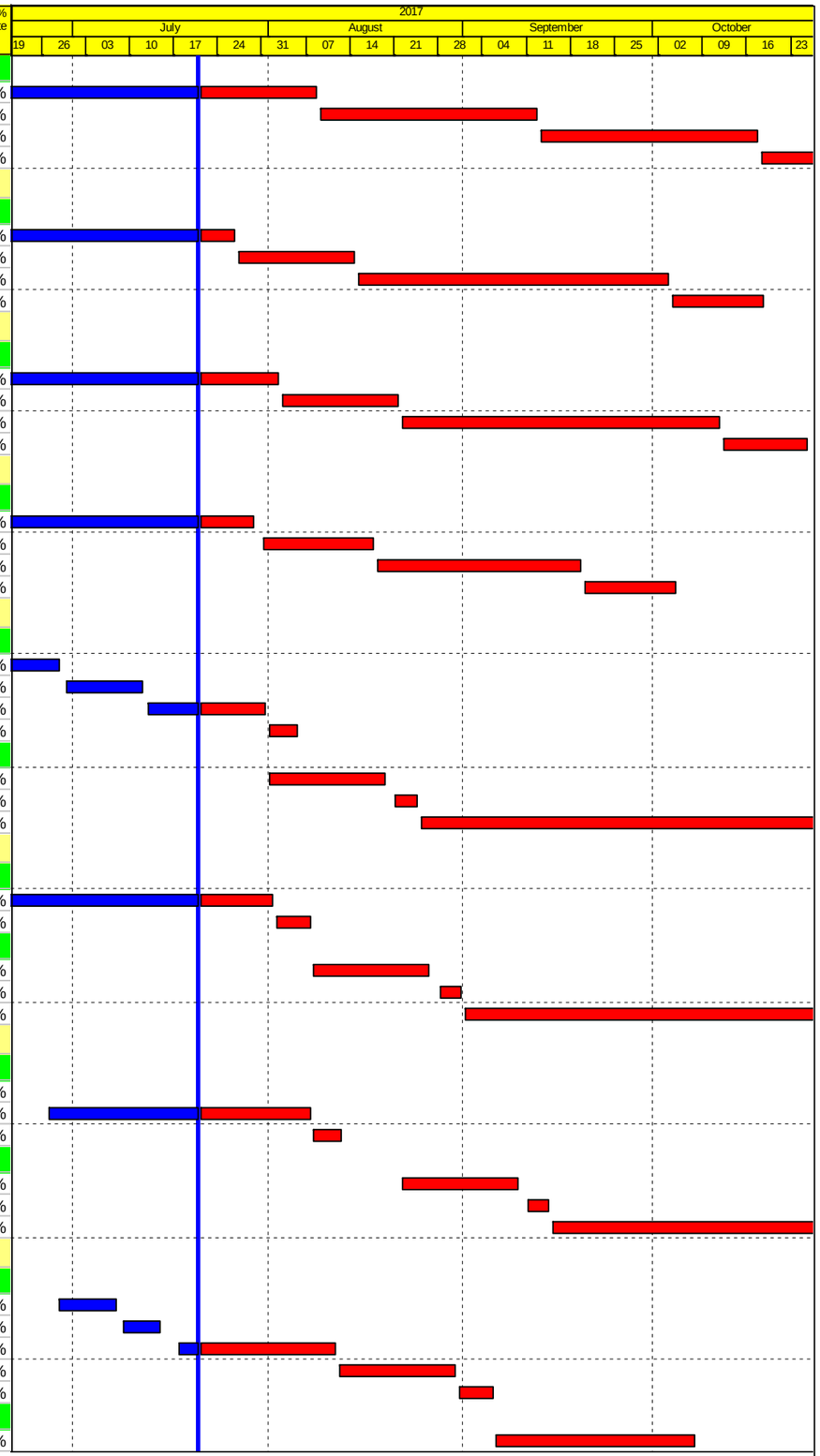
Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
Pier Head Segment / Infill Segment									
E13A-C5130	E13A - Diaphragm of PHS - Formwork, Rebar, Concreting	76	01-Apr-17 A	16	08-Aug-17	07-Mar-17	24-Mar-17	-109	80%
E13A-C5140	E13A - Remove Rail Beams, Spreader Beams, Brackets, Crane	30	09-Aug-17	30	12-Sep-17	25-Mar-17	05-May-17	-109	0%
E13A-C5145	E13A - Install Infill Segments (6 nr) - THB	28	13-Sep-17	28	17-Oct-17	06-May-17	08-Jun-17	-109	0%
E13A-C5150	E13A - IFS Stitch & Remove Equipment	12	18-Oct-17	12	01-Nov-17	09-Jun-17	22-Jun-17	-109	0%
Pier E13B (E7c)									
Pier Head Segment / Infill Segment									
E13B-C5130	E13B - Diaphragm of PHS - Formwork, Rebar, Concreting	76	21-Mar-17 A	5	26-Jul-17	14-Oct-16	19-Oct-16	-226	90%
E13B-C5140	E13B - Remove Rail Beams, Spreader Beams, Brackets	16	27-Jul-17	16	14-Aug-17	20-Oct-16	07-Nov-16	-226	0%
E13B-C5145	E13B - Install Infill Segments (6 nr) - THB	42	15-Aug-17	42	03-Oct-17	08-Nov-16	28-Dec-16	-226	0%
E13B-C5150	E13B - IFS Stitch & Remove Equipment	12	04-Oct-17	12	18-Oct-17	29-Dec-16	12-Jan-17	-226	0%
Pier E13C (E6c)									
Pier Head Segment / Infill Segment									
E13C-C5130	E13C - Diaphragm of PHS - Formwork, Rebar, Concreting	76	28-Mar-17 A	11	02-Aug-17	27-Oct-16	08-Nov-16	-215	85%
E13C-C5140	E13C - Remove Rail Beams, Spreader Beams, Brackets	16	03-Aug-17	16	21-Aug-17	09-Nov-16	26-Nov-16	-215	0%
E13C-C5145	E13C - Install Infill Segments (6 nr) - THB	42	22-Aug-17	42	11-Oct-17	28-Nov-16	18-Jan-17	-215	0%
E13C-C5150	E13C - IFS Stitch & Remove Equipment	12	12-Oct-17	12	25-Oct-17	19-Jan-17	04-Feb-17	-215	0%
Pier E13D (E5c)									
Pier Head Segment / Infill Segment									
E13D-C5130	E13D - Diaphragm of PHS - Formwork, Rebar, Concreting	76	04-Apr-17 A	8	29-Jul-17	21-Nov-16	29-Nov-16	-194	95%
E13D-C5140	E13D - Remove Rail Beams, Spreader Beams, Brackets, Crane	16	31-Jul-17	16	17-Aug-17	30-Nov-16	17-Dec-16	-194	0%
E13D-C5145	E13D - Install Infill Segments (6 nr) - THB	28	18-Aug-17	28	19-Sep-17	19-Dec-16	23-Jan-17	-194	0%
E13D-C5150	E13D - IFS Stitch & Remove Equipment	12	20-Sep-17	12	04-Oct-17	24-Jan-17	09-Feb-17	-194	0%
Pier E14A (E8d)									
Pier									
E14A-C4310	E14A Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	15	16-Jun-17 A	0	29-Jun-17 A				100%
E14A-C4410	E14A Pier - Scaffold, Rebar, Formwork, Concrete (4th Lift)	16	30-Jun-17 A	0	12-Jul-17 A				100%
E14A-C4510	E14A Pier - Scaffold, Rebar, Formwork, Concrete (5th Lift)	16	13-Jul-17 A	9	31-Jul-17	17-Sep-16	27-Sep-16	-247	40%
E14A-C4610	E14A Pier - Curing, Remove Formwork	5	01-Aug-17	5	05-Aug-17	28-Sep-16	04-Oct-16	-247	0%
Pier Head Segment									
E14A-C5110	E14A Pier Head - Scaffold, Temp Works	17	01-Aug-17	17	19-Aug-17	28-Sep-16	19-Oct-16	-247	0%
E14A-C5210	E14A Pier Head - Erect PH Segment (2 nr)	4	21-Aug-17	4	24-Aug-17	20-Oct-16	24-Oct-16	-247	0%
E14A-C5310	E14A Pier Head - Construct Diaphragm (2nd Cast) in PHS	65	25-Aug-17	65	11-Nov-17	25-Oct-16	11-Jan-17	-247	0%
Pier E14B (E7d)									
Pier									
E14B-C4310	E14B Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	18	14-Jun-17 A	10	01-Aug-17	21-Sep-16	03-Oct-16	-244	85%
E14B-C4410	E14B Pier - Curing, Remove Formwork	5	02-Aug-17	5	07-Aug-17	04-Oct-16	08-Oct-16	-244	0%
Pier Head Segment									
E14B-C5110	E14B Pier Head - Scaffold, Temp Works	17	08-Aug-17	17	26-Aug-17	11-Oct-16	29-Oct-16	-244	0%
E14B-C5210	E14B Pier Head - Erect PH Segment (2 nr)	4	28-Aug-17	4	31-Aug-17	31-Oct-16	03-Nov-16	-244	0%
E14B-C5310	E14B Pier Head - Construct Diaphragm (2nd Cast) in PHS	65	01-Sep-17	65	18-Nov-17	04-Nov-16	21-Jan-17	-244	0%
Pier E14C (E6d)									
Pier									
E14C-C4310	E14C Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	18	06-Jun-17 A	0	21-Jun-17 A				100%
E14C-C4410	E14C Pier - Scaffold, Rebar, Formwork, Concrete (4th Lift)	18	27-Jun-17 A	15	07-Aug-17	21-Feb-17	09-Mar-17	-121	15%
E14C-C4510	E14C Pier - Curing, Remove Formwork	5	08-Aug-17	5	12-Aug-17	10-Mar-17	15-Mar-17	-121	0%
Pier Head Segment									
E14C-C5110	E14C Pier Head - Scaffold, Temp Works	17	22-Aug-17	17	09-Sep-17	16-Mar-17	05-Apr-17	-128	0%
E14C-C5210	E14C Pier Head - Erect PH Segment (2 nr)	4	11-Sep-17	4	14-Sep-17	06-Apr-17	10-Apr-17	-128	0%
E14C-C5310	E14C Pier Head - Construct Diaphragm (2nd Cast) in PHS	65	15-Sep-17	65	02-Dec-17	11-Apr-17	03-Jul-17	-128	0%
Pier E14D (E5d)									
Pier									
E14D-C4110	E14D Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	29-Jun-17 A	0	08-Jul-17 A				100%
E14D-C4210	E14D Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	16	09-Jul-17 A	0	15-Jul-17 A				100%
E14D-C4310	E14D Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	16	18-Jul-17 A	19	11-Aug-17	26-Aug-16	17-Sep-16	-265	15%
E14D-C4410	E14D Pier - Scaffold, Rebar, Formwork, Concrete (4th Lift)	16	12-Aug-17	16	30-Aug-17	19-Sep-16	07-Oct-16	-265	0%
E14D-C4510	E14D Pier - Curing, Remove Formwork	5	31-Aug-17	5	05-Sep-17	08-Oct-16	14-Oct-16	-265	0%
Pier Head Segment									
E14D-C5110	E14D Pier Head - Erect Steel Temp Tower on E14D	26	06-Sep-17	26	07-Oct-17	15-Oct-16	14-Nov-16	-265	0%



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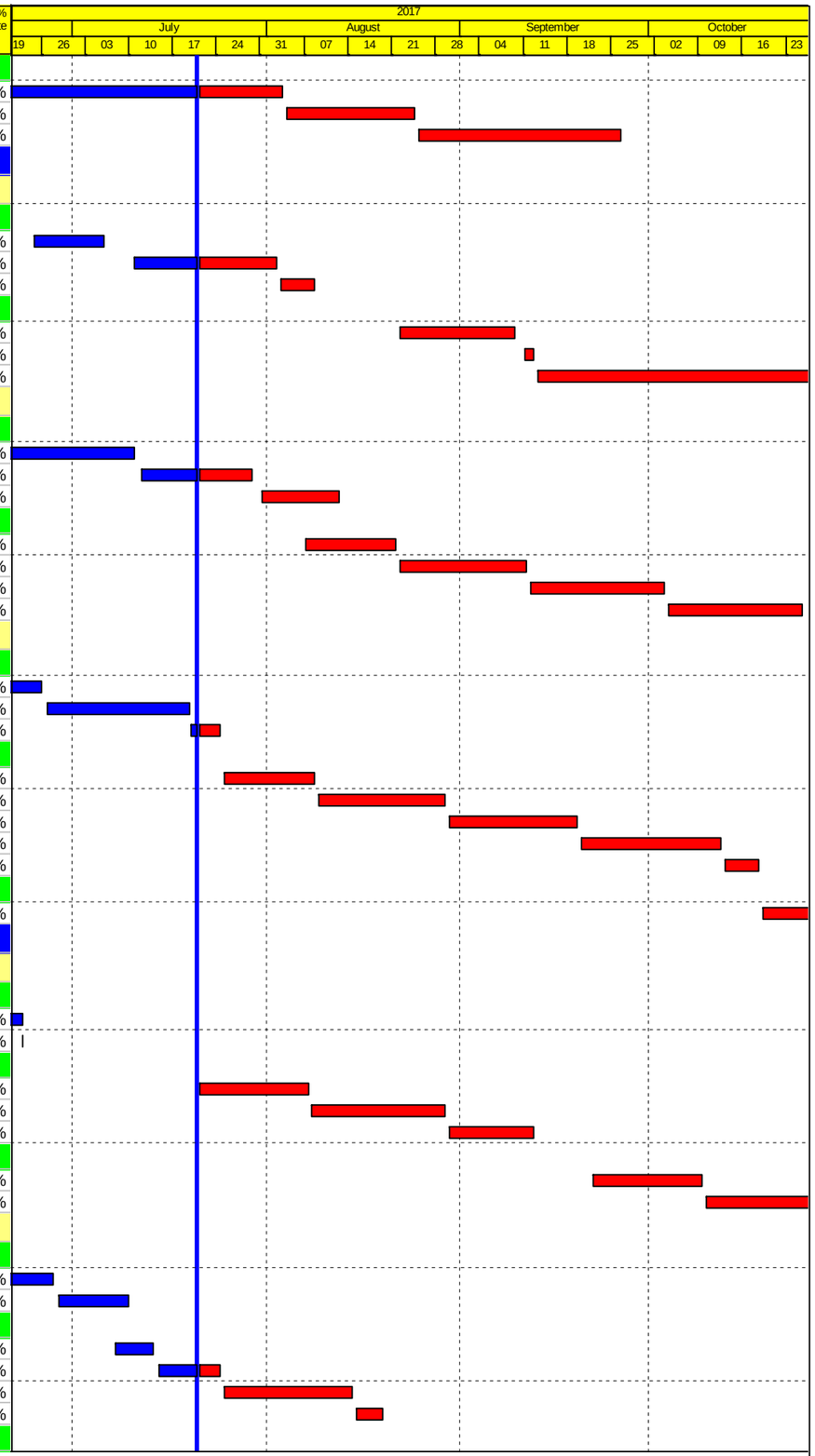
Layout: J3518-DWP-3MRP Submission - M50
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 4 of 11 Pages)
(Progress as of 21-Jul-17)

Date	Revision	Checked	Approved
31-May-...		PKN	GL
04-Jul-17		PKN	GL
01-Aug-17		PKN	HF

DWG. No.:
J3518/GCL/PGM/3MRP-M50

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
Temporary Tower Between Pier E14D & E13D									
E14D-C5720	E14D-E13D Temp Tower - Install Pipe Piles (8 nr)	45	19-Jun-17 A	12	03-Aug-17	15-Sep-16	29-Sep-16	-248	90%
E14D-C5730	E14D-E13D Temp Tower - Reinstate Rock Armour	18	04-Aug-17	18	24-Aug-17	30-Sep-16	22-Oct-16	-248	0%
E14D-C5740	E14D-E13D Temp Tower - Erect Steel Tower	28	25-Aug-17	28	26-Sep-17	24-Oct-16	24-Nov-16	-248	0%
Viaduct F - Bridge F1									
Pier F1 (F1b)									
Pier									
F01-C4410	F1 Pier - Scaffold, Rebar, Formwork, Concrete (4th Lift)	18	25-Jun-17 A	0	06-Jul-17 A				100%
F01-C4510	F1 Pier - Scaffold, Rebar, Formwork, Concrete (5th Lift)	18	11-Jul-17 A	11	02-Aug-17	05-Oct-16	18-Oct-16	-233	40%
F01-C4610	F1 Pier - Curing, Remove Formwork	5	03-Aug-17	5	08-Aug-17	19-Oct-16	24-Oct-16	-233	0%
Pier Head Segment									
F01-C5110	F1 Pier Head - Scaffold, Temp Works	17	22-Aug-17	17	09-Sep-17	25-Oct-16	12-Nov-16	-244	0%
F01-C5210	F1 Pier Head - Erect PH Segment (1 nr)	2	11-Sep-17	2	12-Sep-17	14-Nov-16	15-Nov-16	-244	0%
F01-C5310	F1 Pier Head - Construct Diaphragm (2nd Cast) in PHS	41	13-Sep-17	41	02-Nov-17	16-Nov-16	05-Jan-17	-244	0%
Pier F2 (F1c)									
Pile Cap									
F02-C3110	F2 Pile Cap - Excavate, Break Pile Head	15	17-Jun-17 A	0	11-Jul-17 A				100%
F02-C3210	F2 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	12-Jul-17 A	8	29-Jul-17	13-Aug-16	22-Aug-16	-276	90%
F02-C3310	F2 Pile Cap - Curing, Remove Formwork, Backfill	12	31-Jul-17	12	12-Aug-17	23-Aug-16	05-Sep-16	-276	0%
Pier									
F02-C4110	F2 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	07-Aug-17	13	21-Aug-17	30-Aug-16	13-Sep-16	-276	0%
F02-C4210	F2 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	22-Aug-17	18	11-Sep-17	14-Sep-16	06-Oct-16	-276	0%
F02-C4310	F2 Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	18	12-Sep-17	18	03-Oct-17	07-Oct-16	28-Oct-16	-276	0%
F02-C4410	F2 Pier - Scaffold, Rebar, Formwork, Concrete (4th Lift)	18	04-Oct-17	18	25-Oct-17	29-Oct-16	18-Nov-16	-276	0%
Pier F3 (F1d)									
Pile Cap									
F03-C3110	F3 Pile Cap - Excavate, Break Pile Head	15	06-Jun-17 A	0	26-Jun-17 A				100%
F03-C3210	F3 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	27-Jun-17 A	0	19-Jul-17 A				100%
F03-C3310	F3 Pile Cap - Curing, Remove Formwork, Backfill	12	20-Jul-17 A	3	24-Jul-17	22-Nov-16	24-Nov-16	-193	80%
Pier									
F03-C4110	F3 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	25-Jul-17	13	08-Aug-17	25-Nov-16	09-Dec-16	-193	0%
F03-C4210	F3 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	09-Aug-17	18	29-Aug-17	10-Dec-16	03-Jan-17	-193	0%
F03-C4310	F3 Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	18	30-Aug-17	18	19-Sep-17	04-Jan-17	24-Jan-17	-193	0%
F03-C4410	F3 Pier - Scaffold, Rebar, Formwork, Concrete (4th Lift)	18	20-Sep-17	18	12-Oct-17	25-Jan-17	17-Feb-17	-193	0%
F03-C4510	F3 Pier - Curing, Remove Formwork	5	13-Oct-17	5	18-Oct-17	18-Feb-17	23-Feb-17	-193	0%
Pier Head Segment									
F03-C5110	F3 Pier Head - Scaffold, Temp Works	17	19-Oct-17	17	08-Nov-17	24-Feb-17	15-Mar-17	-193	0%
Viaduct F - Bridge F2									
Pier F4 (F2b)									
Foundation - Bored Piles									
F04-C2210	F4 Fr PIle - Curing & Sonic Test	18	18-Apr-17 A	0	23-Jun-17 A				100%
F04-C2220	F4 Fr PIle - Full Depth Core & Test (N/A)	0	23-Jun-17 A	0	23-Jun-17 A				100%
Pile Cap									
F04-C3110	F4 Pile Cap - Excavate, Break Pile Head	15	21-Jul-17*	15	07-Aug-17	08-Jul-17	25-Jul-17	-11	0%
F04-C3210	F4 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	08-Aug-17	19	29-Aug-17	26-Jul-17	16-Aug-17	-11	0%
F04-C3310	F4 Pile Cap - Curing, Remove Formwork, Backfill	12	30-Aug-17	12	12-Sep-17	17-Aug-17	30-Aug-17	-11	0%
Pier									
F04-C4110	F4 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	22-Sep-17*	13	09-Oct-17	09-Sep-17	23-Sep-17	-11	0%
F04-C4210	F4 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	10-Oct-17	18	31-Oct-17	25-Sep-17	17-Oct-17	-11	0%
Pier F5 (F2c)									
Pile Cap									
F05-C3210	F5 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	05-Jun-17 A	0	28-Jun-17 A				100%
F05-C3310	F5 Pile Cap - Curing, Remove Formwork, Backfill	12	29-Jun-17 A	0	10-Jul-17 A				100%
Pier									
F05-C4110	F5 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	08-Jul-17 A	0	14-Jul-17 A				100%
F05-C4210	F5 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	15-Jul-17 A	3	24-Jul-17	22-Sep-16	24-Sep-16	-243	90%
F05-C4310	F5 Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	18	25-Jul-17	18	14-Aug-17	26-Sep-16	18-Oct-16	-243	0%
F05-C4410	F5 Pier - Curing, Remove Formwork	5	15-Aug-17	5	19-Aug-17	19-Oct-16	24-Oct-16	-243	0%
Pier Head Segment									



Actual Work
Planned Bar
Critical Bar
Milestone

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Layout: J3518-DWP-3MRP Submission - M50
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
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J3518/GCL/PGM/3MRP-M50

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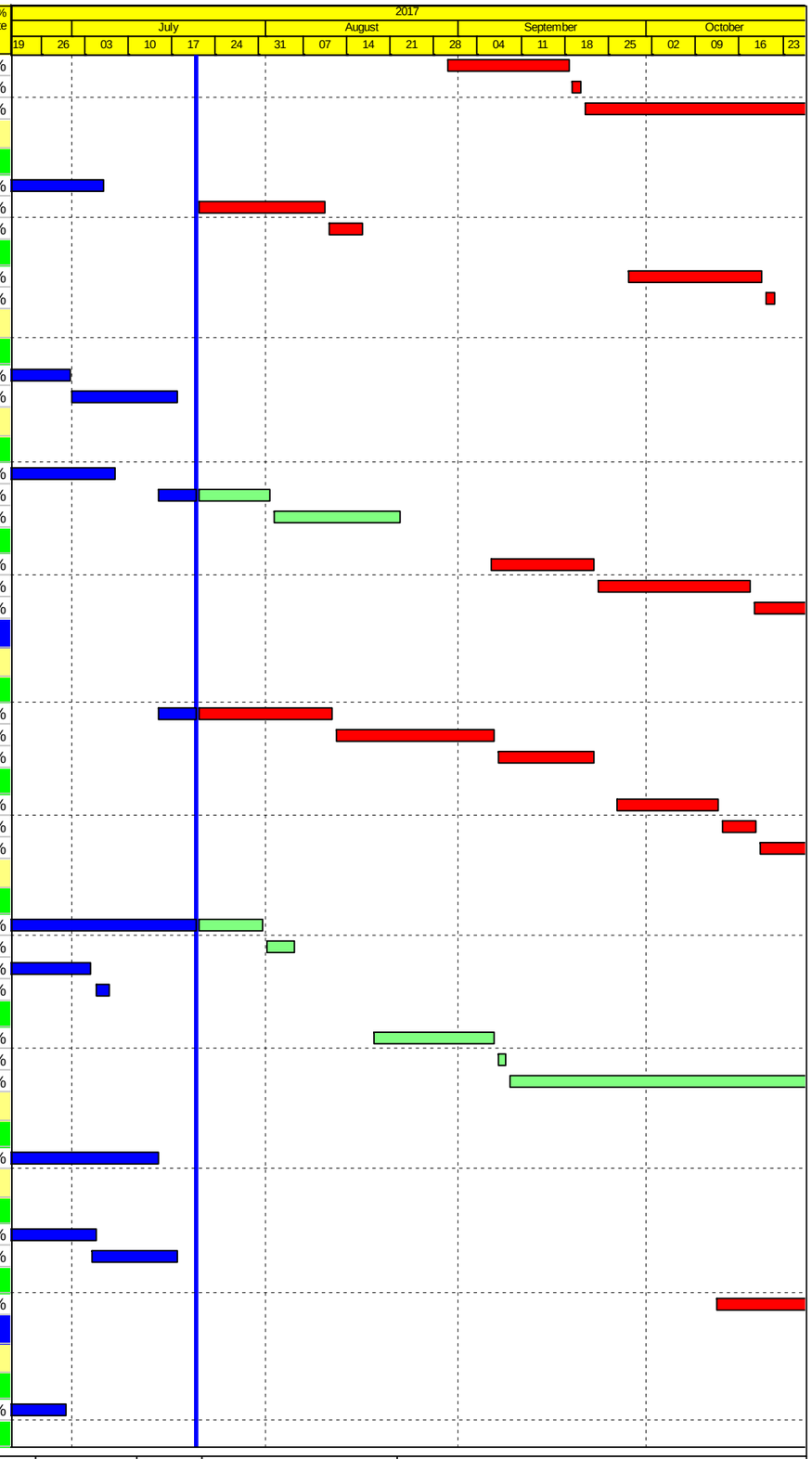
F05-C5110	F5 Pier Head - Scaffold, Temp Works	17	30-Aug-17	17	18-Sep-17	25-Oct-16	12-Nov-16	-251	0%
F05-C5210	F5 Pier Head - Erect PH Segment (1 nr)	2	19-Sep-17	2	20-Sep-17	14-Nov-16	15-Nov-16	-251	0%
F05-C5310	F5 Pier Head - Construct Diaphragm (2nd Cast) in PHS	41	21-Sep-17	41	10-Nov-17	16-Nov-16	05-Jan-17	-251	0%
Pier F6 (F2d)									
Pier									
F06-C4110	F6 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	15-Jun-17 A	0	06-Jul-17 A				100%
F06-C4210	F6 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	21-Jul-17	18	10-Aug-17	19-May-17	09-Jun-17	-52	0%
F06-C4310	F6 Pier - Curing, Remove Formwork	5	11-Aug-17	5	16-Aug-17	10-Jun-17	15-Jun-17	-52	0%
Pier Head Segment									
F06-C5110	F6 Pier Head - Scaffold, Temp Works	17	28-Sep-17*	17	19-Oct-17	16-Jun-17	06-Jul-17	-88	0%
F06-C5210	F6 Pier Head - Erect PH Segment (1 nr)	2	20-Oct-17	2	21-Oct-17	07-Jul-17	08-Jul-17	-88	0%
Pier F7 (F2e)									
Pier									
F07-C4210	F7 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	18-May-17 A	0	30-Jun-17 A				100%
F07-C4310	F7 Pier - Curing, Remove Formwork	5	01-Jul-17 A	0	18-Jul-17 A				100%
Pier F8 (F2f)									
Foundation - Bored Piles									
F08-C2140	F8 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (3rd) P3	18	21-Jun-17 A	0	08-Jul-17 A				100%
F08-C2150	F8 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (3rd) P4	18	15-Jul-17 A	10	01-Aug-17	22-Jul-17	02-Aug-17	1	75%
F08-C2210	F8 Fr PIle - Curing & Sonic Test	18	02-Aug-17	18	22-Aug-17	03-Aug-17	23-Aug-17	1	0%
Pile Cap									
F08-C3110	F8 Pile Cap - Excavate, Break Pile Head	15	06-Sep-17*	15	22-Sep-17	24-Aug-17	09-Sep-17	-11	0%
F08-C3210	F8 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	23-Sep-17	19	17-Oct-17	11-Sep-17	03-Oct-17	-11	0%
F08-C3310	F8 Pile Cap - Curing, Remove Formwork, Backfill	12	18-Oct-17	12	01-Nov-17	04-Oct-17	18-Oct-17	-11	0%
Viaduct F - Bridge F3									
Pier F9 (F3d)									
Pile Cap									
F09-C3110	F9 Pile Cap - Excavate, Break Pile Head	24	15-Jul-17 A	19	11-Aug-17	05-Jun-17	26-Jun-17	-39	20%
F09-C3210	F9 Pile Cap - Blinding, Formwork, Rebar, Concrete	22	12-Aug-17	22	06-Sep-17	27-Jun-17	22-Jul-17	-39	0%
F09-C3310	F9 Pile Cap - Curing, Remove Formwork, Backfill	14	07-Sep-17	14	22-Sep-17	24-Jul-17	08-Aug-17	-39	0%
Pier									
F09-C4110	F9 Pier - Scaffold, Rebar, Formwork, Concrete (Pier A)	13	26-Sep-17*	13	12-Oct-17	09-Aug-17	23-Aug-17	-41	0%
F09-C4210	F9 Pier - Curing, Remove Formwork (Pier A)	5	13-Oct-17	5	18-Oct-17	24-Aug-17	29-Aug-17	-41	0%
F09-C4310	F9 Pier - Scaffold, Rebar, Formwork, Concrete (Pier B)	13	19-Oct-17	13	03-Nov-17	30-Aug-17	13-Sep-17	-41	0%
Pier F10 (F3c)									
Pier									
F10-C4110	F10 Pier - Scaffold, Rebar, Formwork, Concrete (Pier A)	13	16-Jun-17 A	9	31-Jul-17	03-Jul-20	13-Jul-20	873	90%
F10-C4210	F10 Pier - Curing, Remove Formwork (Pier A)	5	01-Aug-17	5	05-Aug-17	14-Jul-20	18-Jul-20	873	0%
F10-C4310	F10 Pier - Scaffold, Rebar, Formwork, Concrete (Pier B)	13	15-Jun-17 A	0	04-Jul-17 A				100%
F10-C4410	F10 Pier - Curing, Remove Formwork (Pier B)	5	05-Jul-17 A	0	07-Jul-17 A				100%
Pier Head Segment									
F10-C5110	F10 Pier Head - Scaffold, Temp Works	17	18-Aug-17*	17	06-Sep-17	20-Sep-17	11-Oct-17	28	0%
F10-C5210	F10 Pier Head - Erect PH Segment (2 nr)	2	07-Sep-17	2	08-Sep-17	12-Oct-17	13-Oct-17	28	0%
F10-C5310	F10 Pier Head - Construct Diaphragm (2nd Cast) in PHS	41	09-Sep-17	41	30-Oct-17	14-Oct-17	01-Dec-17	28	0%
Pier F11 (F3b)									
Pile Cap									
F11-C3310	F11 Pile Cap - Curing, Remove Formwork, Backfill	14	13-Jun-17 A	0	15-Jul-17 A				100%
Pier F12 (F3a)									
Foundation - Bored Piles									
F12-C2150	F12 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (3rd) P4	17	08-Jun-17 A	0	05-Jul-17 A				100%
F12-C2210	F12 Fr PIle - Curing & Sonic Test	18	04-Jul-17 A	0	18-Jul-17 A				100%
Pile Cap									
F12-C3110	F12 Pile Cap - Excavate, Break Pile Head	24	12-Oct-17*	24	09-Nov-17	08-Aug-17	04-Sep-17	-54	0%
Viaduct F - Bridge F4									
Pier F16 (F5a/F4a)									
Foundation - Bored Piles									
F16-C2210	F16 EB PIle - Curing & Sonic Test	18	12-Jun-17 A	0	30-Jun-17 A				100%
Pile Cap									



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: TMCLK-DWPI-1-M50
Layout: J3518-DWP-3MRP Submission - M50
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Tuen Mun - Chek Lap Kok Link - Southern Connection
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(Progress as of 21-Jul-17)

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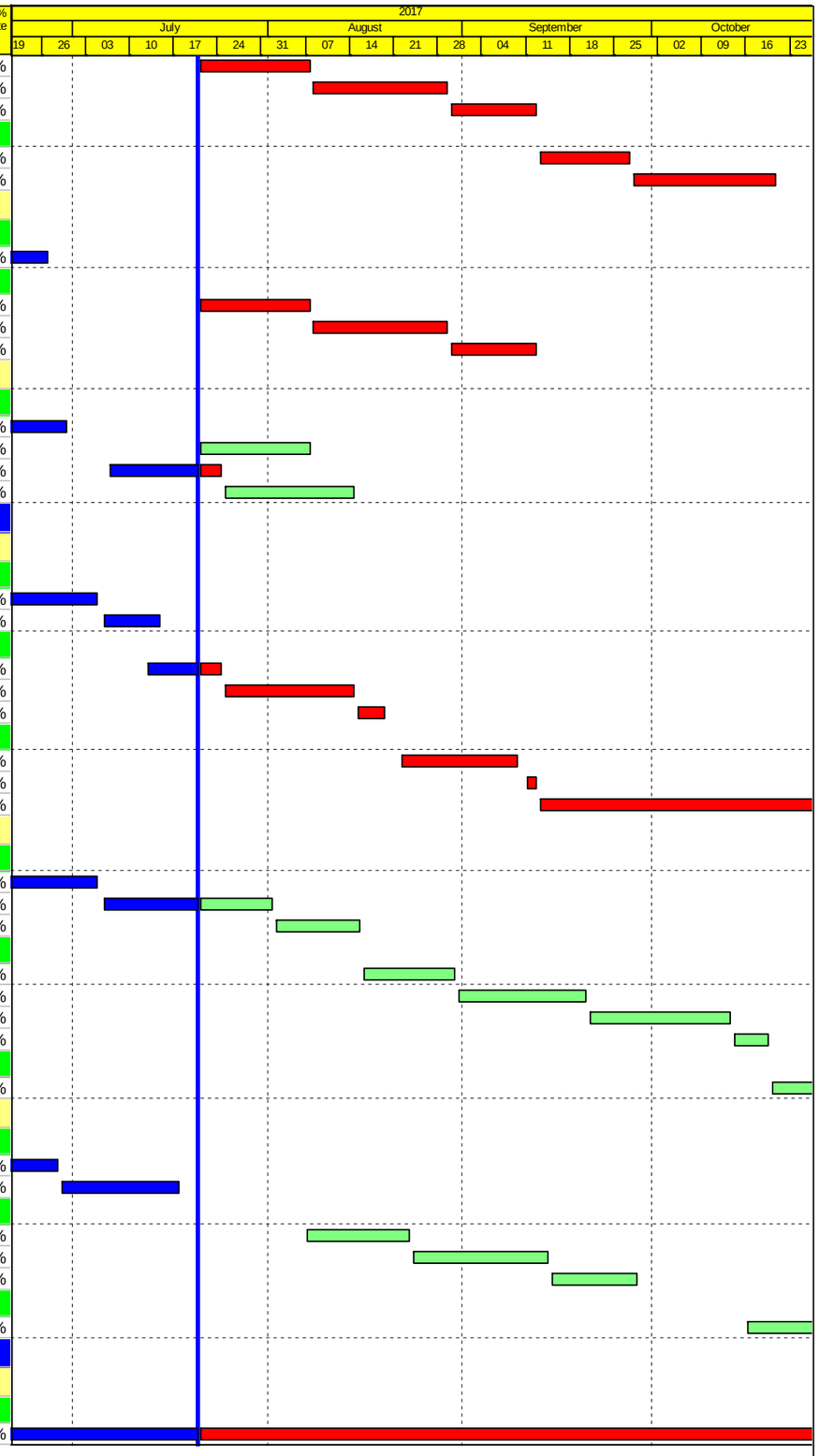
J3518/GCL/PGM/3MRP-M50

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
F16-C3110	F16 Pile Cap - Excavate, Break Pile Head	15	21-Jul-17*	15	07-Aug-17	25-Mar-17	12-Apr-17	-93	0%
F16-C3210	F16 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	08-Aug-17	19	29-Aug-17	13-Apr-17	10-May-17	-93	0%
F16-C3310	F16 Pile Cap - Curing, Remove Formwork, Backfill	12	30-Aug-17	12	12-Sep-17	11-May-17	24-May-17	-93	0%
Pier									
F16-C4110	F16 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	13-Sep-17*	13	27-Sep-17	25-May-17	09-Jun-17	-93	0%
F16-C4210	F16 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	28-Sep-17	18	20-Oct-17	10-Jun-17	30-Jun-17	-93	0%
Pier F17 (F4b)									
Foundation - Bored Piles									
F17-C2210	F17 EB PIle - Curing & Sonic Test	18	10-May-17 A	0	27-Jun-17 A				100%
Pile Cap									
F17-C3110	F17 Pile Cap - Excavate, Break Pile Head	15	21-Jul-17	15	07-Aug-17	12-Apr-17	04-May-17	-79	0%
F17-C3210	F17 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	08-Aug-17	19	29-Aug-17	05-May-17	26-May-17	-79	0%
F17-C3310	F17 Pile Cap - Curing, Remove Formwork, Backfill	12	30-Aug-17	12	12-Sep-17	27-May-17	10-Jun-17	-79	0%
Pier F18 (F4c)									
Foundation - Bored Piles									
F18-C2130	F18 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (2nd) P4	18	08-Jun-17 A	0	30-Jun-17 A				100%
F18-C2140	F18 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (3rd) P3	15	21-Jul-17*	15	07-Aug-17	02-Jul-20	18-Jul-20	872	0%
F18-C2150	F18 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (3rd) P2	17	07-Jul-17 A	3	24-Jul-17	18-Mar-17	21-Mar-17	-99	0%
F18-C2210	F18 Fr PIle - Curing & Sonic Test	18	25-Jul-17	18	14-Aug-17	03-Aug-17	23-Aug-17	8	0%
Viaduct F - Bridge F5									
Pier F13 (F5d)									
Pile Cap									
F13-C3210	F13 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	13-Jun-17 A	0	05-Jul-17 A				100%
F13-C3310	F13 Pile Cap - Curing, Remove Formwork, Backfill	12	06-Jul-17 A	0	15-Jul-17 A				100%
Pier									
F13-C4110	F13 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	13-Jul-17 A	3	24-Jul-17	14-Feb-17	16-Feb-17	-127	90%
F13-C4210	F13 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	25-Jul-17	18	14-Aug-17	17-Feb-17	09-Mar-17	-127	0%
F13-C4310	F13 Pier - Curing, Remove Formwork	5	15-Aug-17	5	19-Aug-17	10-Mar-17	15-Mar-17	-127	0%
Pier Head Segment									
F13-C5110	F13 Pier Head - Scaffold, Temp Works	17	22-Aug-17	17	09-Sep-17	16-Mar-17	05-Apr-17	-128	0%
F13-C5210	F13 Pier Head - Erect PH Segment (1 nr)	2	11-Sep-17	2	12-Sep-17	06-Apr-17	07-Apr-17	-128	0%
F13-C5310	F13 Pier Head - Construct Diaphragm (2nd Cast) in PHS	41	13-Sep-17	41	02-Nov-17	08-Apr-17	01-Jun-17	-128	0%
Pier F14 (F5c)									
Pile Cap									
F14-C3110	F14 Pile Cap - Excavate, Break Pile Head	15	15-Jun-17 A	0	05-Jul-17 A				100%
F14-C3210	F14 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	06-Jul-17 A	10	01-Aug-17	29-Aug-17	08-Sep-17	33	45%
F14-C3310	F14 Pile Cap - Curing, Remove Formwork, Backfill	12	02-Aug-17	12	15-Aug-17	09-Sep-17	22-Sep-17	33	0%
Pier									
F14-C4110	F14 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	16-Aug-17*	13	30-Aug-17	23-Sep-17	10-Oct-17	33	0%
F14-C4210	F14 Pier - Scaffold, Rebar, Formwork, Concrete (2nd Lift)	18	31-Aug-17	18	20-Sep-17	11-Oct-17	01-Nov-17	33	0%
F14-C4310	F14 Pier - Scaffold, Rebar, Formwork, Concrete (3rd Lift)	18	21-Sep-17	18	13-Oct-17	02-Nov-17	22-Nov-17	33	0%
F14-C4410	F14 Pier - Curing, Remove Formwork	5	14-Oct-17	5	19-Oct-17	23-Nov-17	28-Nov-17	33	0%
Pier Head Segment									
F14-C5110	F14 Pier Head - Scaffold, Temp Works	17	20-Oct-17	17	09-Nov-17	29-Nov-17	18-Dec-17	33	0%
Pier F15 (F5b)									
Foundation - Bored Piles									
F15-C2140	F15 Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (3rd) P2	16	26-May-17 A	0	28-Jun-17 A				100%
F15-C2210	F15 Fr PIle - Curing & Sonic Test	18	29-Jun-17 A	0	18-Jul-17 A				100%
Pile Cap									
F15-C3110	F15 Pile Cap - Excavate, Break Pile Head	15	07-Aug-17*	15	23-Aug-17	31-Aug-17	16-Sep-17	21	0%
F15-C3210	F15 Pile Cap - Blinding, Formwork, Rebar, Concrete	19	24-Aug-17	19	14-Sep-17	18-Sep-17	11-Oct-17	21	0%
F15-C3310	F15 Pile Cap - Curing, Remove Formwork, Backfill	12	15-Sep-17	12	28-Sep-17	12-Oct-17	25-Oct-17	21	0%
Pier									
F15-C4110	F15 Pier - Scaffold, Rebar, Formwork, Concrete (1st Lift)	13	16-Oct-17*	13	31-Oct-17	26-Oct-17	10-Nov-17	9	0%
Ramp F									
Abutment & Approach Ramp F									
Foundation - Bored Piles									
ARF-C2120	Ramp F Fr Pile - Sleeve, Casing, Excavate, Rebar, Concrete (20 nr)	126	19-May-17 A	83	27-Oct-17	23-Jan-17	09-May-17	-143	40%



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Critical Bar
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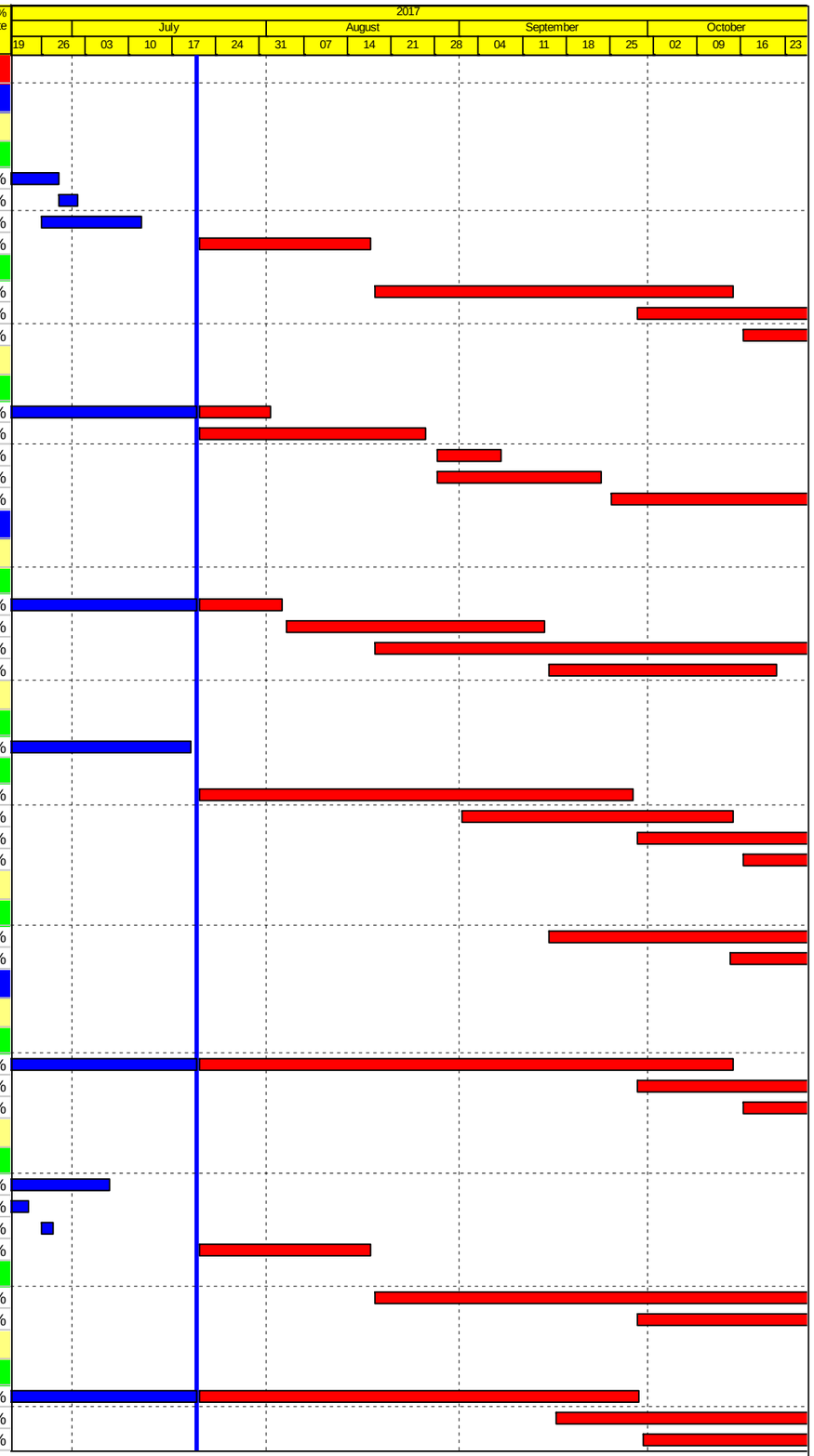
Superstructure & Associated Works									
Viaduct A									
Bridge A2									
Deck Span Segment									
A02-C6310	A2 - Cantilever Span (16 nr) - *LG2	26	21-Jun-17 A	0	29-Jun-17 A				100%
A03-C6210	A3 - Install (*Launch LG2 from A2)	3	29-Jun-17 A	0	02-Jul-17 A				100%
A03-C6310	A3 - Cantilever Span (16 nr) - *LG2	26	26-Jun-17 A	0	12-Jul-17 A				100%
VA2-C6510	Viaduct A2 - Final Stitch & Stressing to Span	24	21-Jul-17	24	17-Aug-17	15-Aug-16	10-Sep-16	-275	0%
Deck Fnishes, E&M and Roadworks									
VA2-C7710	Viaduct A2 - Parapet Panels	48	18-Aug-17	48	14-Oct-17	12-Sep-16	09-Nov-16	-275	0%
VA2-C7720	Viaduct A2 - Gantry & TCSS Provisions (KD5)	36	29-Sep-17	36	13-Nov-17	27-Oct-16	07-Dec-16	-275	0%
VA2-C7810	Viaduct A2 - Drainage, Fire Main & E&M Services	60	16-Oct-17	60	27-Dec-17	10-Jan-17	23-Mar-17	-226	0%
Bridge A1									
Deck Span Segment									
A06-C6320	A6 - End Span to A7 (8 nr) - THB	34	24-Feb-17 A	10	01-Aug-17	03-Aug-16	13-Aug-16	-285	75%
A08-C6510	A8 - Cantilever Span (Remaining 21 nr) (MTR) - KF	32	21-Jul-17	32	26-Aug-17	19-Mar-16	29-Apr-16	-394	0%
A09-C6310	A9 - Cantilever Span (Initial 5 nr) - Crane	10	28-Aug-17	10	07-Sep-17	30-Apr-16	12-May-16	-394	0%
A09-C6410	A9 - Relocate & Install KF (MTR)	24	28-Aug-17	24	23-Sep-17	30-Apr-16	30-May-16	-394	0%
A09-C6510	A9 - Cantilever Span (Remaining 20 nr) (MTR) - KF	32	25-Sep-17	32	03-Nov-17	31-May-16	08-Jul-16	-394	0%
Viaduct B									
Bridge B3									
Deck Fnishes, E&M and Roadworks									
VB3-C7710	Viaduct B3 - Parapet Panels	48	16-Dec-16 A	12	03-Aug-17	13-Oct-16	26-Oct-16	-227	95%
VB3-C7720	Viaduct B3 - Gantry & TCSS Provisions (KD5)	36	04-Aug-17*	36	14-Sep-17	27-Oct-16	07-Dec-16	-227	0%
VB3-C7810	Viaduct B3 - Drainage, Fire Main & E&M Services	60	18-Aug-17	60	30-Oct-17	10-Jan-17	23-Mar-17	-178	0%
VB3-C7820	Viaduct B3 - Railings, Light Poles, Signs & Street Furniture	30	15-Sep-17	30	21-Oct-17	10-Feb-17	16-Mar-17	-178	0%
Bridge B2									
Deck Span Segment									
VB2-C6510	Viaduct B2 - Final Stitch & Stressing to Span	24	12-Jun-17 A	0	20-Jul-17 A				100%
Deck Fnishes, E&M and Roadworks									
VB2-C7710	Viaduct B2 - Parapet Panels	60	21-Jul-17	60	28-Sep-17	12-Sep-16	23-Nov-16	-251	0%
VB2-C7720	Viaduct B2 - Gantry & TCSS Provisions (KD5)	36	01-Sep-17	36	14-Oct-17	27-Oct-16	07-Dec-16	-251	0%
VB2-C7810	Viaduct B2 - Drainage, Fire Main & E&M Services	48	29-Sep-17	48	27-Nov-17	24-Jan-17	23-Mar-17	-202	0%
VB2-C7820	Viaduct B2 - Railings, Light Poles, Signs & Street Furniture	30	16-Oct-17	30	20-Nov-17	10-Feb-17	16-Mar-17	-202	0%
Bridge B1									
Deck Span Segment									
B17-C6310	B17 - Cantilever Span (26 nr) - Crane	35	15-Sep-17	35	27-Oct-17	10-Jun-16	21-Jul-16	-378	0%
B18-C6210	B18 - Falsework for End Span to B11	24	14-Oct-17	24	11-Nov-17	08-Jul-16	04-Aug-16	-378	0%
Viaduct C									
Bridge C4									
Deck Fnishes, E&M and Roadworks									
VC4-C7710	Viaduct C4 - Parapet Panels	48	12-Jun-17 A	72	14-Oct-17	15-Apr-16	12-Jul-16	-375	10%
VC4-C7720	Viaduct C4 - Gantry & TCSS Provisions (KD4)	36	29-Sep-17	36	13-Nov-17	28-Jun-16	09-Aug-16	-375	0%
VC4-C7810	Viaduct C4 - Drainage, Fire Main & E&M Services	60	16-Oct-17	60	27-Dec-17	13-Jul-16	21-Sep-16	-375	0%
Bridge C3									
Deck Span Segment									
C10-C6320	C10 - Cantilever Span (Remaining 12 nr) - THB & Crane	22	09-Jun-17 A	0	07-Jul-17 A				100%
C11-C6410	C11 - Falsework for End Span to C10	24	15-May-17 A	0	24-Jun-17 A				100%
C11-C6510	C11 - End Span to C10 (6 nr) - Crane	12	26-Jun-17 A	0	28-Jun-17 A				100%
VC3-C6510	Viaduct C3 - Final Stitch & Stressing to Span	24	21-Jul-17	24	17-Aug-17	15-Apr-16	13-May-16	-375	0%
Deck Fnishes, E&M and Roadworks									
VC3-C7710	Viaduct C3 - Parapet Panels	60	18-Aug-17	60	30-Oct-17	16-May-16	26-Jul-16	-375	0%
VC3-C7720	Viaduct C3 - Gantry & TCSS Provisions (KD4)	36	29-Sep-17	36	13-Nov-17	28-Jun-16	09-Aug-16	-375	0%
Bridge C2									
Deck Fnishes, E&M and Roadworks									
VC2-C7710	Viaduct C2 - Parapet Panels	48	13-Jun-17 A	61	29-Sep-17	28-Apr-16	12-Jul-16	-364	10%
VC2-C7720	Viaduct C2 - Gantry & TCSS Provisions (KD4)	36	16-Sep-17	36	31-Oct-17	28-Jun-16	09-Aug-16	-364	0%
VC2-C7810	Viaduct C2 - Drainage, Fire Main & E&M Services	60	30-Sep-17	60	12-Dec-17	13-Jul-16	21-Sep-16	-364	0%



Actual Work
Planned Bar
Critical Bar
Milestone

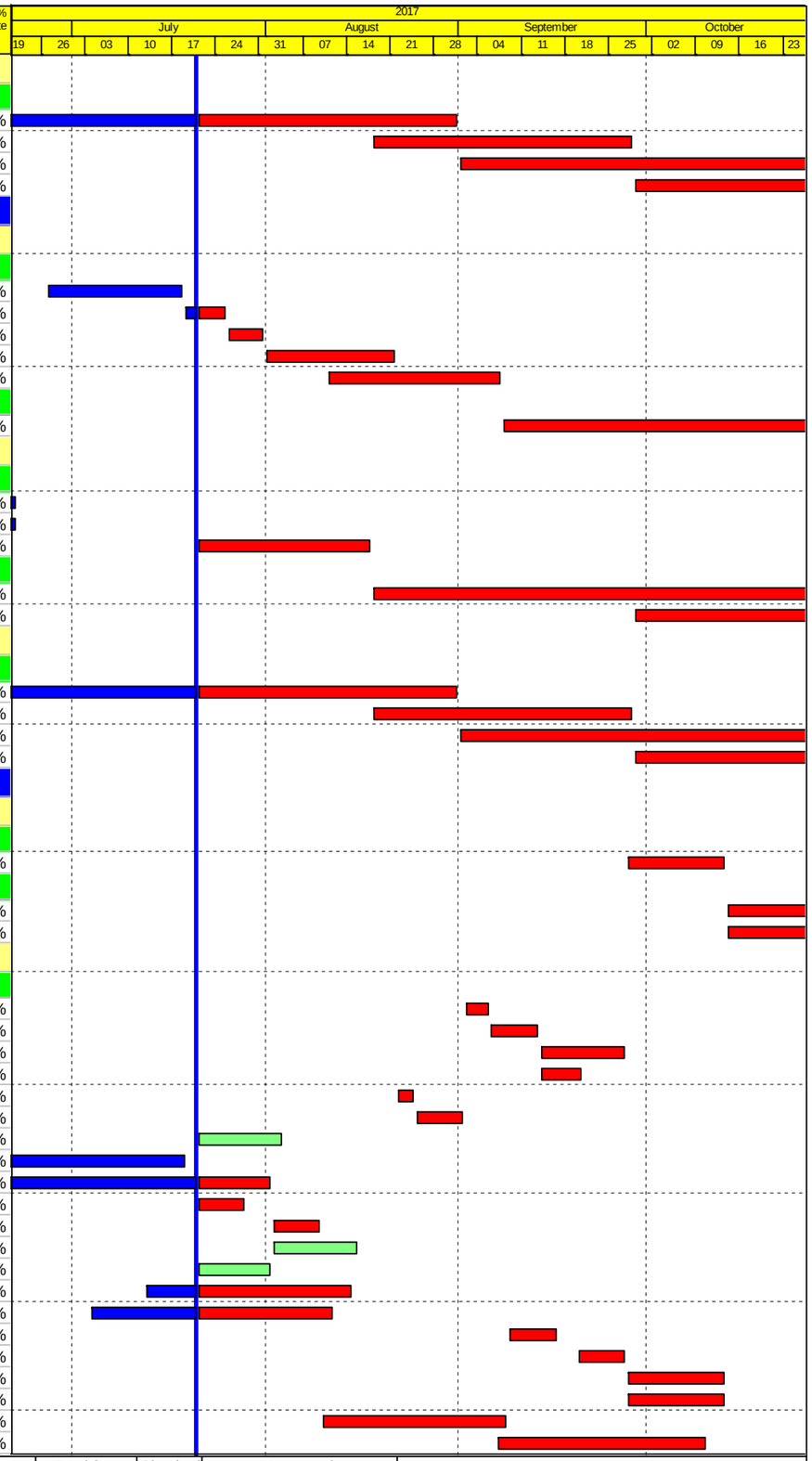
Project ID: TMCLK-DWPI-1-M50
Layout: J3518-DWP-3MRP Submission - M50
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 8 of 11 Pages)
(Progress as of 21-Jul-17)

Date	Revision	Checked	Approved
31-May-...		PKN	GL
04-Jul-17		PKN	GL
01-Aug-17		PKN	HF

DWG. No.:
J3518/GCL/PGM/3MRP-M50

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
Bridge C1									
Deck Fnishes, E&M and Roadworks									
VC1-C7710	Viaduct C1 - Parapet Panels	48	31-May-17 A	36	31-Aug-17	30-May-16	12-Jul-16	-339	0%
VC1-C7720	Viaduct C1 - Gantry & TCSS Provisions (KD4)	36	18-Aug-17	36	28-Sep-17	28-Jun-16	09-Aug-16	-339	0%
VC1-C7810	Viaduct C1 - Drainage, Fire Main & E&M Services	60	01-Sep-17	60	13-Nov-17	13-Jul-16	21-Sep-16	-339	0%
VC1-C7820	Viaduct C1 - Railings, Light Poles, Signs & Street Furniture	30	29-Sep-17	30	06-Nov-17	10-Aug-16	13-Sep-16	-339	0%
Viaduct D									
Bridge D3									
Deck Span Segment									
D06-C6410	D6 - Launch LG1 from D9 to D6	18	27-Jun-17 A	0	18-Jul-17 A				100%
D06-C6415	D6 - Launch LG1 from D6 to D5	4	19-Jul-17 A	4	25-Jul-17	08-Mar-16	11-Mar-16	-404	100%
D06-C6510	D6 - End Span to D5 (6 nr) - LG1	5	26-Jul-17	5	31-Jul-17	12-Mar-16	17-Mar-16	-404	0%
D06-C6610	D6 - Launch LG1 from D6 to E2B for Dismantling	18	01-Aug-17	18	21-Aug-17	18-Mar-16	12-Apr-16	-404	0%
VD3-C6510	Viaduct D3 - Final Stitch & Stressing to Span	24	11-Aug-17	24	07-Sep-17	15-Apr-16	13-May-16	-393	0%
Deck Fnishes, E&M and Roadworks									
VD3-C7710	Viaduct D3 - Parapet Panels	48	08-Sep-17	48	06-Nov-17	16-May-16	12-Jul-16	-393	0%
Bridge D2									
Deck Span Segment									
D09-C6410	D9 - Preparation & Drop in Segments D8-D9 (3 nr) (MTR) - LG1	23	03-Jun-17 A	0	22-Jun-17 A				100%
D13-C6710	D13 - End Span to D12 (4 nr) - Crane	10	14-Jun-17 A	0	22-Jun-17 A				100%
VD2-C6510	Viaduct D2 - Final Stitch & Stressing to Span	24	21-Jul-17	24	17-Aug-17	15-Apr-16	13-May-16	-375	0%
Deck Fnishes, E&M and Roadworks									
VD2-C7710	Viaduct D2 - Parapet Panels	60	18-Aug-17	60	30-Oct-17	16-May-16	26-Jul-16	-375	0%
VD2-C7720	Viaduct D2 - Gantry & TCSS Provisions (KD4)	36	29-Sep-17	36	13-Nov-17	28-Jun-16	09-Aug-16	-375	0%
Bridge D1									
Deck Fnishes, E&M and Roadworks									
VD1-C7710	Viaduct D1 - Parapet Panels	48	01-Jun-17 A	36	31-Aug-17	30-May-16	12-Jul-16	-339	0%
VD1-C7720	Viaduct D1 - Gantry & TCSS Provisions (KD4)	36	18-Aug-17	36	28-Sep-17	28-Jun-16	09-Aug-16	-339	0%
VD1-C7810	Viaduct D1 - Drainage, Fire Main & E&M Services	60	01-Sep-17	60	13-Nov-17	13-Jul-16	21-Sep-16	-339	0%
VD1-C7820	Viaduct D1 - Railings, Light Poles, Signs & Street Furniture	30	29-Sep-17	30	06-Nov-17	10-Aug-16	13-Sep-16	-339	0%
Viaduct E									
Bridge E1									
Deck Span Segment									
VE1-C6510	Viaduct E1 - E3A/E4A, E3B/E4A & E3C/E4B Stitches	12	28-Sep-17	12	13-Oct-17	29-Apr-16	13-May-16	-422	0%
Deck Fnishes, E&M and Roadworks									
VE1AB-C7710	Viaduct E1A/B - Parapet Panels	48	14-Oct-17	48	09-Dec-17	16-May-16	12-Jul-16	-422	0%
VE1CD-C7710	Viaduct E1C/D - Parapet Panels	48	14-Oct-17	48	09-Dec-17	16-May-16	12-Jul-16	-422	0%
Bridge E2									
Deck Span Segment									
E03A-C6410	E3A - Launch LG1 from E3B to E3A - *LG1	3	02-Sep-17	3	05-Sep-17	25-Apr-16	27-Apr-16	-404	0%
E03A-C6510	E3A - End Span to E4A (7 nr) - *LG1	7	06-Sep-17	7	13-Sep-17	28-Apr-16	06-May-16	-404	0%
E03A-C6610	E3A/B - Stitch between E3A/B and E4A	12	14-Sep-17	12	27-Sep-17	08-Aug-17	21-Aug-17	-32	0%
E03A-C6710	E3A - Launch LG1 from E3A to E4/E5 for Dismanlting	6	14-Sep-17	6	20-Sep-17	07-May-16	13-May-16	-404	0%
E03B-C6410	E3B - Launch LG1 from E2B to E3B - *LG1	3	22-Aug-17*	3	24-Aug-17	13-Apr-16	15-Apr-16	-404	0%
E03B-C6510	E3B - End Span to E4A (7 nr) - *LG1	7	25-Aug-17	7	01-Sep-17	16-Apr-16	23-Apr-16	-404	0%
E03C-C6610	E3C/B - Stitch between E3C/D and E4B	12	21-Jul-17	12	03-Aug-17	08-Aug-17	21-Aug-17	15	0%
E04A-C6310	E4A - Bifurcation Span to E3A (12 nr) with 1st Stitch - THB	28	09-Mar-17 A	0	19-Jul-17 A				100%
E04A-C6410	E4A - Bifurcation Span to E5A (6 nr) with 1st Stitch - THB	28	01-Mar-17 A	12	01-Aug-17	09-Feb-16	22-Feb-16	-472	70%
E04B-C6420	E4B - E3D/E4B Stitch	8	21-Jul-17	8	28-Jul-17	13-Feb-16	22-Feb-16	-468	0%
E04B-C6430	E4A & E4B - E4A/E5A & E4B/E5B Stitches	8	02-Aug-17	8	09-Aug-17	23-Feb-16	02-Mar-16	-472	0%
E05A-C6610	E5A - Stitch between E4A and E5A	12	02-Aug-17	12	15-Aug-17	08-Aug-17	21-Aug-17	5	0%
E05B-C6610	E5B - Stitch between E4B and E5B	12	21-Jul-17	12	01-Aug-17	10-Aug-17	21-Aug-17	20	0%
E06A-C6410	E6A - Drop in (E6A-E5A) - THB	30	13-Jul-17 A	25	14-Aug-17	09-Mar-16	06-Apr-16	-447	25%
E06A-C6510	E6A & E6B - Quarter Span (E6-E7) - TLB	30	04-Jul-17 A	22	11-Aug-17	03-Mar-16	28-Mar-16	-452	50%
E06A-C6520	E6A & E6B - E5A/E6A & E5B/E6B Stitches	8	09-Sep-17	8	16-Sep-17	07-Apr-16	15-Apr-16	-472	0%
E06A-C6530	E7A & E7B - E6A/E7A & E6B/E7B Stitches	8	20-Sep-17	8	27-Sep-17	20-Apr-16	28-Apr-16	-472	0%
E06A-C6610	E6A/E7A: Install Bearing & Stress Continuity Tendons	12	28-Sep-17	12	13-Oct-17	08-Aug-17	21-Aug-17	-44	0%
E06A-C6620	E6B/E7B: Install Bearing & Stress Continuity Tendons	12	28-Sep-17	12	13-Oct-17	08-Aug-17	21-Aug-17	-44	0%
E06B-C6510	E6B - Drop in (E6B-E5B) - THB	30	10-Aug-17	30	08-Sep-17	03-Mar-16	06-Apr-16	-472	0%
E08A-C6410	E8A - Drop in (E8A-E7A) - THB	30	07-Sep-17	30	10-Oct-17	17-Aug-17	15-Sep-17	-21	0%



Actual Work
Planned Bar
Critical Bar
Milestone

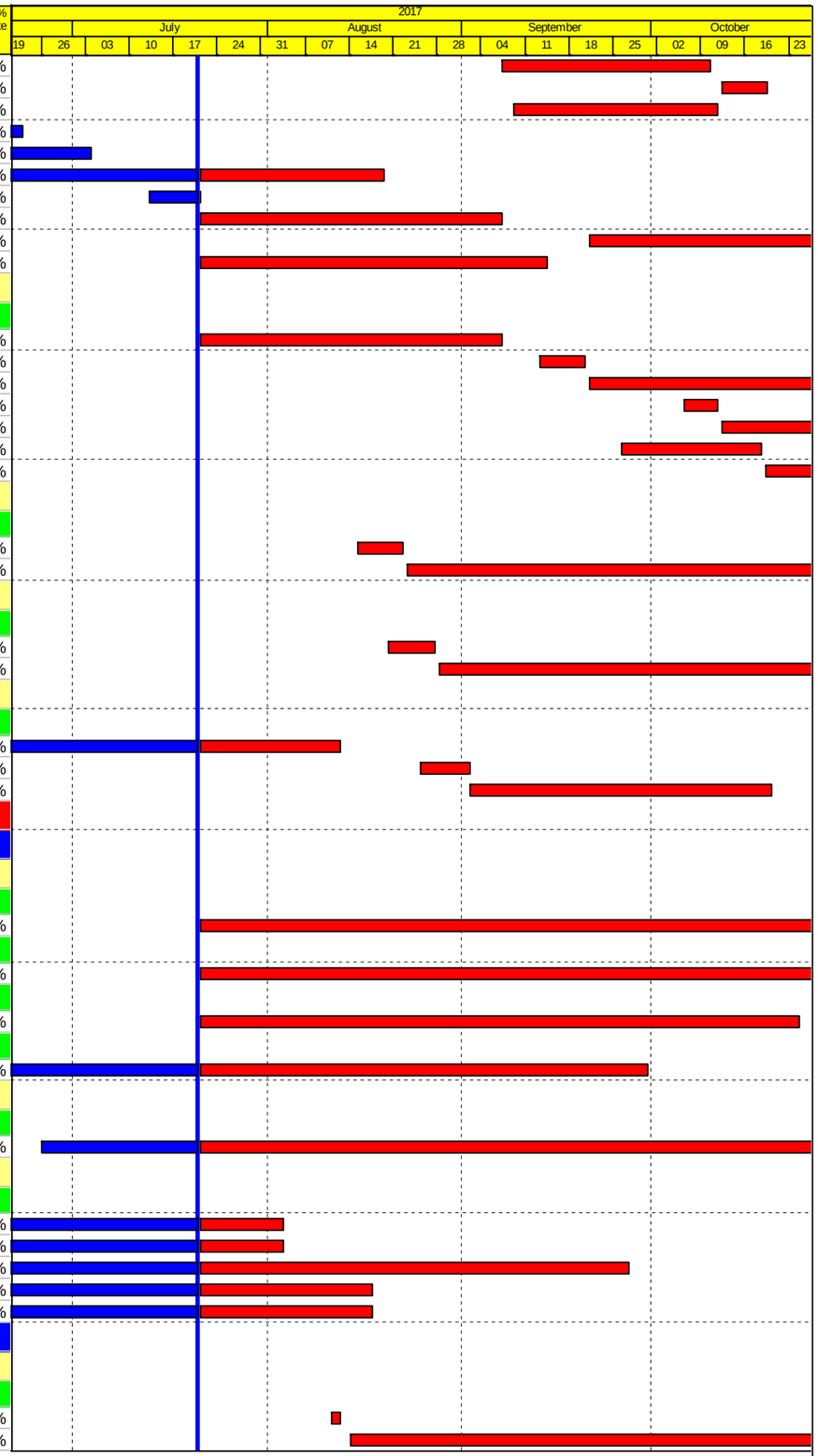
Project ID: TMCLK-DWPI-1-M50
Layout: J3518-DWP-3MRP Submission - M50
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 9 of 11 Pages)
(Progress as of 21-Jul-17)

Date	Revision	Checked	Approved
31-May-...		PKN	GL
04-Jul-17		PKN	GL
01-Aug-17		PKN	HF

DWG. No.:
J3518/GCL/PGM/3MRP-M50

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
E08A-C6510	E8A & E8B - Quarter Span (E8-E9) - TLB	30	07-Sep-17	30	10-Oct-17	18-Jul-17	16-Aug-17	-51	0%
E08A-C6520	E8A & E8B - E7A/E8A & E7B/E8B Stitches	8	12-Oct-17	8	19-Oct-17	15-Sep-17	22-Sep-17	-24	0%
E08B-C6510	E8B - Drop in (E8B-E7B) - THB	30	09-Sep-17	30	11-Oct-17	16-Aug-17	14-Sep-17	-24	0%
E10A-C6310	E10A - Cantilever Span (16 nr) with 1st Stitch - WLF	24	30-Apr-17 A	0	23-Jun-17 A				100%
E10B-C6310	E10B - Cantilever Span (16 nr) with 1st Stitch - WLF	26	04-May-17 A	0	04-Jul-17 A				100%
E11A-C6410	E11A - Bifurcation Span to E10A (12 nr) with 1st Stitch - THB	48	08-Jun-17 A	30	19-Aug-17	17-Jun-17	17-Jul-17	-33	16%
E11B-C6210	E11B - Install THB	2	13-Jul-17 A	0	21-Jul-17	11-Nov-16	11-Nov-16	-234	0%
E11B-C6410	E11B - Bifurcation Span to E10B (12 nr) with 1st Stitch - THB	48	21-Jul-17	48	07-Sep-17	12-Nov-16	07-Jan-17	-234	0%
VE2-C6610	Viaduct E2 - Dismantle LG1	48	21-Sep-17	48	18-Nov-17	11-Jul-17	04-Sep-17	-62	0%
VE2-C6620	Viaduct E2 - Dismantle LG2	48	21-Jul-17	48	14-Sep-17	26-Jun-17	21-Aug-17	-21	0%
Bridge E5									
Deck Span Segment									
E11B-C6310	E11B Deck - Bifurcation Span to E12B (18 nr) with 1st Stitch - THB	48	21-Jul-17	48	07-Sep-17	12-Nov-16	07-Jan-17	-234	0%
E12D-C6110	E12D Deck - Install THB	8	13-Sep-17	8	20-Sep-17	08-Jan-17	15-Jan-17	-240	0%
E12D-C6210	E12D Deck - Cantilever Span (16 seg) with 2 stitches - THB	45	21-Sep-17	45	08-Nov-17	16-Jan-17	05-Mar-17	-240	0%
E13D-C6110	E13D Deck - Install KF and THB	6	06-Oct-17	6	11-Oct-17	10-Feb-17	15-Feb-17	-231	0%
E13D-C6210	E13D Deck - Cantilever Span (22 seg) with 2 stitches - KF and THB	49	12-Oct-17	49	30-Nov-17	16-Feb-17	06-Apr-17	-231	0%
E14D-C6110	E14D Deck - Preparation Works & Deliver Underslung Truss to Site	18	26-Sep-17	18	18-Oct-17	04-Nov-16	24-Nov-16	-265	0%
E14D-C6115	E14D Deck - Install Truss/Fixings & Initial ICE Check	15	19-Oct-17	15	06-Nov-17	25-Nov-16	12-Dec-16	-265	0%
Bridge E6									
Deck Span Segment									
E12C-C6110	E12C Deck - Install WLF	8	15-Aug-17	8	22-Aug-17	07-Jun-17	14-Jun-17	-68	0%
E12C-C6210	E12C Deck - Cantilever Span (42 seg) with 2 stitches - THB	67	23-Aug-17	67	01-Nov-17	15-Jun-17	21-Aug-17	-68	0%
Bridge E7									
Deck Span Segment									
E12B-C6110	E12B Deck - Install WLF	8	20-Aug-17*	8	27-Aug-17	13-Apr-17	20-Apr-17	-126	0%
E12B-C6210	E12B Deck - Cantilever Span (40 seg) with 3 stitches - WLF	66	28-Aug-17	66	05-Nov-17	21-Apr-17	27-Jun-17	-126	0%
Bridge E8									
Deck Span Segment									
E11A-C6310	E11A Deck - Bifurcation Span to E12A (18 nr) w/ 1st Stitch - THB	48	09-Jun-17 A	23	12-Aug-17	17-Oct-16	11-Nov-16	-257	20%
E12A-C6210	E12A Deck - Install THB	8	25-Aug-17	8	02-Sep-17	12-Nov-16	21-Nov-16	-269	0%
E12A-C6410	E12A Deck - Cantilever Span (22 nr) with 1st stitch - THB	45	02-Sep-17	45	20-Oct-17	22-Nov-16	12-Jan-17	-269	0%
At-Grade Works & Miscellaneous Works									
At-Grade Works Along North Lantau Highway									
Slope Works Near Viaduct D									
Slope 10NW-C/F9									
M201200	10NW-C/F9 - Slope works (incl. L-Shape Ret. Walls)	110	21-Jul-17	110	29-Nov-17	19-Sep-16	02-Feb-17	-246	0%
Slope 10NW-C/F10									
M201160	10NW-C/F10 - Slope works (incl. L-Shape Ret. Walls)	110	21-Jul-17	110	29-Nov-17	02-Jul-16	10-Nov-16	-312	0%
Slope 10NW-C/R4									
M201170	10NW-C/R4 - Slope works	80	21-Jul-17	80	24-Oct-17	06-Aug-16	10-Nov-16	-282	0%
Slope 10NW-C/F50									
M201150	10NW-C/F50 - Slope works	165	11-Jan-17 A	62	30-Sep-17	27-Aug-16	10-Nov-16	-264	5%
Road Works Along NLH Westbound									
General									
RW10020	NLH W/B (Viaduct C) - Road Drainage Works for tie-in	104	26-Jun-17 A	127	19-Dec-17	03-Nov-16	07-Apr-17	-209	5%
Road Works Along NLH Eastbound									
General									
RW20080-1	Ch650 - 800 Portion 4 (viaduct D area): Roadwork	81	11-Jan-17 A	12	03-Aug-17	24-Mar-17	07-Apr-17	-94	85%
RW20080-2	Ch475 - 650 Portion 5 (viaduct D area) : Roadwork	81	11-Jan-17 A	12	03-Aug-17	24-Mar-17	07-Apr-17	-94	85%
RW20080-3	Ch275 - 475 Portion 6 (viaduct D area) ; Roadwork	162	11-Jan-17 A	59	27-Sep-17	25-Jan-17	07-Apr-17	-141	70%
RW20080-4	Ch157 - 275 Portion 7 (Viaduct D area) : Roadwork	98	11-Jan-17 A	24	17-Aug-17	10-Mar-17	07-Apr-17	-106	75%
RW20084	NLH E/B Viaduct A - Ch200-388 Roadwork (SL & HS) & Reinstate NLH	127	17-Dec-16 A	24	17-Aug-17	10-Mar-17	07-Apr-17	-106	75%
At-Grade Works Along Cheung Tung Road									
Slope Works Near Viaduct C									
Slope 10NW-C/C26									
SWVC1995	TTA for closure of NLH HS	2	11-Aug-17	2	12-Aug-17	16-Aug-16	17-Aug-16	-292	0%
SWVC2000	10NW-C/C26 - Slope works	166	14-Aug-17	166	05-Mar-18	18-Aug-16	09-Mar-17	-292	0%



Actual Work
Planned Bar
Critical Bar
Milestone

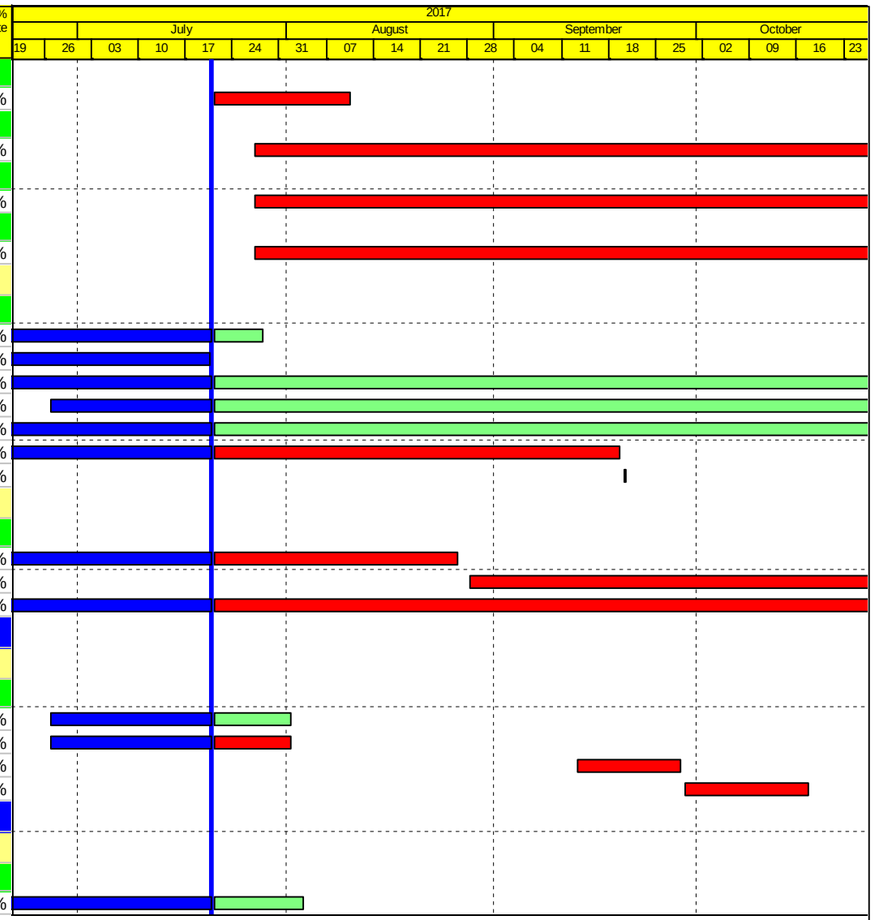
Project ID: TMCLK-DWPI-1-M50
Layout: J3518-DWP-3MRP Submission - M50
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 10 of 11 Pages)
(Progress as of 21-Jul-17)

Date	Revision	Checked	Approved
31-May-...		PKN	GL
04-Jul-17		PKN	GL
01-Aug-17		PKN	HF

DWG. No.:
J3518/GCL/PGM/3MRP-M50

Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Physical % Complete
Slope PF1 & PF2									
SWVC7000	PF1 & PF2 slope works	18	21-Jul-17	18	10-Aug-17	26-Jul-16	15-Aug-16	-292	0%
Slope 10NW-C/F13									
SWVC4000	10NW-C/F13 - Slope works	100	27-Jul-17*	100	23-Nov-17	14-Jul-16	10-Nov-16	-307	0%
Slope 10NW-C/F14									
SWVC5000	10NW-C/F14 - Slope works	100	27-Jul-17*	100	23-Nov-17	07-Jun-16	05-Oct-16	-337	0%
Slope 10NW-C/F15									
SWVC6000	10NW-C/F15 - Slope works	108	27-Jul-17*	108	02-Dec-17	28-May-16	05-Oct-16	-345	0%
Re-alignment of CTR Along Viaduct B									
General									
RP00074-3	Ch100-300: Road Drainage	38	06-May-17 A	7	28-Jul-17	11-Jul-20	18-Jul-20	880	85%
RP00075	Ch100-300: Duct Laying for 11KV	18	22-May-17 A	0	20-Jul-17 A				100%
RP00076	Ch100-300: Lay Telecom Cable	10	22-May-17 A	135	30-Dec-17	04-Feb-20	18-Jul-20	752	80%
RP00077	Ch100-300: Street Lighting & Draw Pit	13	27-Jun-17 A	135	30-Dec-17	04-Feb-20	18-Jul-20	752	20%
RP00078	Ch100-300: Relocation of Vent Pipe	18	13-May-17 A	135	30-Dec-17	04-Feb-20	18-Jul-20	752	50%
RP00083	Ch100-300: Drainage & Roadwork for New CTR	52	13-May-17 A	52	19-Sep-17	22-Oct-16	21-Dec-16	-219	30%
RP00084	Ch100-300: TTA to New CTR	1	20-Sep-17	1	20-Sep-17	22-Dec-16	22-Dec-16	-219	0%
Re-alignment of CTR Along Viaduct C									
East Portion									
RW60050	CTR East (stage 2) TTA 090-5 : Roadwork	77	26-Apr-17 A	32	26-Aug-17	03-Oct-16	09-Nov-16	-235	60%
RW60060	CTR East (stage 3) TTA 090-6 : Roadwork	66	28-Aug-17	66	15-Nov-17	10-Nov-16	01-Feb-17	-235	0%
RW60080	CTR Tie in Works	116	18-May-17 A	88	03-Nov-17	19-Dec-16	07-Apr-17	-170	20%
At-Grade Works at Southern Landfall									
HKBCF Area									
General									
RW30028-2	Construct FMH2046 and Lay Pipe Work	14	27-Jun-17 A	10	01-Aug-17	08-Jul-20	18-Jul-20	877	50%
RW30028-3	Construct FMH2047 and Lay Pipe Work	14	27-Jun-17 A	10	01-Aug-17	31-May-17	10-Jun-17	-43	50%
RW30028-4	Construct FMH2048 and Lay Pipe Work	14	13-Sep-17	14	28-Sep-17	12-Jun-17	27-Jun-17	-79	0%
RW30028-5	Construct FMH2049 and Lay Pipe Work	14	29-Sep-17	14	17-Oct-17	28-Jun-17	14-Jul-17	-79	0%
Watermain from Tung Chung to Southern Landfall									
Watermain Works									
General									
WM00120	Lay DN450 Fresh Water Main at Re-aligned CTR (approx. 500m)	48	22-Apr-15 A	12	03-Aug-17	29-Nov-17	12-Dec-17	109	90%



Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: TMCLK-DWPI-1-M50
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Tuen Mun - Chek Lap Kok Link - Southern Connection
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J3518/GCL/PGM/3MRP-M50

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 Bridge Tuen Mun-Chep Lap Kok Link – Investigation. Updated EM&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		✓

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 offsite 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			n/a
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 m^2 in an area where fishing activities are prohibited.	Area of prohibited fishing activities/Detailed Design/towards end of construction period	TM-CLKL/ HKBCF Design Consultant/ TM-CLKL/ HKBCF Contractor	TMEIA	Y		Y	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		n/a
8.15	6.5	Audit coral translocation success	Yam Tsui Wan (receptor site)/Post translocation	Contractor	TMEIA		Y		**Completed in October 2014**
7.13	6.5	Undertaken gabion wall works in Stream NL1 in the dry season	North Lantau slope works/dry	Contractor	TMEIA		Y		n/a

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		✓ Tree transplanted as Contract Specification
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		✓
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		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	Recycle/Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		n/a No felled trees or vegetation suitable for recycle
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	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		(OM4)							HyD/LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be 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	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	
		where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	construction period						
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			n/a
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	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	
		materials should avoid over-ordering and wastage.							
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: - 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;	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	
		- Adequate ventilation; - Sufficiently covered to prevent rainfall entering (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		✓
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 hard standing;	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	Site Offices/	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	
		paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	throughout construction period						
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/ASR9 = 178	260
1 Hour TSP Level in μg /m³	ASR9A/ASR8A = 394 ASR9C/ASR8/ ASR9 = 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

Calibration Certificates of Monitoring Equipments

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR8(A)
Calibrated by	:	P.F.Yeung
Date	:	28/05/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3956

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 Mar 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.03684
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1010
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.5	3.364	1.631	56	55.55
2	13 holes	9.0	2.976	1.445	50	49.59
3	10 holes	6.8	2.587	1.258	44	43.64
4	7 holes	4.5	2.104	1.027	36	35.71
5	5 holes	2.8	1.660	0.814	28	27.77

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):33.865 Intercept(b): 0.626 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan Date: 04/06/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR9
Calibrated by	:	P.F.Yeung
Date	:	28/05/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3958

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 Mar 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.03684
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1010
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.436	1.666	55	54.55
2	13 holes	9.6	3.073	1.492	49	48.60
3	10 holes	7.0	2.624	1.277	43	42.65
4	7 holes	4.6	2.127	1.038	36	35.71
5	5 holes	2.4	1.537	0.755	26	25.79

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):30.992 Intercept(b):2.862 Correlation Coefficient(r): 0.9990

Checked by: Magnum Fan Date: 04/06/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR8(A)
Calibrated by	:	P.F.Yeung
Date	:	28/07/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3956

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 Mar 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.03684
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.2	3.324	1.612	53	52.65
2	13 holes	9.0	2.980	1.447	47	46.69
3	10 holes	6.2	2.473	1.204	40	39.73
4	7 holes	4.2	2.036	0.994	34	33.77
5	5 holes	2.5	1.571	0.771	27	26.82

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):30.184 Intercept(b): 3.536 Correlation Coefficient(r): 0.9993

Checked by: Magnum Fan Date: 03/08/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR9
Calibrated by	:	P.F.Yeung
Date	:	28/07/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3958

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 Mar 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.03684
Correlation Coefficient(r)	:	0.99994

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.0	3.295	1.598	54	53.64
2	13 holes	8.8	2.947	1.431	49	48.67
3	10 holes	6.6	2.552	1.242	42	41.72
4	7 holes	4.4	2.084	1.017	35	34.77
5	5 holes	2.2	1.473	0.724	24	23.84

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.112 Intercept(b):-0.493 Correlation Coefficient(r): 0.9993

Checked by: Magnum Fan Date: 03/08/2017

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

TISCH Environmental

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 20, 2017 Rootsmeter S/N 0438320 Ta (K) - 293
Operator Tisch Orifice I.D. - 2454 Pa (mm) - 759.46

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4390	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9170	7.9	5.00
4	NA	NA	1.00	0.8730	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0120	0.7033	1.4257		0.9958	0.6920	0.8784
1.0078	0.9842	2.0163		0.9916	0.9683	1.2423
1.0057	1.0967	2.2543		0.9895	1.0791	1.3889
1.0045	1.1507	2.3643		0.9884	1.1322	1.4567
0.9992	1.3878	2.8514		0.9831	1.3654	1.7568
Qstd slope (m) =		2.08464		Qa slope (m) =		1.30537
intercept (b) =		-0.03684		intercept (b) =		-0.02270
coefficient (r) =		0.99994		coefficient (r) =		0.99994
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

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

Certificate of Calibration
校正證書

Certificate No. : C171447
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-0633) Date of Receipt / 收件日期 : 16 March 2017

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10486660
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 17 March 2017

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Project Engineer

Date of Issue 簽發日期 : 23 March 2017

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

Certificate of Calibration
校正證書

Certificate No. : C171447
證書編號

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

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C163709
CL281	Multifunction Acoustic Calibrator	PA160023
TST150A	Measuring Amplifier	C161175

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.6	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.987	1 kHz ± 2 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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

Certificate of Calibration
校正證書

Certificate No. : C163758
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC16-1465) Date of Receipt / 收件日期 : 29 June 2016

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-31
Serial No. / 編號	:	00603867
Supplied By / 委託者	:	Envirotech Services Co. Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 11 July 2016

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Technical Officer

Certified By 核證 : K C Lee
Project Engineer

Date of Issue 簽發日期 : 12 July 2016

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C163758
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C160077
CL281	Multifunction Acoustic Calibrator	PA160023

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.4	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	93.4 (Ref.)
				104.00		103.4
				114.00		113.4

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.4	Ref.
			Slow			93.4	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C163758
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	63 Hz	67.1	-26.2 ± 1.5
					125 Hz	77.1	-16.1 ± 1.5
					250 Hz	84.7	-8.6 ± 1.4
					500 Hz	90.1	-3.2 ± 1.4
					1 kHz	93.4	Ref.
					2 kHz	94.7	+1.2 ± 1.6
					4 kHz	94.5	+1.0 ± 1.6
					8 kHz	92.4	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.5	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	63 Hz	92.5	-0.8 ± 1.5
					125 Hz	93.2	-0.2 ± 1.5
					250 Hz	93.4	0.0 ± 1.4
					500 Hz	93.4	0.0 ± 1.4
					1 kHz	93.4	Ref.
					2 kHz	93.3	-0.2 ± 1.6
					4 kHz	92.7	-0.8 ± 1.6
					8 kHz	90.5	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 316987

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
250 Hz - 500 Hz : ± 0.30 dB
1 kHz : ± 0.20 dB
2 kHz - 4 kHz : ± 0.35 dB
8 kHz : ± 0.45 dB
12.5 kHz : ± 0.70 dB
104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里 1號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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

Certificate of Calibration
校正證書

Certificate No. : C171100
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-0482) Date of Receipt / 收件日期 : 28 February 2017

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 01010406
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 2 March 2017

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Technical Officer

Certified By 核證 : K C Lee
Project Engineer

Date of Issue 簽發日期 : 3 March 2017

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C171100
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C170048
CL281	Multifunction Acoustic Calibrator	PA160023

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L_A	A	Fast	94.00	1	* 96.4	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

Certificate of Calibration
校正證書

Certificate No. : C171100
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.5	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

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Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C171100
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04870

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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

Certificate of Calibration
校正證書

Certificate No. : C165934
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC16-2438) Date of Receipt / 收件日期 : 26 October 2016

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 27 October 2016

TEST RESULTS / 測試結果

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

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

Tested By / 測試 : T L Shek
Assistant Engineer

Certified By / 核證 : H C Chan
Engineer

Date of Issue / 簽發日期 : 28 October 2016

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C165934
證書編號

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

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL386	Multi-function Measuring Instrument	S12109

4. Test procedure : MA130N.

5. Results :

Air Velocity

Applied Value (m/s)	UUT Reading (m/s)	Measured Correction		
		Value (m/s)	Measurement Uncertainty	
			Expanded Uncertainty (m/s)	Coverage Factor
2.0	1.8	+0.2	0.2	2.0
4.0	3.8	+0.2	0.2	2.0
6.0	5.8	+0.2	0.3	2.0
8.1	8.0	+0.1	0.3	2.0
10.0	10.0	0.0	0.4	2.0

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

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

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

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

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c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

ENVIROTECH SERVICES CO.

Calibration Report of Wind Meter

Date of Calibration : 18 April 2017

Brand of Test Meter: Global Water

Model: Speed Sensor: WE550 (S/N:E1337005099)

Direction Senor: WE570 (S/N:153500564)

Location : Pak Mong, Siu Ho Wan

Procedures :

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

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

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

Results:

Wind Still Test

Wind Speed (m/s)
0.00

Wind Speed Test

Global Wate (m/s)	Anemometer (m/s)
1.65	1.8
1.11	1.3
0.71	0.6

Wind Direction Test

Global Wate (o)	Marine Compass (o)
271.05	270
0.05	0
90.31	90
181.07	180

Calibrated by: Yeung Ping Fai (Technical Officer)

Checked by : Ho Kam Fat (Senior Technical Officer)

Appendix F

EM&A Monitoring Schedules

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Noise Monitoring Schedule (1 to 31 July 2017)

Alternative Noise Monitoring at Pak Mong Village Entrance

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

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Air Quality Monitoring Schedule (1 to 31 July 2017)

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Jul
02-Jul	03-Jul	04-Jul	05-Jul	06-Jul	07-Jul	08-Jul
			1-hr TSP Monitoring 24-hr TSP Monitoring			
09-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul
		1-hr TSP Monitoring 24-hr TSP Monitoring				
16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP Monitoring		
23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul
			1-hr TSP Monitoring 24-hr TSP Monitoring			
30-Jul	31-Jul					

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Noise Monitoring Schedule (1 to 31 August 2017)

Alternative Noise Monitoring at Pak Mong Village Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Aug	02-Aug	03-Aug	04-Aug	05-Aug
		Noise Impact Monitoring				
06-Aug	07-Aug	08-Aug	09-Aug	10-Aug	11-Aug	12-Aug
	Noise Impact Monitoring			Noise Impact Monitoring		
13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
			Noise Impact Monitoring			
20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug
		Noise Impact Monitoring				
27-Aug	28-Aug	29-Aug	30-Aug	31-Aug		
	Noise Impact Monitoring			Noise Impact 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
Impact Air Quality Monitoring Schedule (1 to 31 August 2017)

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Aug	02-Aug	03-Aug	04-Aug	05-Aug
		1-hr TSP Monitoring 24-hr TSP Monitoring				
06-Aug	07-Aug	08-Aug	09-Aug	10-Aug	11-Aug	12-Aug
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP Monitoring		
13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
			1-hr TSP Monitoring 24-hr TSP Monitoring			
20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug
		1-hr TSP Monitoring 24-hr TSP Monitoring				
27-Aug	28-Aug	29-Aug	30-Aug	31-Aug		
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP 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
Impact Marine Water Quality Monitoring (WQM) Schedule (August 2017)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Aug	2-Aug	3-Aug	4-Aug	5-Aug
		ebb tide 6:45 - 10:15 flood tide 13:29 - 16:59		ebb tide 8:42 - 12:12 flood tide 15:57 - 19:27		ebb tide 10:00 - 13:30 flood tide 17:12 - 20:42
6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug
	ebb tide 11:12 - 14:42 flood tide 18:14 - 21:44		ebb tide 12:20 - 15:50 flood tide 5:36 - 9:06		ebb tide 13:29 - 16:59 flood tide 7:01 - 10:31	
13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
	ebb tide 15:39 - 19:09 flood tide 9:44 - 13:14		ebb tide 5:58 - 9:28 flood tide 12:45 - 16:15		ebb tide 8:20 - 11:50 flood tide 15:37 - 19:07	
20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug
	ebb tide 10:57 - 14:27 flood tide 17:53 - 21:23		ebb tide 12:23 - 15:53 flood tide 5:42 - 9:12		ebb tide 13:39 - 17:09 flood tide 7:11 - 10:41	
27-Aug	28-Aug	29-Aug	30-Aug	31-Aug		
	ebb tide 15:27 - 18:57 flood tide 9:36 - 13:06		ebb tide 5:30 - 9:00 flood tide 13:05 - 16:35			

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 to 31 July 2017)

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

HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 to 31 August 2017)

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	10-Aug	11-Aug	12-Aug
	Impact Dolphin Monitoring					
13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
			Impact Dolphin Monitoring			
20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug
	Impact Dolphin Monitoring				Impact Dolphin Monitoring	
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 G

Impact Air Quality Monitoring Results and Graphical Presentation

1-hour TSP Monitoring Results at Air Quality Monitoring Station ASR8A

Project	Works	Date(yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Parameter	Results (ug/m3)	Action Level (ug/m3)	Limit Level (ug/m3)
TMCLKL	HY/2012/07	2017-07-05	ASR8A	8:07	1-hr TSP	41	394	500
TMCLKL	HY/2012/07	2017-07-05	ASR8A	9:09	1-hr TSP	44		
TMCLKL	HY/2012/07	2017-07-05	ASR8A	10:11	1-hr TSP	45		
TMCLKL	HY/2012/07	2017-07-11	ASR8A	8:15	1-hr TSP	48		
TMCLKL	HY/2012/07	2017-07-11	ASR8A	9:17	1-hr TSP	41		
TMCLKL	HY/2012/07	2017-07-11	ASR8A	10:19	1-hr TSP	61		
TMCLKL	HY/2012/07	2017-07-17	ASR8A	8:30	1-hr TSP	51		
TMCLKL	HY/2012/07	2017-07-17	ASR8A	9:32	1-hr TSP	56		
TMCLKL	HY/2012/07	2017-07-17	ASR8A	10:34	1-hr TSP	41		
TMCLKL	HY/2012/07	2017-07-20	ASR8A	8:35	1-hr TSP	61		
TMCLKL	HY/2012/07	2017-07-20	ASR8A	9:37	1-hr TSP	55		
TMCLKL	HY/2012/07	2017-07-20	ASR8A	10:45	1-hr TSP	48		
TMCLKL	HY/2012/07	2017-07-26	ASR8A	8:30	1-hr TSP	48		
TMCLKL	HY/2012/07	2017-07-26	ASR8A	9:32	1-hr TSP	52		
TMCLKL	HY/2012/07	2017-07-26	ASR8A	10:52	1-hr TSP	42		
					Average	49		
					Min.	41		
					Max.	61		

1-hour TSP Monitoring Results at Air Quality Monitoring Station ASR9

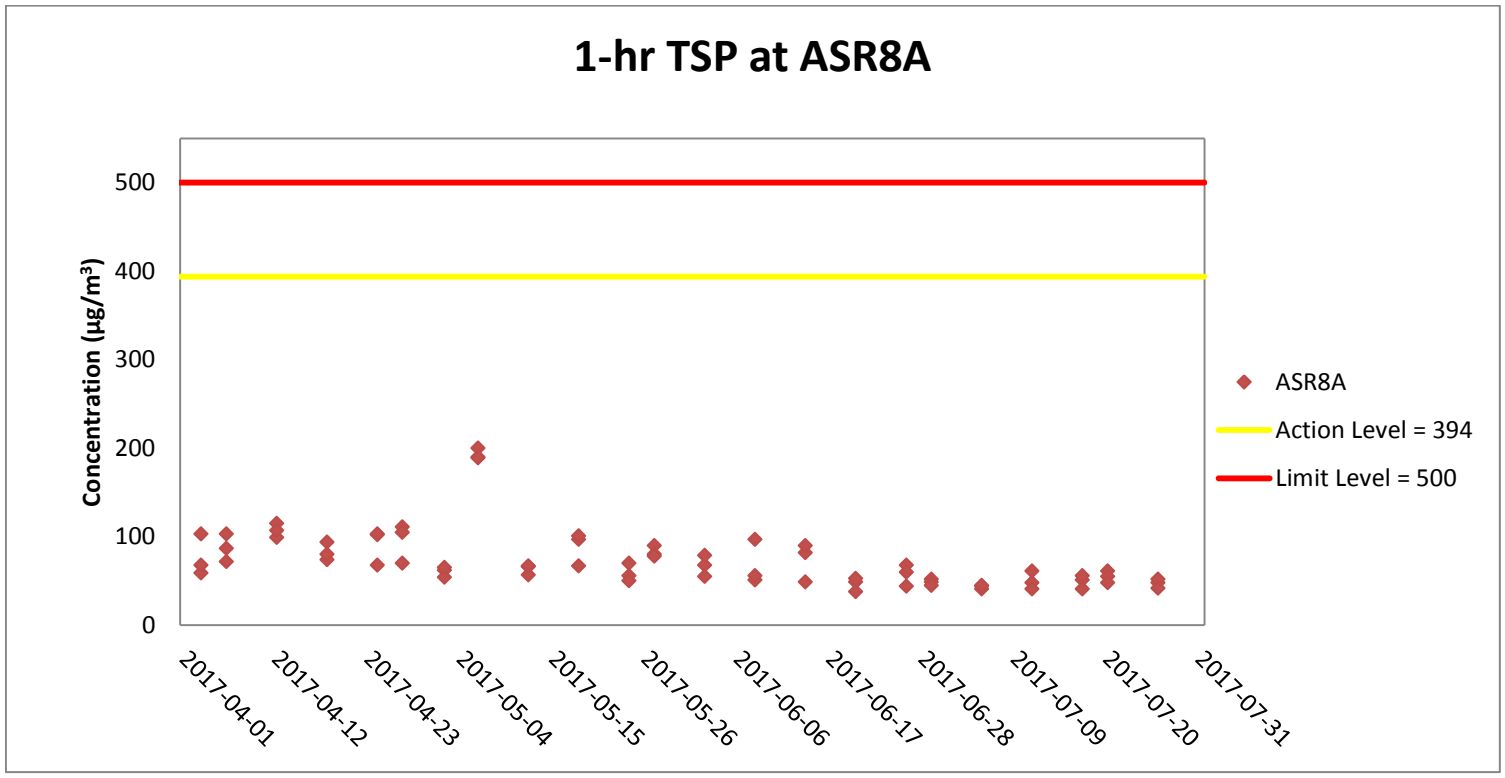
Project	Works	Date(yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Parameter	Results (ug/m3)	Action Level (ug/m3)	Limit Level (ug/m3)
TMCLKL	HY/2012/07	2017-07-05	ASR9	8:17	1-hr TSP	50	393	500
TMCLKL	HY/2012/07	2017-07-05	ASR9	9:19	1-hr TSP	81		
TMCLKL	HY/2012/07	2017-07-05	ASR9	10:21	1-hr TSP	58		
TMCLKL	HY/2012/07	2017-07-11	ASR9	8:25	1-hr TSP	45		
TMCLKL	HY/2012/07	2017-07-11	ASR9	9:27	1-hr TSP	74		
TMCLKL	HY/2012/07	2017-07-11	ASR9	10:29	1-hr TSP	85		
TMCLKL	HY/2012/07	2017-07-17	ASR9	8:41	1-hr TSP	38		
TMCLKL	HY/2012/07	2017-07-17	ASR9	9:43	1-hr TSP	52		
TMCLKL	HY/2012/07	2017-07-17	ASR9	10:45	1-hr TSP	53		
TMCLKL	HY/2012/07	2017-07-20	ASR9	8:45	1-hr TSP	93		
TMCLKL	HY/2012/07	2017-07-20	ASR9	9:47	1-hr TSP	91		
TMCLKL	HY/2012/07	2017-07-20	ASR9	10:55	1-hr TSP	48		
TMCLKL	HY/2012/07	2017-07-26	ASR9	8:40	1-hr TSP	52		
TMCLKL	HY/2012/07	2017-07-26	ASR9	9:42	1-hr TSP	56		
TMCLKL	HY/2012/07	2017-07-26	ASR9	11:03	1-hr TSP	71		
					Average	63		
					Min.	38		
					Max.	93		

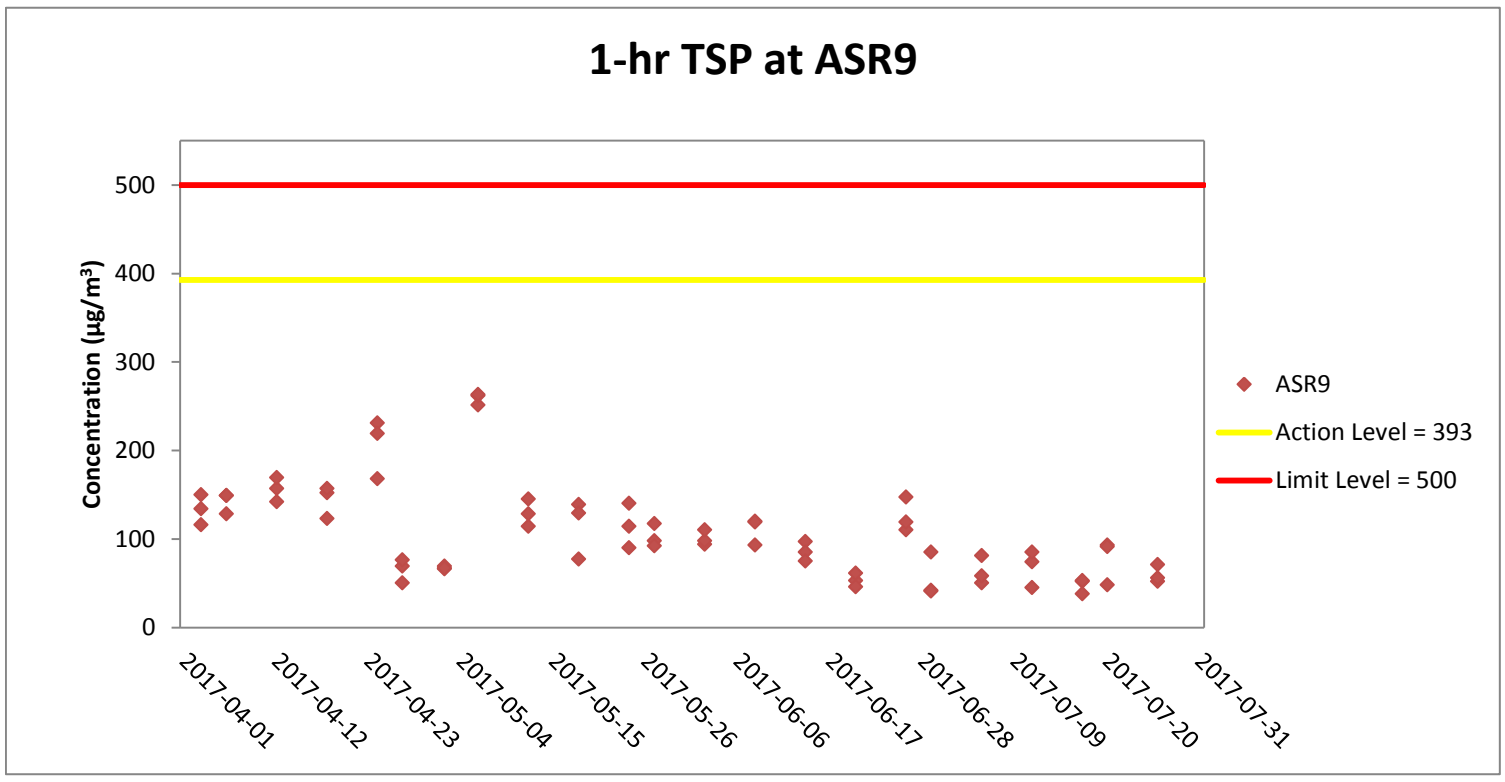
24-hour TSP Monitoring Results at Air Quality Monitoring Station ASR8A

Project	Works	Date(yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Parameter	Results (ug/m3)	Action Level (ug/m3)	Limit Level (ug/m3)
TMCLKL	HY/2012/07	2017-07-05	ASR8A	11:13	24-hr TSP	38	178	260
TMCLKL	HY/2012/07	2017-07-11	ASR8A	11:21	24-hr TSP	43		
TMCLKL	HY/2012/07	2017-07-17	ASR8A	11:36	24-hr TSP	40		
TMCLKL	HY/2012/07	2017-07-20	ASR8A	11:47	24-hr TSP	42		
TMCLKL	HY/2012/07	2017-07-26	ASR8A	11:54	24-hr TSP	20		
					Average	37		
					Min.	20		
					Max.	43		

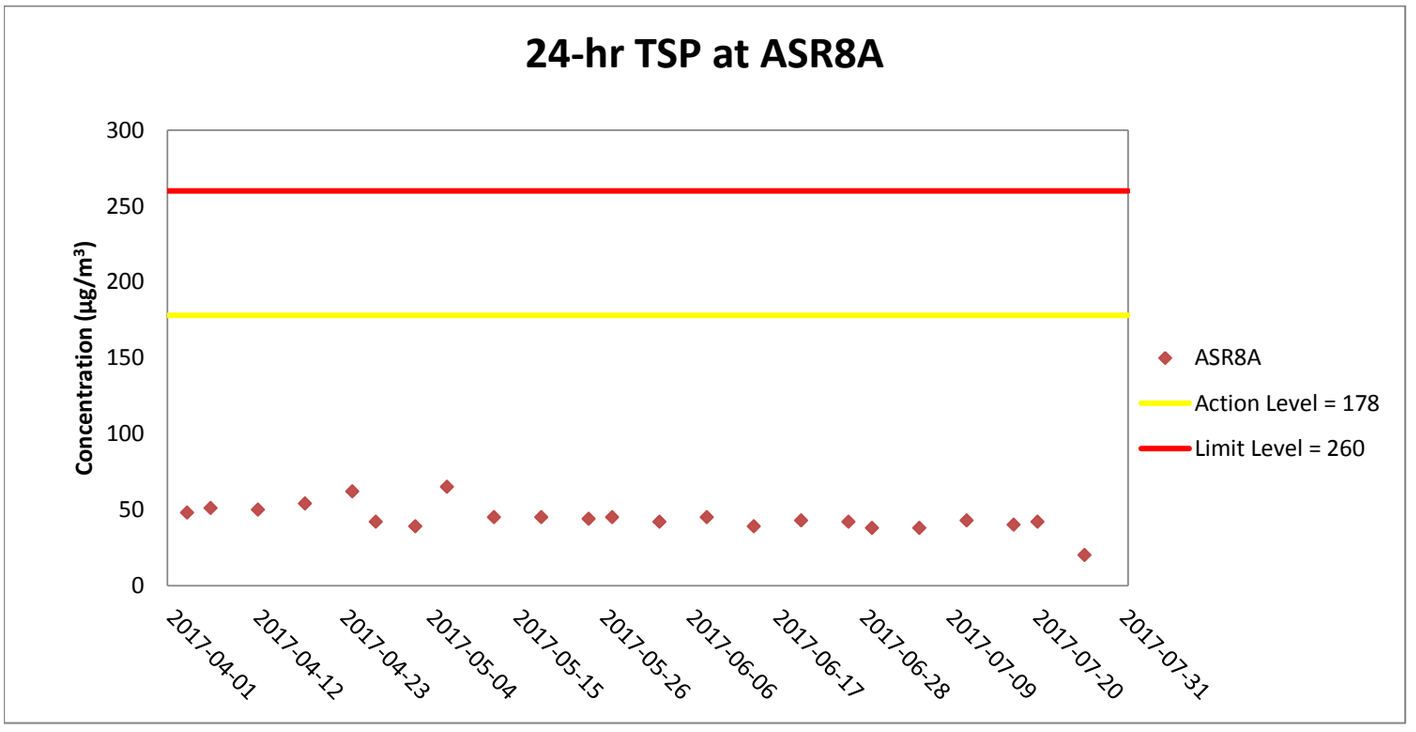
24-hour TSP Monitoring Results at Air Quality Monitoring Station ASR9

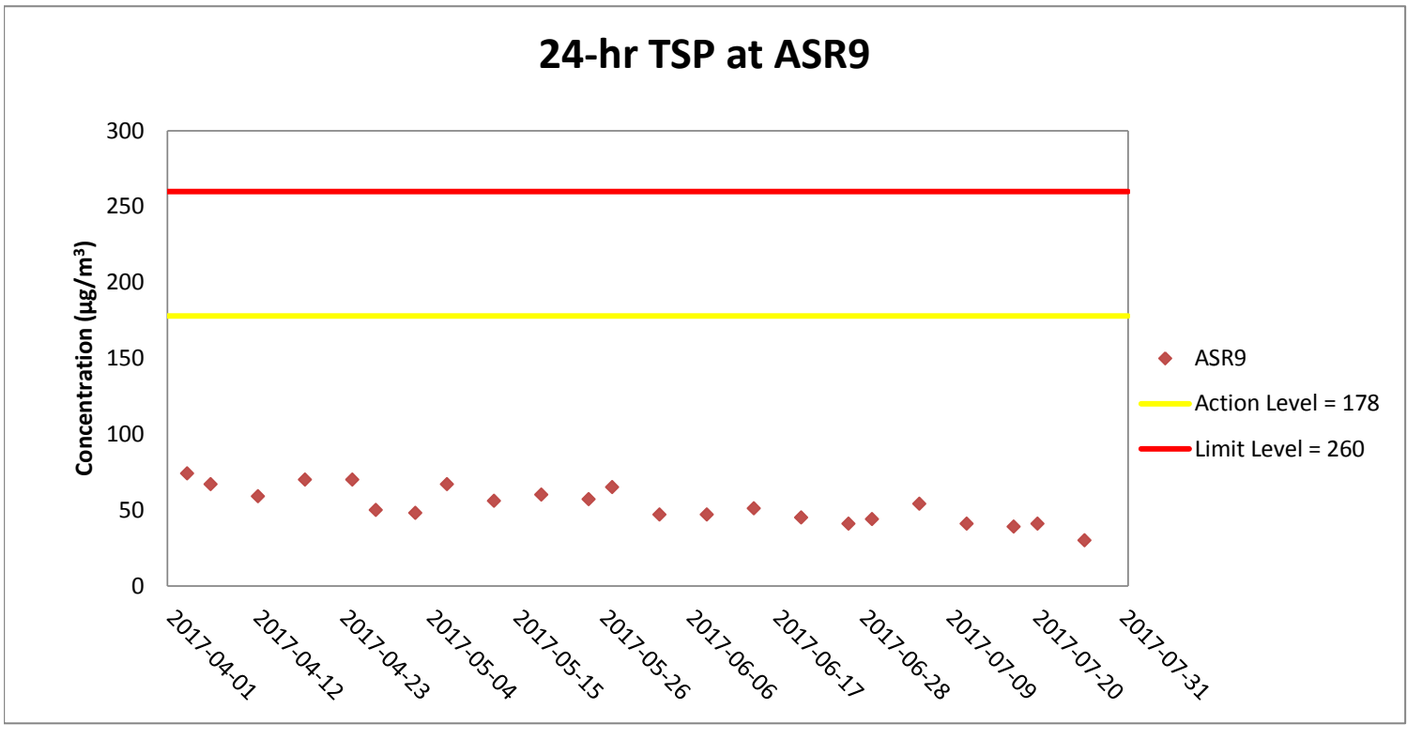
Project	Works	Date(yyyy-mm-dd)	Station	Time (hh:mm, 24hour)	Parameter	Results (ug/m3)	Action Level (ug/m3)	Limit Level (ug/m3)
TMCLKL	HY/2012/07	2017-07-05	ASR9	11:23	24-hr TSP	54	178	260
TMCLKL	HY/2012/07	2017-07-11	ASR9	11:31	24-hr TSP	41		
TMCLKL	HY/2012/07	2017-07-17	ASR9	11:47	24-hr TSP	39		
TMCLKL	HY/2012/07	2017-07-20	ASR9	11:57	24-hr TSP	41		
TMCLKL	HY/2012/07	2017-07-26	ASR9	12:05	24-hr TSP	30		
					Average	41		
					Min.	30		
					Max.	54		





Weather condition within the reporting period varied between sunny to rainy.
Major construction works undertaken within the reporting period include Pier construction; Re-alignment of Cheung Tung Road; Road works along North Lantau Highway;; Installation of pier head and deck segments; and Slope work of Viaducts A, B & C.
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry operation; Installation of deck segment and pier head segment; and Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).





Weather condition within the reporting period varied between sunny to rainy.
Major construction works undertaken within the reporting period include Pier construction; Re-alignment of Cheung Tung Road; Road works along North Lantau Highway;; Installation of pier head and deck segments; and Slope work of Viaducts A, B & C.
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry operation; Installation of deck segment and pier head segment; and Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).

Appendix H

Meteorological Data for the Reporting Month

Date	Time (HH)	Wind speed (m/s)	Wind direction (deg)
2017-07-05	0	0.25	159
2017-07-05	1	0.11	141
2017-07-05	2	0.08	143
2017-07-05	3	0.04	106
2017-07-05	4	0.02	137
2017-07-05	5	0.03	116
2017-07-05	6	0.02	65
2017-07-05	7	0.37	118
2017-07-05	8	1.10	149
2017-07-05	9	1.61	172
2017-07-05	10	1.06	146
2017-07-05	11	1.25	162
2017-07-05	12	1.87	168
2017-07-05	13	2.80	151
2017-07-05	14	1.82	158
2017-07-05	15	1.88	161
2017-07-05	16	2.35	166
2017-07-05	17	0.42	119
2017-07-05	18	0.78	156
2017-07-05	19	0.72	130
2017-07-05	20	0.09	75
2017-07-05	21	0.71	131
2017-07-05	22	1.24	146
2017-07-05	23	1.24	158
2017-07-06	0	0.73	152
2017-07-06	1	0.19	114
2017-07-06	2	0.91	144
2017-07-06	3	0.24	106
2017-07-06	4	0.47	144
2017-07-06	5	0.45	129
2017-07-06	6	0.94	142
2017-07-06	7	0.92	160
2017-07-06	8	1.39	177
2017-07-06	9	0.18	160
2017-07-06	10	0.17	99
2017-07-06	11	0.54	146
2017-07-06	12	1.32	145
2017-07-06	13	2.25	155
2017-07-06	14	1.17	171
2017-07-06	15	1.11	161
2017-07-06	16	0.91	181
2017-07-06	17	0.94	183
2017-07-06	18	1.12	162
2017-07-06	19	0.33	123
2017-07-06	20	0.80	135
2017-07-06	21	1.11	140
2017-07-06	22	0.69	105
2017-07-06	23	0.50	130
2017-07-11	0	0.28	168
2017-07-11	1	0.02	172
2017-07-11	2	0.02	195
2017-07-11	3	0.61	180
2017-07-11	4	0.05	202
2017-07-11	5	0.09	199
2017-07-11	6	0.03	212
2017-07-11	7	0.24	101
2017-07-11	8	0.50	135
2017-07-11	9	1.68	178
2017-07-11	10	2.14	180
2017-07-11	11	1.92	179
2017-07-11	12	2.91	180
2017-07-11	13	2.00	191
2017-07-11	14	1.55	176
2017-07-11	15	2.60	189
2017-07-11	16	3.12	182
2017-07-11	17	2.09	176
2017-07-11	18	0.57	153
2017-07-11	19	0.32	150
2017-07-11	20	0.07	170
2017-07-11	21	0.11	109
2017-07-11	22	1.58	165
2017-07-11	23	1.79	163
2017-07-12	0	1.24	165

Date	Time (HH)	Wind speed (m/s)	Wind direction (deg)
2017-07-12	1	0.02	97
2017-07-12	2	0.03	139
2017-07-12	3	0.07	203
2017-07-12	4	0.18	184
2017-07-12	5	0.06	136
2017-07-12	6	0.02	156
2017-07-12	7	0.13	86
2017-07-12	8	0.02	178
2017-07-12	9	0.07	212
2017-07-12	10	1.60	169
2017-07-12	11	1.82	154
2017-07-12	12	2.22	169
2017-07-12	13	3.26	191
2017-07-12	14	3.84	185
2017-07-12	15	3.77	186
2017-07-12	16	3.01	185
2017-07-12	17	1.04	191
2017-07-12	18	0.08	158
2017-07-12	19	0.31	144
2017-07-12	20	0.80	162
2017-07-12	21	1.29	163
2017-07-12	22	1.52	165
2017-07-12	23	0.39	170
2017-07-17	0	0.20	51
2017-07-17	1	0.02	79
2017-07-17	2	0.10	53
2017-07-17	3	0.03	147
2017-07-17	4	0.07	112
2017-07-17	5	0.14	66
2017-07-17	6	0.18	160
2017-07-17	7	0.02	112
2017-07-17	8	0.03	171
2017-07-17	9	0.08	179
2017-07-17	10	0.06	269
2017-07-17	11	0.09	193
2017-07-17	12	1.85	171
2017-07-17	13	1.63	174
2017-07-17	14	3.97	167
2017-07-17	15	3.59	159
2017-07-17	16	5.02	174
2017-07-17	17	1.62	164
2017-07-17	18	1.20	137
2017-07-17	19	3.62	173
2017-07-17	20	3.34	170
2017-07-17	21	1.57	146
2017-07-17	22	0.68	188
2017-07-17	23	1.07	164
2017-07-18	0	1.11	143
2017-07-18	1	0.53	132
2017-07-18	2	0.70	133
2017-07-18	3	1.05	160
2017-07-18	4	0.13	136
2017-07-18	5	0.31	112
2017-07-18	6	1.42	134
2017-07-18	7	0.54	137
2017-07-18	8	0.39	136
2017-07-18	9	0.15	179
2017-07-18	10	0.05	151
2017-07-18	11	0.21	191
2017-07-18	12	0.08	192
2017-07-18	13	0.03	277
2017-07-18	14	0.29	173
2017-07-18	15	0.48	189
2017-07-18	16	0.62	176
2017-07-18	17	0.90	147
2017-07-18	18	0.67	155
2017-07-18	19	0.82	154
2017-07-18	20	0.54	162
2017-07-18	21	1.46	158
2017-07-18	22	2.22	159
2017-07-18	23	1.42	161
2017-07-20	0	0.02	182
2017-07-20	1	0.03	156

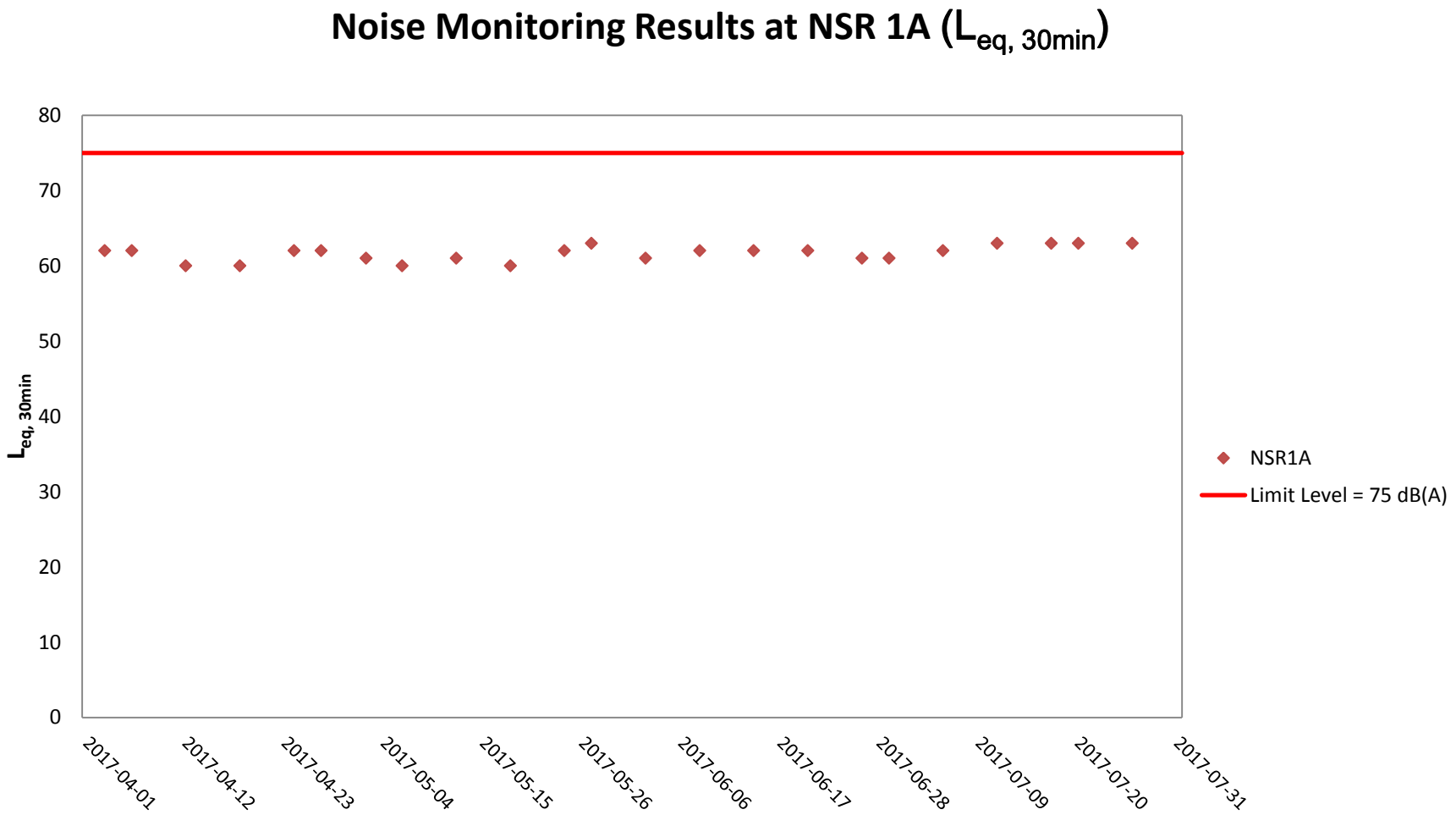
Date	Time (HH)	Wind speed (m/s)	Wind direction (deg)
2017-07-20	2	0.02	193
2017-07-20	3	0.02	107
2017-07-20	4	0.02	144
2017-07-20	5	0.02	146
2017-07-20	6	0.13	153
2017-07-20	7	0.33	162
2017-07-20	8	0.74	160
2017-07-20	9	0.99	170
2017-07-20	10	1.11	197
2017-07-20	11	1.38	176
2017-07-20	12	2.50	178
2017-07-20	13	2.90	174
2017-07-20	14	0.66	147
2017-07-20	15	1.62	180
2017-07-20	16	1.07	151
2017-07-20	17	0.92	152
2017-07-20	18	0.14	133
2017-07-20	19	0.03	78
2017-07-20	20	0.03	125
2017-07-20	21	0.09	123
2017-07-20	22	0.29	143
2017-07-20	23	0.04	134
2017-07-21	0	0.03	123
2017-07-21	1	0.19	127
2017-07-21	2	0.03	174
2017-07-21	3	0.06	201
2017-07-21	4	0.03	155
2017-07-21	5	0.02	128
2017-07-21	6	0.02	87
2017-07-21	7	0.25	87
2017-07-21	8	0.18	149
2017-07-21	9	0.61	127
2017-07-21	10	0.72	95
2017-07-21	11	0.88	133
2017-07-21	12	1.48	152
2017-07-21	13	2.70	162
2017-07-21	14	1.70	158
2017-07-21	15	1.32	162
2017-07-21	16	2.10	173
2017-07-21	17	2.40	165
2017-07-21	18	0.48	142
2017-07-21	19	0.13	98
2017-07-21	20	0.02	112
2017-07-21	21	0.04	76
2017-07-21	22	0.14	119
2017-07-21	23	0.08	130
2017-07-26	0	0.16	146
2017-07-26	1	0.04	122
2017-07-26	2	0.03	186
2017-07-26	3	0.08	194
2017-07-26	4	0.14	176
2017-07-26	5	0.19	187
2017-07-26	6	0.10	181
2017-07-26	7	0.02	171
2017-07-26	8	0.02	265
2017-07-26	9	0.02	272
2017-07-26	10	0.04	148
2017-07-26	11	0.02	244
2017-07-26	12	0.02	203
2017-07-26	13	2.22	166
2017-07-26	14	3.75	184
2017-07-26	15	3.54	173
2017-07-26	16	2.85	193
2017-07-26	17	1.90	183
2017-07-26	18	1.17	165
2017-07-26	19	0.18	136
2017-07-26	20	0.28	152
2017-07-26	21	0.30	178
2017-07-26	22	0.32	182
2017-07-26	23	0.02	197
2017-07-27	0	0.02	151
2017-07-27	1	0.02	162
2017-07-27	2	0.02	189
2017-07-27	3	0.02	190
2017-07-27	4	0.14	189

Date	Time (HH)	Wind speed (m/s)	Wind direction (deg)
2017-07-27	5	0.05	192
2017-07-27	6	0.04	183
2017-07-27	7	0.02	99
2017-07-27	8	0.08	173
2017-07-27	9	0.02	155
2017-07-27	10	0.05	290
2017-07-27	11	0.05	154
2017-07-27	12	0.16	165
2017-07-27	13	0.25	125
2017-07-27	14	1.90	174
2017-07-27	15	1.54	143
2017-07-27	16	0.18	130
2017-07-27	17	1.03	140
2017-07-27	18	0.27	163
2017-07-27	19	0.02	140
2017-07-27	20	0.09	136
2017-07-27	21	0.20	116
2017-07-27	22	0.08	128
2017-07-27	23	0.02	108

Appendix I

Impact Noise Monitoring Results and Graphical Presentation

Project	Works	Date (yyyy-mm-dd)	Station	Weather Condition	Time (hh:mm, 24hour)	Noise Level for 30-min, dB(A)			Limit Level dB(A)	Wind Speed (m/s)	Noise Meter Model/ID	Calibrator Model/ID
						Leq	L10	L90				
TMCLKL	HY/2012/07	2017-07-05	NSR1A	Sunny	9:29	62	64	58	75	0.3	RION NL31 (S/N 00603867)	RION NC73 (S/N 10486660)
TMCLKL	HY/2012/07	2017-07-11	NSR1A	Sunny	9:38	63	65	60	75	0.4	RION NL52 (S/N 01010406)	RION NC73 (S/N 10486660)
TMCLKL	HY/2012/07	2017-07-17	NSR1A	Cloudy	9:53	63	64	60	75	0.5	RION NL52 (S/N 01010406)	RION NC73 (S/N 10486660)
TMCLKL	HY/2012/07	2017-07-20	NSR1A	Sunny	10:09	63	65	60	75	2.7	RION NL52 (S/N 01010406)	RION NC73 (S/N 10486660)
TMCLKL	HY/2012/07	2017-07-26	NSR1A	Sunny	10:14	63	64	60	75	0.2	RION NL52 (S/N 01010406)	RION NC73 (S/N 10486660)
					Min.	62						
					Max.	63						
					Average	63						



Weather condition within the reporting period varied between sunny to rainy.
Major construction works undertaken within the reporting period include Pier construction; Re-alignment of Cheung Tung Road; Road works along North Lantau Highway; Installation of pier head and deck segments; and Slope work of Viaducts A, B & C.
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry operation; Installation of deck segment and pier head segment; and Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).

Appendix J

Impact Dolphin Monitoring Survey Results

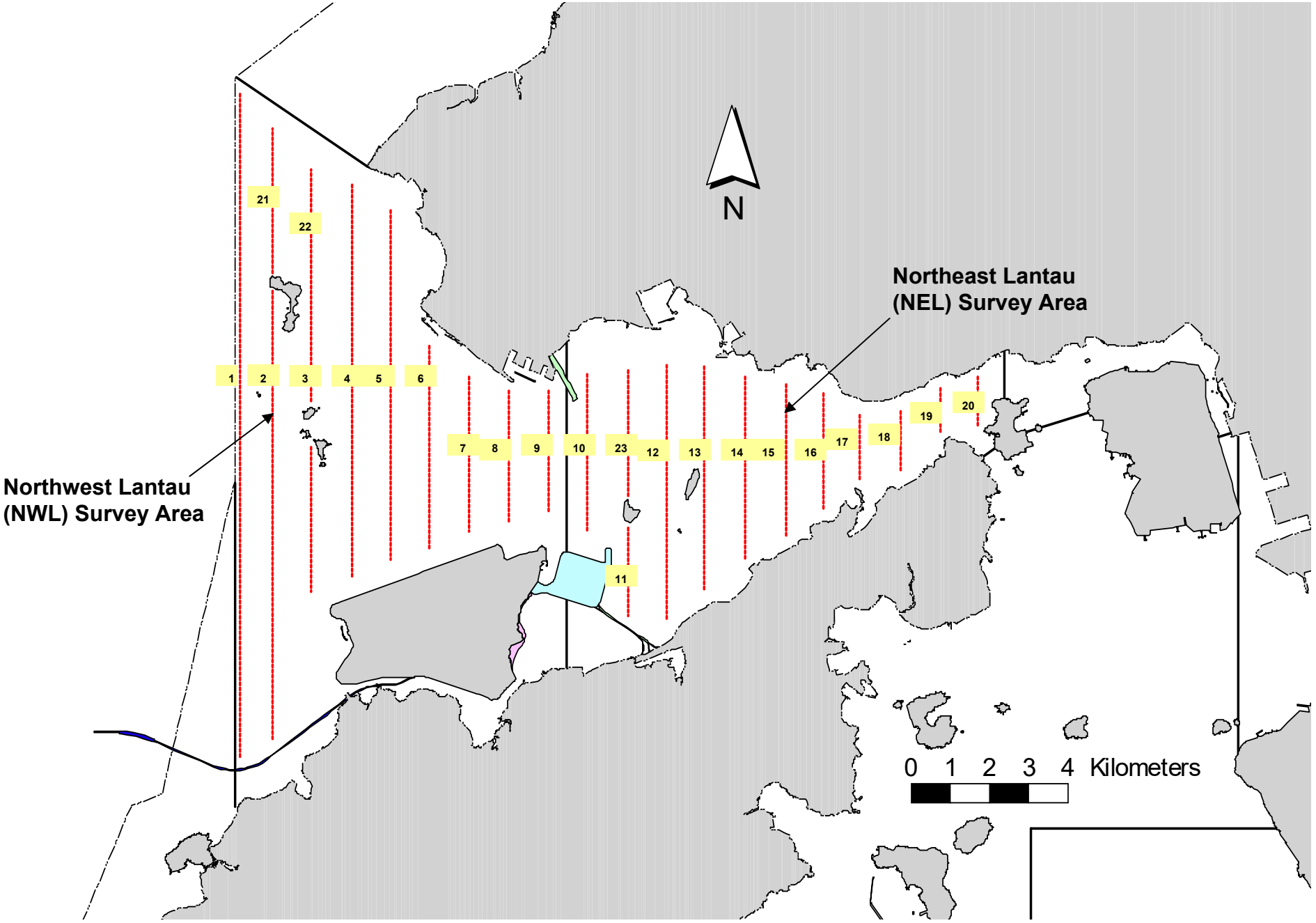


Figure 1. Transect Line Layout in Northwest and Northeast Lantau Survey Areas

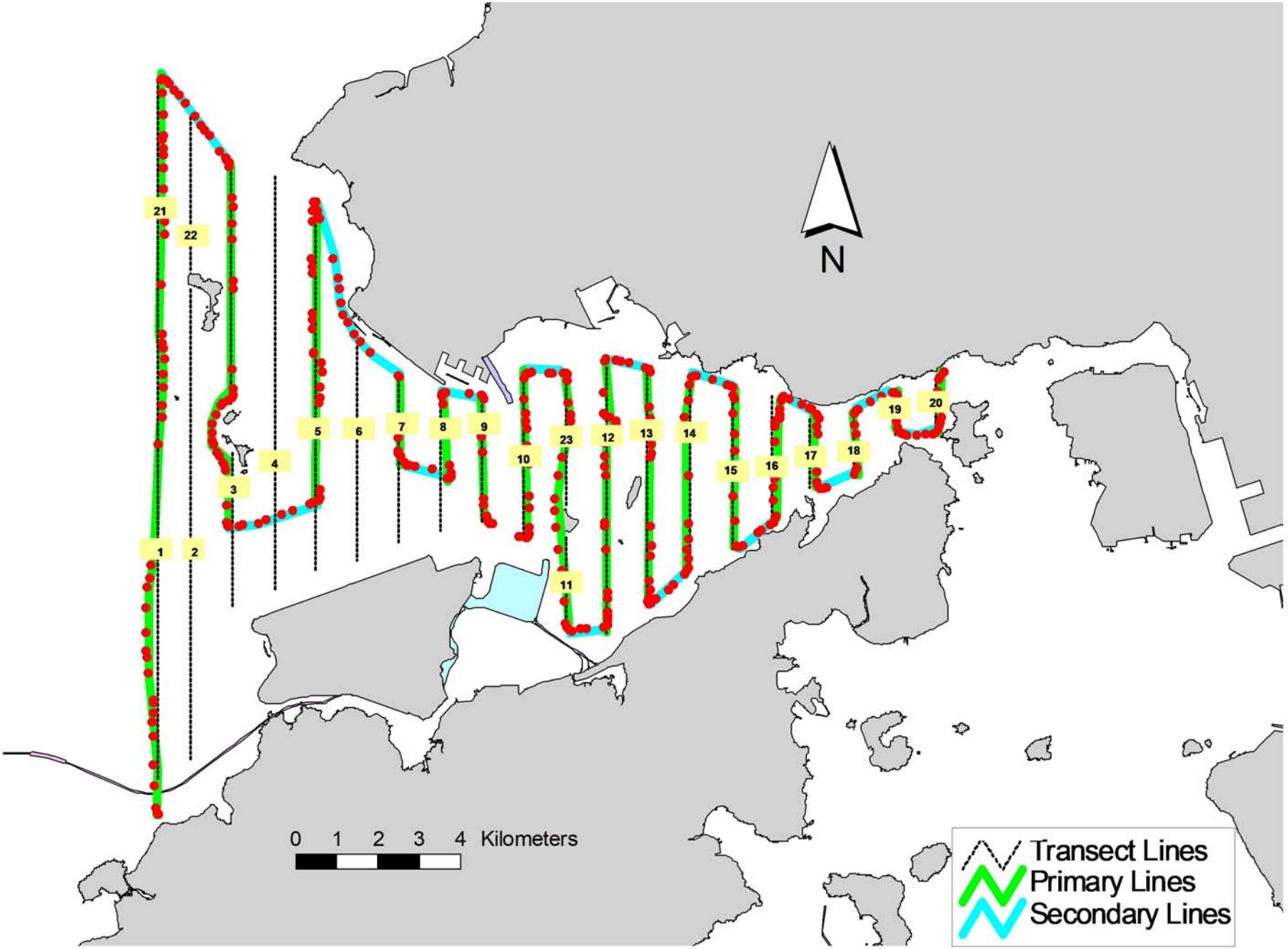


Figure 2. Survey Route on July 20th, 2017 (from HKLR03 project)

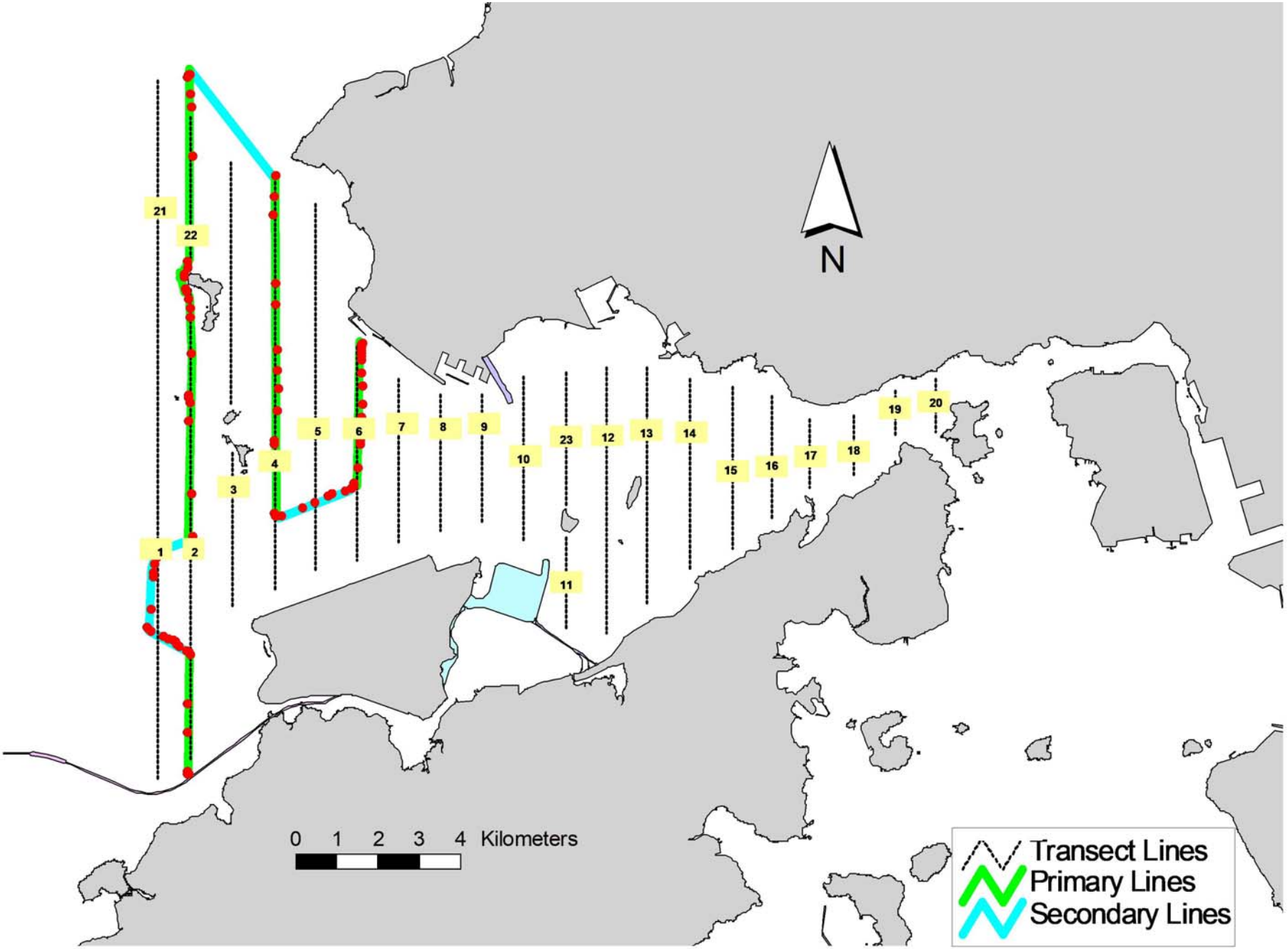


Figure 3. Survey Route on July 24th, 2017 (from HKLR03 project)

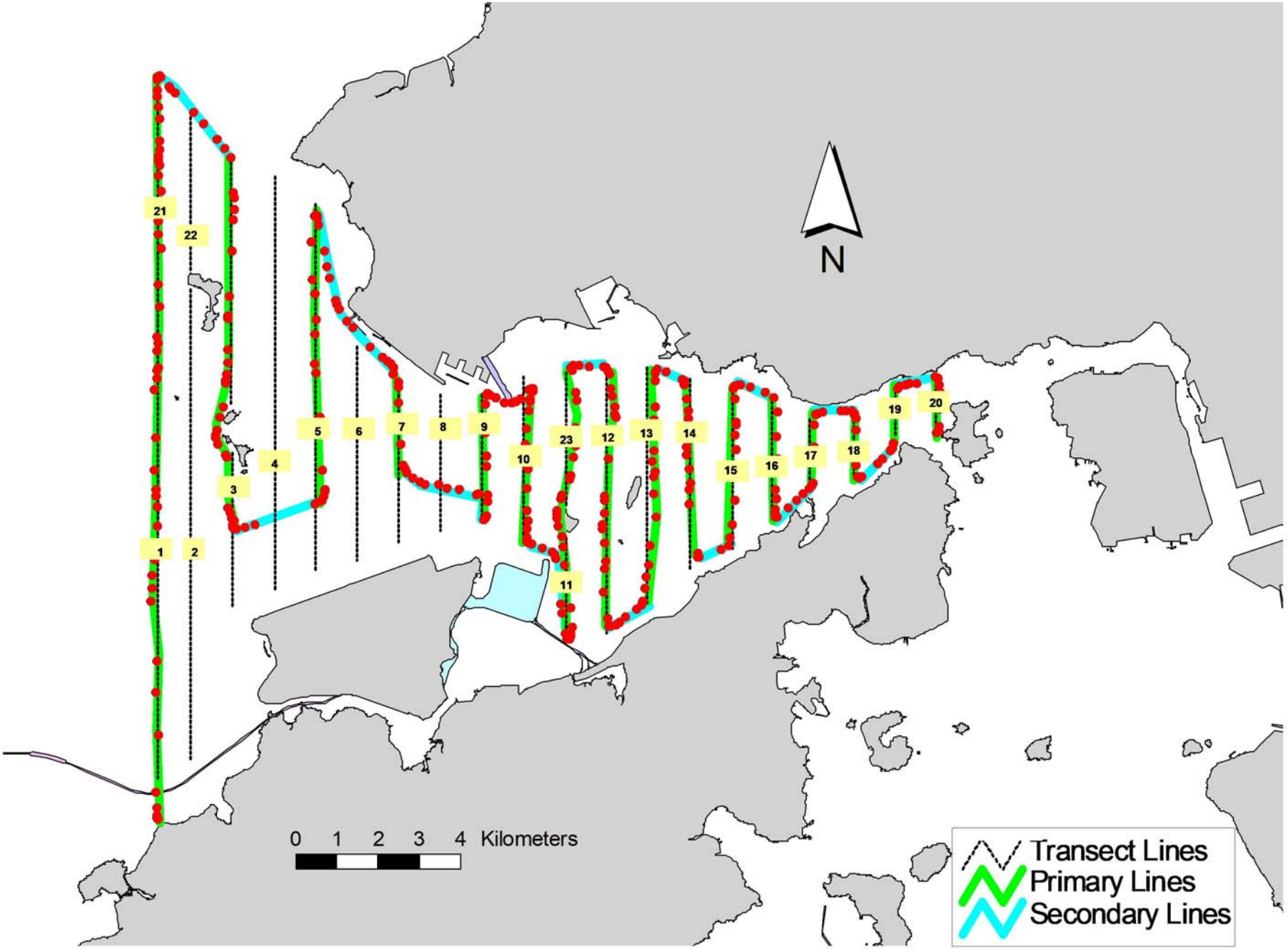


Figure 4. Survey Route on July 27th, 2017 (from HKLR03 project)

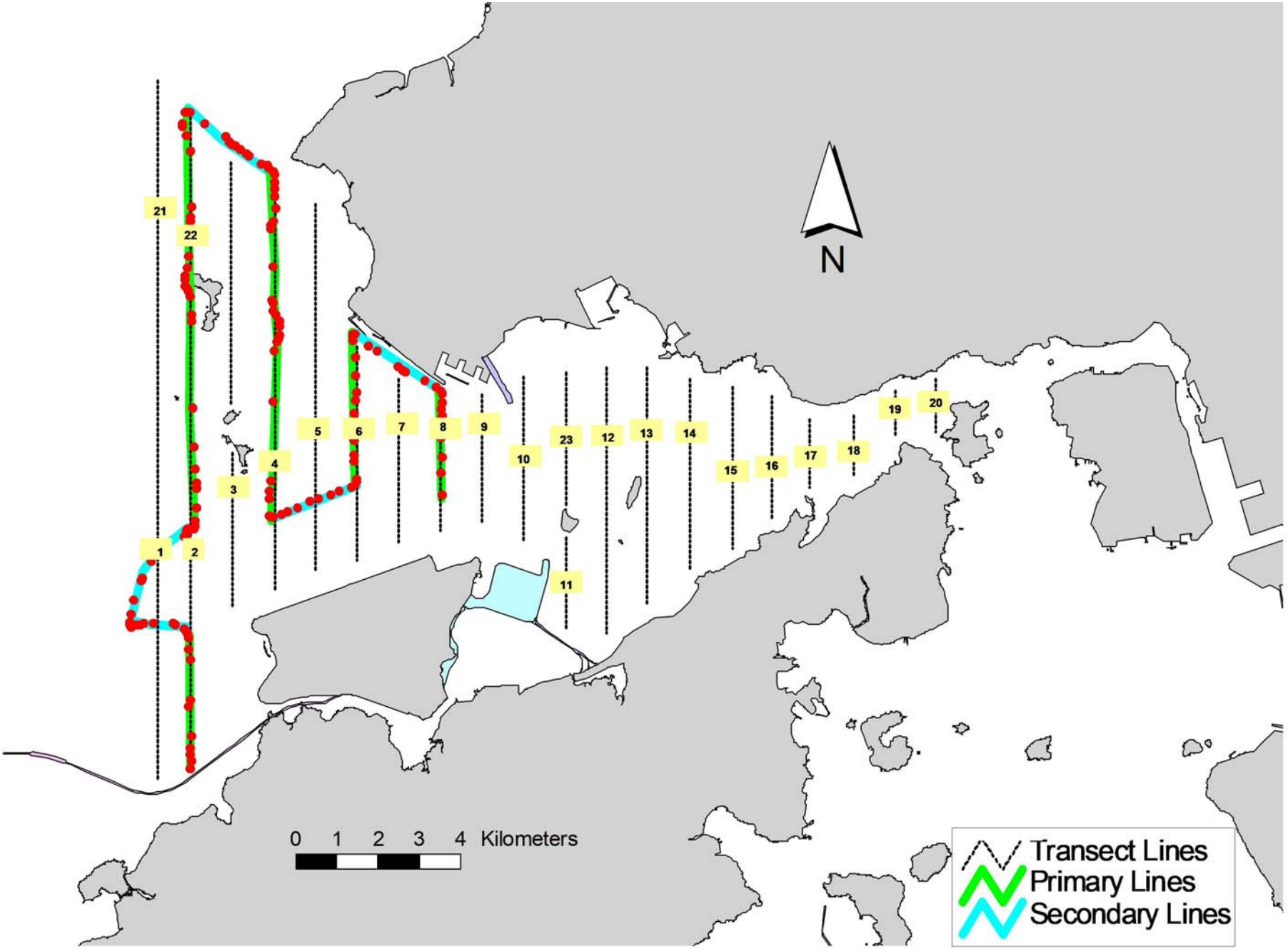


Figure 5. Survey Route on July 28th, 2017 (from HKLR03 project)

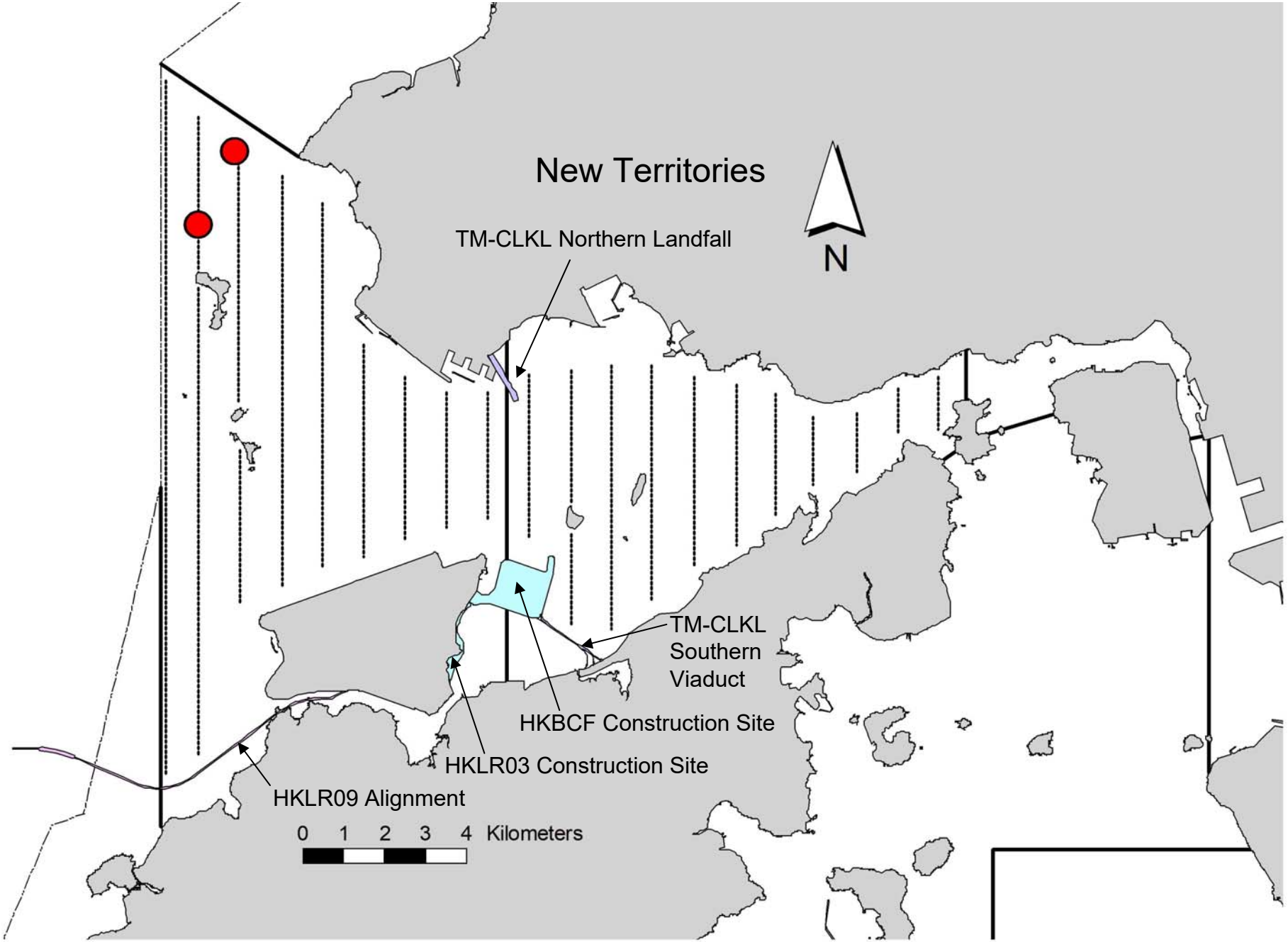


Figure 6. Distribution of Chinese White Dolphin Sightings during July 2017 HKLR03 Monitoring Surveys

Appendix I. HKLR03 Survey Effort Database (July 2017)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
20-Jul-17	NW LANTAU	2	18.97	SUMMER	STANDARD36826	HKLR	P
20-Jul-17	NW LANTAU	3	18.23	SUMMER	STANDARD36826	HKLR	P
20-Jul-17	NW LANTAU	2	7.00	SUMMER	STANDARD36826	HKLR	S
20-Jul-17	NW LANTAU	3	5.70	SUMMER	STANDARD36826	HKLR	S
20-Jul-17	NW LANTAU	4	1.60	SUMMER	STANDARD36826	HKLR	S
20-Jul-17	NE LANTAU	1	3.80	SUMMER	STANDARD36826	HKLR	P
20-Jul-17	NE LANTAU	2	31.92	SUMMER	STANDARD36826	HKLR	P
20-Jul-17	NE LANTAU	1	1.20	SUMMER	STANDARD36826	HKLR	S
20-Jul-17	NE LANTAU	2	10.58	SUMMER	STANDARD36826	HKLR	S
24-Jul-17	NW LANTAU	2	20.28	SUMMER	STANDARD36826	HKLR	P
24-Jul-17	NW LANTAU	3	3.38	SUMMER	STANDARD36826	HKLR	P
24-Jul-17	NW LANTAU	2	6.35	SUMMER	STANDARD36826	HKLR	S
27-Jul-17	NW LANTAU	2	32.62	SUMMER	STANDARD36826	HKLR	P
27-Jul-17	NW LANTAU	3	3.79	SUMMER	STANDARD36826	HKLR	P
27-Jul-17	NW LANTAU	2	12.69	SUMMER	STANDARD36826	HKLR	S
27-Jul-17	NE LANTAU	2	22.18	SUMMER	STANDARD36826	HKLR	P
27-Jul-17	NE LANTAU	3	13.60	SUMMER	STANDARD36826	HKLR	P
27-Jul-17	NE LANTAU	2	11.02	SUMMER	STANDARD36826	HKLR	S
27-Jul-17	NE LANTAU	3	2.00	SUMMER	STANDARD36826	HKLR	S
28-Jul-17	NW LANTAU	1	2.10	SUMMER	STANDARD36826	HKLR	P
28-Jul-17	NW LANTAU	2	19.21	SUMMER	STANDARD36826	HKLR	P
28-Jul-17	NW LANTAU	3	4.53	SUMMER	STANDARD36826	HKLR	P
28-Jul-17	NW LANTAU	2	10.69	SUMMER	STANDARD36826	HKLR	S
28-Jul-17	NW LANTAU	3	1.77	SUMMER	STANDARD36826	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (July 2017)

(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
24-Jul-17	1	1111	9	NW LANTAU	2	243	ON	HKLR	828092	805439	SUMMER	NONE	P
27-Jul-17	1	1131	2	NW LANTAU	2	16	ON	HKLR	829774	806339	SUMMER	NONE	S

Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in July 2017

ID#	DATE	STG#	AREA
NL46	24/07/17	1	NW LANTAU
NL49	24/07/17	1	NW LANTAU
NL105	24/07/17	1	NW LANTAU
NL123	24/07/17	1	NW LANTAU
NL202	24/07/17	1	NW LANTAU
NL286	24/07/17	1	NW LANTAU
WL05	27/07/17	1	NW LANTAU
WL11	27/07/17	1	NW LANTAU

Appendix IV. Photographs of Identified Individual Dolphins in July 2017 (HKLR03)

Appendix K

Event Action Plan

Appendix K1 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	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.

and keep the IEC, the DEP and the SOR informed of the results. 8. If the exceedance stops, cease additional monitoring.	

Appendix K2 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 K3 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;	1. Check monitoring data submitted by ET and Contractor's working method;	1. Confirm receipt of notification of failure in writing;	1. Inform the SOR and confirm notification of the non-compliance in writing;

Event	ET Leader	IEC	SOR	Contractor
	2. Identify source(s) of impact; 3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor;	2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the SOR accordingly.	2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Request Contractor to review the working methods.	2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR.
Limit level being exceeded by two or more consecutive sampling days	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days;	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the SOR accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. 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 K4 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 K5 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 *Table 5.8* 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 L

Monthly 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 2017 (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	Marine Sediment, Cat. H	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
Unit	('000m^3)	('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	4.591	0.717	0.474	-	4.118	-	-	-	-	-	3.521	99.840	-	-	0.140	-
Feb	5.034	1.585	0.166	-	4.869	-	0.857	-	-	-	-	127.720	-	-	0.091	-
Mar	6.575	0.937	0.498	-	6.077	-	0.771	-	-	-	6.000	87.910	-	-	0.077	-
Apr	5.467	0.791	1.058	-	4.409	-	-	-	-	-	-	130.680	-	5.170	0.063	-
May	4.960	0.537	0.826	-	4.134	-	0.672	-	-	-	-	171.870	-	-	0.056	-
Jun	4.491	0.567	0.098	-	4.394	-	-	-	-	-	-	148.600	-	-	0.063	-
SUB-TOTAL	**31.118**	**5.133**	**3.118**	**-**	**28.000**	**0.000**	**2.300**	**-**	**-**	**-**	**9.521**	**766.620**	**-**	**5.170**	**0.490**	**-**
Jul	5.618	0.435	0.696	0.002	4.921	-	1.056	-	-	-	0.800	159.980	-	-	0.091	-
Aug	-	0.000	-	-	-	-	-	-	-	-			-	-		-
Sep	-	0.000	-	-	-	-	-	-	-	-			-	-		-
Oct	-	0.000	-	-	-	-	-	-	-	-			-	-		-
Nov	-	0.000	-	-	-	-		-	-	-			-	-		-
Dec	-	0.000	-	-	-	-		-	-	-			-	-		-
TOTAL	**36.736**	**5.569**	**3.814**	**0.002**	**32.920**	**-**	**3.356**	**-**	**-**	**-**	**10.321**	**926.600**	**-**	**5.170**	**0.581**	**-**

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 M

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

Appendix M1 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting month	**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	2
	Limit	0	0
Impact Dolphin Monitoring	Action	0	9
	Limit	0	9

Appendix M2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	**Cumulative Statistics**		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (July 2017)	0	0	0
Total No. received since project commencement	10	0	0