

MTR Corporation Limited

**Shatin to Central Link –
Hung Hom to Admiralty Section**

Monthly EM&A Report No. 8

[Period from 1 to 31 December 2014]

(January 2015)

Certified by:  Richard Kwan

Position: Environmental Team Leader

Date: 14 January 2015

MTR Corporation Limited

Consultancy Agreements
No. C11033B

**Shatin to Central Link - Hung Hom to
Admiralty Section**

Monthly EM&A Report No. 8

[Period from 1 to 31 December 2014]

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Version: A

Date: 14 January 2015

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1 INTRODUCTION

1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH – ADM)] (hereafter referred to as “the Project”) is part of the SCL.
- 1.1.3 The Environmental Impact Assessment (EIA) Report for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/A) was issued by Director of Environmental Protection (DEP) on 30 April 2014.

1.2 Project Programme

- 1.2.1 Five civil construction works contracts of the Project have been awarded since January 2014. The construction of the Project commenced in May 2014 and is expected to complete in 2020. The Project will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass. **Table 1.1** summarises the information of the awarded Works Contracts.

Table 1.1 Summary of Awarded Works Contracts

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1126	Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool	July 2014	Kaden Leader JV	Cinotech Consultants Ltd. (Cinotech)
1128	South Ventilation Building to Admiralty Tunnels	November 2014	Dragages Bouygues J.V.	AECOM Asia Co. Ltd.
1129	SCL – Advance Works for NSL	May 2014	Hsin Chong Construction Co. Ltd.	AECOM Asia Co. Ltd.
11227	Advance Works for NSL Cross Harbour Tunnels	August 2014	Concentric-Hong Kong River Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1121	NSL Cross Harbour Tunnels	To be constructed	Penta-Ocean – China State JV	Cinotech Consultants Ltd. (Cinotech)

1.3 Purpose of the Report

- 1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in May 2014. This is the eighth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor’s ETs during the period from 1 to 31 December 2014.

2 ENVIRONMENTAL MONITORING AND AUDIT

2.1 EM&A Results

2.1.1 The EM&A Report for Works Contracts 1129, 1126, 11227 and 1128 prepared by the respective Contractor's ETs are provided in **Appendices A to D** respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.

2.1.2 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in **Table 2.1**.

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1126	Wan Chai Sports Ground (WCSG)	<ul style="list-style-type: none"> • Construction of Site Office; and • Material storage.
	Public Transport Interchange (PTI) Area	<ul style="list-style-type: none"> • Construction of Petrol Interception; • Construction of Store Room; • Manhole construction & underground utilities connection; • Construction of hoarding footing; • Construction of ducting for street lighting; • Construction of footing for bus shelter and signage post; and • Construction of Temporary Public Toilet.
1128	Area W1 (Reclamation Works Area)	<ul style="list-style-type: none"> • Hoarding erection and road strengthening; and • Equipment mobilization.
	Area W4a (Canal Road box culvert)	<ul style="list-style-type: none"> • Modification of 1129's box culvert base slab and construction of steel platform; and • Extract of 1129 sheet piles that obstruct east Tunnel Boring Machine (TBM).
	Area W4b (Canal Road flyover)	<ul style="list-style-type: none"> • Sheetpile and start bulk excavation.
	Area W6 (Wan Shing Street)	<ul style="list-style-type: none"> • Implement Traffic Management Scheme (TTMS) for further pile investigation.
	Area 14a & 14b	<ul style="list-style-type: none"> • Sheet pile installation and ELS work; and • Pre-drilling work for new bored pile works.
1129	Area W1	<ul style="list-style-type: none"> • Construct Western Pile Cap; • Hoarding Erection for W1C; • Erect Eastern Pile Cap Temporary Staircase; • Painting and E&M Installation; • Sheetpiling; • Ground Treatment; and • ELS Works and Excavation.
	Area W2	<ul style="list-style-type: none"> • Nil.
	Area W3	<ul style="list-style-type: none"> • Site / Ramp Formation; • Utility Diversion; • Strengthen Abandon Box Culvert; • Remove Concrete Piles; and • Plant Mobilization.
11227	Shek O Casting Basin	<ul style="list-style-type: none"> • Rock filling works in Casting Basin; • Decommissioning of silt curtains; and • Demobilization of vessels and equipment.
	Victoria Harbour	<ul style="list-style-type: none"> • Dredging of trial trench in Victoria Harbour;

Works Contract	Site	Construction Activities
		<ul style="list-style-type: none"> Decommissioning of silt curtains; and Demobilization of vessels and equipment.

2.1.3 During the reporting month, impact monitoring for air quality, construction noise and water quality were conducted in accordance with the EM&A Manual and EP Condition 2.23.7. Continuous noise monitoring was not required in the reporting period according to the Continuous Noise Monitoring Plan (CNMP). No exceedances of the Action/Limit Levels of 24-hr TSP, construction noise and water quality parameters due to the Project construction were recorded. Results of air quality, construction noise and water quality monitoring are summarised in **Tables 2.2, 2.3** and **2.4** respectively. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Reports (**Appendices A** to **D**).

Table 2.2 Summary of 24-Hour TSP Monitoring Results in the Reporting Period

Monitoring Station ID	Location	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1126					
AM2	Wan Chai Sports Ground ⁽¹⁾	43.4 – 143.9	160	260	No
AM3	Existing Harbour Road Sports Centre	92.5 – 136.6	169	260	No
Works Contract 1128					
AM4	Pedestrian Plaza	104.8 – 189.9	198	260	No
Works Contract 1129 and 11227⁽²⁾					

Note:

- (1) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
- (2) No TSP monitoring is required under Works Contracts 1129 and 11227.

Table 2.3 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected ⁽¹⁾		
Works Contract 1126						
NM2 ⁽²⁾⁽³⁾	Harbour Centre	68.8 – 74.1	69.6	< Baseline – 72.2	75	No
Work Contract 1128 and 1129						
NM1	Hoi Kung Court	66.8 – 69.2	71	< Baseline – 64.1	75	No
Works Contract 11227⁽⁴⁾						

Note:

- (1) The measured noise levels are corrected against the corresponding baseline noise levels.
- (2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.

- (3) Impact noise monitoring has been carrying out on 7/F of Harbour Centre between 20 August and 15 December 2014, and on 8/F from 19 December 2014 onwards.
(4) No noise monitoring is required under Works Contract 11227.

Table 2.4 Summary of Marine Water Quality Monitoring Results in the Reporting Period⁽¹⁾

Locations		Parameters			
		Dissolved Oxygen (mg/L)		Depth- average Turbidity (NTU)	Depth- average Suspended Solids (mg/L)
		Surface & Middle	Bottom		
Shek O Casting Basin (Dry Season)⁽³⁾					
C3	Mean	8.0	7.9	3.4	5.5
	Range	7.0 – 8.6	7.0 – 8.5	1.4 – 4.8	2.7 – 8.2
C4	Mean	8.0	7.9	3.2	5.2
	Range	7.2 – 8.5	7.1 – 8.5	1.2 – 4.8	2.9 – 7.7
GB3	Mean	8.2	8.0	3.2	5.5
	Range	7.2 – 8.8	7.1 – 8.7	1.3 – 4.8	3.2 – 8.5
Action Level		6.8 (Dry season) 5.5 (Wet season)		5.0 (Dry season) 2.1 (Wet season)	9.3 (Dry season) 4.5 (Wet season)
Limit Level		6.5 (Dry season) 5.3 (Wet season)		5.6 (Dry season) 2.4 (Wet season)	9.3 (Dry season) 4.5 (Wet season)
Exceedance (Yes/No)		No	No	No	No
Victoria Harbour (Dry Season)⁽²⁾⁽³⁾					
C1	Mean	6.7	6.5	4.0	4.0
	Range	5.7 – 8.2	5.4 – 8.0	2.8 – 5.2	3.2 – 4.8
C2	Mean	7.3	7.2	3.9	3.9
	Range	5.0 – 8.2	4.5 – 8.2	3.0 – 5.0	2.8 – 4.8
A	Mean	6.2	6.1	3.9	4.2
	Range	5.2 – 7.8	4.6 – 7.2	2.5 – 5.1	3.3 – 4.8
WSD9	Mean	7.1	6.9	3.5	4.1
	Range	5.9 – 8.9	5.8 – 7.9	2.8 – 4.9	3.0 – 4.8
Action Level		<2.1 (Dry & wet season)		5.3 (Dry & wet season)	5.0 (Dry season) 4.4 (Wet season)
Limit Level		<2 (Dry & wet season)		5.6 (Dry & wet season)	5.5 (Dry season) 4.8 (Wet season)
Exceedance (Yes/No)		No	No	No	No

Notes:

- (1) Marine water quality monitoring was conducted in the reporting period under Works Contract 11227.
(2) As the construction activities in Victoria Harbour commenced on 11 September 2014, water quality monitoring in Victoria Harbour commenced on 12 September 2014. According to the Water Quality Monitoring Plan for Trial Trenching Works (WQMP) and the Baseline Water Quality Monitoring Report for Trial Trenching Works, water quality monitoring in Victoria Harbour will be carried out at two impact monitoring stations (namely A and WSD9) in dry season and four impact monitoring stations (namely A, WSD9, 14 and WSD17) in wet season.
(3) Impact Water Quality Monitoring was completed on 15 and 19 December 2014 for Victoria Harbour and Shek O Casting Basin respectively as the construction works under Contract 11227 was completed.

2.1.4 No environmental complaints, notification of summons and successful prosecutions were received in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.5**.

Table 2.5 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
	Reporting Month	Reporting Month	Reporting Month

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
	Reporting Month	Reporting Month	Reporting Month
1126	0	0	0
1128	0	0	0
1129	0	0	0
11227	0	0	0

2.1.5 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Report, EM&A Manual and EP (EP-436/2012/A). The status of required submissions under the EP as of the reporting period are summarised in **Table 3.1**.

Table 3.1 Summary of EP Submissions Status

EP Condition (EP-436/2012/A)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	19 Dec 2012
Condition 2.3	Notification of Information of Community Liaison Groups	17 Mar 2014
Condition 2.5	Management Organisation of Main Construction Companies	4 Apr 2014
Condition 2.6	Construction Programme and EP Submission Schedule	19 Dec 2012
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	9 Jun 2014 (1 st Submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	9 Jun 2014 (1 st Submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st Submission) 12 Sept 2012 (2 nd Submission) 15 Oct 2012 (approved)
Condition 2.10	Silt Curtain Deployment Plan for Trial Trenching in Victoria Harbour	11 Jul 2014
Condition 2.11	Silt Screen Deployment Plan	11 Jul 2014
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1 st Submission) 12 Sept 2012 (2 nd Submission) 15 Oct 2012 (approved) 3 Jul 2014 (3 rd submission)
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1 st Submission) 15 Feb 2013 (2 nd Submission) 3 Dec 2013 (3 rd Submission) 21 Aug 2014 (4 th Submission)
Condition 2.23.1	Silt Curtain Deployment Plan for Shek O	23 Jul 2014 (1 st Submission) 31 Jul 2014 (approved)
Condition 2.24	Contamination Assessment Plan (CAP) and Contamination Assessment Report (CAR) Remedial Action Plan (RAP) for the above-ground diesel tanks for Wan Chai Swimming Pool	CAP: 25 Sept 2012 (1 st Submission) 12 Nov 2012 (2 nd Submission) 22 Nov 2012 (approved) CAR: 19 Mar 2013 (1 st Submission) 16 Apr 2013 (2 nd Submission) 21 May 2013 (3 rd Submission) 7 Jun 2013 (approved)

EP Condition (EP-436/2012/A)	Submission	Submission date
Condition 3.3	Baseline Monitoring Report (for noise and air quality)	4 Dec 2013 (1 st Submission) 5 Feb 2014 (2 nd Submission)
	Baseline Water Quality Monitoring Report	23 Sep 2014 (1 st Submission) 18 Dec 2014 (2 nd Submission)
	Baseline Water Quality Monitoring Report for Temporary Marine Works at Shek O Casting Basin	8 Jul 2014 (1 st Submission) 11 Aug 2014 (2 nd Submission)
Condition 3.4	Monthly EM&A Reports No.1 - 6 Monthly EM&A Report No.7	Reported in previous Monthly EM&A Reports 12 Dec 2014

Appendix A

**Monthly EM&A Report for December 2014 – SCL Works
Contract 1129 Advance Works for NSL**

Hsin Chong Construction Co. Ltd.**Shatin to Central Link -
Hung Hom to Admiralty Section****Works Contract 1129 -
Advance Works for NSL****Monthly EM&A Report for
December 2014****January 2015**

	Name	Signature
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Reviewed, Approved & Certified:	Y T Tang (Contractor's Environmental Team Leader)	

Version: 0

Date: 12 January 2015

Disclaimer

This Environmental Monitoring and Audit Report is prepared for Hsin Chong Construction Co. Ltd and is given for its sole benefit in relation to and pursuant to SCL1129 and may not be disclosed to, quoted to or relied upon by any person other than Hsin Chong Construction Co. Ltd without our prior written consent. No person (other than Hsin Chong Construction Co. Ltd into whose possession a copy of this Manual comes may rely on this plan without our express written consent and Hsin Chong Construction Co. Ltd may not rely on it for any purpose other than as described above.

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1129 – Advance Works for North South Link (NSL) (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL) which aimed to comprises advance works for NSL – the extension of the existing East Rail Line (EAL) to Hong Kong Island.

The Project covers construction activities at Percival Street Footbridge, Causeway Flyover, Tunnel Approach Rest Garden (TARG) and demolition works at existing abandoned culvert near Wan Shing Street.

The EM&A programme commenced on 2 May 2014. The impact EM&A for the Project includes noise monitoring.

As informed by the Contractor, a part of works area in W2 has been handed over to other SCL contract on 25 and 27 August 2014, and another part of W2 has been handed over to other SCL contract on 25 October 2014.

This report documents the findings of EM&A works conducted in the period between 1 and 31 December 2014. As informed by the Contractor, major activities in the reporting period were:

Area W1

- Construct Western Pile Cap;
- Hoarding Erection for W1C;
- Erect Eastern Pile Cap Temporary Staircase ;
- Painting and E&M Installation;
- Sheetpiling;
- Ground Treatment; and
- ELS Works and Excavation.

Area W2

- Nil.

Area W3

- Site / Ramp Formation;
- Utility Diversion;
- Strengthen Abandon Box Culvert;
- Remove Concrete Piles; and
- Plant Mobilization.

Breaches of Action and Limit Levels for Noise

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:

Area W1

- Hoarding Erection for W1C;
- Painting and E&M Installation;
- Grouting Trial for Underpinning;
- Jack up Pile Cap;
- Removal of Pile Cap Formwork; and
- Backfilling to +1.5mPD.

Area W2

- Nil.

Area W3

- Remove Concrete Piles.

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

1 INTRODUCTION

Hsin Chong Construction Co. Ltd (HC) was commissioned by MTR as the Civil Contractor for Works Contract 1129. AECOM Asia Company Limited (AECOM) was appointed by HC as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the eighth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 December 2014.

1.2 Report Structure

1.2.1 This monthly EM&A Report is organised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) (VEP-433/2014) was applied on 2 April 2014 and the latest EP (EP No. EP-436/2012/A) was issued by the Director of Environmental Protection (DEP) on 30 April 2014.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and the Project covers construction activities at Percival Street Footbridge, Causeway Flyover, TARG and demolition works at existing abandoned culvert near Wan Shing Street under the EP.
- 2.1.4 As informed by the Contractor, a part of works area in W2 has been handed over to other SCL contract on 25 and 27 August 2014, and another part of W2 has been handed over to other SCL contract on 25 October 2014.
The works areas and site location of the Project is shown in **Figure 1.1**.

2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1129 include:
- (a) Removal of 10 nos. of abandoned steel H-piles, provision of temporary staircase and diversion of pedestrians at Percival Street Footbridge; (Works Area W1)
 - (b) Underpinning of Pier A5 of Causeway Flyover including installation of 6 nos. 600mm diameter concrete bored piles and construction of pile cap; (Works Area W1)
 - (c) Site clearance, temporary take-up, storage and handover of feature stone at existing TARG, tree removal and utility diversions. Construction of temporary box culvert (in dry/wet season) without breakthrough of existing culvert at TARG; (Area W2) and
 - (d) Diversion and temporary support of utilities to facilitate pile extraction works at existing abandoned culvert near Wan Shing Street. Demolition on part of the abandoned culvert and removal of 6 nos. of 18" concrete square driven piles. Construction of minor slip road to facilitate road diversion. (Works Area W3)

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

Area W1

- Construct Western Pile Cap;
- Hoarding Erection for W1C;
- Erect Eastern Pile Cap Temporary Staircase ;
- Painting and E&M Installation;
- Sheetpiling;
- Ground Treatment; and
- ELS Works and Excavation.

Area W2

- Nil.

Area W3

- Site / Ramp Formation;
- Utility Diversion;
- Strengthen Abandon Box Culvert;
- Remove Concrete Piles; and
- Plant Mobilization.

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. T.C. Lam	3143 9129	3127 6424
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
HC	Contractor	Senior Project Manager	Mr. Nelson Cheng	2602 0918/ 9302 5927	2774 9322
		Assistant Environmental Manager	Mr. Andy Leung	9489 0035	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-436/2012	22 Mar 2012	-	Superseded by EP-436/2012/A on 30 Apr 2014	-
EP-436/2012/A	30 Apr 2014	-	Valid	-
Construction Noise Permit				
GW-RS1024-14	24 Sep 2014	20 Mar 2015	Valid	Applied for plant mobilization (0100-0500)
GW-RS0859-14	19 Aug 2014	18 Feb 2015	Valid	Applied for water pump at W1B (2300-0700)
GW-RS1042-14	29 Sep 2014	28 Mar 2015	Valid	Applied for work at W1 (1900-2300)
GW-RS0975-14	15 Sep 2014	14 Mar 2015	Valid	Applied for UMP installation at Wan Shing Street (2100-0600)
GW-RS1335-14	8 Dec 2014	7 Jan 2015	Valid	Applied for Road Marking Maintenance
GW-RS1382-14	9 Dec 2014	15 Dec 2014	Expired on 15 Dec 2014	Applied for Plant Mobilization (0100-0500)
Wastewater Discharge License				
WT00018771-2014	4 Apr 2014	30 Apr 2019	Superseded by WT00020241-2 014 on 4 Nov 2014	-
WT00020241-2014	4 Nov 2014	30 Apr 2019	Valid	-
Chemical Waste Producer Registration				
WPN5213-135-H35 63-01	26 Feb 2014	End of Contract	Valid	For Hung Hing Flyover & Percival Street (Area W1)
WPN5213-134-H35 65-01	26 Feb 2014	End of Contract	Valid	For Tunnel Approach Road & Wan Shing Footbridge (Area W3)
Billing Account for Construction Waste Disposal				
7019335	13 Feb 2014	End of Contract	Valid	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
370021	28 Jan 2014	End of Contract	Valid	-

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Noise Monitoring

Monitoring Requirements

- 3.1.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.1** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.1 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L ₁₀ and L ₉₀ would be recorded.	At least once per week

Monitoring Equipment

- 3.1.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.2**.

Table 3.2 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Rion (Model No. NL-31 (S/N: 00320528)) and B&K (Model No. 2238 (S/N: 2285692 and 2800927))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307223))

Monitoring Locations

- 3.1.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manuals for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.3** and shown in **Figure 3.1**.

Table 3.3 Noise Monitoring Stations during Construction Phase

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station
NM1	CH2	Hoi Kung Court

Monitoring Methodology

3.1.4 Monitoring Procedure

- (a) Façade measurement was made at NM1.
- (b) The battery condition was checked to ensure the correct functioning of the meter.
- (c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - (i) frequency weighting: A
 - (ii) time weighting: Fast
 - (iii) time measurement: $L_{eq(30\text{-minutes})}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.
- (d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (e) During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.1.5 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

- 3.1.6 The schedule for environmental monitoring in December 2014 is provided in **Appendix F**.

3.2 Landscape and Visual

- 3.2.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6**.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/A)	Monthly EM&A Report for November 2014	12 December 2014

5 MONITORING RESULTS

5.1 Construction Noise Monitoring

5.1.1 The monitoring results for noise are summarized in **Table 5.1** and the monitoring data is provided in **Appendix G**.

Table 5.1 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), L_{eq} (30 mins)	Limit Level, dB(A), L_{eq} (30 mins)
NM1 (*)	<Baseline – 64.1	75

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.1.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.

5.1.3 No Limit Level exceedance of noise was recorded at all monitoring stations in the reporting month.

5.1.4 The event and action plan is annexed in **Appendix H**.

5.1.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.2 Waste Management

5.2.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.2.2 As advised by the Contractor, 270m³ of inert C&D material was generated (209.5m³ was disposed as public fills at CWPFBP and 60m³ was disposed as fill bank at TKO137) in the reporting month. 14.5m³ of general refuse was generated in the reporting month. No metals, no paper/cardboard packaging materials and no plastics were collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix J**.

5.2.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.2.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.3 Landscape and Visual

5.3.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 11 and 25 December 2014. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 5 site inspections were carried out on 4, 11, 18, 24 and 31 December 2014. The one held on 11 December 2014 was a joint inspection with the IEC, ER, the Contractor and the ET. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Water Quality	N/A	N/A	N/A
Waste/ Chemical Management	4 December 2014	<ul style="list-style-type: none"> Oil Stain was observed on ground at W1. The Contractor was reminded to clean the oil stain and avoid any oil leakage. 	The item was improved by the Contractor on 4 December 2014.
	18 December 2014	<ul style="list-style-type: none"> Oil leakage was observed from a power-pack at W3. The Contractor was reminded to clean the oil stain. 	The item was improved by the Contractor on 19 December 2014.
		<ul style="list-style-type: none"> Oil containers were observed on ground without provision of drip tray at W3. The Contractor was reminded to provide drip tray to store the oil leakage, if any. 	The item was improved by the Contractor on 18 December 2014.
		<ul style="list-style-type: none"> Oil leakage was observed from a mobile crane at W3. The Contractor was reminded to clean the oil stain and avoid any oil leakage. 	The item was improved by the Contractor on 18 December 2014.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.
- 7.1.2 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

7.2 Summary of Environmental Non-Compliance

- 7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

- 7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix I**.

7.4 Summary of Environmental Summon and Successful Prosecutions

- 7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix I**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Two Month

8.1.1 The major construction works in January and February 2015 will be:

Area W1

- Hoarding Erection for W1C ;
- Grouting Trial for Underpinning;
- Jack up Pile Cap;
- Removal of Pile Cap Formwork;
- Painting and E&M Installation;
- Site Reinstatement;
- Backfilling to +1.5mPD in January; and
- Backfilling to +4mPD in February.

Area W2

- Nil.

Area W3

- Remove Portion of Abandoned Box Culvert; and
- Removal of Concrete Piles.

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

8.3 Monitoring Schedules for the Next Three Months

8.3.1 The tentative schedules for environmental monitoring in January, February and March 2015 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 Noise monitoring was carried out in the reporting month.
- 9.1.2 No noise complaint was received in the reporting month. Hence, no Action Level exceedance was recorded.
- 9.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.4 5 nos. of environmental site inspections were carried out in December 2014. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

- 9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- No specific observation was identified in the reporting month.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

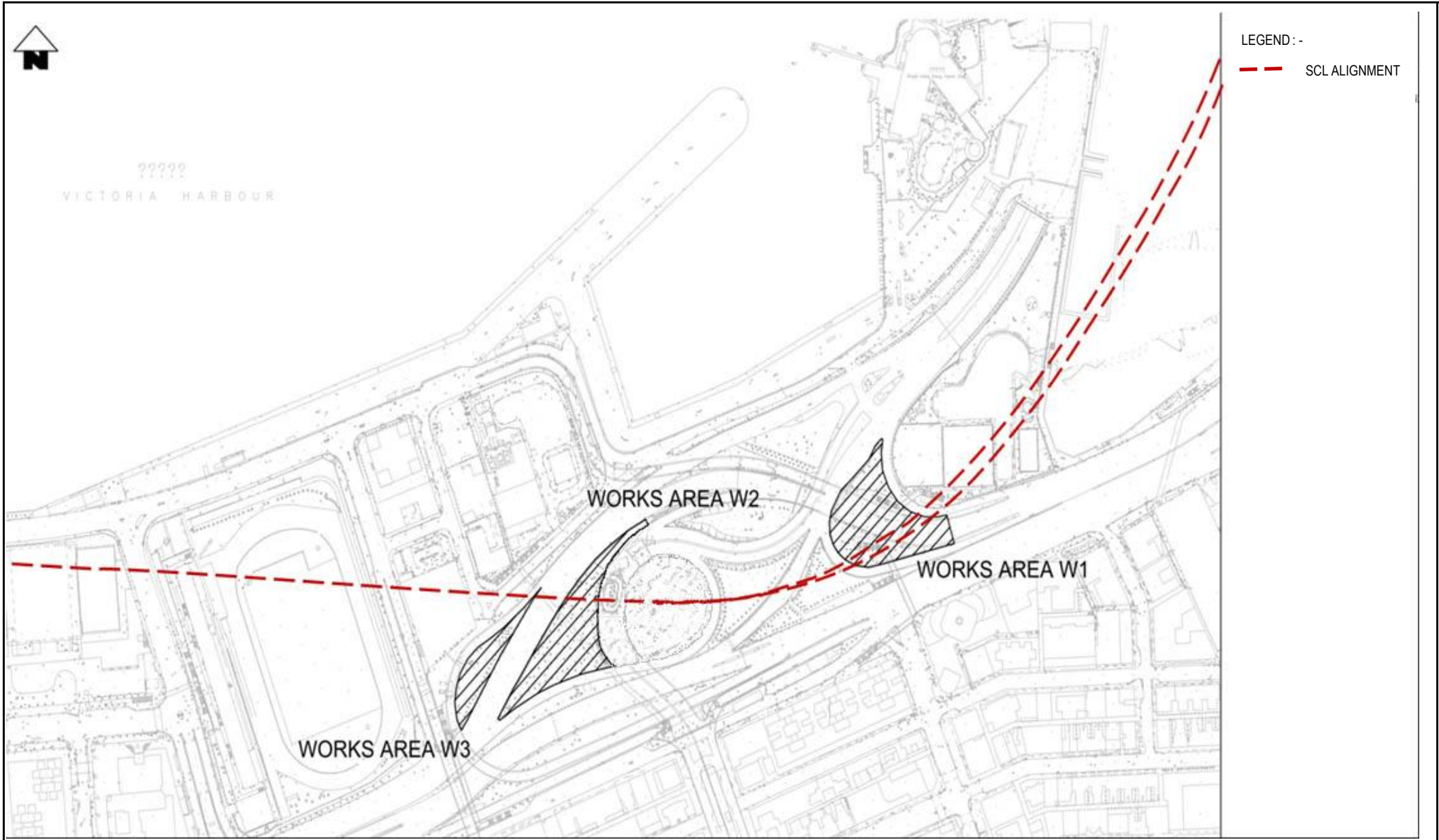
Chemical and Waste Management

- The Contractor was reminded to clean the oil stain and avoid any oil leakage.
- The Contractor was reminded to provide drip tray to store the oil leakage, if any.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES



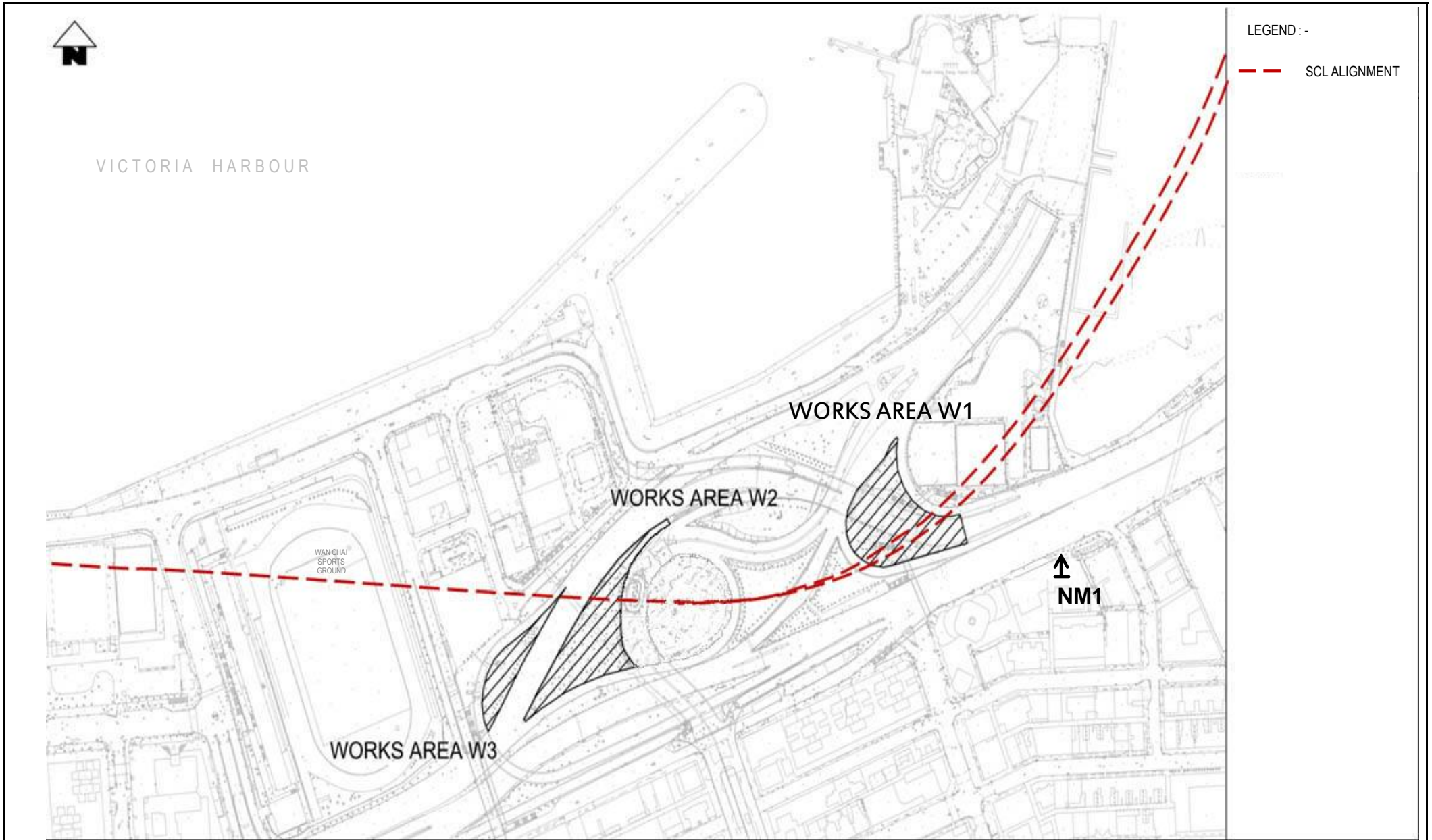
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CONTRACT 1129
ADVANCED WORKS FOR NSL

WORKS AREA AND SITE LOCATION OF SCL1129

Project No.: - Date: November 2014

Figure 1.1



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CONTRACT 1129
ADVANCED WORKS FOR NSL

LOCATION OF AIR-BORNE NOISE SENSITIVE RECEIVER NM1

APPENDIX A

Construction Programme

Activity ID	Activity Name	Duration	BL Project Start	BL Project Finish	Start	Finish	TF	Variance- BL Project Finish Date	Qtr 1, 2015				
									Dec	Jan	Feb	Mar	
MTRC-1129 - Advance Work for NSL (Working Programme) 3MRP Dec													
Schedule of Completion Obligations													
Section of the Works													
01129.CD002B	Complete all works of Causeway Flyover and Hung Hing Flyover and ready for handover (Wk04/15)	0.00d		25-Jan-15		12-Feb-15*		-18.00d	-18.00d	Schedule of Completion Obligations			
01129.CD002A	Complete all works of Percival Street Footbridge (Wk8/15)	0.00d		22-Feb-15		22-Feb-15*		0.00d	0.00d	Section of the Works			
Vacation Dates for Works Areas													
01129.VD1060	Works Area 1129.W1	0.00d		22-Feb-15		22-Feb-15*		0.00d	0.00d	Vacation Dates for Works Areas			
Schedule of Milestones													
Cost Centre A - Preliminaries													
01129.MSA04	Engineer's confirmation of satisfactory implementation of Approved Specified Plans. (Wk 13/15)	0.00d		29-Mar-15		29-Mar-15*		0.00d	0.00d	Milestones			
Cost Centre B - Percival Street Footbridge													
01129.MSB01	MS for Steel pile removal and temp staircase approval and Scheme for Util. Protection agreed (Wk35/14-31-Aug-14) Rev	0.00d		31-Aug-14		30-Dec-14 A			-120.00d	Cost Centre B - Percival Street Footbridge			
01129.MSB03	Temp. staircase commissioned and Complete all works within Cost Centre B (Wk8/15)	0.00d		22-Feb-15		22-Feb-15*		0.00d	0.00d	Milestones			
Cost Centre C - Causeway Flyover & Hung Hing Flyover													
01129.MSC03-1	Complete all works within Cost Centre C. (Wk52/14) S/S	0.00d		28-Dec-14		31-Dec-14*		-2.00d	-2.00d	Cost Centre C - Causeway Flyover & Hung Hing Flyover			
01129.MSC03	Complete all works within Cost Centre C. (Wk04/15: 25-Jan-15)	0.00d		25-Jan-15		29-Jan-15*		-4.00d	-4.00d	Milestones			
Preliminaries and General Requirements													
Submissions													
Method Statement / Other Submission													
01129.PG1610	Submission of Geotechnical Instrumentation and Monitoring Plan	56.00d	20-Mar-14	27-Aug-14	20-Mar-14 A	06-Jan-15		355.00d	-132.00d	Submissions			
01129.PG1620	Approval of Geotechnical Instrumentation and Monitoring Plan	28.00d	28-Mar-14	03-Sep-14	28-Mar-14 A	13-Jan-15		348.00d	-132.00d	Method Statement / Other Submission			
01129.PG1370	Submission of Proposal for Training of Workers	72.00d	15-Aug-14	27-Aug-14	16-Jun-14 A	06-Jan-15*		-264.00d	-132.00d	Submissions			
01129.PG1380	Approval of Proposal for Training of Workers	28.00d	29-Aug-14	10-Sep-14	29-Aug-14 A	13-Jan-15*		-243.00d	-125.00d	Method Statement / Other Submission			
Implementation													
Implementation of Approved Specified Plans													
01129.PG1180	Implementation of Approved Specified Plans	57.00d	22-Dec-14	25-Feb-15	31-Dec-14	25-Feb-15		0.00d	0.00d	Implementation			
01129.PG1290	Audit of Approved Specified Plans	1.00d	26-Feb-15	26-Feb-15	26-Feb-15	26-Feb-15		0.00d	0.00d	Milestones			
01129.PG1190	Engineer's Confirmation of Satisfactory Implementation	29.00d	27-Feb-15	27-Mar-15	27-Feb-15	27-Mar-15*		0.00d	0.00d	Implementation			
Construction Works													
Contract Work 1 - H-Pile Removal & Percival Street Footbridge Modification													
01129.CW11200B	Complete All Works of Percival Street Footbridge (Wk8/15 : 22 Feb 2015)	0.00d		22-Feb-15		22-Feb-15*		0.00d	0.00d	Contract Work 1 - H-Pile Removal & Percival Street Footbridge Modification			
Submissions and Approvals													
01129.CW11170B	Method Statement for Temporary Staircase Erection Submission	14.00d	19-Aug-14	29-Aug-14	19-Aug-14 A	16-Dec-14 A			-89.00d	Submissions and Approvals			
01129.CW11180B	Method Statement Approval for Temporary Staircase Erection (Wk35/14: 31 Aug 2014)	28.00d	30-Aug-14	26-Sep-14	10-Sep-14 A	30-Dec-14 A			-94.00d	Method Statement Approval for Temporary Staircase Erection (Wk35/14: 31 Aug 2014)			
Site Construction													
01129.CW11161B1	Works Area Handover Preparation	0.00d		21-Aug-14		31-Dec-14		42.00d	-108.00d	Site Construction			
01129.CW11190B	Site Reinstatement	6.00d	09-Feb-15	14-Feb-15	02-Feb-15	07-Feb-15		7.00d	6.00d	Milestones			
01129.CW11161B10	Complete all works within Cost Centre B (Wk8/15 : 22 Feb 2015)	2.00d	16-Feb-15	17-Feb-15	09-Feb-15	10-Feb-15		7.00d	6.00d	Site Construction			
Works Area W1C													
Western Pile Cap													
01129.CW11141B	Post Drilling (5 nos.)	13.00d	02-Dec-14	16-Dec-14	20-Nov-14 A	01-Dec-14 A			14.00d	Works Area W1C			
01129.CW11160B	Construct Western Pile Cap	12.00d	03-Jan-15	14-Jan-15	06-Dec-14 A	13-Dec-14 A			25.00d	Western Pile Cap			
01129.CW11161B30	Hoarding Erection for W1C	14.00d	16-Dec-14	31-Dec-14	31-Dec-14	16-Jan-15		28.00d	-13.00d	Hoarding Erection for W1C			
Temporary Staircase													
01129.CW11210B	Staircase Off-site Fabrication and Delivery	40.00d	22-Oct-14	06-Dec-14	25-Oct-14 A	30-Dec-14 A			-17.00d	Temporary Staircase			
01129.CW11161B	Erect Temporary Staircase and E&M Installation	21.00d	08-Dec-14	07-Feb-15	18-Dec-14 A	31-Jan-15		7.00d	6.00d	Milestones			
01129.CW11161B40	Erect Eastern Pile Cap Temporary Staircase, Painting and E&M Installation	18.00d	08-Dec-14	13-Jan-15	18-Dec-14 A	31-Jan-15		13.00d	-16.00d	Erect Eastern Pile Cap Temporary Staircase, Painting and E&M Installation			
01129.CW11161B50	Erect Western Pile Cap Temporary Staircase, Painting and E&M Installation	21.00d	15-Jan-15	07-Feb-15	18-Dec-14 A	31-Jan-15		7.00d	6.00d	Erect Western Pile Cap Temporary Staircase, Painting and E&M Installation			
01129.CW11161B60	Notification to HyD for Opening of Staircase	0.00d		13-Jan-15		06-Jan-15		13.00d	6.00d	Milestones			
01129.CW11161B20	Testing and Commissioning for Temporary Staircase	2.00d	09-Feb-15	10-Feb-15	02-Feb-15	03-Feb-15		13.00d	6.00d	Testing and Commissioning for Temporary Staircase			
Contract Work 2 - Causeway Flyover Underpinning													
01129.CW21150C10	As-Built Records Submission to HyD	8.00d	21-Jan-15	11-Feb-15	30-Jan-15	07-Feb-15		-12.00d	3.00d	Contract Work 2 - Causeway Flyover Underpinning			
01129.CW21160C	Complete all works of Causeway Flyover and Hung Hing Flyover and ready for handover (Wk4/15 : 25 Jan 2015)	0.00d		25-Jan-15		12-Feb-15*		-18.00d	-18.00d	Milestones			
Submissions and Approvals													

█ Actual Level of Effort █ Remaining Work Summary
█ Primary Baseline █ Critical Remaining Work
█ Actual Work ◆ Milestone

Project ID: 3MRP(2014-12)

3-MONTH-ROLLING PROGRAMME (DECEMBER 2014)

Page 1 of 2

Date	Revision	Checked	Approved
31-Dec-14	Rev.-	AB	NC

Activity ID	Activity Name	Duration	BL Project Start	BL Project Finish	Start	Finish	TF	Variance- BL Project Finish Date	Qtr 1, 2015			
									Dec	Jan	Feb	Mar
01129.CW11002B50	Design Submission for ELS	28.00d	20-Mar-14	23-Jul-14	25-Apr-14 A	08-Jan-15	-9.00d	-140.00d	Design Submission for ELS			
01129.CW11002B60	Design Approval for ELS	28.00d	04-Apr-14	06-Aug-14	15-Jul-14 A	16-Jan-15	-16.00d	-135.00d	Design Approval for ELS			
01129.CW11002B80	Method Statement for Construction of Pile Cap and Load Transfer Approval	28.00d	25-Jul-14	23-Sep-14	25-Jul-14 A	09-Dec-14 A		-63.00d	Method Statement for Construction of Pile Cap and Load Transfer Approval			
01129.CW11002B40	Method Statement for Pile Load Test Approval	21.00d	19-Aug-14	15-Sep-14	07-Oct-14 A	09-Dec-14 A		-70.00d	Method Statement for Pile Load Test Approval			
Site Construction									Site Construction			
01129.CW21161B	Works Area Handover Preparation	0.00d		24-Oct-14		27-Jan-15	-16.00d	-78.00d	Works Area Handover Preparation			
Works Area W1B (Underpinning at Pier A5)									Works Area W1B (Underpinning at Pier A5)			
01129.CW21051Cb20	Ground Treatment	18.00d			17-Nov-14 A	11-Dec-14 A			Ground Treatment			
01129.CW21070C10	Review of Ground Treatment Works Result	6.00d			12-Dec-14 A	12-Dec-14 A			Review of Ground Treatment Works Result			
01129.CW21070C	Sheet Pile and ELS Works	24.00d	23-Oct-14	10-Dec-14	13-Dec-14 A	31-Dec-14 A		-15.00d	Sheet Pile and ELS Works			
01129.CW21070C20	Sheetpiling	12.00d	23-Oct-14	12-Nov-14	13-Dec-14 A	19-Dec-14 A		-31.00d	Sheetpiling			
01129.CW21070C30	ELS Works and Excavation	12.00d	25-Nov-14	10-Dec-14	20-Dec-14 A	30-Dec-14 A		-14.00d	ELS Works and Excavation			
01129.CW21110C	Preparation Work and Pile Cap Construction (including night works)	7.00d	02-Dec-14	24-Dec-14	30-Dec-14 A	10-Jan-15	-16.00d	-12.00d	Preparation Work and Pile Cap Construction (including night works)			
01129.CW21051Cb15	Grouting Trial for Underpinning	1.00d			10-Jan-15	10-Jan-15	-16.00d		Grouting Trial for Underpinning			
01129.CW21140C	Jack up Pile Cap (including 28-d concrete strength) (Assume Early Strength Achieved Earlier)	16.00d	27-Dec-14	20-Jan-15	12-Jan-15	29-Jan-15	-16.00d	-8.00d	Jack up Pile Cap (including 28-d concrete strength)			
01129.CW21070C80	Removal of Pile Cap Formwork	2.00d	27-Dec-14	29-Dec-14	12-Jan-15	13-Jan-15	-4.00d	-12.00d	Removal of Pile Cap Formwork			
01129.CW21070C90	Backfilling to +1.5mPD	2.00d	30-Dec-14	05-Jan-15	14-Jan-15	15-Jan-15	-4.00d	-9.00d	Backfilling to +1.5mPD			
01129.CW21070C100	Backfilling to +4 mPD	12.00d	21-Jan-15	24-Jan-15	30-Jan-15	12-Feb-15	-16.00d	-16.00d	Backfilling to +4 mPD			
01129.CW21150C	Site Reinstatement (150mm Storm Drain, HKE and HyD Pillar Boxes, Lighting) (Wk4/15 : 25 Jan 2015)	10.00d	23-Jan-15	24-Jan-15	02-Feb-15	12-Feb-15	-16.00d	-16.00d	Site Reinstatement (150mm Storm Drain)			
Contract Work 4 - Pile Removal at Tunnel Approach Road												
Site Construction												
Works Area W3B												
Stage 1									Stage 1			
01129.CW41180E	Site/Ramp Formation and Breaking-Up Carriageway for Pile Removal Works	20.00d	29-Nov-14	08-Dec-14	06-Oct-14 A	12-Dec-14 A		-3.00d	Site/Ramp Formation and Breaking-Up Carriageway for Pile Removal Works			
01129.CW41181E	Strengthen Abandoned Box Culvert	22.00d	09-Dec-14	06-Jan-15	11-Nov-14 A	12-Dec-14 A		19.00d	Strengthen Abandoned Box Culvert			
01129.CW41181E20	Utility Diversion and Protection Completed. (52/14: 28 Dec 14)*	6.00d	09-Dec-14	24-Dec-14	12-Nov-14 A	19-Dec-14 A		5.00d	Utility Diversion and Protection Completed. (52/14: 28 Dec 14)*			
01129.CW41181E30	Plant Mobilization and Set-Up	5.00d			09-Dec-14 A	12-Dec-14 A			Plant Mobilization and Set-Up			
01129.CW41200E	Remove 3 nos. Concrete Piles (Wk 17/15: 26 Apr 15)	45.00d	14-Jan-15	10-Mar-15	13-Dec-14 A	09-Feb-15	37.00d	22.00d	Remove 3 nos.			
01129.CW41210E	Remove Portion of Abandoned Box Culvert (Wk 17/15: 26 Apr 15)	17.00d	11-Mar-15	02-Apr-15	10-Feb-15	04-Mar-15	37.00d	25.00d	Remove Portion of Abandoned Box Culvert			
01129.CW41220E	3 nos. Concrete Piles Post-Drilling	8.00d	08-Apr-15	16-Apr-15	05-Mar-15	13-Mar-15	37.00d	25.00d	3 nos. Concrete Piles Post-Drilling			
Stage 2												
01129.CW41240E	Construct Temporary Carriageway-	24.00d	02-May-15	30-May-15	14-Mar-15	15-Apr-15	37.00d	37.00d	Construct Temporary Carriageway-			
Associated Works									Associated Works			
01129.AW1008F	Compensate 5 nos. + Grass at Tai Hang Road Children Playground (Wk39/14: 28 Sep 2014) (Stage 1)	12.00d	03-Sep-14	17-Sep-14	15-Dec-14 A	26-Dec-14 A		-82.00d	Compensate 5 nos. + Grass at Tai Hang Road Children Playground (Wk39/14: 28 Sep 2014)			

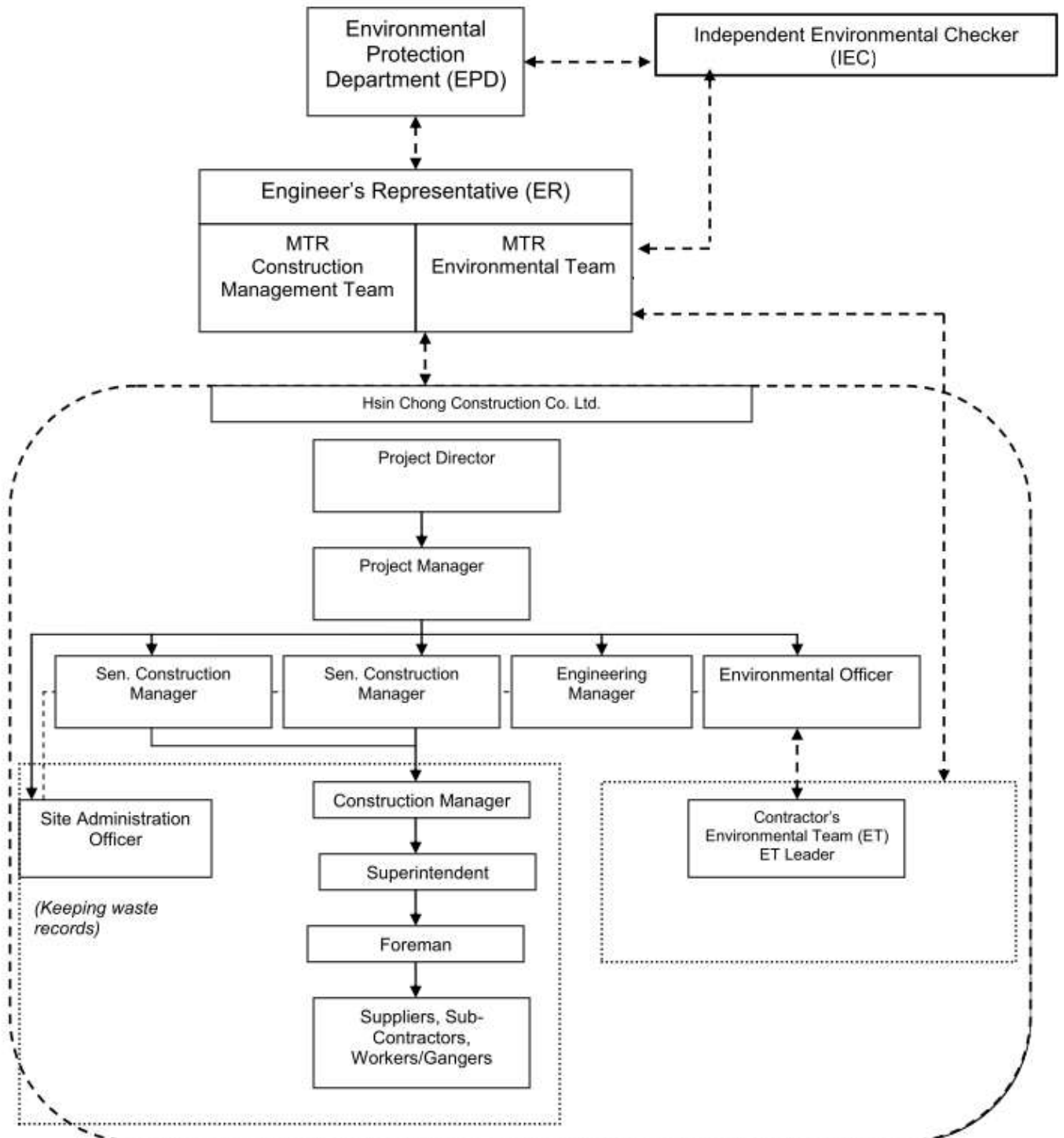
█ Actual Level of Effort █ Remaining Work Summary
 Primary Baseline █ Critical Remaining Work
█ Actual Work ◆ ◆ Milestone

Date	Revision	Checked	Approved
31-Dec-14	Rev.-	AB	NC

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Environmental Mitigation Measures Implementation Schedule

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	V
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and disposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	N/A

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Air Quality						
/	Emission from Vehicles and Plants <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	V V V
Construction Dust Impact						
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	V
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: <ul style="list-style-type: none"> Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs. Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. Provision of not less than 2.4m high hoarding from ground level along site 	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V V V V V

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EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. <ul style="list-style-type: none"> • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise 					V V V V
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: <ul style="list-style-type: none"> • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities 	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V V V V
S9.56 & Table 9.16	The following quiet PME shall be used: <ul style="list-style-type: none"> • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill 	To minimize construction noise impact	Contractor	Works areas at: <ul style="list-style-type: none"> • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue 	Construction phase	N/A N/A N/A V N/A N/A N/A N/A N/A N/A V V V V

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	<ul style="list-style-type: none"> Lorry Wheel loader Roller vibratory 			to north of ADM • South of ADM to Overrun Tunnel		N/A V N/A
S9.58 – S9.59 & Table 9.17	<p>Movable noise barrier shall be used for the following PME:</p> <ul style="list-style-type: none"> Air compressor Asphalt paver Backhoe with hydraulic breaker Bar bender Bar bender and cutter (electric) Breaker, excavator mounted Concrete pump Concrete pump, stationary/lorry mounted Excavator Generator Grout pump Hand held breaker Hydraulic breaker Saw, concrete 	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV SOV to EXH EXH EXH to open space at the junction of Expo Drive and Convention Avenue Open space at the junction of Expo Drive and Convention Avenue to north of ADM South of ADM to Overrun Tunnel 	Construction phase	<p>V</p> <p>N/A</p> <p>V</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>V</p> <p>V</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
Water Quality Impact						
Construction Phase						
S11.222 to 11.245	<p>The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable.</p> <p><u>Surface Run-off</u></p> <ul style="list-style-type: none"> Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. Construction works shall be programmed to minimize soil excavation works in rainy 	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	<p>V</p> <p>V</p> <p>V</p>

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	<p>seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.</p> <ul style="list-style-type: none"> • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall 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. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public 					<p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p>

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	<p>drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS.</p> <p><u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance. 					<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>V</p>
S11.246 & 11.247	<p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p>	<p>To minimize water quality impacts due to sewage generated from construction workforce</p>	<p>Contractor</p>	<p>Works areas</p>	<p>Construction Phase</p>	<p>V</p>
S11.248	<p>In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.</p>	<p>To minimize impact from discharge of uncontaminated groundwater</p>	<p>Contractor</p>	<p>Works areas</p>	<p>Construction Phase</p>	<p>V</p>
S11.249	<p>If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be</p>	<p>To control site run-off generated from any</p>	<p>Contractor</p>	<p>Any potential contaminated areas to</p>	<p>Construction Phase</p>	<p>N/A</p>

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	<p>implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.</p>	<p>potential contaminated works areas.</p>		<p>be identified from the Stage 2 SI</p>		
<p>S11.250 & S11.251</p>	<p>No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.</p>	<p>To minimize potential water quality impact from discharge of contaminated groundwater</p>	<p>Contractor</p>	<p>Any potential contaminated areas to be identified from the Stage 2 SI</p>	<p>Construction Phase</p>	<p>N/A</p>
<p>S11.253</p>	<p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If</p>	<p>To minimize water quality impact from effluent discharges from construction sites</p>	<p>Contractor</p>	<p>All construction works areas</p>	<p>Construction Phase</p>	<p>V</p>

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	monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.					
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area. 	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V V V
Waste Management Implications						
Construction Phase						
S12.75	Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; Provision of sufficient waste disposal points and regular collection of waste; Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and Separation of chemical wastes for special handling and appropriate treatment. 	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V V V

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S12.76	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <ul style="list-style-type: none"> • Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and • Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. 	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V V V V V V
S12.77	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <p>The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.</p>	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V
S12.78	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <p>C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.</p>	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	<p>Storage, Collection and Transportation of Waste</p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> • Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations shall be designated to stockpile each material to enhance reuse. 	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	V V V V
S12.80	<p>Storage, Collection and Transportation of Waste (con't)</p> <p>Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal</p>	To minimize potential adverse environmental	Contractor	Work Sites	Construction Phase	

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<p>outlets. The following suggestions shall be enforced to minimize the potential adverse impacts:</p> <ul style="list-style-type: none"> Remove waste in timely manner Waste collectors shall only collect wastes prescribed by their permits Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) Waste shall be disposed of at licensed waste disposal facilities Maintain records of quantities of waste generated, recycled and disposed 	impacts arising from waste collection and disposal				V V V V V V
S12.81	<p>Storage, Collection and Transportation of Waste (con't)</p> <ul style="list-style-type: none"> Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed. 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	<p>Sorting of C&D Materials</p> <ul style="list-style-type: none"> Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels. 	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V V
S12.88	<p>Sediments</p> <ul style="list-style-type: none"> The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance. 	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A
S12.89	<p>Sediments (con't)</p> <ul style="list-style-type: none"> The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project 	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<p>proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.</p>					
S12.91 – 12.94	<p>Sediments (con't)</p> <ul style="list-style-type: none"> Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. 	<p>To ensure handling of sediments are in accordance to statutory requirements</p>	<p>Contractor</p>	<p>Work Sites, Sediment disposal sites</p>	<p>Construction Phase</p>	<p>N/A</p>
S12.95	<p>Sediments (con't)</p> <ul style="list-style-type: none"> A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of 	<p>To ensure handling of sediments are in accordance to statutory requirements</p>	<p>Contractor</p>	<p>Work Sites, Sediment disposal sites</p>	<p>Construction Phase</p>	<p>N/A</p>

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.					
/	<p>Accidental spillage</p> <p>To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	@ V V V
S12.97	<p>Containers for Storage of Chemical Waste</p> <p>The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation. 	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	V V V
S12.98	<p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated. 	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V V V V V V
S12.99	<p>Chemical Waste</p> <ul style="list-style-type: none"> • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. 	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S12.100	Collection and Disposal of Chemical Waste A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> .	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	V
S12.101	General Refuse General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.102	General Refuse (con't) The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	V
S12.103	General Refuse (con't) The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels**Action and Limit Levels for Construction Noise
(0700 – 1900 hrs of normal weekdays)**

ID	Location	Action Level	Limit Level
NM1	Hoi Kung Court	When one documented complaint is received	75 dB(A)

APPENDIX E

Calibration Certificates of Equipments



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0305 06-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2285692	,	2250420
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO. LTD.
Address of Customer: -
Request No.: -
Date of receipt: 05-Mar-2014

Date of test: 07-Mar-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	22-Jun-2014	CIGISMEC
Signal generator	DS 360	33873	15-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 10 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of $\pm 20\%$.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 12-Mar-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA0305 06-01

Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings	A	Pass	0.3
		C	Pass	0.3
		Lin	Pass	0.3
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date: 07-Mar-2014

Fung Chi Yip

- End -

Checked by:

Date: 12-Mar-2014

Lam Tze Wai

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0702 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2238	4188
Serial/Equipment No.:	2800927 / N.009.06	2791211
Adaptors used:	-	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	02-Jul-2014

Date of test: 03-Jul-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	20-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 04-Jul-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA0702 01-01 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests


The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.


Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:  - End -
Date: 03-Jul-2014

Checked by: 
Date: 04-Jul-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA1106 04-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Rion Co., Ltd.	,	Rion Co., Ltd.
Type/Model No.:	NL-31	,	UC-53A
Serial/Equipment No.:	00320528 / N.007.03A	,	90565
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 06-Nov-2014

Date of test: 07-Nov-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	15-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 65 ± 10 %
Air pressure: 1010 ± 10 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of $\pm 20\%$.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure response of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 08-Nov-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA1106 04-01 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings	A	Pass	0.3
Time weightings	C	Pass	0.3	
	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
Peak response	Single Burst Slow	Pass	0.3	
	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	N/A	N/A	
	Repeated at frequency of 100 Hz	N/A	N/A	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date: 07-Nov-2014

Fung Chi Yip

Checked by:

Date: 08-Nov-2014

Lam Tze Wai

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA1106 04-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10307223 / N.004.08
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 06-Nov-2014

Date of test: 07-Nov-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	13-May-2015	SCL
Preamplifier	B&K 2673	2239857	10-Apr-2015	CEPREI
Measuring amplifier	B&K 2610	2346941	08-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI
Digital multi-meter	34401A	US36087050	17-Dec-2014	CEPREI
Audio analyzer	8903B	GB41300350	07-Apr-2015	CEPREI
Universal counter	53132A	MY40003662	11-Apr-2015	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 65 ± 10 %
Air pressure: 1010 ± 10 hPa

Test specifications

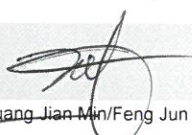
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Huang Jian-Min/Feng Jun Qi

Date: 08-Nov-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA1106 04-02

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μ Pa)
			Estimated Expanded Uncertainty dB
1000	94.00	94.02	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.002 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 988.9 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 1.3 %

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
07-Nov-2014

Checked by:

Date:

Lam Tze Wai
08-Nov-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1129 - Advance Works for NSL
Impact Environmental Monitoring Schedule for December 2014**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
			Noise (NM1)			
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
		Noise (NM1)				
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
	Noise (NM1)					
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
		Noise (NM1)				
28-Dec	29-Dec	30-Dec	31-Dec			

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station

NM1 Hoi Kung Court

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1129 - Advance Works for NSL
Tentative Impact Environmental Monitoring Schedule for January 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Jan	2-Jan	3-Jan
					Noise (NM1)	
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
			Noise (NM1)			
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
				Noise (NM1)		
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
			Noise (NM1)			
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
		Noise (NM1)				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station

NM1 Hoi Kung Court

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1129 - Advance Works for NSL
Tentative Impact Environmental Monitoring Schedule for February 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb
	Noise (NM1)					
8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb
					Noise (NM1)	
15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb
	Noise (NM1)					
22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb
			Noise (NM1)			

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station

NM1 Hoi Kung Court

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1129 - Advance Works for NSL
Tentative Impact Environmental Monitoring Schedule for March 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Mar	2-Mar	3-Mar	4-Mar	5-Mar	6-Mar	7-Mar
	Noise (NM1)					
8-Mar	9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar
					Noise (NM1)	
15-Mar	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar
				Noise (NM1)		
22-Mar	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar
			Noise (NM1)			
29-Mar	30-Mar	31-Mar				
		Noise (NM1)				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station

NM1 Hoi Kung Court

Monitoring Frequency

Once per week

APPENDIX G

**Noise Monitoring Results and
their Graphical Presentations**

Appendix G - Impact Daytime Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station NM1 - Hoi Kung Court, Rooftop-20/F

Date	Weather Condition	Noise Level for 30-min, dB(A) *				Baseline Corrected Level, dB(A) #	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
3-Dec-14	Cloudy	10:28	66.8	72.8	70.6	<Baseline Level	71	75	N
9-Dec-14	Fine	14:58	69.2	73.6	71.8	64.1	71	75	N
15-Dec-14	Fine	14:10	69.1	73.4	71.2	57.7	71	75	N
23-Dec-14	Sunny	11:40	68.5	72.5	70.7	<Baseline Level	71	75	N

Remark:

* Façade measurement.

-The measured Leq is corrected against the corresponding Baseline Level.

APPENDIX H

Event Action Plan

Appendix H Event Action Plan
Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX I

**Cumulative Statistics of Complaints, Notification of Summons
and Successful Prosecutions**

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

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX J

Waste Flow Table

SCL Contract 1129 Advance Works For NSL

Monthly Summary C&D Material Flow Table for 2014

updated to 31 December 2014

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m ³)					Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m ³)					Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m ³)	Sediment (m ³)
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	^Other Site	Total (m ³)	Total	Total		Total	Total	Total
2014/01 (Actual)	0	0	0	0	0	0	0	0	0	0	0
2014/02 (Actual)	0	0	0	0	0	0	0	0	0	0	0
2014/03 (Actual)	305	0	0	0	305	0	0	0	0	0	0
2014/04 (Actual)	308	75	0	0	382	0	0	0	0	0	0
2014/05 (Actual)	1,258	7	0	0	1,266	0	0	0	0	5.0	0
2014/06 (Actual)	63	19	0	0	82	4,210	0	0	0	4.9	0
Sub-total	1,934	101	0	0	2,035	4,210	0	0	0	9.9	0
2014/07 (Actual)	663	116	0	0	779	0	0	0	0	4.4	0
2014/08 (Actual)	1,658	63	0	0	1,721	0	0	0	400	9.5	0
2014/09 (Actual)	1,032	182	0	0	1,214	0	0	0	0	11.3	0
2014/10 (Actual)	545	25	0	0	569	0	0	0	0	8.0	0
2014/11 (Actual)	142	31	0	0	173	0	0	0	0	2.5	0
2014/12 (Actual)	210	60	0	0	270	0	0	0	0	14.5	0
Sub-total	4,248	476	0	0	4,724	0	0	0	400	50.2	0
Total					6,759	4,210	0	0	400	60.1	0

Remark: *Assume the density is 2 tonnes per cubic metre
 ^Required to be approved by EPD and MTR
 1 CWPFBP Chai Wan Public Fill Barging Point
 2 TKO137FB Fill Bank at Tseung Kwan O Area 137
 3 TKO137SF Sorting Facilities at Tseung Kwan O Area 137

Appendix B

**Monthly EM&A Report for December 2014 – SCL Works
Contract 1126 Reprovisioning of Harbour Road Sports Centre
and Wan Chai Swimming Pool**

MTR Corporation Limited

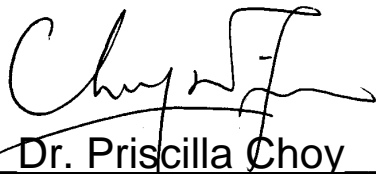
**Shatin to Central Link –
Hung Hom to Admiralty Section**

Monthly EM&A Report No.6

[Period from 1 to 31 December 2014]

Works Contract 1126 – Reprovisioning of Harbour
Road Sports Centre and Wan Chai Swimming Pool

(January 2015)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

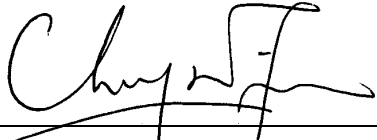
Date: 13th January 2015

Kaden – Leader Joint Venture

**Shatin to Central Link –
Contract 1126
Reprovisioning of Harbour Road Sports
Centre and Wan Chai Swimming Pool**

**Monthly Environmental
Monitoring and Audit Report
for December 2014**

(Version 2.0)

Certified By	 _____ Dr. Priscilla Choy (Environmental Team Leader)
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REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY**Introduction**

1. This is the 6th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1126 –Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool**. This report documents the findings of EM&A Works conducted from 1 to 31 December 2014.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

At Wan Chai Sports Ground (WCSG)

- Construction Site Office; and
- Material storage.

At Public Transport Interchange (PTI) Area

- Construction of Petrol Interception;
- Construction of Store Room;
- Manhole construction & underground utilities connection;
- Construction of hoarding footing;
- Construction of ducting for street lighting;
- Construction of footing for bus shelter and signage post; and
- Construction of Temporary Public Toilet.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
Noise Monitoring Station ID
 - NM2⁽¹⁾⁽³⁾⁽⁴⁾ (Harbour Centre) 5 times
- Construction Dust (24-hour TSP) Monitoring
Dust Monitoring Station ID
 - AM2⁽¹⁾⁽²⁾ (Wan Chai Sports Ground) 6 times
 - AM3⁽¹⁾ (Existing Harbour Road Sports Centre) 6 times

Remarks:

- (1) Station ID as identified in approved EM&A Manual for SCL(HUH-ADM).
- (2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
- (3) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
- (4) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) instead of 7/F from 19 December 2014 onwards.

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix K**.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 24 December 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 3, 10, 17, 24 and 31 December 2014. The representative of the IEC joined the site inspection on 10 December 2014. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution

7. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.
8. No non-compliance event was recorded during the reporting period.
9. No Project related environmental complaint and notification of summons/successful prosecutions were received in this reporting period.

Reporting Changes

10. N/A

Future Key Issues

11. Major site activities for the coming reporting month will include:

At Wan Chai Sports Ground (WCSG)

- Construction Site Office; and
- Material storage.

At Public Transport Interchange (PTI) Area

- Construction of Store Room;
- Manhole construction & underground utilities connection;
- Construction of hoarding footing;
- Construction of ducting for street lighting;
- Construction of footing for bus shelter and signage post; and

- Construction of Temporary Public Toilet;
- Water mains connections work at the Hung Hing Road.

12. Key environmental impacts to be considered in the coming month include:

- Dust impact from stockpile of dusty materials and unpaved works area;
- Wastewater from surface runoff;
- Waste management;
- Preservation and protection of retained and transplanted trees; and
- Noise impact from construction works.

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Kaden – Leader Joint Venture (KLJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1126 –Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 6th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 December 2014. The major construction works for Contract 1126 commenced on 9 July 2014.

Structure of the Report

1.3 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The Environmental Impact Assessment (EIA) Report for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, Environmental Permits (EP) (EP No: EP-436/2012) was granted on 22 March 2012 for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/A) was issued by Director of Environmental Protection (DEP) on 30 April 2014.
- 2.3 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1126 comprises of the Permanent Works and the Temporary Works for the re-provisioning of Harbour Road Sports Centre (HRSC) and Wan Chai Swimming Pool (WCSP). The major construction works for Contract 1126 commenced on 9 July 2014.

General Site Description

- 2.4 The major works of this Project that was classified as Designated Project under the EIAO include the demolition of grandstand superstructure and water pump room of WCSG, and the temporary works for the future Public Transport Interchange (PTI) Area. The PTI area has been obtained in phases. The alignment and works area for the Works Contract 1126 are shown in **Figure 1**.

Construction Programme and Activities

- 2.5 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

At Wan Chai Sports Ground (WCSG)

- Construction Site Office; and
- Material storage.

At Public Transport Interchange (PTI) Area

- Construction of Petrol Interception;
- Construction of Store Room;
- Manhole construction & underground utilities connection;
- Construction of hoarding footing;
- Construction of ducting for street lighting;
- Construction of footing for bus shelter and signage post; and

- Construction of Temporary Public Toilet.

Project Organisation

2.6 The project organizational chart and contact details are shown in **Figure 4**.

Status of Environmental Licences, Notification and Permits

2.7 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-436/2012/A	30/04/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref no.: 370563	14/02/2014	N/A	Valid
Ref no.: 380674	17/10/2014	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.7019324	10/02/2014	N/A	Valid
Registration of Chemical Waste Producer			
5213-135-K3101-01 ⁽¹⁾	14/05/2014	N/A	Valid
5213-135-K3131-01 ⁽²⁾	10/11/2014	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00019352-2014 ⁽¹⁾	17/06/2014	30/06/2019	Valid
WT00020565-2014 ⁽²⁾	16/12/2014	31/12/2019	Valid
Construction Noise Permit (CNP)			
GW-RS0761-14 ⁽³⁾	01/08/2014	31/01/2015	Valid
GW-RS1194-14 ⁽⁴⁾	06/11/2014	05/05/2015	Valid

Note:

- (1) For the site area in WCSG
- (2) For the site area in PTI Area
- (3) For the use of A&A works in Wan Chai Sports Ground.
- (4) For construction works in PTI Area.

Summary of EM&A Requirements

2.8 The EM&A programme under Works Contract 1126 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final

- report; and
- Environmental requirements in contract documents.
- 2.9 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.10 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to the original baseline monitoring location was rejected, alternative location was proposed. The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NM2 ⁽¹⁾	Harbour Centre (7/F) ⁽²⁾	Façade
	Harbour Centre (8/F) ⁽²⁾⁽³⁾	

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
 (2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
 (3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) from 19 December 2014 onwards.

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (one set of 30-minute measurement) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

- 3.4 The monitoring procedures are as follows:
- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
 - The battery condition was checked to ensure good functioning of the meter.
 - Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast

- measurement time : 30 minutes (one set of 30-minute measurement of a $L_{eq,30}$ min. reading)

- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

- 3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, comply with the IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in **Appendix C**.

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 12553 and 12563) SVAN 957 (Serial no.: 21459)
Calibrator	SV30A (Serial no.: 24780) B&K 4231 (Serial no.: 2326353 and 2412367)

Maintenance and Calibration

- 3.6 Maintenance and Calibration procedures were as follows:
- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
 - The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

Action & Limit Level for Construction Noise Monitoring

- 3.7 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix I**.

Compliance Checking for Impact Monitoring

- 3.8 The Baseline noise monitoring was conducted between 1 and 14 September 2014 at Harbour Centre. The Baseline noise monitoring results ($L_{eq}(30min.)$ dB(A)) during the period without construction works on normal weekdays ranged from 67.1dB(A) to 73.0dB(A). Result of the monitoring (i.e. 69.6dB(A)) was used for correcting the measured noise level during the construction stage of the Project for normal weekdays by this formula:

Measured L_{eq} at the Harbour Centre – Baseline Noise Level (69.6 dB)

= Construction Noise Level at the Harbour Centre

Continuous Noise Monitoring

- 3.9 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared submitted under EP Condition 2.8 and Condition 2.7 respectively, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria is anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (HUH-ADM) under Works Contract 1126.

Regular Construction Dust Monitoring

- 3.10 The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
AM2 ⁽¹⁾	Wan Chai Sports Ground ⁽²⁾
AM3 ⁽¹⁾	Existing Harbour Road Sports Centre

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.

Monitoring Parameter and Frequency

- 3.11 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**. The TSP monitoring at two monitoring locations was conducted as per the schedule presented in **Appendix D**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring ⁽¹⁾	Throughout the construction period	24-hour TSP	Once per 6 days

Note:

(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

Monitoring Equipment

3.12 **Table 3.5** summarizes the equipment used for the dust monitoring.

Table 3.5 Dust Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 1535, 5280	2
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 0993	1

Instrumentation

3.13 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

HVS Installation

3.14 The following guidelines were adopted during the installation of HVS:

- A horizontal platform with appropriate support to secure the samplers against gusty wind should be provided;
- Two samplers should not be placed less than 2m apart;
- The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- A minimum of 2m separation from walls, parapets and penthouses is required for rooftops samplers;
- A minimum of 2m separation from any supporting structure, measures horizontally is required;
- No furnace or incinerator flue is located nearby the samplers;
- Airflow around the sampler is unrestricted;
- The sampler is more than 20m from the dripline;
- Any wire fence and gate to protect the sampler, should not cause any obstruction during monitoring;
- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Filters Preparation

- 3.15 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.
- 3.16 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
- 3.17 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

- 3.18 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 $\text{m}^3/\text{min}.$) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
 - The power supply was checked to ensure the sampler worked properly.
 - The filter holding frame and the area surrounding the filter were cleaned.
 - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
 - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
 - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
 - The shelter lid was closed and secured with the aluminum strip.
 - A new flow rate record chart was set into the flow recorder.
 - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
 - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
 - The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
 - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ± 3 °C; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

3.19 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix C**.
- The HVS calibration orifice will be calibrated annually.

Action and Limit Levels for Dust Monitoring

3.20 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix I**.

Landscape and Visual

3.21 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

- 4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (November 2014)	12 December 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 5 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1126. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The noise monitoring results together with their graphical presentations are presented in **Appendix F** and a summary of the noise monitoring results in this reporting month is given in **Table 5.1**.

Table 5.1 Summary Table of Noise Monitoring Results during the reporting month

Parameter ⁽¹⁾	Location	Range, dB(A), Leq (30 mins) ⁽²⁾	Limit Level, dB(A), Leq (30 mins)
Noise (NM2)	Harbour Centre ⁽³⁾	< Baseline – 72.2	75

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
- (2) The Range presented in the above table was baseline corrected noise level.
- (3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) instead of 7/F from 19 December 2014 onwards.
- 5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

- 5.5 12 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1126. The monitoring results together with their graphical presentations are presented in **Appendix E** and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results during the reporting month

Parameter	Minimum µg/m ³	Maximum µg/m ³	Average µg/m ³	Action Level, µg/m ³	Limit Level, µg/m ³
24-hr TSP (AM2 ⁽¹⁾)	43.4	143.9	114.7	160	260
24-hr TSP (AM3 ⁽¹⁾)	92.5	136.6	107.9	169	260

Remarks: (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).

- 5.6 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.

- 5.7 Wind monitoring data were obtained from Star Ferry Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

- 5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. Details of waste management data is presented in **Appendix K**. 0 m³ of inert C&D material was re-used on-site and by other projects.

Table 5.3 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/ cardboard	Plastics			Metals		
December 2014	3,766m ³	47m ³	0kg	0 kg	0kg	0kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

Landscape and Visual

- 5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 24 December 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 3, 10, 17, 24 and 31 December 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 10 December 2014. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	--	--	--
<i>Noise</i>	--	--	--
<i>Landscape and Visual</i>	--	--	--
<i>Air Quality</i>	26 Nov 2014	<u>Reminder</u> : Stockpile of dusty material observed partially exposed in PTI Area. The Contractor is reminded to cover it by impervious sheet to prevent dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 3 December 2014.
	3 Dec 2014	<u>Reminder</u> : White smoke observed generated from generator in PTI Area. The Contractor is reminded to repair it properly.	The observation was observed to be improved/rectified by the Contractor during the audit session on 10 December 2014.
	17 Dec 2014	<u>Observation</u> : Unpaved area and excavated are observed dry in PTI. The Contractor is reminded to provide water spray to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 24 December 2014.
	24 Dec 2014	<u>Reminder</u> : Dusty stockpile was not covered properly in PTI. The Contractor is reminded to cover by impervious material before holiday.	The observation was observed to be improved/rectified by the Contractor during the audit session on 31 December 2014.
<i>Waste / Chemical Management</i>	3 Dec 2014	<u>Observation</u> : Chemical container observed without secondary containment in PTI Area. The Contractor is reminded to provide drip	The observation was observed to be improved/rectified by the Contractor during the

Parameters	Date	Observations and Recommendations	Follow-up
		tray to avoid chemical leakage.	audit session on 10 December 2014.
	10 Dec 2014	<u>Reminder:</u> Construction waste deposited in PTI Area. The Contractor is reminded to perform sorting to the construction waste.	The observation was observed to be improved/rectified by the Contractor during the audit session on 17 December 2014.
	17 Dec 2014	<u>Reminder:</u> Chemical waste storage container was not in full compliance with the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” (COP). The Contractor is reminded to properly provide a chemical waste storage cupboard.	The observation was observed to be improved/rectified by the Contractor during the audit session on 31 December 2014.
	24 Dec 2014	<u>Observation:</u> Chemical waste storage container in PTI observed not in compliance with the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” (COP). The Contractor is reminded to properly provide a chemical waste storage container.	The observation was observed to be improved/rectified by the Contractor during the audit session on 31 December 2014.
	31 Dec 2014	<u>Reminder:</u> Chemical waste container in PTI observed not labelled. The Contractor is reminded to provide clear label in compliance with the COP.	Follow up action will be reported in next reporting month.
Permits/ Licenses	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

- 7.2 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

At Wan Chai Sports Ground (WCSG)

- Construction Site Office; and
- Material storage.

At Public Transport Interchange (PTI) Area

- Construction of Store Room;
- Manhole construction & underground utilities connection;
- Construction of hoarding footing;
- Construction of ducting for street lighting;
- Construction of footing for bus shelter and signage post; and
- Construction of Temporary Public Toilet
- Water mains connections work at the Hung Hing Road.

Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- Dust impact from stockpile of dusty materials and unpaved works area;
- Wastewater from surface runoff;
- Waste management;
- Preservation and protection of retained and transplanted trees; and
- Noise impact from construction works.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at all the monitoring locations in the next reporting period is presented in **Appendix D**. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 December 2014 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

- 9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Quality

- The Contractor is reminded to implement effective measures to avoid surface runoff into the drainage.

Landscape and Visual

- N/A

Noise

- N/A

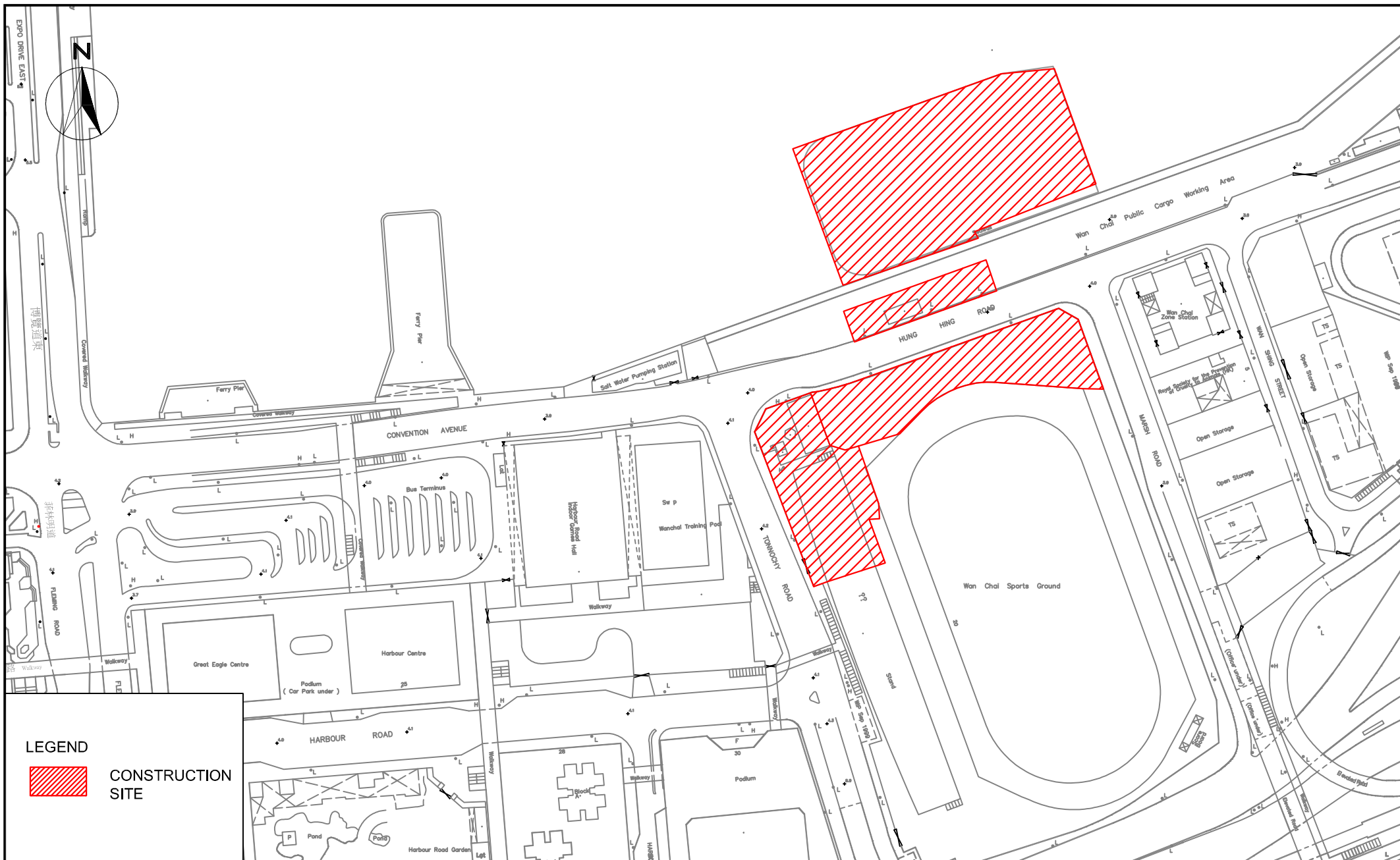
Air Quality

- The Contractor is reminded to perform regular maintenance of machinery.
- The Contractor is reminded to provide effective measure to prevent dust generation from unpaved area, haul road and stockpile of dusty material.

Waste/Chemical Management

- The Contractor is reminded to provide drip tray for chemical containers to avoid chemical leakage.
- The Contractor is reminded to perform sorting of the construction waste.
- The Contractor is reminded to provide a chemical waste storage container in compliance with the "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" (COP).

FIGURES



MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

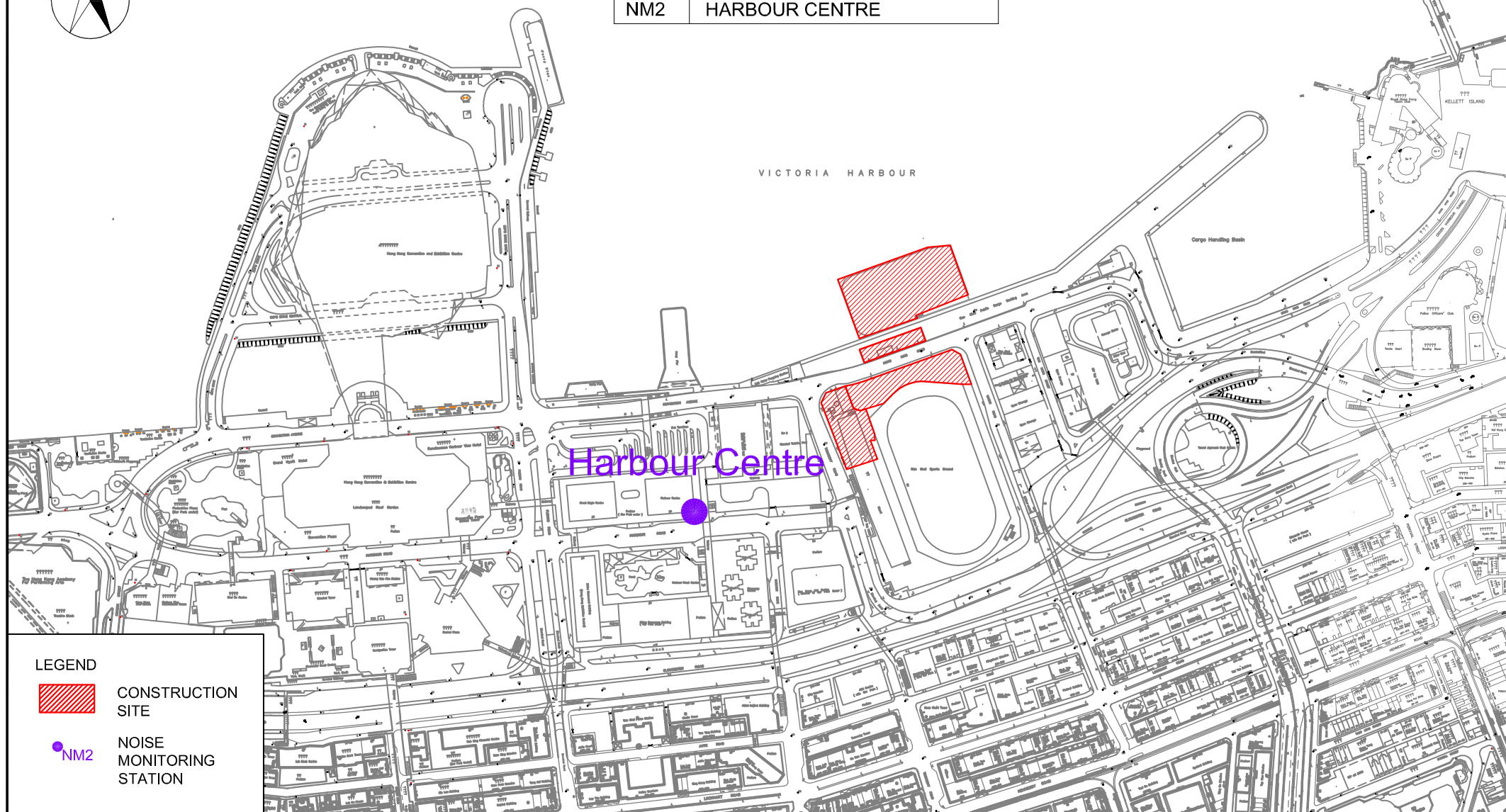
SITE LAYOUT PLAN

CINOTECH
Cinotech Consultants Limited

SCALE	1:2000 @ A4	DATE	NOV 2014	
CHECK	JF	DRAWN	JW	
JOB No.	MA14009	FIGURE NO.	1	REV -



	NOISE MONITORING STATION
NM2	HARBOUR CENTRE



LEGEND	
	CONSTRUCTION SITE
	NOISE MONITORING STATION

MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

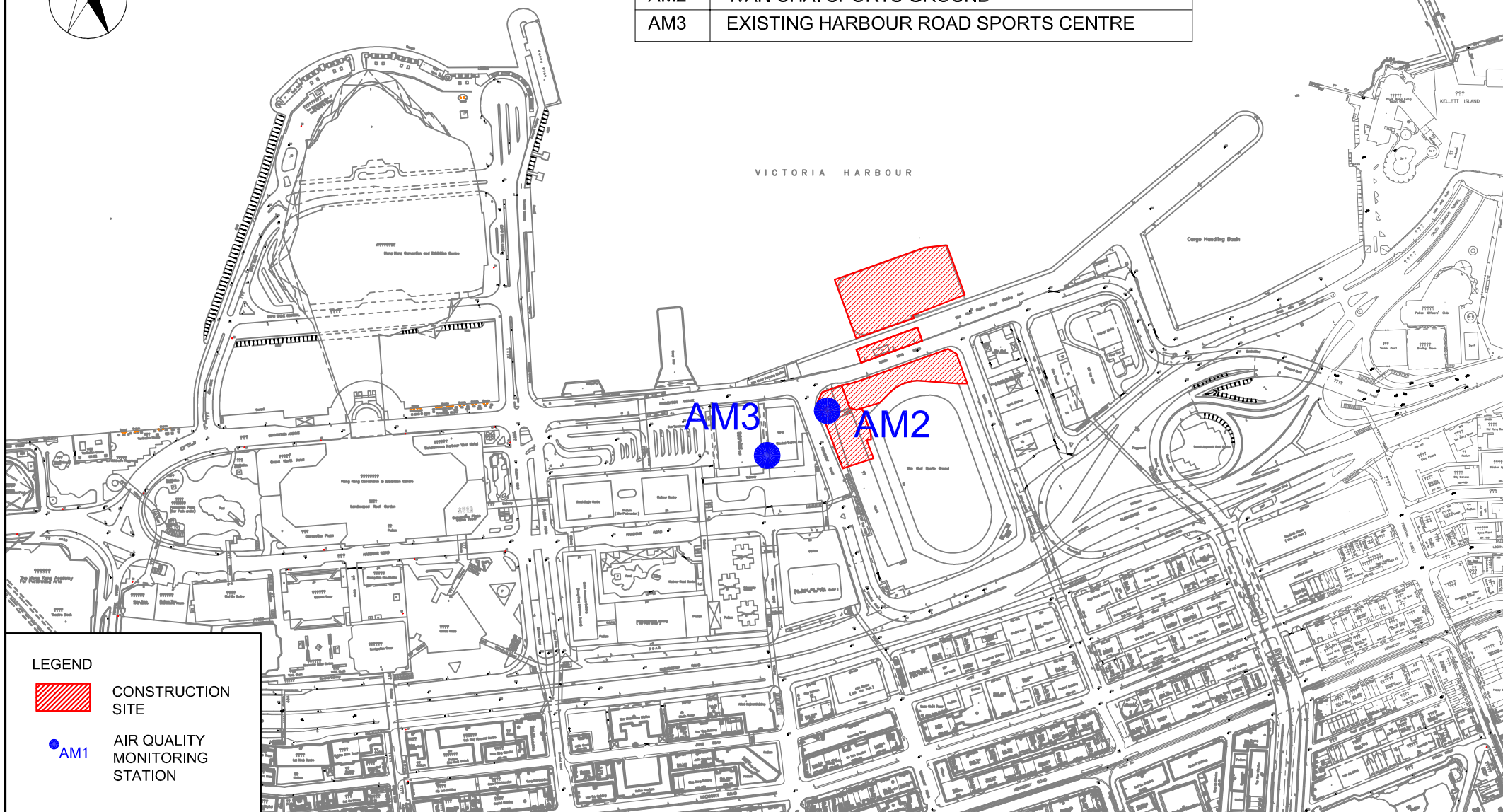
LOCATION OF NOISE MONITORING STATION



CINOTECH
Cinotech Consultants Limited

SCALE	1:5000 @ A4	DATE	NOV 2014
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO.	2
		REV	-



	AIR QUALITY MONITORING STATION
AM2	WAN CHAI SPORTS GROUND
AM3	EXISTING HARBOUR ROAD SPORTS CENTRE



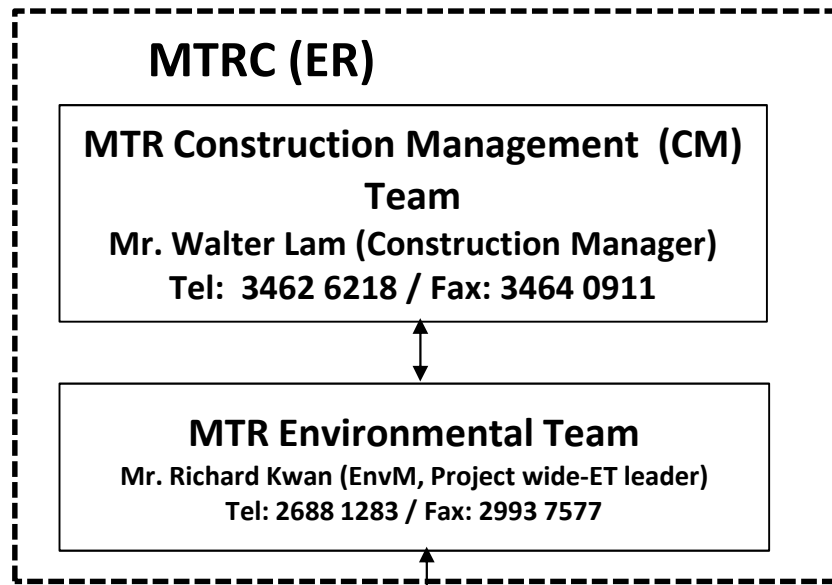
LEGEND	
	CONSTRUCTION SITE
	AIR QUALITY MONITORING STATION

MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

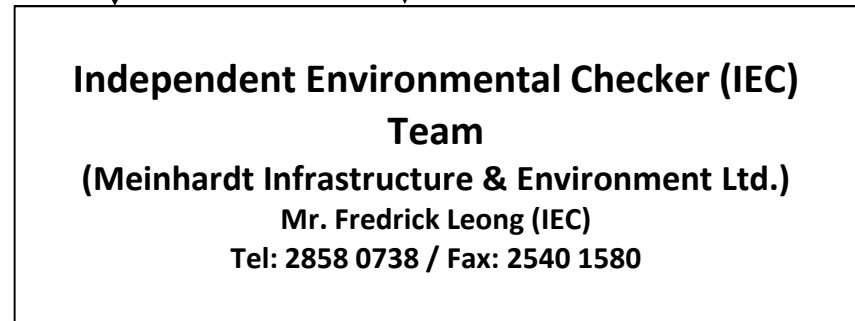
LOCATION OF AIR QUALITY MONITORING STATIONS



SCALE	1:5000 @ A4	DATE	NOV 2014
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO.	3
		REV	-










←→ Line of communication



Title	SCL Contract 1126		Scale	Propose	CINOTECH
	The Shatin to Central Link -		N.T.S	No. MA14009	
Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool		Date		Figure	
Project Organisation for Environmental Works		Jul-14		4	

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**








Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2014		2015					
						Dec	Jan	Feb	Mar				
SCL1126 - Reprovisioning of HRSC & WCSP (20 Jan 2014) _ F						247	28-Apr-14 A	09-Apr-15	633				
Cost Centre E - Temporary Reprovisioning Works at WCSG						108	28-Apr-14 A	30-Sep-14 A					
Design & Shop Drawing						56	28-Apr-14 A	01-Aug-14 A					
Weight Lifting Room						56	28-Apr-14 A	01-Aug-14 A					
A5840	Weight Lifting Room - Prepare & Submit - 1st Round	12	28-Apr-14 A	10-May-14 A									
A5850	Weight Lifting Room - Comment & Approval - 1st Round	6	11-May-14 A	22-May-14 A									
A5860	Weight Lifting Room - Prepare & Submit - 2nd Round	5	23-May-14 A	28-May-14 A									
A5870	Weight Lifting Room - Comment & Approval - 2nd Round	6	29-May-14 A	30-Jul-14 A									
A7120	Weight Lifting Room - ICC Submission & Approval	6	31-Jul-14 A	01-Aug-14 A									
Site Preparation						24	30-Apr-14 A	13-Jun-14 A					
A3755	Site Procession	0	03-Jun-14 A	03-Jun-14 A									
A3760	Erection of covered hoarding outside Sports Ground	24	30-Apr-14 A	31-May-14 A									
A3770	Erection of protective barrier inside Sports Ground	3	03-Jun-14 A	05-Jun-14 A									
A3780	Diversion of existing irrigation pipes	7	04-Jun-14 A	12-Jun-14 A									
A3790	Tree felling (32nos), transplation (5nos) and tree protection	10	03-Jun-14 A	13-Jun-14 A									
A3800	Transport and storage the existing fitness / weight lifting equipments	5	03-Jun-14 A	05-Jun-14 A									
Site Works						93	05-Jun-14 A	10-Sep-14 A					
Fitness Room and Kiosk						73	05-Jun-14 A	06-Sep-14 A					
A3840	Earthworks and excavation for footing construction	7	05-Jun-14 A	07-Jun-14 A									
A3850	Construction of footing	7	09-Jun-14 A	12-Jun-14 A									
A3860	Construction of column & wall	7	13-Jun-14 A	25-Jun-14 A									
A3870	Construction of Roof slab & beam	6	24-Jun-14 A	27-Jun-14 A									
A3880	Roof finish - Waterproof / thermal insulation / floor finish / surface channel / fall arrest / etc.	25	03-Jul-14 A	30-Aug-14 A									
A3890	Internal finish for wall, floor & ceiling - screed/skirt/tile/paint/rubber sheet with carpet cover/signage/etc.	35	14-Jul-14 A	03-Sep-14 A									
A3900	External finish for wall - plaster / paint / metal works	30	02-Jul-14 A	02-Sep-14 A									
A3920	Building Service - MVAC, electrical, fire service, plumbing & drainage	30	02-Jul-14 A	06-Sep-14 A									
Male Changing Room with HR Pump Room and Store room						73	09-Jun-14 A	06-Sep-14 A					
A3930	Earthworks and excavation for footing construction	7	09-Jun-14 A	11-Jun-14 A									
A3940	Construction of footing	7	12-Jun-14 A	14-Jun-14 A									
A3950	Construction of column & wall	7	16-Jun-14 A	24-Jun-14 A									
A3960	Construction of Roof slab & beam	7	23-Jun-14 A	05-Jul-14 A									
A3970	Roof finish - Waterproof / thermal insulation / floor finish / surface channel / fall arrest / etc.	25	09-Jul-14 A	28-Aug-14 A									
A3980	Internal finish for wall, floor & ceiling - block wall/screed/skirt/tile/paint/minor/locker/toilet cubicle/signage/etc.	35	10-Jul-14 A	03-Sep-14 A									
A3990	External finish for wall - plaster / paint / metal works	30	09-Jul-14 A	02-Sep-14 A									
A4010	Building Service - MVAC, electrical, fire service, plumbing & drainage	30	07-Jul-14 A	06-Sep-14 A									
Marshall Seats						70	09-Jun-14 A	06-Sep-14 A					
A4020	Earthworks and excavation for footing construction	5	09-Jun-14 A	13-Jun-14 A									
A4030	Construction of footing	7	14-Jun-14 A	21-Jun-14 A									
A4040	Construction of column / wall / beam / slab	7	23-Jun-14 A	24-Jul-14 A									
A4050	Erection of structural steel roof including cladding & corrugated sheet	18	25-Jul-14 A	11-Aug-14 A									
A4060	Metal Works - zinc gutter / grating / downpipe / balustrade / railing	18	12-Aug-14 A	03-Sep-14 A									
A4070	Furnitures & finish - mass concrete fill / screed / stadium plastic seat	12	13-Aug-14 A	02-Sep-14 A									
A4080	Building Service - electrical, fire service, PA system	18	28-Jul-14 A	06-Sep-14 A									
Weightlifting Room						74	16-Jun-14 A	06-Sep-14 A					
A4090	Earthworks and excavation for footing construction	7	16-Jun-14 A	23-Jun-14 A									
A4100	Construction of footing	7	24-Jun-14 A	27-Jun-14 A									
A4110	Construction of column & wall	7	07-Jul-14 A	18-Jul-14 A									
A4120	Construction of Roof slab & beam	4	19-Jul-14 A	24-Jul-14 A									
A4130	Roof finish - Waterproof / thermal insulation / floor finish / surface channel / fall arrest / etc.	20	28-Jul-14 A	29-Aug-14 A									
A4140	Internal finish for wall, floor & ceiling - screed / skirt / tile / paint / signage / etc.	23	14-Aug-14 A	03-Sep-14 A									
A4150	External finish for wall - plaster / paint / metal works	30	31-Jul-14 A	02-Sep-14 A									
A4170	Building Service - MVAC, electrical, fire service	19	04-Aug-14 A	06-Sep-14 A									
Landscaping & External Work						79	16-Jun-14 A	10-Sep-14 A					
A4180	Demolition of existing warm up track for temporary reprovisioning works	7	30-Aug-14 A	04-Sep-14 A									
A4190	Footway / drainage / U-channel / paving / drainage pipe / etc.	42	16-Jun-14 A	06-Sep-14 A									
A4200	Building Service - Lamp pole / floodlight / street hydant / earthing tap / irrigation system / etc.	40	07-Jul-14 A	06-Sep-14 A									
A5570	Extension of warm up track - floor finish	4	05-Sep-14 A	10-Sep-14 A									
Testing & Commisioning						5	08-Sep-14 A	11-Sep-14 A					
A4210	Internal - MVAC / Electrical / FS / P&D	5	08-Sep-14 A	11-Sep-14 A									
A4220	External - Irrigation / Lighting / FS / P&D	5	08-Sep-14 A	11-Sep-14 A									
Statutory Inspection and Approval						58	28-Jul-14 A	30-Sep-14 A					
A4221	Form WWO46 Part IV Submission to WSD	4	08-Sep-14 A	10-Sep-14 A									
A4222	WSD Inspection	2	11-Sep-14 A	11-Sep-14 A									
A4223	Issue WWO46 Part V Certificate	4	12-Sep-14 A	23-Sep-14 A									

	Primary Baseline		Milestone
	Last Month Baseline		Summary
	Actual Work		
	Remaining Work		
	Critical Remaining Work		

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for WCSG (Dec 2014 ~ Mar 2015)

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2014				2015		
						Dec	Jan	Feb	Mar	Jan	Feb	Mar
A4224	Submission of Final Amendment to FSD	2	28-Jul-14 A	28-Jul-14 A								
A4225	Approval of Final Amendment from FSD	24	29-Jul-14 A	29-Jul-14 A								
A4230	Submit Forms FS 314 & FS 501	10	29-Aug-14 A	24-Sep-14 A								
A4240	FS Inspection	1	25-Sep-14 A	25-Sep-14 A								
A4250	Obtain FS Certificate & OP	2	29-Sep-14 A	30-Sep-14 A								
A5590	Cleaning and Pre-handover to LCSD	1	10-Sep-14 A	11-Sep-14 A								
A5600	Site handover to LCSD (New Provisions)	1	12-Sep-14 A	12-Sep-14 A								
Cost Centre F - Demolition Works at WCSG		247	12-May-14 A	09-Apr-15	633							
Demolition Plan		87	12-May-14 A	10-Jul-14 A								
A9560	Demolition Plan - Prepare & Submit - 1st Round	6	12-May-14 A	16-May-14 A								
A9570	Demolition Plan - Comment & Approval - 1st Round	6	17-May-14 A	23-May-14 A								
A9580	Demolition Plan - Prepare & Submit - 2nd Round	6	24-May-14 A	12-Jun-14 A								
A9590	Demolition Plan - Comment & Approval - 2nd Round	6	13-Jun-14 A	09-Jul-14 A								
A9600	Demolition Plan - ICC Submission & Approval	10	10-Jul-14 A	10-Jul-14 A								
Demolition Works		235	03-Jun-14 A	09-Apr-15	633							
A9610	Site Procession	0	03-Jun-14 A	03-Jun-14 A								
A9620	Erection of covered hoarding and temp. staircase outside Sport Ground	12	03-Jun-14 A	16-Jun-14 A								
A9630	Erection of covered hoarding and temp. staircase inside Sport Ground	6	16-Jun-14 A	25-Jul-14 A								
A9640	Temporary works / precaution measures for demolition works	6	14-Jun-14 A	07-Jul-14 A								
A9650	Joint site inspection and obtain approval by ICC prior to actual demolition	3	08-Jul-14 A	08-Jul-14 A								
A9660	Demolition works	72	09-Jul-14 A	22-Sep-14 A								
A9670	Ground formation	26	23-Sep-14 A	26-Sep-14 A								
A9671	Pre-drill and Instrumentation installation (Piezometer and utility settlement marker)	6	22-Sep-14 A	17-Oct-14 A								
A9680	Site cleaning and touch up	26	27-Sep-14 A	20-Oct-14 A								
A9681	Site container office	7	22-Nov-14 A	09-Apr-15	633							
A9690	Ready for site handover and Handover	60	30-Sep-14 A	30-Sep-14 A								

-  Primary Baseline
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-  Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

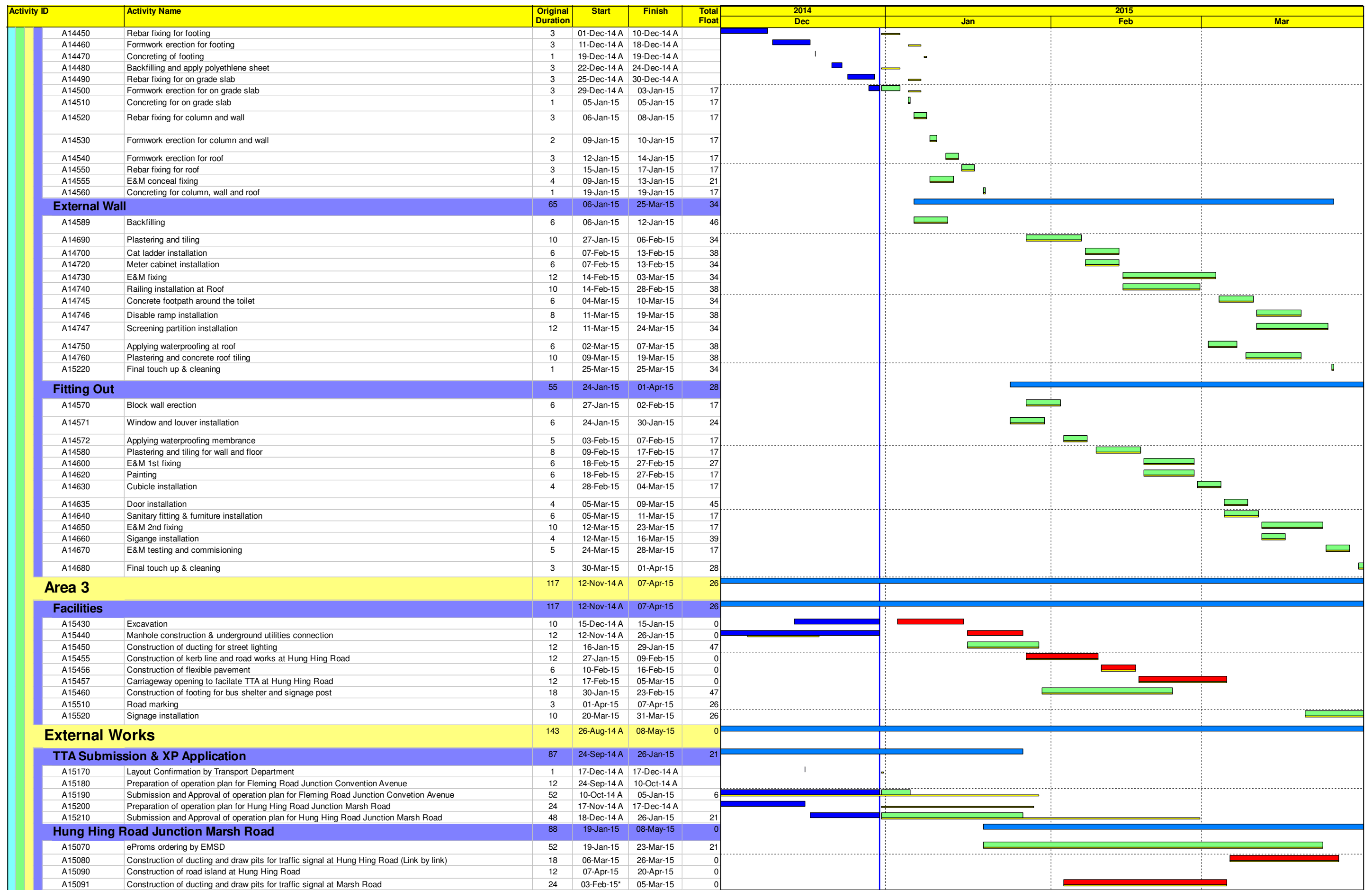
Three Months Rolling Programme for WCSG (Dec 2014 ~ Mar 2015)

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2014		2015					
						Dec	Jan	Feb	Mar				
SCL1126 - Reprovisioning of HRSC & WCSP (20 Jan 2014) _ F						154	26-Aug-14 A	21-May-15	598				
Contractual Dates and Project Key Dates						0	09-May-15	09-May-15	0				
IPS Milestone Dates						0	09-May-15	09-May-15	0				
Cost Centre H - Temporary PTI Facilities at Wan Chai North (Option1)						0	09-May-15	09-May-15	0				
01126.MSH04	H4 - Complete all orks within Cost Centre H; Complete trial runs & Ready for handover to TD (Wk. 50/14, ')	0	09-May-15	09-May-15*	0								
Cost Centre H - Temporary Public Transport Interchange Fac						154	26-Aug-14 A	21-May-15	598				
Site Proccession						112	06-Oct-14 A	14-Feb-15	34				
A14400	Site proccession for Area 1	1	06-Oct-14 A	06-Oct-14 A									
A14401	Site proccession for Area 2	1	15-Oct-14 A	15-Oct-14 A									
A14402	Site proccession for Area 3	1	31-Oct-14 A	31-Oct-14 A									
A14403	Site proccession for remaining Area (portion of Area 2 & 3)	1	02-Jan-15*	02-Jan-15	0								
A14410	UU detection and instrumentation installation	24	06-Oct-14 A	03-Nov-14 A									
A14411	Soil replacement works	48	05-Dec-14 A	14-Feb-15	26								
A14420	Setting out	24	06-Oct-14 A	31-Oct-14 A									
A14421	Backfill & compacion works	18	20-Jan-15	09-Feb-15	26								
A14425	Statutory approval letter (DSD, WSD, FSD & ICC)	1	20-Nov-14 A	15-Dec-14 A									
Area 1						52	08-Oct-14 A	14-Jan-15	48				
Petrol interception						52	08-Oct-14 A	14-Jan-15	48				
A14770	Excavation	6	08-Oct-14 A	15-Oct-14 A									
A14780	Blinding layer	1	16-Oct-14 A	16-Oct-14 A									
A14790	Rebar fixing for bottom slab	6	20-Oct-14 A	31-Oct-14 A									
A14800	Formwork erection for bottom slab	6	01-Nov-14 A	08-Nov-14 A									
A14810	Concreting for bottom slab	1	10-Nov-14 A	10-Nov-14 A									
A14820	Rebar fixing for wall and slab	6	11-Nov-14 A	15-Nov-14 A									
A14830	Formwork erection for wall and slab	6	17-Nov-14 A	22-Nov-14 A									
A14840	Cast in drainage & steel bar	4	24-Nov-14 A	27-Nov-14 A									
A14850	Concreting for wall and slab	1	09-Dec-14 A	09-Dec-14 A									
A14860	Applying finishes	6	31-Dec-14	07-Jan-15	48								
A14870	Access ladder installation	6	08-Jan-15	14-Jan-15	48								
Area 2						30	24-Nov-14 A	04-Feb-15	73				
Store Room						30	24-Nov-14 A	04-Feb-15	73				
A14880	Excavation of footing	6	24-Nov-14 A	28-Nov-14 A									
A14890	Blinding layer	2	29-Nov-14 A	29-Nov-14 A									
A14900	Rebar fixing for footing	6	01-Dec-14 A	10-Dec-14 A									
A14910	Formwork erection for footing	6	08-Dec-14 A	16-Dec-14 A									
A14920	Cast in base	6	12-Dec-14 A	16-Dec-14 A									
A14930	Concreting for footing	1	17-Dec-14 A	17-Dec-14 A									
A14940	Structural steel installation	18	31-Dec-14	21-Jan-15	73								
A14950	Profiled sheet installation	12	22-Jan-15	04-Feb-15	73								
Facilities at Area 1 & 2						118	09-Oct-14 A	08-Apr-15	634				
A14960	Excavation	24	09-Oct-14 A	29-Dec-14 A									
A14970	Manhole construction & underground utilities connection	24	13-Oct-14 A	17-Jan-15	26								
A14975	Construction of hoarding footing	18	05-Nov-14 A	27-Dec-14 A									
A14980	Construction of ducting for street lighting	36	08-Dec-14 A	11-Feb-15	25								
A14990	Construction of footing for bus shelter and signage post	18	10-Nov-14 A	31-Dec-14	61								
A15000	Construction of concrete pavement (Night works), tactile and kerb	36	03-Feb-15	19-Mar-15	26								
A15010	Roadside gully	12	17-Nov-14 A	19-Mar-15	27								
A15020	Erection of bus shelter	24	31-Dec-14	28-Jan-15	67								
A15030	Erection of signage post	18	31-Dec-14	21-Jan-15	61								
A15035	Signage installation	12	22-Jan-15	04-Feb-15	61								
A15040	Road marking	12	20-Mar-15	02-Apr-15	27								
A15050	Construction of street lighting by HyD Lighting Division	42	12-Feb-15	08-Apr-15	25								
Additional Works						64	28-Oct-14 A	06-Dec-14 A					
A15560	GCO Probing and trial pits	12	28-Oct-14 A	06-Nov-14 A									
A15570	Boreholes and extensometer installation	24	21-Nov-14 A	06-Dec-14 A									
Temporary Toilet						75	24-Nov-14 A	01-Apr-15	28				
A15530	Temporary toilet design confirmation	1	02-Dec-14 A	02-Dec-14 A									
Footing & Superstructure						16	24-Nov-14 A	19-Jan-15	17				
A14430	Excavation of footing	5	24-Nov-14 A	28-Nov-14 A									
A14440	Blinding layer	1	29-Nov-14 A	29-Nov-14 A									

- Primary Baseline
- Last Month Baseline
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for?Temporary PTI (Dec 2014 ~ Mar 2015)










- Primary Baseline
- Last Month Baseline
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for?Temporary PTI (Dec 2014 ~ Mar 2015)

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2014				2015				
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
A15092	Construction of pedestrian crossing at Marsh Road	10	27-Mar-15	10-Apr-15	8									
A15100	Installation of traffic signal	12	21-Apr-15	05-May-15	0									
A15110	Road marking	3	06-May-15	08-May-15	0									
Bus Stop at Convention Avenue		57	06-Jan-15	16-Mar-15	42									
A15150	Removal of existing railing (3nos of bus stop)	12	27-Feb-15	12-Mar-15	6									
A15160	Road marking (3nos of bus stop)	3	13-Mar-15	16-Mar-15	42									
1 no of bus stop with bus shelter		42	06-Jan-15	26-Feb-15	6									
A15540	Relocation of street lighting (1no of bus stop)	24	06-Jan-15	02-Feb-15	6									
A15550	Construction of footing and erection of bus shelter	18	03-Feb-15	26-Feb-15	6									
Bus Stop at Fleming Road		137	26-Aug-14 A	30-Apr-15	6									
A15230	Relocation of street lighting	18	10-Sep-14 A	11-Nov-14 A										
A15240	Relocation of signage	12	15-Sep-14 A	26-Sep-14 A										
A15250	Construction of bus lay-by	24	26-Aug-14 A	06-Dec-14 A										
A15260	Road marking	3	28-Apr-15	30-Apr-15	6									
Modification Works at Fleming Road		39	13-Mar-15	30-Apr-15	6									
A15280	Relocation of street lighting	12	13-Mar-15	26-Mar-15	6									
A15290	Modification work of island	12	27-Mar-15	13-Apr-15	6									
A15300	Relocation of traffic signal	12	14-Apr-15	27-Apr-15	6									
A15310	Road marking	3	28-Apr-15	30-Apr-15	6									
Bus Stop at Harbour Road		1	30-Apr-15	30-Apr-15	6									
A15270	Road marking	1	30-Apr-15	30-Apr-15	6									
Statutory Inspection and Handover		42	30-Mar-15	21-May-15	598									
A15051	Submission of FS314 and 251	12	30-Mar-15	15-Apr-15	17									
A15052	FSD Inspection	2	16-Apr-15	17-Apr-15	17									
A15053	FS Certificate	6	18-Apr-15	24-Apr-15	18									
A15055	Handover to MTR	1	09-May-15	09-May-15	0									
A15060	Trial Run	10	11-May-15	21-May-15	598									

-  Primary Baseline
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-  Actual Work
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-  Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for?Temporary PTI (Dec 2014 ~ Mar 2015)

**APPENDIX B
ACTION AND LIMIT LEVELS**

APPENDIX B – Action and Limit Levels**24-Hour TSP**

Regular Dust Monitoring Location	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2 ⁽¹⁾⁽²⁾	Wan Chai Sports Ground	160	260
AM3 ⁽¹⁾	Existing Harbour Road Sports Centre	169	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
- (2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.

Construction Noise

Regular Construction Noise Monitoring Location⁽¹⁾	Description	Time Period	Action Level	Limit Level
NM2 ⁽¹⁾⁽²⁾⁽³⁾	Harbour Centre (7/F)	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
	Harbour Centre (8/F)			

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
- (2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
- (3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) from 19 December 2014 onwards.

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA14009/53/0004

Station AM2 - Wan Chai Sports Ground Operator: WK
 Date: 27-Nov-14 Next Due Date: 26-Jan-15
 Equipment No.: A-01-53 Serial No. 1535

Ambient Condition			
Temperature, Ta (K)	295.1	Pressure, Pa (mmHg)	764.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.6	3.43	59.41	6.8	2.63
2	8.7	2.97	51.51	5.4	2.34
3	7.5	2.76	47.85	4.6	2.16
4	5.0	2.25	39.15	3.1	1.77
5	3.3	1.83	31.89	2.0	1.43

By Linear Regression of Y on X

Slope, mw = 0.0441 Intercept, bw : 0.0391
 Correlation coefficient* = 0.9986

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.69

Remarks: _____

Conducted by: Wk Tang Signature: Kwan
 Checked by: AK Signature: _____

Date: 27/11/14
 Date: 27 November 2014

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA14009/41/0004

Station AM3 - Existing Harbour Road Sports Centre Operator: WK
 Date: 27-Nov-14 Next Due Date: 26-Jan-15
 Equipment No.: A-01-41 Serial No. 5280

Ambient Condition			
Temperature, Ta (K)	295.4	Pressure, Pa (mmHg)	764.7

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	10.9	3.33	57.58	7.1	2.68
2	8.6	2.95	51.19	5.8	2.43
3	6.5	2.57	44.56	4.6	2.16
4	4.1	2.04	35.48	3.0	1.75
5	2.1	1.46	25.51	1.7	1.31

By Linear Regression of Y on X

Slope, mw = 0.0430 Intercept, bw : 0.2241
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

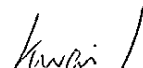

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.23

Remarks: _____

Conducted by: Wk. Tang Signature:  Date: 27/11/14
 Checked by: GA Signature:  Date: 27 November 2014

TEST REPORT

Description	Calibration Orifice	Manufacturer	TISCH
Serial No.	0993	Temperature, Ta (K)	299
Model No.	TE-5025A	Pressure, Pa (mmHg)	761.8
Date	27 September 2014	Equipment No.:	A-04-04

Plate	Diff.Vol (m ³)	Diff.Time (min)	Diff.Hg (mm)	Diff.H ₂ O (in.)
1	1.00	1.4230	3.3	2.00
2	1.00	1.0050	6.5	4.00
3	1.00	0.8950	8.2	5.00
4	1.00	0.8570	9.0	5.50
5	1.00	0.7080	13.0	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9947	0.6990	1.4135
0.9905	0.9856	1.9990
0.9883	1.1042	2.2350
0.9872	1.1519	2.3441
0.9820	1.3870	2.8270

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$

Qstd Slope (m) = 2.05398

Intercept (b) = -0.02487

Coefficient (r) = 0.99996

Va	(X axis) Qa	(Y axis)
0.9957	0.6997	0.8860
0.9915	0.9865	1.2530
0.9892	1.1053	1.4009
0.9882	1.1531	1.4693
0.9829	1.3883	1.7720

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$

Qa Slope (m) = 1.28617

Intercept (b) = -0.01559

Coefficient (r) = 0.99996

CALCULATIONS

$V_{std} = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/760](298/\text{Ta})$

$Q_{std} = V_{std}/\text{Time}$

$V_a = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/\text{Pa}]$

$Q_a = V_a/\text{Time}$

For subsequent flow rate calculations:

$Q_{std} = 1/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))]-b\}$

$Q_a = 1/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Ta}/\text{Pa}))]-b\}$

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/140919/1
Date of Issue:	2014-09-21
Date Received:	2014-09-19
Date Tested:	2014-09-21
Date Completed:	2014-09-21
Next Due Date:	2015-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 55%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/140919/3
Date of Issue:	2014-09-21
Date Received:	2014-09-19
Date Tested:	2014-09-21
Date Completed:	2014-09-21
Next Due Date:	2015-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 55%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/140822/3
Date of Issue:	2014-08-25
Date Received:	2014-08-22
Date Tested:	2014-08-22
Date Completed:	2014-08-25
Next Due Date:	2015-08-24

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 55%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/141003/3
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 56%

Methodology:


The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/141107/1
Date of Issue:	2014-11-08
Date Received:	2014-11-07
Date Tested:	2014-11-07
Date Completed:	2014-11-08
Next Due Date:	2015-11-07

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 53 %

Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/140822/2
Date of Issue:	2014-08-25
Date Received:	2014-08-22
Date Tested:	2014-08-22
Date Completed:	2014-08-25
Next Due Date:	2015-08-24

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 64%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool
Environmental Monitoring Schedule for December 2014**

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

Noise Monitoring Station

NM2: Harbour Centre

Air Quality Monitoring Station

AM2: Wan Chai Sports Ground

AM3: Existing Harbour Road Sports Centre

**Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool
Tentative Environmental Monitoring Schedule for January 2015**

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station

NM2: Harbour Centre

Air Quality Monitoring Station

AM2: Wan Chai Sports Ground

AM3: Existing Harbour Road Sports Centre

**Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool
Tentative Environmental Monitoring Schedule for February 2015**

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station

NM2: Harbour Centre

Air Quality Monitoring Station

AM2: Wan Chai Sports Ground

AM3: Existing Harbour Road Sports Centre

**Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool
Tentative Environmental Monitoring Schedule for March 2015**

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station

NM2: Harbour Centre

Air Quality Monitoring Station

AM2: Wan Chai Sports Ground

AM3: Existing Harbour Road Sports Centre

**APPENDIX E
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONIS**

Appendix E - 24-hour TSP Monitoring Results

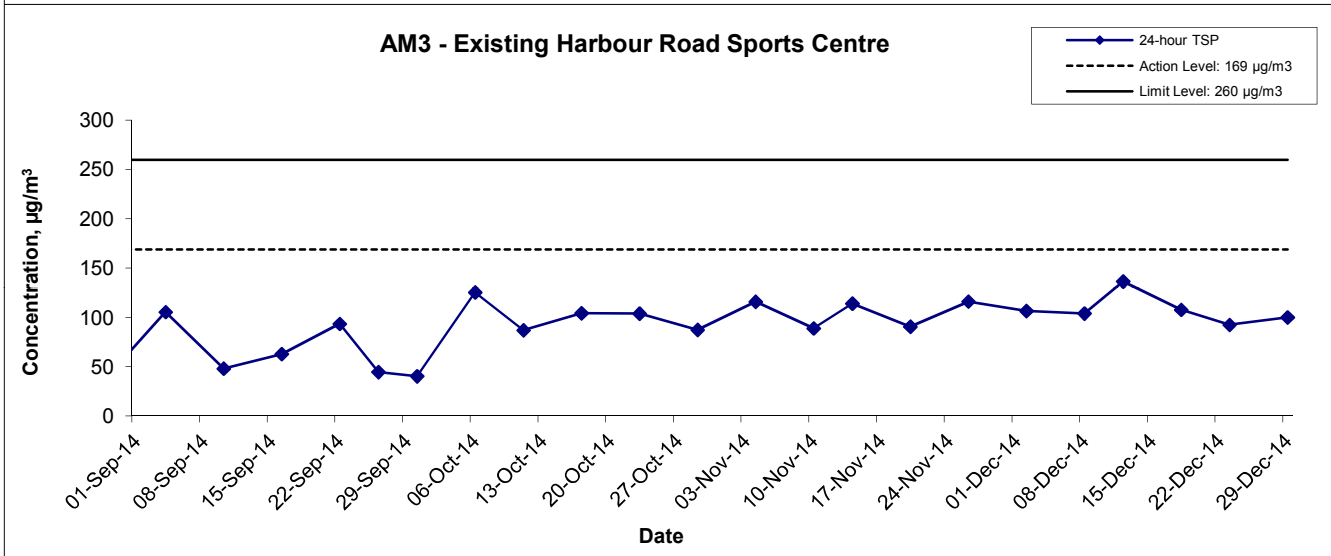
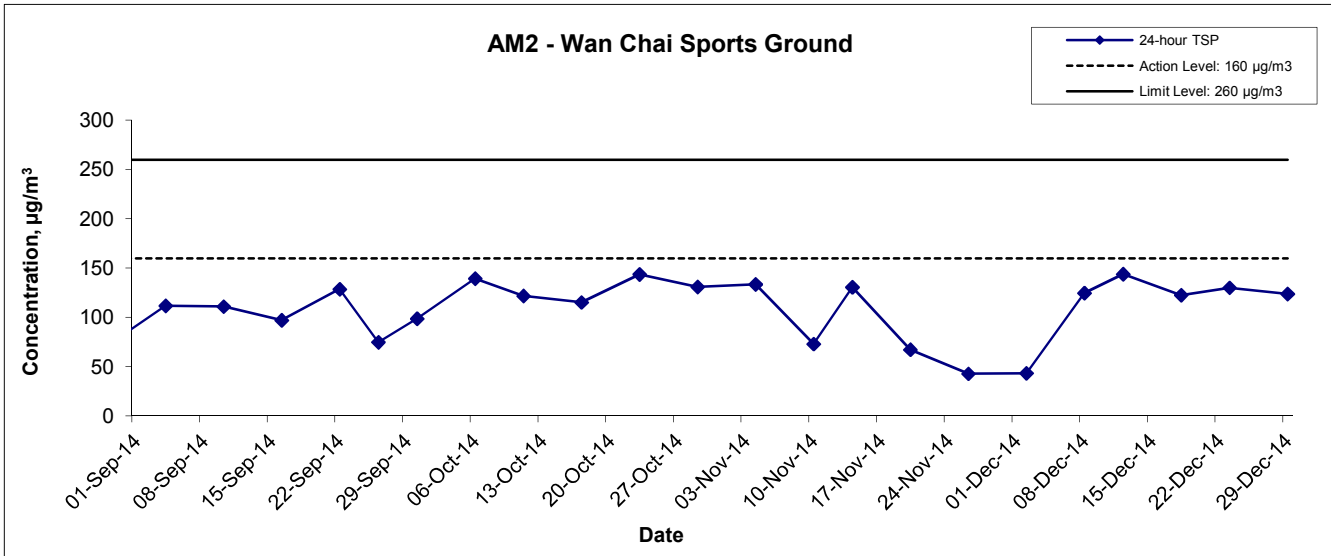
Location AM2 - Wan Chai Sports Ground

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
2-Dec-14	09:00	Cloudy	287.6	768.8	3.3200	3.3974	0.0774	6282.4	6306.4	24.0	1.24	1.24	1.24	1783.8	43.4
8-Dec-14	09:00	Cloudy	288.1	769.6	3.2328	3.4551	0.2223	6306.4	6330.4	24.0	1.24	1.24	1.24	1783.0	124.7
12-Dec-14	09:00	Sunny	286.6	772.5	3.1919	3.4496	0.2577	6330.4	6354.4	24.0	1.24	1.24	1.24	1791.2	143.9
18-Dec-14	09:00	Cloudy	294.1	774.3	3.1927	3.4097	0.2170	6354.4	6378.4	24.0	1.23	1.23	1.23	1769.8	122.6
23-Dec-14	09:00	Cloudy	287.1	770.0	3.1526	3.3851	0.2325	6378.4	6402.4	24.0	1.24	1.24	1.24	1786.7	130.1
29-Dec-14	09:00	Sunny	285.1	770.5	3.2663	3.4883	0.2220	6402.4	6426.4	24.0	1.25	1.25	1.25	1793.6	123.8
														Min	43.4
														Max	143.9
														Average	114.7

Location AM3 - Existing Harbour Road Sports Centre

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
2-Dec-14	09:00	Cloudy	287.5	768.8	3.3247	3.5140	0.1893	3943.3	3967.3	24.0	1.23	1.23	1.23	1776.4	106.6
8-Dec-14	09:00	Cloudy	288.5	769.4	3.2211	3.4057	0.1846	3967.3	3991.3	24.0	1.23	1.23	1.23	1773.8	104.1
12-Dec-14	09:00	Sunny	286.9	772.3	3.1858	3.4293	0.2435	3991.3	4015.3	24.0	1.24	1.24	1.24	1783.0	136.6
18-Dec-14	09:00	Cloudy	284.7	774.7	3.2107	3.4040	0.1933	4015.3	4039.3	24.0	1.25	1.25	1.25	1793.8	107.8
23-Dec-14	09:00	Cloudy	287.7	769.6	3.1457	3.3101	0.1644	4039.3	4063.3	24.0	1.23	1.23	1.23	1776.8	92.5
29-Dec-14	09:00	Sunny	285.8	770.5	3.2342	3.4128	0.1786	4063.3	4087.3	24.0	1.24	1.24	1.24	1784.5	100.1
														Min	92.5
														Max	136.6
														Average	107.9

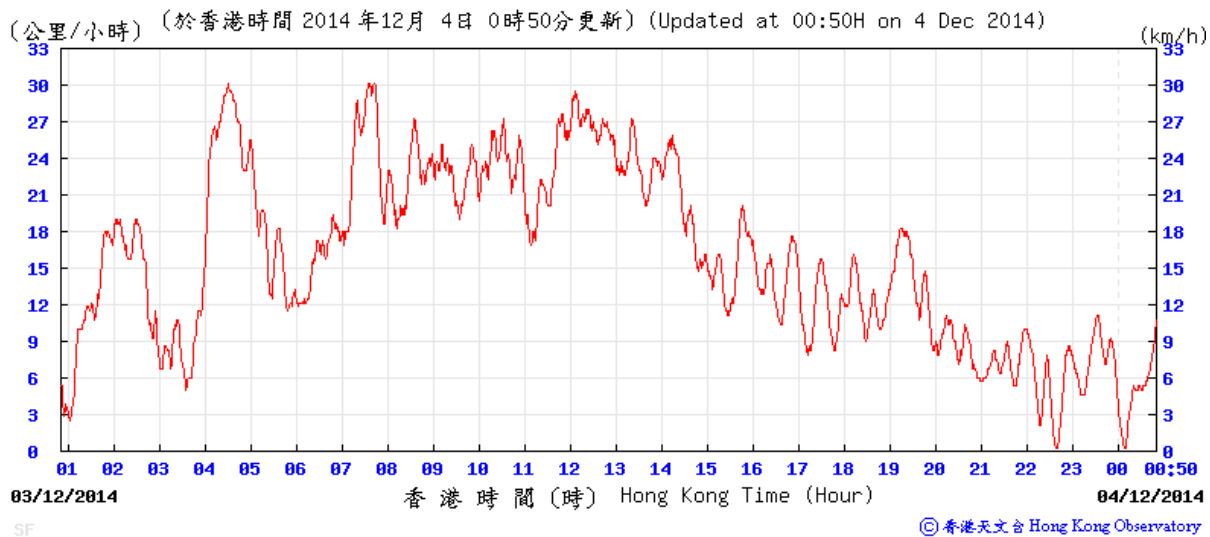
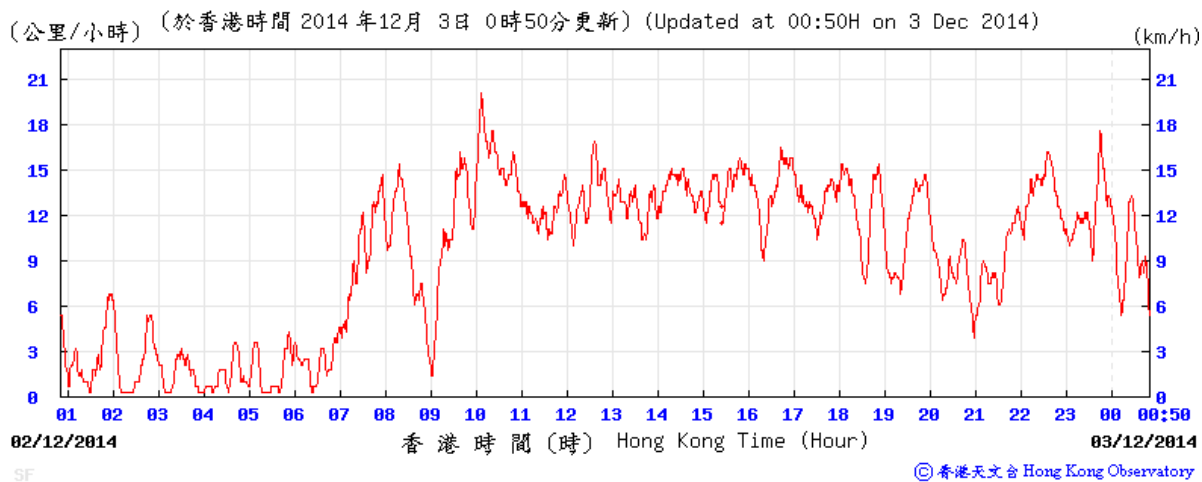
24-hour TSP Concentration Levels



Title Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA14009	CINOTECH
	Date Dec 14	Appendix E	

Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

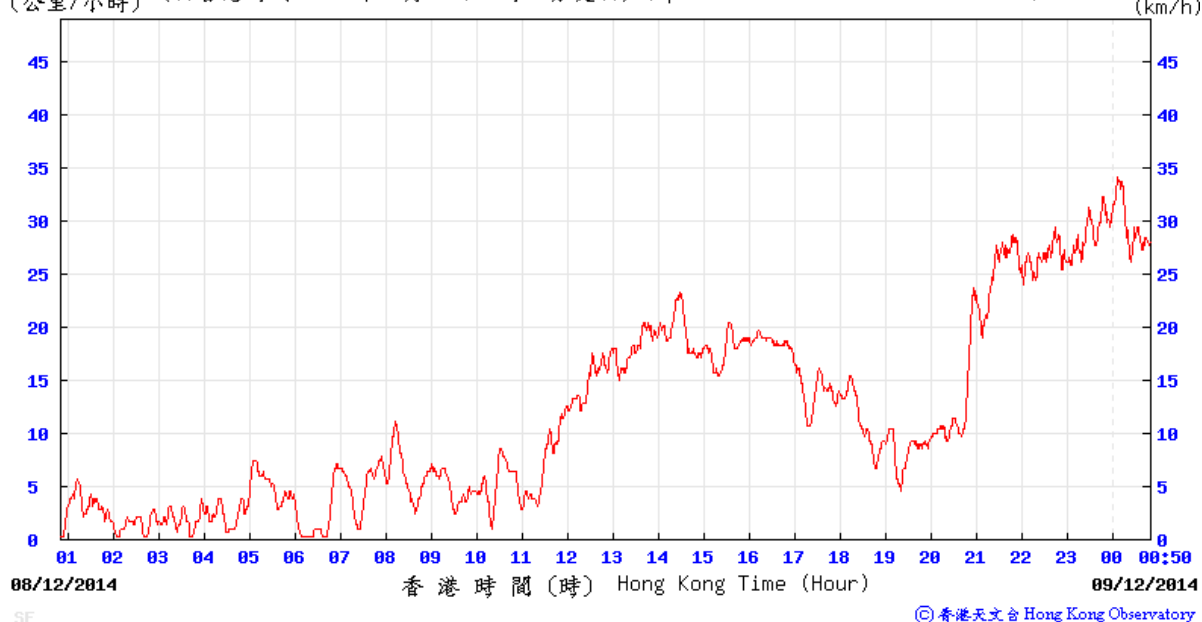
2-3 December 2014



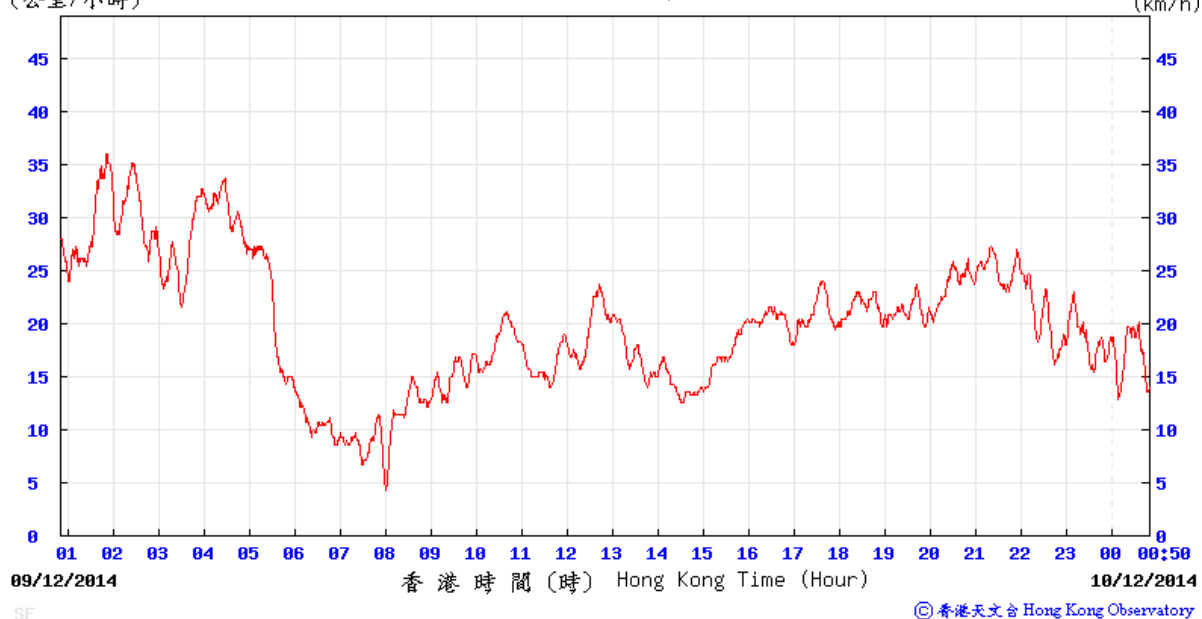
Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

8-9 December 2014

(公里/小時) (於香港時間 2014 年12月 9日 0時50分更新) (Updated at 00:50H on 9 Dec 2014)

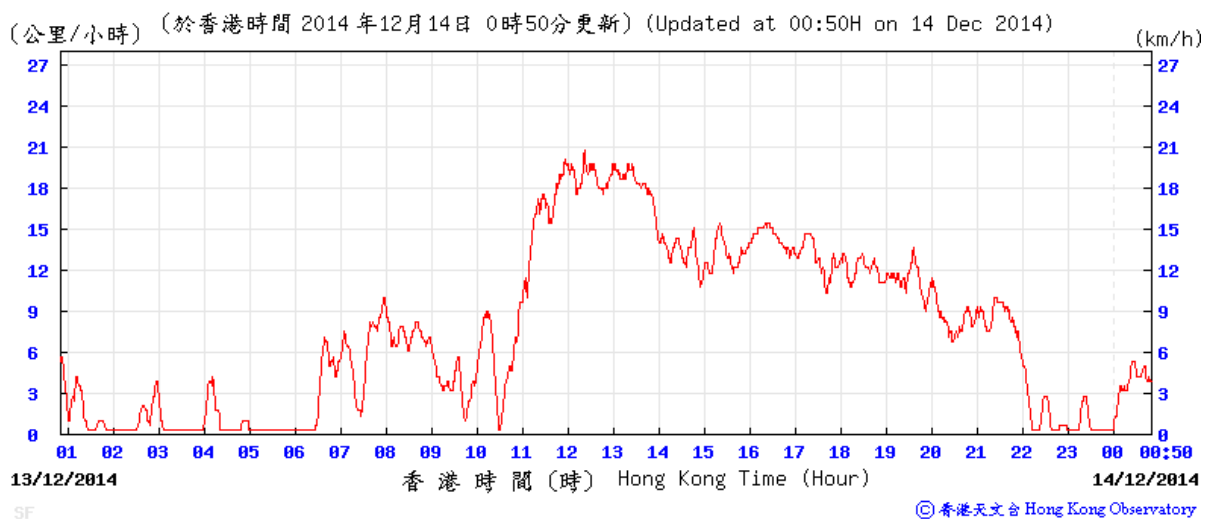
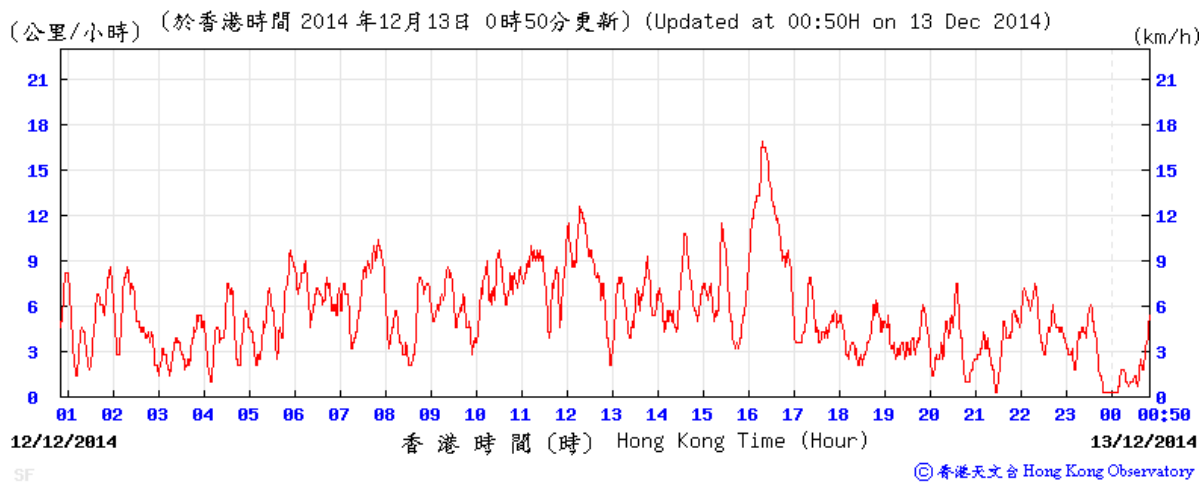


(公里/小時) (於香港時間 2014 年12月10日 0時50分更新) (Updated at 00:50H on 10 Dec 2014)



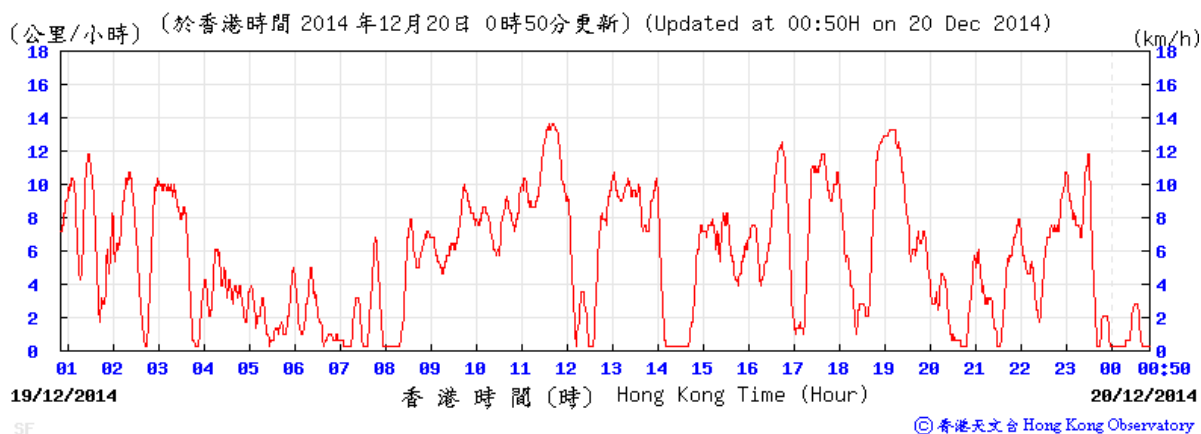
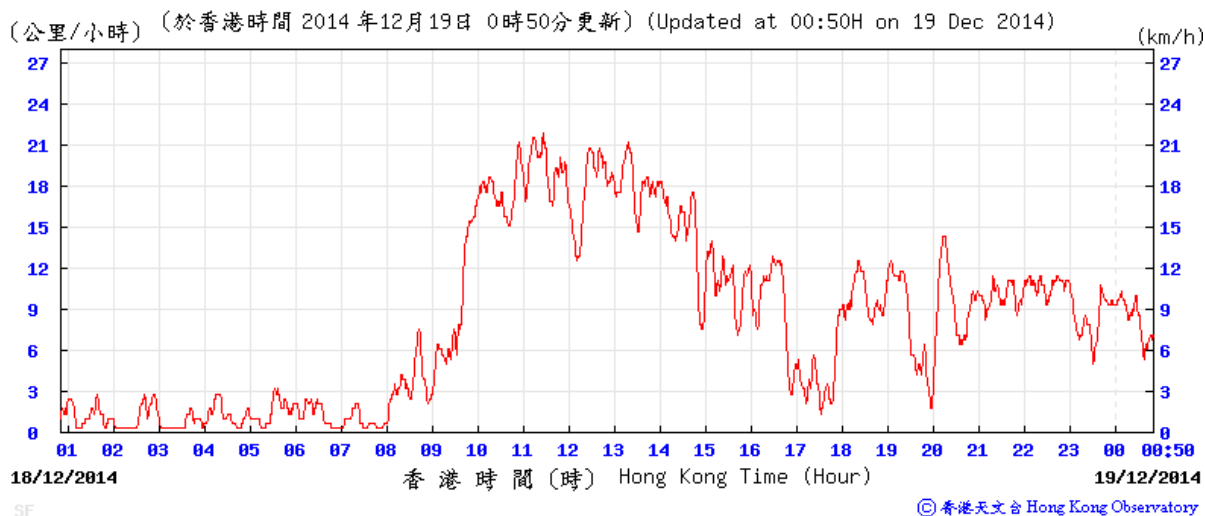
Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

12-13 December 2014



Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

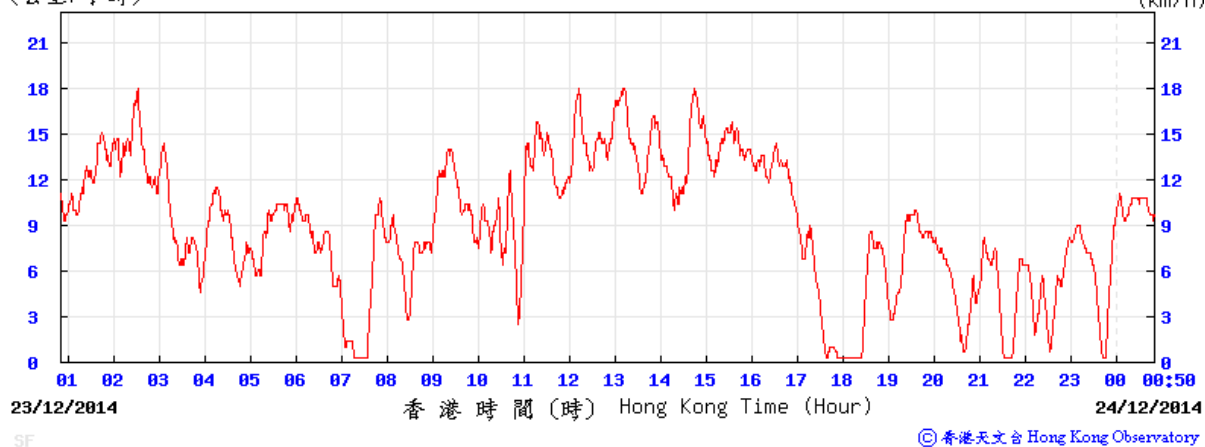
18-19 December 2014



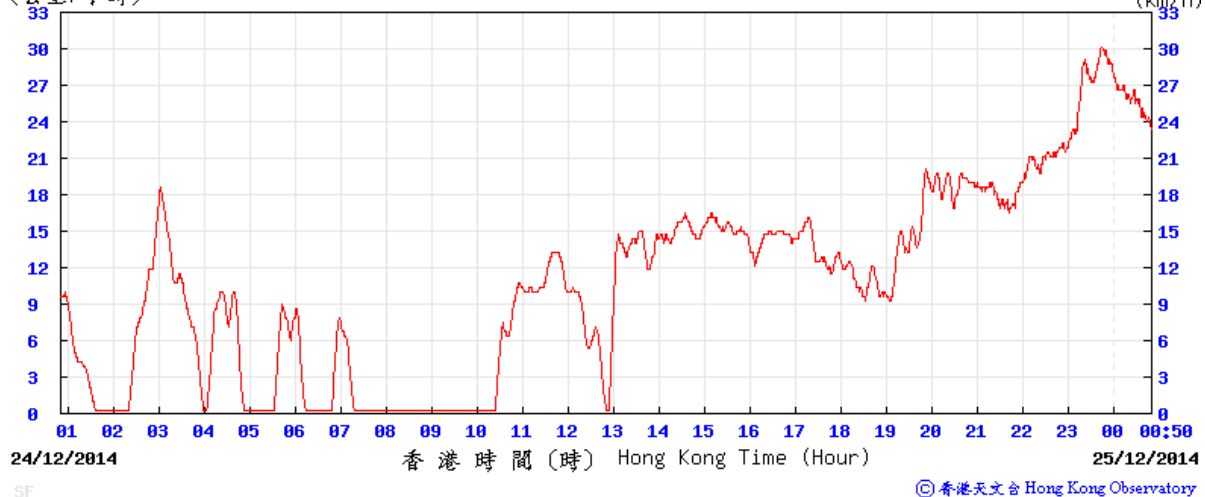
Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

23-24 December 2014

(公里/小時) (於香港時間 2014 年12月24日 0時50分更新) (Updated at 00:50H on 24 Dec 2014) (km/h)



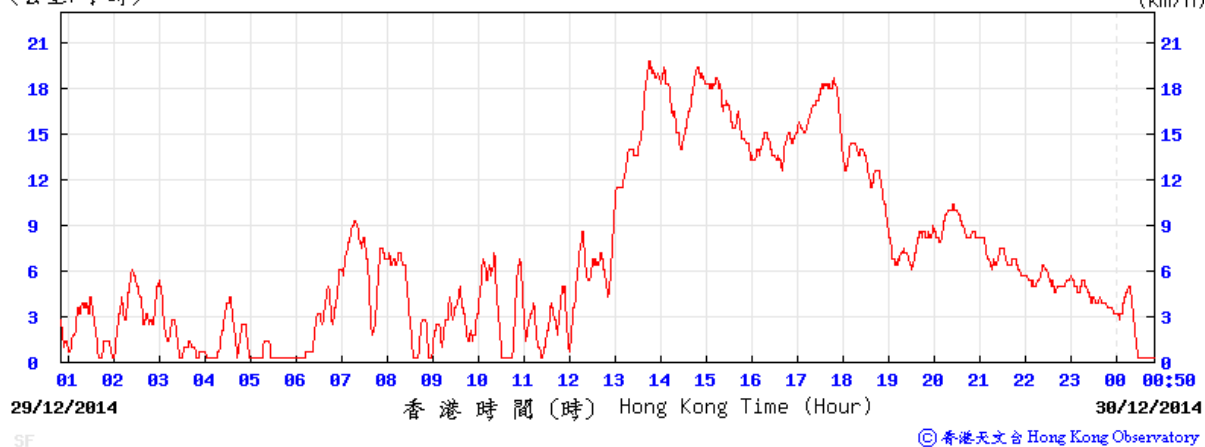
(公里/小時) (於香港時間 2014 年12月25日 0時50分更新) (Updated at 00:50H on 25 Dec 2014) (km/h)



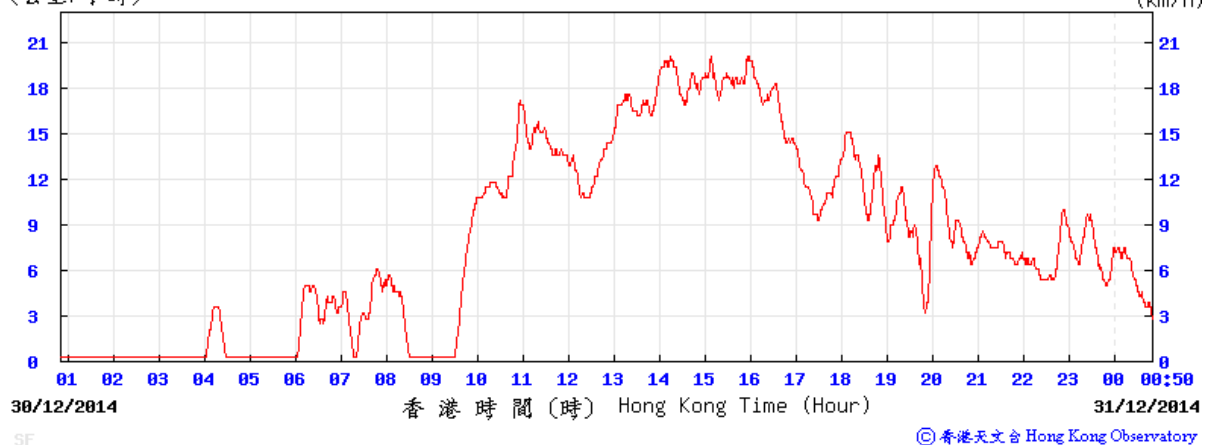
Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

29-30 December 2014

(公里/小時) (於香港時間 2014 年12月30日 0時50分更新) (Updated at 00:50H on 30 Dec 2014) (km/h)

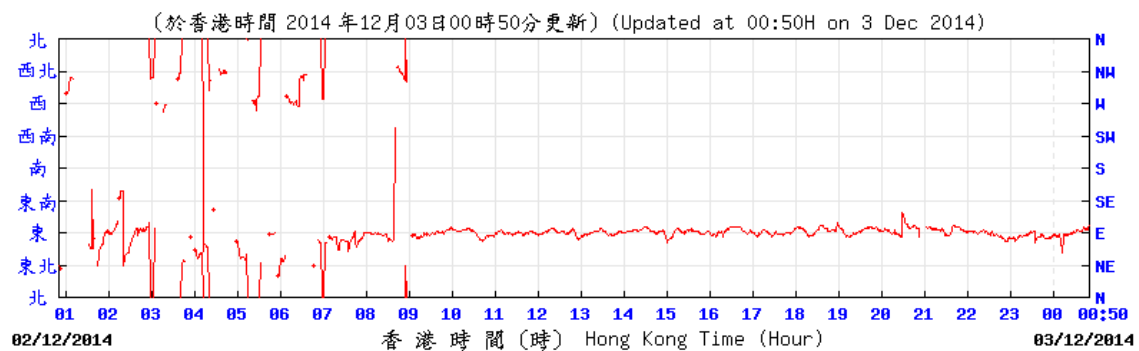


(公里/小時) (於香港時間 2014 年12月31日 0時50分更新) (Updated at 00:50H on 31 Dec 2014) (km/h)

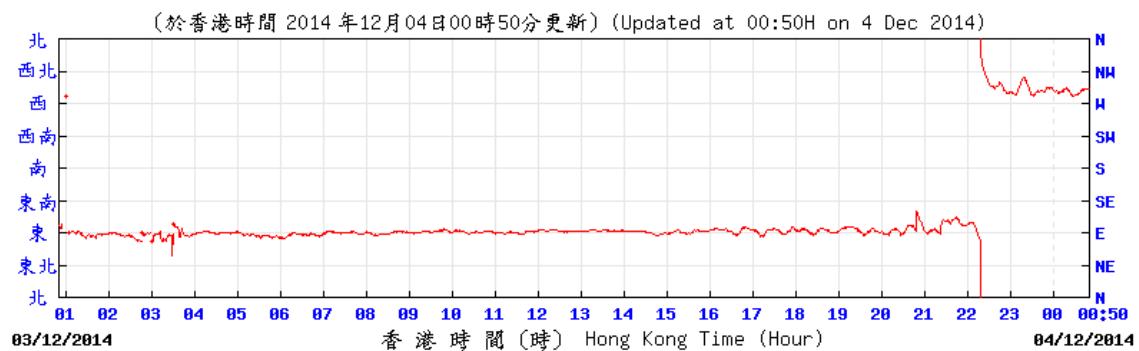


Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

2-3 December 2014



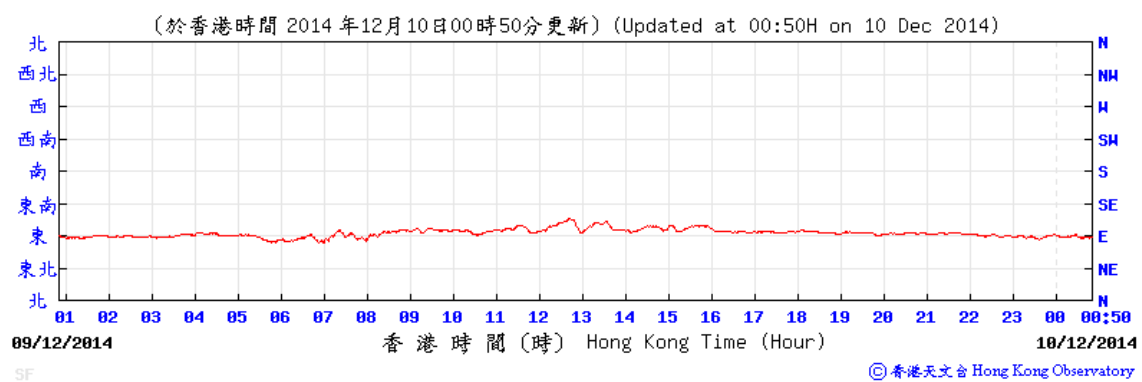
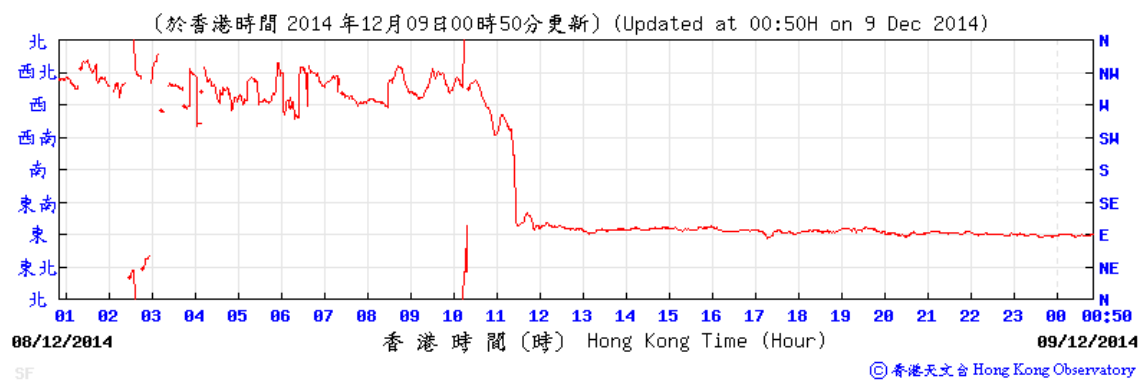
SF © 香港天文台 Hong Kong Observatory



SF © 香港天文台 Hong Kong Observatory

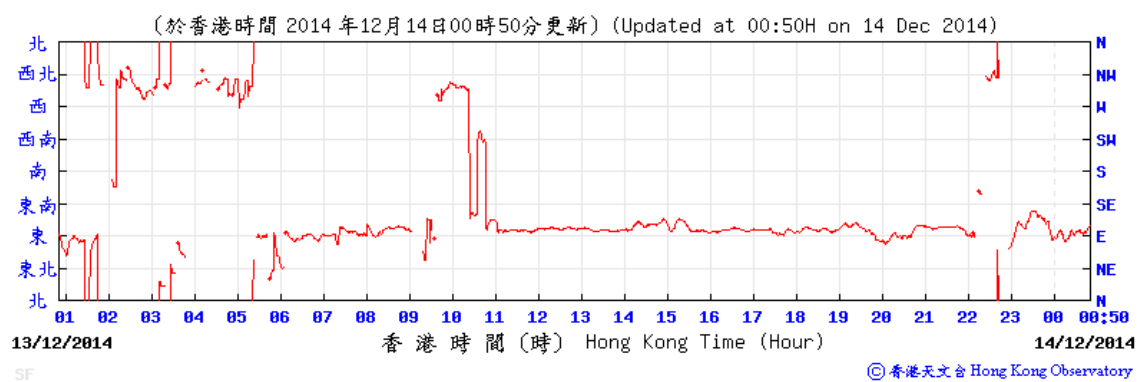
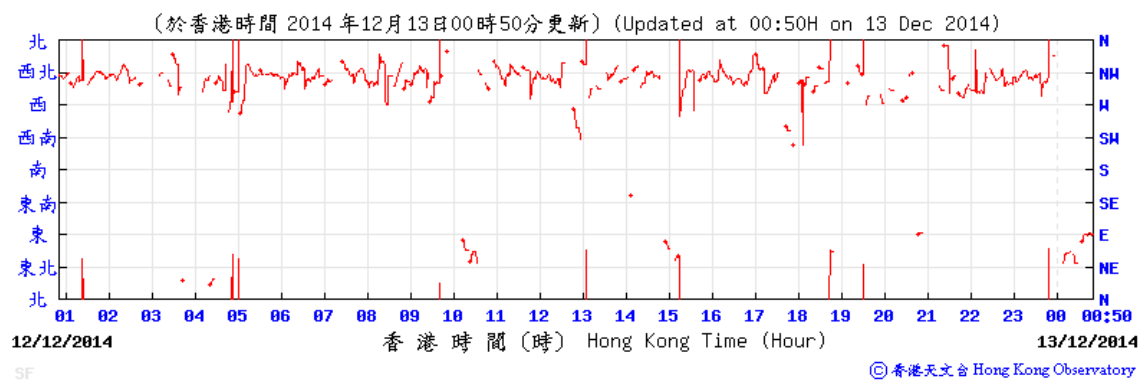
Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

8-9 December 2014



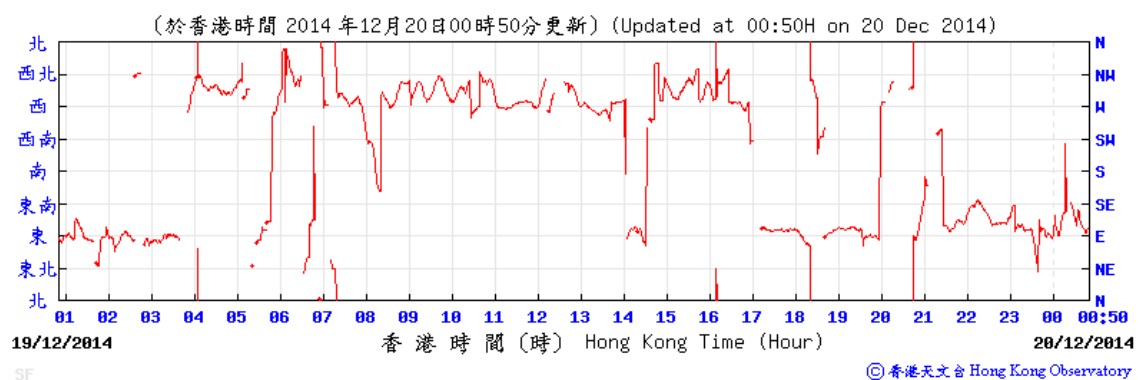
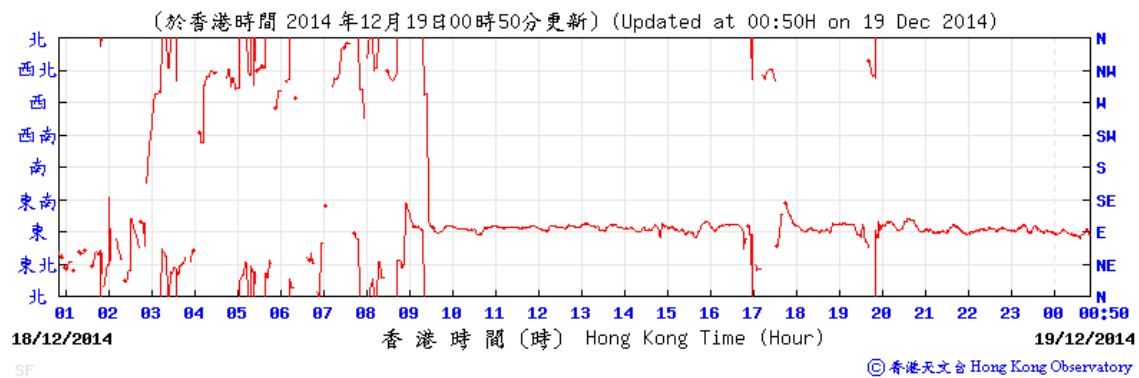
Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

12-13 December 2014



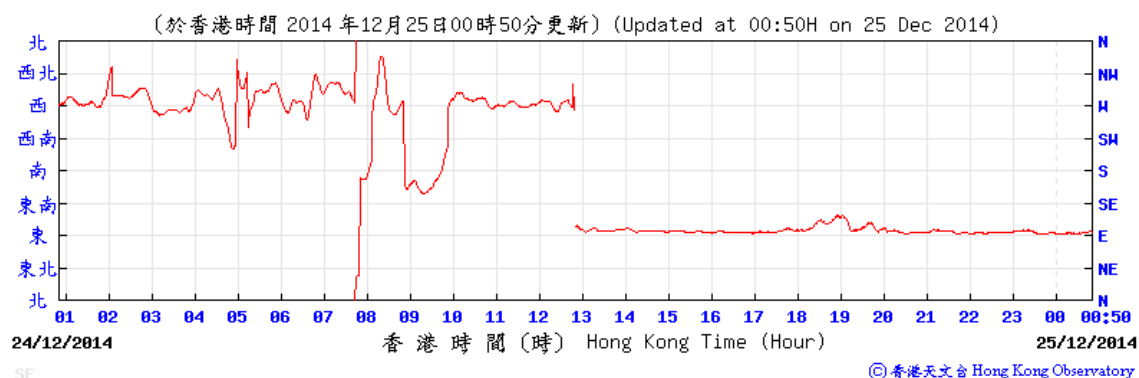
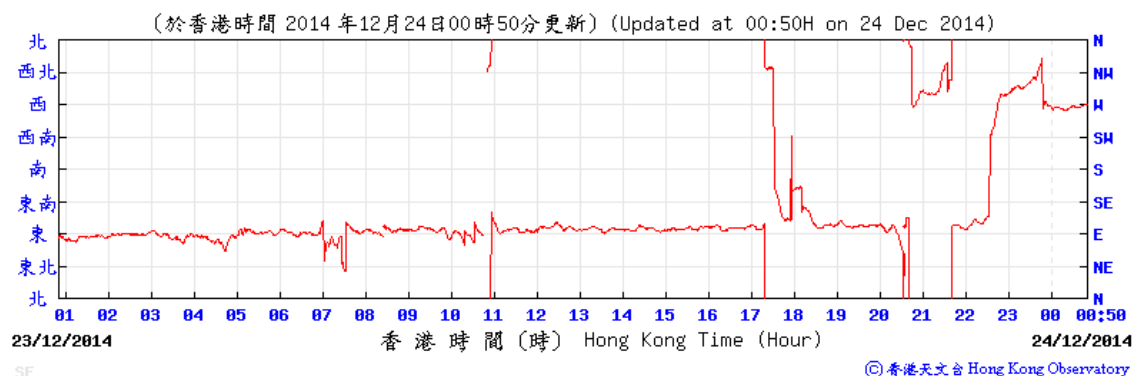
Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

18-19 December 2014



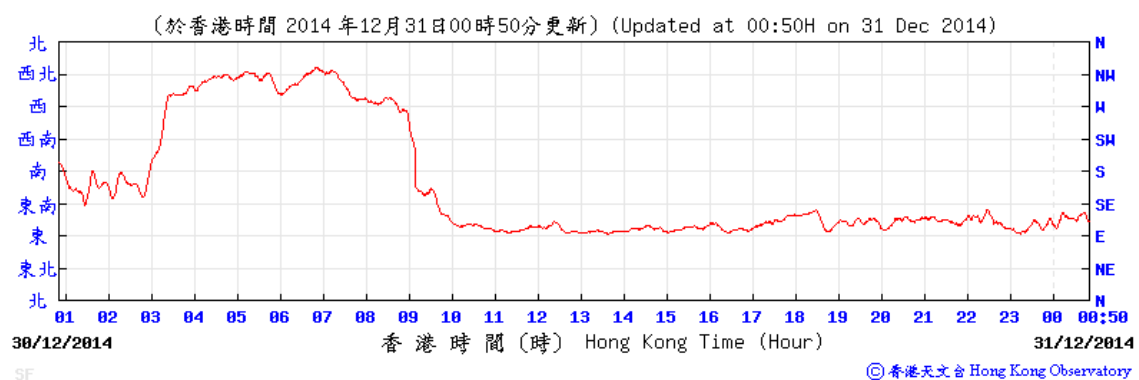
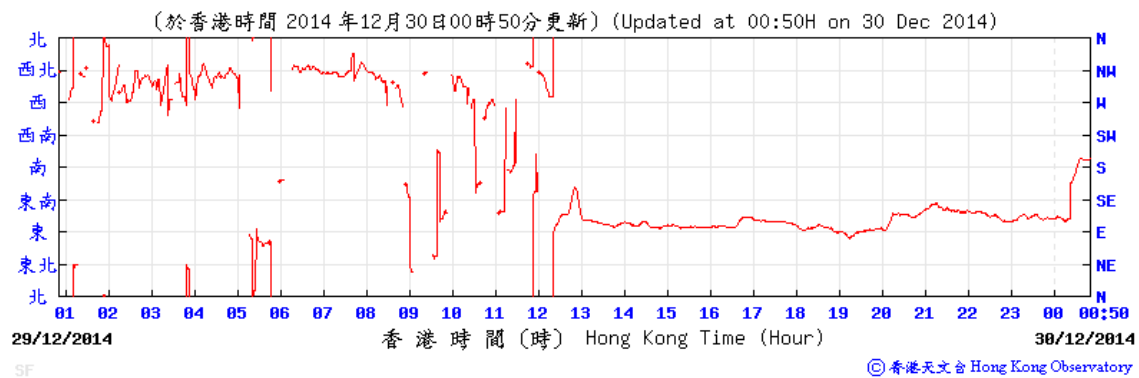
Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

23-24 December 2014



Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

29-30 December 2014

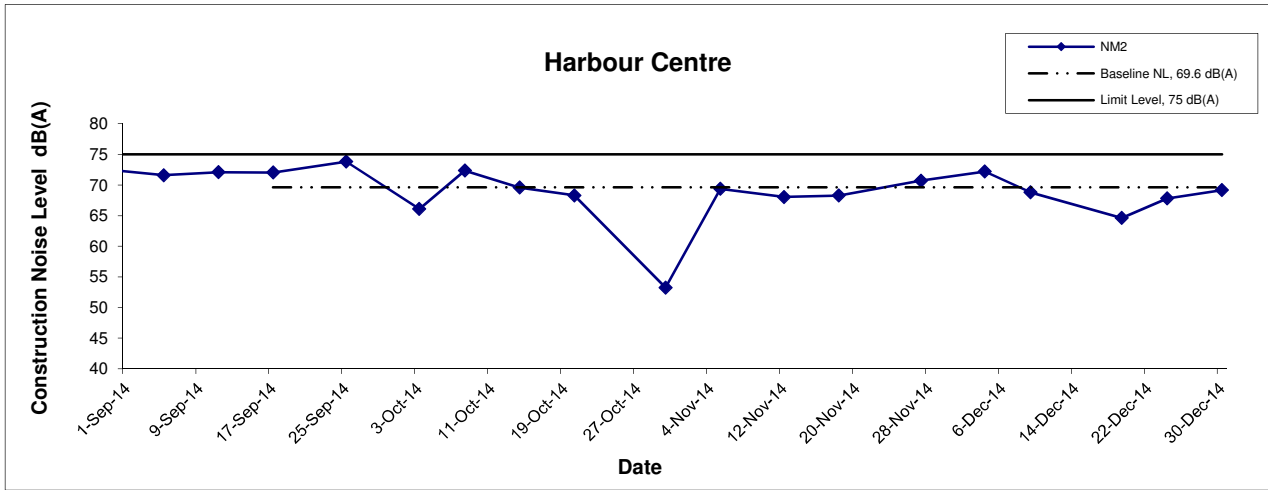


**APPENDIX F
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

App F - Noise Monitoring Results

Location NM2 - Harbour Centre							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
4-Dec-14	14:55	Cloudy	74.1	76.6	70.8	69.6	72.2
9-Dec-14	11:30	Sunny	68.8	70.2	66.7		68.8 Measured ≤ Baseline
19-Dec-14	13:45	Cloudy	70.8	72.4	68.4		64.6
24-Dec-14	15:40	Cloudy	71.8	73.3	70.1		67.8
30-Dec-14	16:30	Sunny	72.4	75.1	68.9		69.2

Noise Levels



Title Shatin to Central Link - Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA14009	
	Date Dec 14	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: December 2014

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

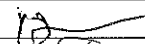
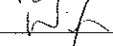
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141203
Date	3 December 2014 (Wednesday)
Time	10:00 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
141203-R02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> White smoke observed generated from generator in PTI Area. The Contractor is reminded to repair it properly. 	D 15
141203-O01	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical container observed without secondary containment in PTI Area. The Contractor is reminded to provide drip tray to avoid chemical leakage. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:141126), all environmental deficiencies were observed improved/rectified by the Contractor. 	F 10

	Name	Signature	Date
Recorded by	Johnny Fung		3 December 2014
Checked by	Dr. Priscilla Choy		3 December 2014

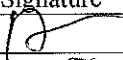

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141210
Date	10 December 2014 (Wednesday)
Time	10:00 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
141210-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
141210-002	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
141210-R03	<p>Part D – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical leakage observed to paved ground in WCS (near site entrance and rooftop area). The Contractor is reminded to clear the oil stain properly as “chemical waste” Overflow of construction waste observed I WCSP. The Contractor is reminded to clear the waste regularly. Construction waste deposited in PTI Area. The Contractor is reminded to perform sorting to the construction waste. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:141203), all environmental deficiencies were observed improved/rectified by the Contractor. 	<p>F 9</p> <p>F 4ii</p> <p>F 4iii</p>

	Name	Signature	Date
Recorded by	Johnny Fung		10 December 2014
Checked by	Dr. Priscilla Choy		10 December 2014

Shatin to Central Link -

Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

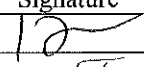
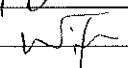
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141217
Date	17 December 2014 (Wednesday)
Time	10:00 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
141217-R03	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Dust and sand observed near the gully near Harbour Road. The Contractor is reminded to clear the sand. 	B 7
141217-O01	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> Unpaved area and excavated are observed dry. The Contractor is reminded to provide water spray to avoid dust generation. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 5
141217-R02	<p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical waste storage container was not in full compliance with the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” (COP). The Contractor is reminded to properly provide a chemical waste storage cupboard. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:141210), all environmental deficiencies were observed improved/rectified by the Contractor. 	F 2i, 2ii

	Name	Signature	Date
Recorded by	Johnny Fung		17 December 2014
Checked by	Dr. Priscilla Choy		17 December 2014

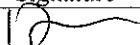

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141224
Date	24 December 2014 (Wednesday)
Time	10:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
141224-O02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Silty water observed near the site boundary of WCSP. The Contractor is reminded to provide sand bag bunds to avoid discharge. 	B 3
141224-R03	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> Dusty stockpile was not covered properly in PTI. The Contractor is reminded to cover by impervious material before holiday. 	D 6
141224-O01	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical waste storage container in PTI observed not in compliance with the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” (COP). The Contractor is reminded to properly provide a chemical waste storage container. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:141217), follow up action is needed to be reviewed for the item 141217-R02. 	F 2i, 2ii

	Name	Signature	Date
Recorded by	Johnny Fung		24 December 2014
Checked by	Dr. Priscilla Choy		24 December 2014

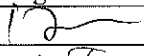

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141231
Date	31 December 2014 (Wednesday)
Time	10:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
141231-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical waste container observed not labelled. The Contractor is reminded to provide clear label in compliance with the COP. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:141224), all environmental deficiencies were observed improved/rectified by the Contractor. 	F 2i

	Name	Signature	Date
Recorded by	Johnny Fung		31 December 2014
Checked by	Dr. Priscilla Choy		31 December 2014

**APPENDIX I
EVENT AND ACTION PLANS**

Appendix I - Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER 2. Discuss with the ER and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures ; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification.; and 4. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures ; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and

Appendix I - Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring the results.		exceedance is abated	6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix I - Event and Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.

Appendix I - Event and Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1.Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.

Appendix I - Event and Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify Contractor, IEC EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)							
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted	Minimise the contamination of wastewater discharge	Contractor	All land based works areas	Construction phase	• EIAO-TM	^
Landscape & Visual (Construction Phase)							
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation	Transplanting and reuse of affected trees	MTR	All works sites	Construction phase	• EIAO-TM • ETWB TC(W) 3/2006	^
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	All works sites	Construction phase	• EIAO-TM • ETWB TC(W) 3/2006	^
	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	All works sites	Construction phase	• EIAO-TM	^

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Control of height and disposition/arrangement of temporary facilities in works areas	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like to-like basis to the satisfaction of the relevant Government Departments	Reinstatement of temporary works areas	MTR	All works sites	Construction phase	• EIAO-TM	^

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.126	<p>The following good site practice measures shall also be incorporated in the construction phase of the project:</p> <ul style="list-style-type: none"> • Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works. • Existing trees to be retained on site shall be carefully protected during construction. 	Minimize landscape and visual impact	Contractor	All works areas	Construction phase	• EIAO-TM	N/A ^
<i>Construction Dust Impact</i>							
S8.89	<p>Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0 L/m² for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A</p>	Minimize dust impact	Contractor	All works areas	Construction phase	• APCO	*

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	programme as specified in the EM&A Manual.						
S8.90	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in 	Minimize dust impact	All works areas	Construction phase	<ul style="list-style-type: none"> • APCO • Air Pollution Control (Construction dust) Regulation 	All works areas	* ^ ^ * ^ ^ ^

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>dry seasons/ periods.</p> <ul style="list-style-type: none"> • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
<i>Air Quality (Construction Phase)</i>							
/	<p>Emission from Vehicles and Plants</p> <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	<p>Reduce air pollution emission from construction vehicles and plants</p>	Contractor	All construction sites	Construction stage	• APCO	<p>^</p> <p>*</p> <p>^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Construction Noise (Airborne)							
S9.55	<p>The following good site practices shall be implemented:</p> <ul style="list-style-type: none"> • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Minimize construction noise impact	Contractor	All works areas	Construction phase	• EIAO-TM	^ ^ ^ ^ ^ ^
S9.56 & Table 9.16	<p>The following quiet PME shall be used:</p> <ul style="list-style-type: none"> • Crane lorry, mobile • Crane, mobile • Asphalt paver 	To minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	N/A N/A N/A

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<ul style="list-style-type: none"> • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
S9.58 – S9.59 & Table 9.17	<p>Movable noise barrier shall be used for the following PME:</p> <ul style="list-style-type: none"> • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) 	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	<ul style="list-style-type: none"> • EIAO-TM 	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<ul style="list-style-type: none"> • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete 						N/A N/A N/A N/A N/A N/A N/A N/A N/A
S9.60 & Table 9.17	Noise insulating fabric shall be used for <ul style="list-style-type: none"> • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic) 	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	N/A N/A N/A N/A N/A N/A N/A N/A
Water Quality (Construction Phase)							
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close	minimize release of construction wastes	Contractor	Construction works at or close	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO 	

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	<p>to the seafront:</p> <ul style="list-style-type: none"> Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters. 	<p>from construction works at or close to the seafront</p>		<p>to the seafront</p>			<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
<p>S11.222 to 11.245</p>	<p>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable.</p> <p><u>Surface Run-off</u></p> <ul style="list-style-type: none"> Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter 	<p>minimize water quality impact from construction site runoff and general construction activities</p>	<p>Contractor</p>	<p>All construction sites where practicable</p>	<p>Construction phase</p>	<ul style="list-style-type: none"> EIAO-TM WPCO TM-DSS WDO ProPECC PN 1/94 	<p style="text-align: center;">^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

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	<p>channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks.</p> <ul style="list-style-type: none"> • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.</p> <ul style="list-style-type: none"> • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall 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 						<p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.</p> <ul style="list-style-type: none"> • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

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	<p>and to prevent site run-off from entering public road drains.</p> <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <p><u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. 						<p>N/A</p> <p>N/A</p> <p>^</p> <p>N/A</p>

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	<p><u>Wastewater from Building Construction</u></p> <ul style="list-style-type: none"> • Before commencing any demolition works, all sewer and drainage connections shall be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains. • Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities shall not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it shall undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary. <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis.</p> <ul style="list-style-type: none"> • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S11.246 & 11.247	<p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for</p>	<p>minimize water quality impacts due to sewage generated from construction workforce</p>	Contractor	All works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	<p style="text-align: center;">^</p>

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.						
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps	minimize impact from discharge of uncontaminated groundwater	Contractor	All works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS 	^
S11. 253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS 	^

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EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	^
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	*
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and 	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	* * ^

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EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	adequate space shall be allocated to the storage area.						
Waste Management (Construction Waste)							
S12.75	<p>Good Site Practices and Waste Reduction Measures</p> <ul style="list-style-type: none"> - Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; - Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and - Separation of chemical wastes for special handling and appropriate treatment. 	reduce waste management impacts	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • DEVB TCW No. 6/2010 	<p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p>
S12.76	<p>Good Site Practices and Waste Reduction Measures (Con't)</p> <ul style="list-style-type: none"> - Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); 	achieve waste reduction	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 354) • Land 	*

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	<ul style="list-style-type: none"> - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and - Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. 					(Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ ^
S12.77	<p><i>Good Site Practices and Waste Reduction Measures (Con't)</i></p> <ul style="list-style-type: none"> - The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWBTCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to 	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^

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	be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.						
S12.78	C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^
S12.79	<i>Storage, Collection and Transportation of Waste</i> Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	^ ^ ^

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	- Different locations shall be designated to stockpile each material to enhance reuse						^
S12.80	<p><i>Storage, Collection and Transportation of Waste (Con't)</i></p> <p>Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts:</p> <ul style="list-style-type: none"> - Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by their permits - Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) - Waste shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed 	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	^ ^ ^ ^ ^ ^
S12.81	<i>Storage, Collection and Transportation of Waste (Con't)</i>	minimize potential	Contractor	All works sites	Construction	• DEVB TCW	

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	<ul style="list-style-type: none"> - Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed 	adverse environmental impacts arising from waste collection and disposal			phase	No. 6/2010	^
S12.83 – 12.86	<p>Sorting of C&D Materials</p> <ul style="list-style-type: none"> - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. - Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach 	minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • DEVB TCW No. 6/2010 • ETWB TCW No. 33/2002 • ETWB TCW No. 19/2005 	^ ^ ^
S12.97	Containers for Storage of Chemical Waste	register with EPD	Contractor	All works sites	Construction	• Code of	

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EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation 	<p>as a Chemical waste producer and store chemical waste in appropriate containers</p>			phase	<p>Practice on the Packaging, Labelling and Storage of Chemical Wastes</p>	* ^ *
S12.98	<p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; - Be enclosed on at least 3 sides; - Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - Have adequate ventilation; 	<p>prepare appropriate storage areas for chemical waste at works areas</p>	Contractor	All works sites	Construction phase	<p>• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p>	* ^ * *

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	<ul style="list-style-type: none"> - Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated. 						^ ^
S12.98	<p>Chemical Waste</p> <ul style="list-style-type: none"> - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. 	clearly label the chemical waste at works areas	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes 	^
S12.100	<p>Collection and Disposal of Chemical Waste</p> <p>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</p>	To monitor the generation, reuse and disposal of chemical waste	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • Waste Disposal (Chemical Waste) (General) Regulation 	^
S12.101	<p>General Refuse</p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general</p>	properly store and separate from other C&D materials for subsequent collection	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> - Public Health and Municipal Services Ordinance (Cap. 	^

**APPENDIX K
WASTE GENERATION IN THE
REPORTING MONTH**

Contract No: **MTR SCL 1126 - Re provisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool**

Date of Report: **December, 2014**

Monthly Summary Waste Flow Table for 2014 at Wan Chai Sports Ground and Passengener Transport Interchange

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Jul	0.267	0.000	0.000	0.000	0.267	0.000	3.780	0.000	0.000	0.000	0.020	
Aug	0.260	0.010	0.000	0.000	0.250	0.000	11.090	0.000	0.000	0.000	0.031	
Sept	0.163	0.009	0.000	0.000	0.154	0.000	24.550	0.000	0.000	0.000	0.023	
Oct	0.907	0.000	0.000	0.000	0.907	0.000	28.285	0.000	0.000	0.000	0.016	
Nov	1.033	0.000	0.000	0.000	1.033	0.000	0.000	0.000	0.000	0.000	0.036	
Dec	3.766	0.000	0.000	0.000	3.766	0.000	0.000	0.000	0.000	0.000	0.047	
Total	6.395	0.019	0.000	0.000	6.376	0.000	67.705	0.000	0.000	0.000	0.173	

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) Plastic refer to plastic bottle/ containers, plastic sheets/ foam from packaging material.
- 3) The general refuse with non-recyclable materials were disposed to Landfill.
Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m³. Assumption the densities of general refuse is 1.0 tonnes/m³

**APPENDIX L
CUMULATIVE LOG FOR COMPLAINT
LOGS, NOTIFICATION OF SUMMONS
AND SUCCESSFUL PROSECUTIONS**

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

Appendix C

**Monthly EM&A Report for December 2014 – SCL Works
Contract 11227 Advance Works for NSL Cross Harbour
Tunnels**

MTR Corporation Limited

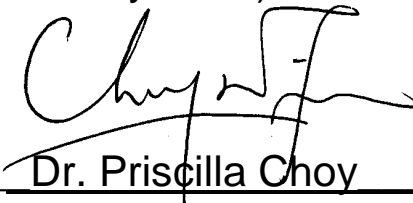
**Shatin to Central Link –
Hung Hom to Admiralty Section**

Monthly EM&A Report No.5

[Period from 1 to 31 December 2014]

Works Contract 11227 – Advance Works for NSL
Cross Harbour Tunnels

(January 2015)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

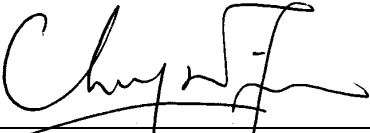
Date: 12th January 2015

Concentric – Hong Kong River Joint Venture

Shatin to Central Link – Contract 11227 Advance Works for NSL Cross Harbour Tunnels

Monthly Environmental Monitoring and Audit Report For December 2014

(version 2.0)

Certified By	 _____ Dr. Priscilla Chey (Environmental Team Leader)
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REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY

Introduction

1. This is the 5th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 11227 – Advance Works for NSL Cross Harbour Tunnels**. This report documents the findings of EM&A Works conducted from 1 to 31 December 2014.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

Shek O Casting Basin

- Rock filling works in Casting Basin;
- Decommissioning of silt curtains; and
- Demobilization of vessels and equipment.

Victoria Harbour

- Dredging of trial trench in Victoria Harbour;
- Decommissioning of silt curtains; and
- Demobilization of vessels and equipment.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:

Regular Water Quality Monitoring

- Water Quality Monitoring at each monitoring station (Shek O Casting Basin) 9 times
- Water Quality Monitoring at each monitoring station (Victoria Harbour) 7 times

Waste Management

4. Wastes generated from this Project include marine sediments. Details of waste management data is presented in Section 5 and **Appendix K**.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3 and 17 December 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 3, 10 and 17 December 2014. The representative of

the IEC joined the site inspection on 17 December 2014. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution

7. No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded during the reporting period.
8. No non-compliance event was recorded during the reporting period.
9. No Project related environmental complaint and notification of summons/successful prosecutions were received in this reporting period.

Reporting Changes

10. There was no reporting change in the reporting period.

Future Key Issues

11. The construction works for Contract 11227 was completed on 15 and 20 December 2014 for Victoria Harbour and Shek O Casting Basin respectively.
12. Following the completion of all marine activities, a post project monitoring exercise on water quality has commenced and would be carried out for four weeks in the same manner as the impact monitoring.
13. No construction activity will be conducted in the coming month.
14. Key environmental impacts to be considered in the coming month include:
 - N/A

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Concentric – Hong Kong River Joint Venture (CCL-HKRJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 11227 – Advance Works for NSL Cross Harbour Tunnels (hereafter referred to as the Project).

Purpose of the Report

- 1.2 This is the 5th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 December 2014. The major construction works for Contract 11227 commenced on 1 August 2014 for Shek O Casting Basin. The major construction works in Victoria Harbour for Contract 11227 commenced on 11 September 2014.
- 1.3 The construction works for Contract 11227 was completed on 15 and 20 December 2014 for Victoria Harbour and Shek O Casting Basin respectively.

Structure of the Report

- 1.4 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The Environmental Impact Assessment (EIA) Report for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, Environmental Permits (EP) (EP No: EP-436/2012) was granted on 22 March 2012 for their construction and operation.
- 2.3 An “Environmental Review Report – Design Changes of North Ventilation Building and Shek O Casting Basin” (ERR) was submitted to the EPD in February 2014 to identify and assess the likely environmental issues pertinent to the proposed design changes at North Ventilation (NOV) Building and Shek O Casting Basin, and to identify any additional environmental mitigation measures that may be required for compliance with environmental standards. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/A) was issued by Director of Environmental Protection (DEP) on 30 April 2014.
- 2.4 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 11227 comprises of the seabed levelling and rock filling works in Shek O, and dredging of trial trench in Victoria Harbour. The major construction works for Contract 11227 commenced on 1 August and 11 September 2014 for Shek O Casting Basin and Victoria Harbour respectively.
- 2.5 The construction works for Contract 11227 was completed on 15 and 20 December 2014 for Victoria Harbour and Shek O Casting Basin respectively.

General Site Description

- 2.6 The alignment and works area for the Works Contract 11227 are shown in **Figure 1a-1c**.

Construction Programme and Activities

- 2.7 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

Shek O Casting Basin

- Rock filling works in Casting Basin;
- Decommissioning of silt curtains; and
- Demobilization of vessels and equipment.

Victoria Harbour

- Dredging of trial trench in Victoria Harbour;
- Decommissioning of silt curtains; and

- Demobilization of vessels and equipment.

Project Organisation

2.8 The project organizational chart and contact details are shown in **Figure 4**.

Status of Environmental Licences, Notification and Permits

2.9 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-436/2012/A	30/04/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
EPD Ref no.: 375940	20/06/2014	N/A	Valid
Billing Account for Construction Waste Disposal			
N/A			
Registration of Chemical Waste Producer			
WPN5296-197-C3902-01	10/10/2014	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
N/A			
Construction Noise Permit (CNP)			
GW-RS0737-14	28/07/2014	27/01/2015	Valid
GW-RS1052-14	04/10/2014	03/04/2015	Valid
Marine Dumping Permit			
EP/MD/15-057	25/08/2014	24/02/2015	Valid

Summary of EM&A Requirements

2.10 The EM&A programme under Works Contract 11227 require regular water quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely marine water quality monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Water Quality Monitoring

- 3.1 In accordance with the EM&A Manual and the ERR, marine water quality monitoring should be carried out during the period of seabed levelling work in Shek O Casting Basin and trenching work in Victoria Harbour. The water quality monitoring stations and control stations of Project are shown in **Figure 2** and **Figure 3**. The co-ordinates of the proposed monitoring stations are listed in **Table 3.1**. As shown in **Table 3.1**, the proposed locations are classified as Impact Station and Control Station according to their functions.
- 3.2 According to the Water Quality Monitoring Plan for Trial Trenching Works (WQMP) and the Baseline Water Quality Monitoring Report for Trial Trenching Works, water quality monitoring in Victoria Harbour will be carried out in two impact monitoring stations (namely A and WSD9) in dry season and four impact monitoring stations (namely A, WSD9, 14 and WSD17) in wet season.
- 3.3 Impact Water Quality Monitoring was completed on 15 and 19 December 2014 for Victoria Harbour and Shek O Casting Basin respectively as the construction works for this Project was completed.
- 3.4 Following the completion of all marine activities, a post project monitoring exercise on water quality has commenced and would be carried out for four weeks in the same manner as the impact monitoring.

Table 3.1 Water Quality Monitoring Stations

Station	Description	East	North	Parameters to be measured
Shek O Casting Basin				
GB3	Turtle Cove Beach	841120	810280	DO, Turbidity, SS
C3	Control Station for ebb tide	841200	806210	DO, Turbidity, SS
C4	Control Station for flood tide	843330	807320	DO, Turbidity, SS
Victoria Harbour (Dry Season) ⁽³⁾				
A	Wan Chai WSD Flushing Water Intake (Reprovisioned)	836268 ⁽¹⁾	816045 ⁽¹⁾	DO, Turbidity, SS
WSD9	Tai Wan WSD Flushing Water Intake	837930 ⁽²⁾	818357 ⁽²⁾	DO, Turbidity, SS
C1	Control Station 1	833977	817442	DO, Turbidity, SS
C2	Control Station 2	841088	817223	DO, Turbidity, SS

Note:

- (1) According to the Baseline Water Quality Monitoring Report for Trial Trenching Works, the original coordinates of monitoring location A (Easting: 836286, Northing: 816024) is the exact location taken from the design of re-provisioned Wan Chai Salt Water Pumping Station and Salt Water Intake Culvert. Based on actual site condition for taking water sampling, minor adjustment was made on monitoring location.
- (2) According to the Baseline Water Quality Monitoring Report for Trial Trenching Works, the original coordinates of monitoring location WSD9 (Easting: 838133, Northing: 817790) as proposed in WQMP were minor moved closer to sensitive receiver according to the actual site condition.
- (3) According to the Water Quality Monitoring Plan for Trial Trenching Works (WQMP) and the Baseline Water Quality Monitoring Report for Trial Trenching Works, water quality monitoring in Victoria Harbour will be

carried out in two impact monitoring stations (namely A and WSD9) in dry season and four impact monitoring stations (namely A, WSD9, 14 and WSD17) in wet season.

Monitoring Parameter, Frequency and Programme

- 3.5 Water quality monitoring was conducted in accordance with the requirements stipulated in the approved SCL(HUH-ADM) EM&A Manual and the ERR. **Table 3.2** summarized the monitoring frequency and water quality parameters for the impact monitoring. The monitoring schedule for this reporting period is shown in **Appendix C**.

Table 3.2 Water Quality Impact Monitoring Programme

	Impact Monitoring
Monitoring Period	During seabed levelling work in Shek O Casting Basin and trenching work in Victoria Harbour
Monitoring Frequency	3 Days in a Week, at mid-flood and mid-ebb tides
Monitoring Locations	GB3, C3, C4, A, WSD9, C1, C2
Monitoring Parameters	DO, temperature, turbidity, pH, salinity and SS
Intervals between 2 Sets of Monitoring	Not less than 36 hours
Tide Range	Individual flood and ebb tides not less than 0.5m

Monitoring Equipment and Methodology

pH Measurement Instrument

- 3.6 The instrument should consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It should be readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 should be used for calibration of the instrument before and after use.

Dissolved Oxygen and Temperature Measuring Equipment

- 3.7 The Dissolved Oxygen (DO) measuring equipment should be portable and weatherproof. It should complete with cable and sensor, and a DC power source. The equipment should be capable of measuring:

- a DO level in the range of 0 - 20 mg·L⁻¹ and 0 - 200% saturation; and
- a temperature of 0 - 45 degree Celsius (°C).

- 3.8 It should have a membrane electrode with automatic temperature compensation complete with a cable.

- 3.9 Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO measuring equipment prior to each DO measurement.

Turbidity Measurement Instrument

- 3.10 The turbidity measuring instrument should be a portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument).

Sampler

- 3.11 A water sampler is required for SS monitoring. It should comprise a transparent PVC

cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

- 3.12 A portable, battery-operated echo sounder should be used for the determination of water depth at each monitoring station. This unit can either be hand-held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

Salinity

- 3.13 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring station.

Sample Containers and Storage

- 3.14 Water samples for SS monitoring should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4 °C without being frozen) and delivered to the laboratory and analyzed as soon as possible after collection.

Monitoring Position Equipment

- 3.15 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message “screen pop-up” facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel at the correct location before taking measurements.

Calibration of In-Situ Instruments

- 3.16 The pH meter, DO meter and turbidimeter shall be checked and calibrated before use. DO meter and turbidimeter shall be certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.
- 3.17 **Table 3.3** summarizes the equipment used in the water quality monitoring program. The calibration certificates for the in-situ instruments are presented in **Appendix E**.

Table 3.3 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	3
Multi-parameter Water Quality System	YSI 6820-C-M	2

	Aquaread AP-2000-D	1
Monitoring Position Equipment	“Magellan” Handheld GPS Model GPS-320	3
Water Depth Detector	Fishfinder 140	3

Laboratory Measurement / Analysis for Marine Water

- 3.18 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment are under maintenance, calibration, etc.
- 3.19 Duplicate samples from each independent sampling event are required by EPD for all parameters. Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory. Sufficient water samples shall be collected at the monitoring stations for carrying out the laboratory SS determinations, with detection limit shown in **Table 3.4**. The SS determination work shall start within 24 hours after collection of the water samples. The analyses shall follow the standard methods according to Table 3.3 and as described in “American Public Health Association (APHA) Standard Methods for the Examination of Water and Wastewater”, 19th edition, unless otherwise specified.

Table 3.4 Analytical Methods to be applied to Marine Water Quality Samples

Determinant	Standard Method	Detection Limit
Suspended Solids (mg/L)	APHA 2540 D	0.1 mg/L

- 3.20 Quality Control Reports as attached in **Appendix F** are available for the SS analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Action and Limit Levels

- 3.21 The action and limit levels for water quality monitoring are presented in **Appendix B**.

Event and Action Plan

- 3.22 Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan in **Appendix I** shall be carried out.

Landscape and Visual

- 3.23 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is summarised in **Table 6.1** of Section 6.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

- 4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit, EM&A Manual and the ERR. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (November 2014)	12 December 2014

5 MONITORING RESULTS

Water Quality Monitoring

- 5.1 A total of 9 and 7 sets of water quality monitoring were carried out at the designated monitoring stations in Shek O Casting Basin and Victoria Harbour respectively in this reporting period. All water quality monitoring was conducted as scheduled in the reporting month. The water quality impact monitoring schedule for this reporting period is shown in **Appendix C**.
- 5.2 Impact Water Quality Monitoring was completed on 15 and 19 December 2014 for Victoria Harbour and Shek O Casting Basin respectively as the construction works for this Project was completed.
- 5.3 The monitoring results together with graphical presentations are shown in **Appendix D**. The monitoring results for the Post-Project Water Quality Monitoring will be presented in the Final EM&A Review Report.
- 5.4 Action and Limit Levels for water quality monitoring in Shek O Casting Basin and in Victoria Harbour have been established in the baseline water quality monitoring conducted. Action and Limit Levels for water quality is summarised in **Appendix B**.
- 5.5 No exceedance of Action and Limit Levels of water quality was recorded during the reporting period.

Waste Management

- 5.6 Waste generated from this Project includes mainly marine sediments. Details of waste management data is presented in **Appendix K**.
- 5.7 With reference to relevant handling records of this Project, No marine sediments were disposed from construction activities during this reporting period.

Landscape and Visual

- 5.8 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3 and 17 December 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 3, 10 and 17 December 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 17 December 2014. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Shek O Casting Basin			
<i>Water Quality</i>	3 Dec 2014	<u>Reminder:</u> Properly tighten the gap at the end of silt curtain of Southern Gate.	The observation was observed to be improved/rectified by the Contractor during the audit session on 10 Dec 2014.
<i>Noise</i>	--	--	--
<i>Landscape and Visual</i>	--	--	--
<i>Air Quality</i>	--	--	--
<i>Waste / Chemical Management</i>	--	--	--
<i>Permits/ Licenses</i>	--	--	--
Victoria Harbour			
<i>Water Quality</i>	--	--	--
<i>Noise</i>	--	--	--
<i>Landscape and Visual</i>	--	--	--
<i>Air Quality</i>	--	--	--
<i>Waste / Chemical Management</i>	--	--	--
<i>Permits/ Licenses</i>	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

- 7.2 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

- 8.1 A tentative construction programme is provided in **Appendix A**. No construction activity will be conducted in the coming month.

Key Issues in the Next Month

- 8.2 Key issues to be considered in the coming month include:

- N/A

Monitoring Schedule in the Next Month

- 8.3 The tentative schedule of Post-project water quality monitoring at all the monitoring locations is presented in **Appendix C**. The Post-project construction water quality monitoring will be conducted at the same monitoring locations as the impact water quality monitoring.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 December 2014 in accordance with EM&A Manual and the requirement under EP. The construction works for Contract 11227 was completed on 15 and 20 December 2014 for Victoria Harbour and Shek O Casting Basin respectively.
- 9.2 No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 3 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

- 9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Quality

- The contractor is reminded to properly repair the gap at the silt curtain at Southern Gate at the Shek O Casting Basin.
- N/A

Landscape and Visual

- N/A

Noise

- N/A

Air Quality

- N/A

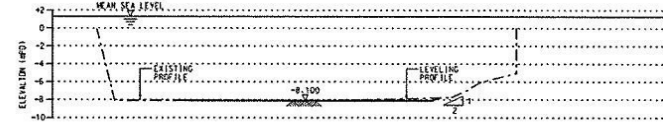
Waste/Chemical Management

- N/A

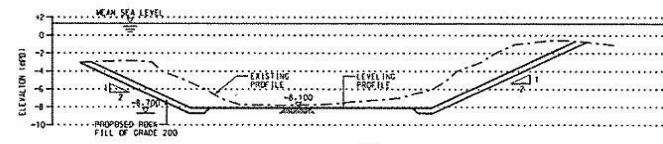
Permits/Licenses

- N/A

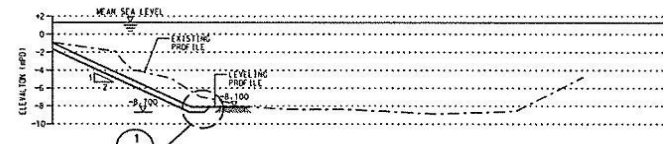
FIGURES



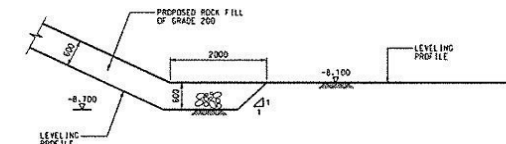
SECTION A
SCALE 1:250



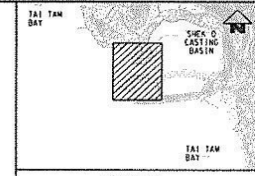
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SECTION C
SCALE 1:250



DETAIL 1
SCALE 1:50



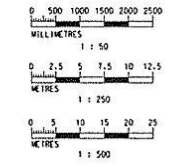
KEY PLAN

- NOTES:**
- UNLESS NOTED OTHERWISE, LEVELS ARE SHOWN IN METRES RELATIVE TO HONG KONG PRINCIPAL DATUM (HPD).
 - TOPOGRAPHIC INFORMATION AND HYDROGRAPHIC SURVEY RESULTS SHOWN ON THE DRAWING ARE INDICATIVE ONLY.
 - BASED ON THE AVAILABLE C.L. INFORMATION SITUATION ON SCARCE IS ANTICIPATED. HYDROGRAPHIC SURVEY RESULT IS SHOWN ON THE DRAWING FOR INFORMATION.

- LEGEND:**
- WORKS BOUNDARY
 - HYDROGRAPHIC SURVEY RECORD
 - TOPOGRAPHICAL SURVEY RECORD
 - LEVELING SITE SLOPE
 - FINISH LEVEL
 - SETTING OUT POINT

SETTING OUT POINT

SETTING OUT POINT	EASTING	NORTHING
SOP201	842955.931	809064.473
SOP202	842985.299	809064.190
SOP203	842972.121	809035.647
SOP204	842981.026	809035.030



Title

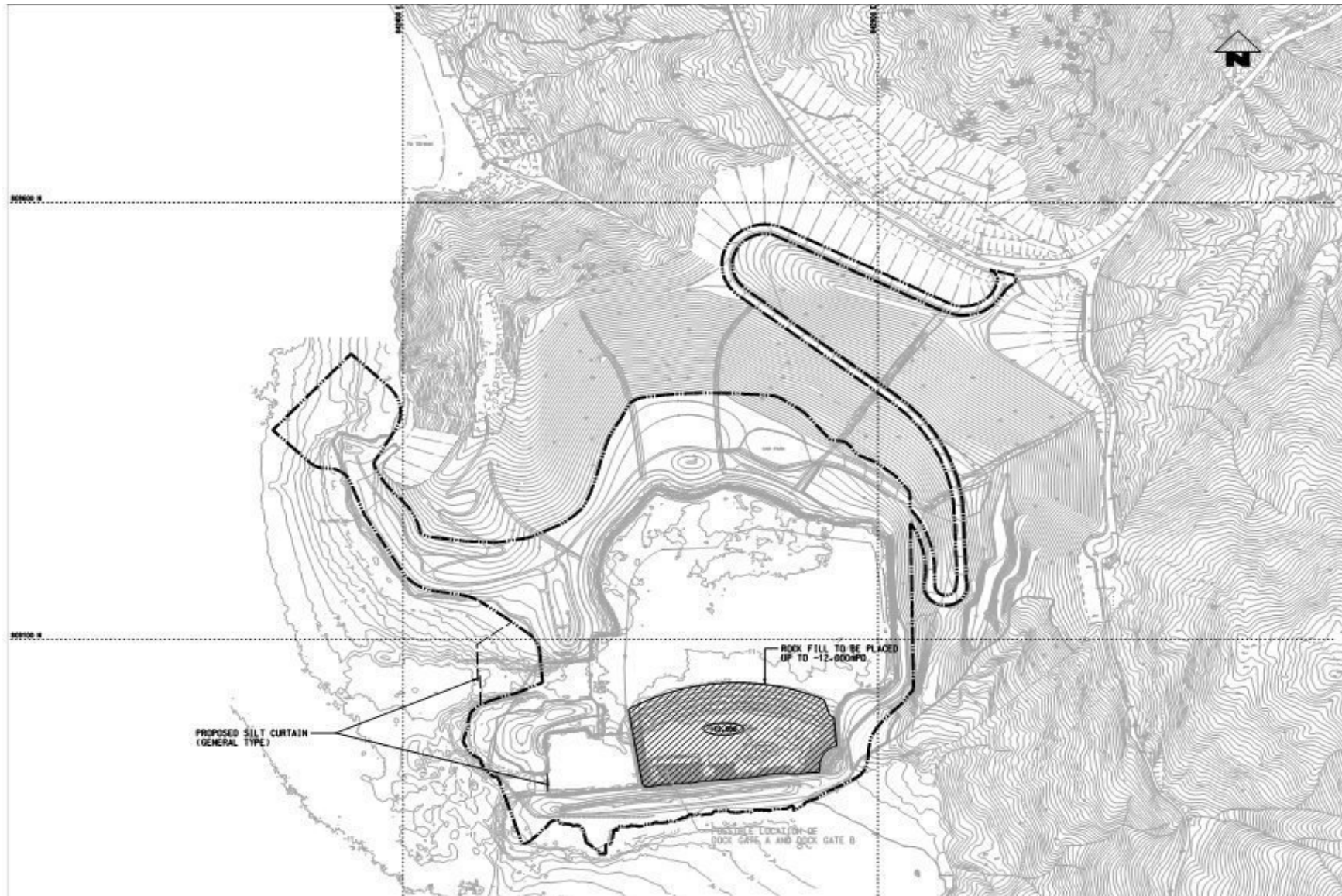
Contract 11227

Advance Works for NSL Cross Harbour Tunnels

The Alignment and Works Area for Works Contract 11227

Scale	N.T.S	Project No.	MA14028
Date	Aug-14	Figure	1a





Title

Contract 11227
 Advance Works for NSL Cross Harbour Tunnels
 The Alignment and Works Area for Works Contract 11227

Scale

N.T.S

Project

No. MA14028

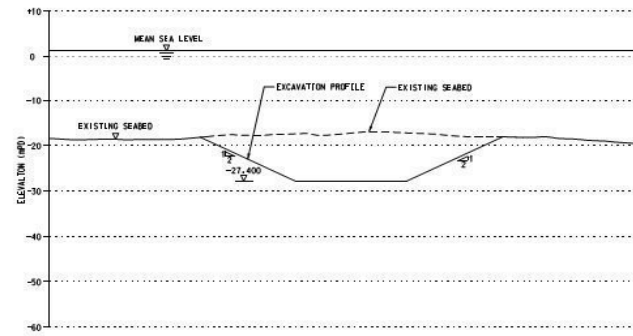
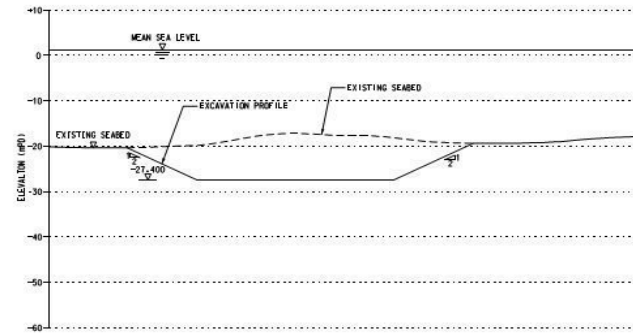
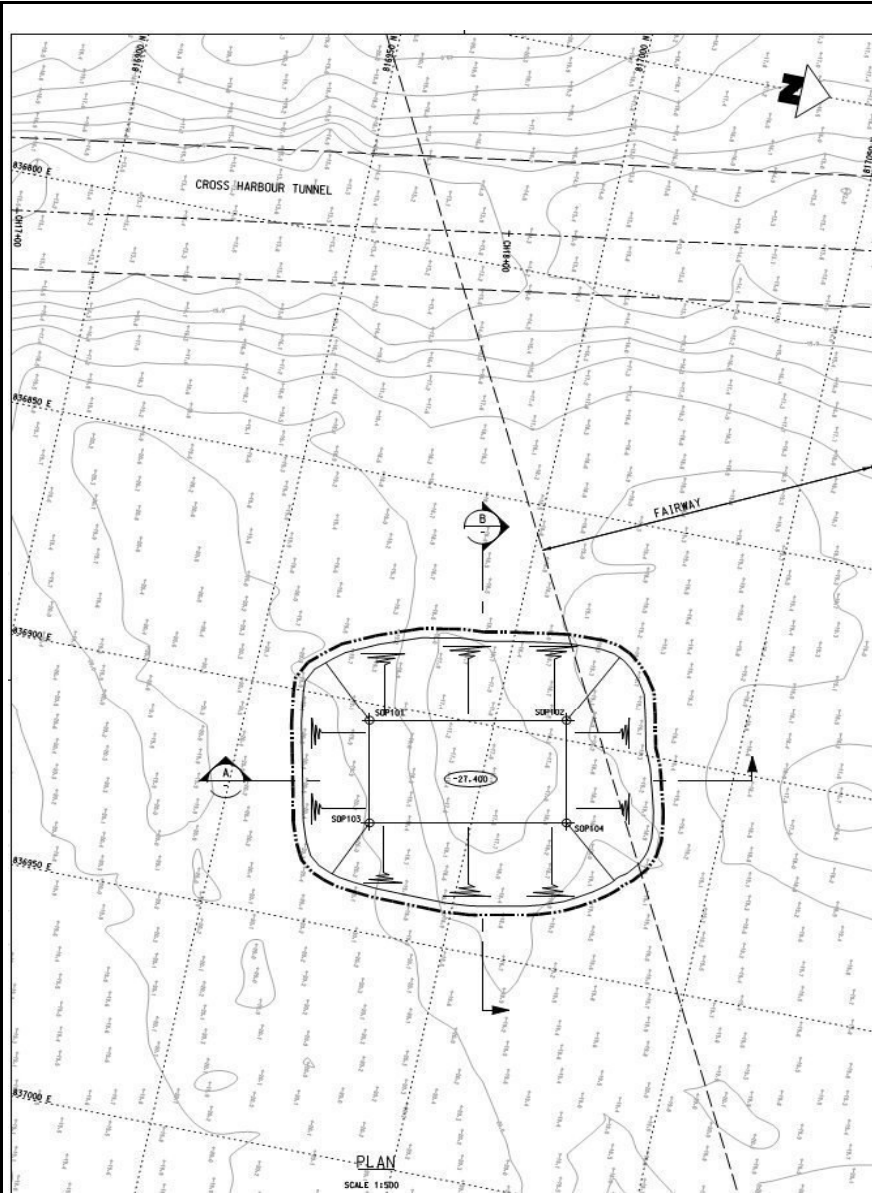
Date

Aug-14

Figure

1b

CINOTECH



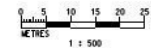
KEY PLAN

- NOTES:**
- UNLESS NOTED OTHERWISE, LEVELS ARE SHOWN IN METRES RELATIVE TO HONG KONG PRINCIPAL DATUM (HPD).
 - HYDROGRAPHIC SURVEY RESULTS SHOWN ON THE DRAWING ARE INDICATIVE ONLY.

- LEGEND:**
- WORKS BOUNDARY
 - CH18+00 CROSS HARBOUR TUNNEL CHAINAGE
 - TRIAL TRENCHING SIDE SLOPE
 - EXCAVATION LEVEL
 - SOP102 SETTING OUT POINT
 - HYDROGRAPHIC SURVEY RECORD (HPD)

SETTING OUT POINT

SETTING OUT POINT	COORDINATES	
	EASTING	NORTHING
SOP101	836903.322	816973.092
SOP102	836895.469	817014.231
SOP103	836926.072	816973.763
SOP104	836917.819	817018.902



Title

Contract 11227

Advance Works for NSL Cross Harbour Tunnels

The Alignment and Works Area for Works Contract 11227

Scale	N.T.S	Project No.	MA14028
Date	Aug-14	Appendix	1c





LEGEND

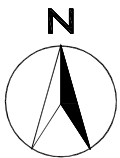
● Water quality monitoring stations

COORDINATE	EASTING	NORTHING
GB3	841120	810280
C3	841200	806210
C4	843330	807320



SHATIN TO CENTRAL LINK – CONTRACT NO. 11227
 ADVANCE WORKS FOR NSL CROSS HARBOUR TUNNELS
 Locations of the Water Quality
 Monitoring station in Shek O

SCALE	1:450	DATE	AUG 2014
CHECK	JF	DRAWN	VW
JOB No.	MA14028	FIGURE NO.	2
		REV	—



COORDINATE	EASTING	NORTHING
A	836268	816045
WSD9	837930	818357
C1	833977	817442
C2	841088	817223

LEGEND

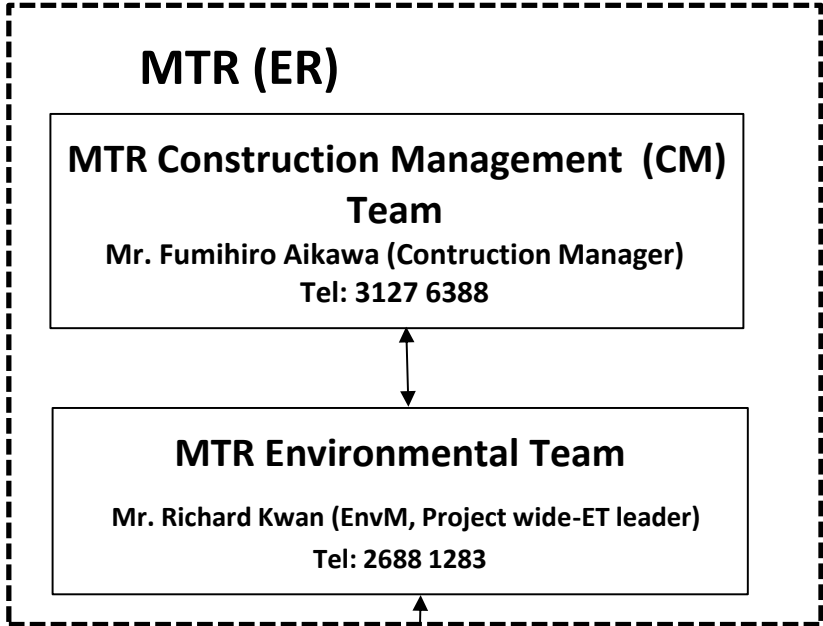
● Water Quality Monitoring Station (Dry Season)



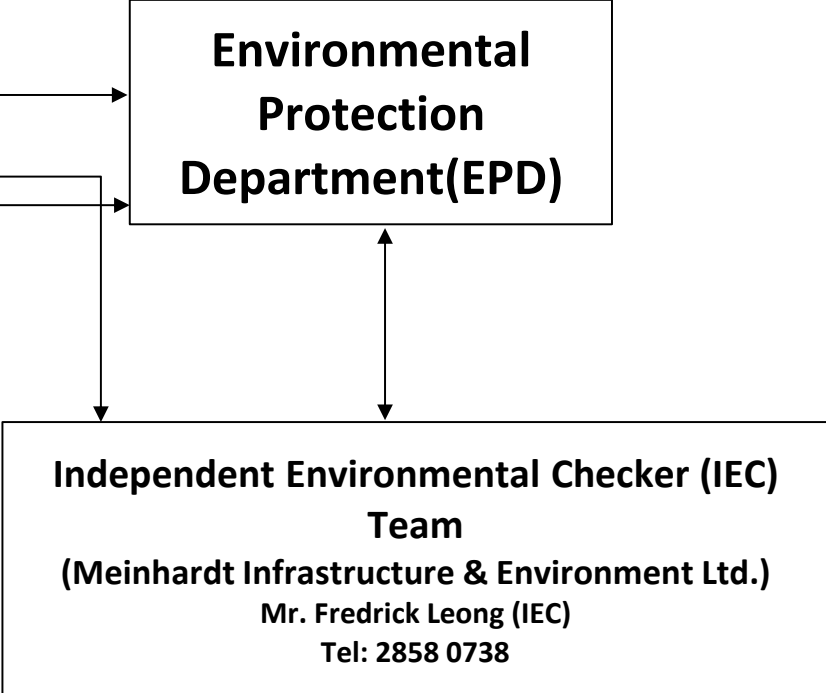
SHATIN TO CENTRAL LINK – CONTRACT NO. 11227
ADVANCE WORKS FOR NSL CROSS HARBOUR TUNNELS

Locations of the Water Quality Monitoring station in Victoria Harbour

SCALE	1:30	DATE	NOV 2014
CHECK	JF	DRAWN	VW
JOB No.	MA14028	FIGURE NO.	3
		REV	–



↔ Line of communication



Title SCL Contract 11227
The Shatin to Central Link -
Advance Works for NSL Cross Harbour Tunnels
Project Organisation for Environmental Works

Scale	N.T.S	Project No.	MA14028
Date	Jan-15	Figure	4



**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Shatin to Central Link (SCL)

Works Contract 11227 - Advance Works for NSL Cross Harbour Tunnels

Programme of Marine Works (Shek O)

Item	Activity	Year 2014					
		Jul	Aug	Sep	Oct	Nov	Dec
1	Mobilization of vessels and equipment	■					
2	Deployment of silt curtain for seabed levelling (northern gate)	■					
3	Seabed levelling works at channel exit		■	■	■	■	
4	Deployment of silt curtain for rock filling (southern gate)	■					
5	Rock filling works in Casting Basin		■	■	■	■	■
6	Completion of marine works						◆
7	Demobilization of silt curtains						■
8	Demobilization of vessels and equipment						■

Shatin to Central Link (SCL)

Works Contract 11227 - Advance Works for NSL Cross Harbour Tunnels

Programme of Marine Works (Victoria Harbour)

Item	Activity	Year 2014				
		Aug	Sep	Oct	Nov	Dec
1	Mobilization of vessels and equipment		■			
2	Deployment of silt curtain		■			
3	Dredging and trimming of trial trench		■			
4	Completion of marine works					◆
5	Decommissioning of silt curtain					■
6	Demobilization of vessels and equipment					■

**APPENDIX B
ACTION AND LIMIT LEVELS**

APPENDIX B – Action and Limit Levels**Derived Action and Limit Levels for Water Quality at Intakes A and WSD9 (Dry Season)**

Parameters	Action Level	Limit Level
DO in mg/L	<2.1	<2
SS in mg/L	5.0	5.5
Turbidity in NTU	5.3	5.6

Derived Action and Limit Levels for Water Quality at Intakes A, WSD9, 14 and WSD17 (Wet Season)

Parameters	Action Level	Limit Level
DO in mg/L	<2.1	<2
SS in mg/L	4.4	4.8
Turbidity in NTU	5.3	5.6

Derived Action and Limit Levels for Water Quality at GB3 (Dry Season)

Parameters	Action Level	Limit Level
DO in mg/L	6.8	6.5
SS in mg/L	9.3	9.3
Turbidity in NTU	5.0	5.6

Derived Action and Limit Levels for Water Quality at GB3 (Wet Season)

Parameters	Action Level	Limit Level
DO in mg/L	5.5	5.3
SS in mg/L	4.5	4.5
Turbidity in NTU	2.1	2.4

**APPENDIX C
WATER QUALITY MONITORING
SCHEDULE**

Shatin to Central Link - Contract No. 11227
Advance Works for NSL Cross Harbour Tunnels
Water Quality Monitoring Schedule (December 2014) (Shek O)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
	Mid-Ebb 7:26 Mid-Flood 14:14		Mid-Ebb 9:33 Mid-Flood 15:43		*Mid-Ebb 11:20 Mid-Flood 17:00	
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
	*Mid-Ebb 13:20 Mid-Flood 18:42		Mid-Flood 9:23 *Mid-Ebb 14:31		Mid-Flood 10:54 *Mid-Ebb 16:04	
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
	Mid-Flood 13:18 *Mid-Ebb 19:35		*Mid-Ebb 8:08 Mid-Flood 14:27		*Mid-Ebb 10:10 Mid-Flood 15:38	
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
28-Dec						

Water Quality Monitoring Stations

C3, C4, GB3

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Tai Miu Wan Station)

2) The reasons for choosing the monitoring day (i.e. 5, 8, 10, 12, 15, 17 and 19 December 2014) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Shatin to Central Link - Contract No. 11227
Advance Works for NSL Cross Harbour Tunnels
Water Quality Monitoring Schedule (December 2014) (Victoria Harbour)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
	Mid-Ebb 7:34 Mid-Flood 14:22		Mid-Ebb 9:41 Mid-Flood 15:51		Mid-Ebb 11:27 Mid-Flood 17:07	
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
	*Mid-Ebb 13:31 Mid-Flood 18:49		Mid-Flood 9:30 *Mid-Ebb 14:40		Mid-Flood 10:59 *Mid-Ebb 16:08	
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
	Mid-Flood 13:23 *Mid-Ebb 19:41					
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
28-Dec	29-Dec	30-Dec	31-Dec			

Water Quality Monitoring Stations

A, C1, C2, WSD9

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)

2) The reasons for choosing the monitoring day (i.e. 8, 10, 12 and 15 December 2014) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Shatin to Central Link - Contract No. 11227
Advance Works for NSL Cross Harbour Tunnels
Tentative Post-Project Water Quality Monitoring Schedule (Shek O) (December 2014)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
	*Mid-Ebb 12:27 Mid-Flood 17:43		Mid-Flood 8:29 *Mid-Ebb 13:54			Mid-Flood 10:50 *Mid-Ebb 16:38
28-Dec	29-Dec	30-Dec	31-Dec			
	Mid-Flood 12:34 Mid-Ebb 19:02		*Mid-Ebb 8:00 Mid-Flood 14:17			

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Water Quality Monitoring Stations

C3, C4, GB3

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Tai Miu Wan Station)

2) The reasons for choosing the monitoring day (i.e. 22, 24, 27 and 31 December 2014) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Shatin to Central Link - Contract No. 11227
Advance Works for NSL Cross Harbour Tunnels
Tentative Post-Project Water Quality Monitoring Schedule (Shek O) (January 2015)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Jan	2-Jan	3-Jan
					*Mid-Ebb Mid-Flood	10:15 15:52
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
	*Mid-Ebb Mid-Flood	12:27 17:50	Mid-Flood *Mid-Ebb	8:18 13:35	Mid-Flood *Mid-Ebb	9:22 14:46
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
	Mid-Flood *Mid-Ebb	11:10 17:06	Mid-Flood Mid-Ebb	12:34 19:27	*Mid-Ebb Mid-Flood	8:39 14:08
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Water Quality Monitoring Stations

C3, C4, GB3

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Tai Miu Wan Station)

2) The reasons for choosing the monitoring day (i.e. 2, 5, 7, 9, 12, 16 January 2015) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Shatin to Central Link - Contract No. 11227
Advance Works for NSL Cross Harbour Tunnels
Tentative Post-Project Water Quality Monitoring Schedule (Victoria Harbour) (December 2014)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
			*Mid-Ebb 8:14 Mid-Flood 14:32		*Mid-Ebb 10:19 Mid-Flood 15:47	
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
	*Mid-Ebb 12:35 Mid-Flood 17:51		Mid-Flood 8:35 *Mid-Ebb 14:08			Mid-Flood 10:58 *Mid-Ebb 16:48
28-Dec	29-Dec	30-Dec	31-Dec			
	Mid-Flood 12:40 Mid-Ebb 19:11		*Mid-Ebb 8:08 Mid-Flood 14:25			

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Water Quality Monitoring Stations

14, A, C1, C2, WSD17, WSD9

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)

2) The reasons for choosing the monitoring day (i.e. 17, 19, 22, 24, 27 and 31 December 2014) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Shatin to Central Link - Contract No. 11227
Advance Works for NSL Cross Harbour Tunnels
Tentative Post-Project Water Quality Monitoring Schedule (Victoria Harbour) (January 2015)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	1-Jan	2-Jan	3-Jan
					*Mid-Ebb 10:26 Mid-Flood 16:00	
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
	*Mid-Ebb 12:39 Mid-Flood 17:57		Mid-Flood 8:25 *Mid-Ebb 13:46		Mid-Flood 9:23 *Mid-Ebb 14:51	
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
	Mid-Flood 11:15 *Mid-Ebb 17:11					
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Water Quality Monitoring Stations

14, A, C1, C2, WSD17, WSD9

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)

2) The reasons for choosing the monitoring day (i.e. 2, 5, 7, 9, 12 January 2015) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

**APPENDIX D
WATER QUALITY MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS**

Water Quality Monitoring Results at C3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	08:15	Surface	1	21.9 21.9	21.9	8.2 8.2	8.2	31.6 31.7	31.7	104.8 105.0	104.9	7.6 7.7	7.7	7.7	3.9 3.9	3.9	4.4	<2.5 <2.5	<2.5	2.7
				Middle	11.5	21.9 21.9	21.9	8.2 8.2	8.2	31.8 31.8	31.8	105.1 105.2	105.2	7.7 7.7	7.7		4.1 4.2	4.2		<2.5 <2.5	<2.5	
				Bottom	22	22.0 22.0	22.0	8.2 8.2	8.2	31.7 31.8	31.8	104.8 105.0	104.9	7.6 7.6	7.6		5.1 5.3	5.2		3 3	3.0	
3-Dec-14	Cloudy	Moderate	09:48	Surface	1	22.5 22.5	22.5	7.9 7.9	7.9	29.5 29.6	29.6	112.6 112.5	112.6	8.2 8.2	8.2	8.2	3.3 3.4	3.4	4.1	5 5	5.0	5.5
				Middle	12.5	22.5 22.5	22.5	7.9 7.9	7.9	29.5 29.6	29.6	112.4 112.3	112.4	8.2 8.2	8.2		3.8 4.0	3.9		<2.5 <2.5	<2.5	
				Bottom	24	22.5 22.5	22.5	7.9 7.9	7.9	29.6 29.6	29.6	112.5 112.4	112.5	8.2 8.2	8.2		4.8 5.0	4.9		9 9	9.0	
5-Dec-14	Cloudy	Moderate	11:43	Surface	1	21.9 21.2	21.6	7.7 7.8	7.8	29.1 29.8	29.5	111.1 110.8	111.0	8.4 8.4	8.4	8.3	4.9 4.8	4.9	4.8	6 6	6.0	7.0
				Middle	11.5	20.6 22.1	21.4	7.8 7.7	7.8	29.6 29.0	29.3	107.9 107.4	107.7	8.2 8.1	8.2		4.1 4.1	4.1		9 9	9.0	
				Bottom	22	22.1 21.6	21.9	7.8 7.8	7.8	29.0 29.3	29.2	107.1 108.1	107.6	8.1 8.2	8.2		5.3 5.4	5.4		6 6	6.0	
8-Dec-14	Cloudy	Moderate	13:03	Surface	1	21.4 21.5	21.5	7.8 7.8	7.8	31.6 31.7	31.7	95.7 95.0	95.4	7.0 7.0	7.0	7.0	1.8 1.8	1.8	1.8	10 10	10.0	7.8
				Middle	11.5	21.4 21.5	21.5	7.8 7.8	7.8	31.6 31.7	31.7	95.7 95.1	95.4	7.0 7.0	7.0		1.8 1.8	1.8		8 8	8.0	
				Bottom	22	21.4 21.5	21.5	7.8 7.8	7.8	31.8 31.7	31.8	95.5 94.7	95.1	7.0 7.0	7.0		1.9 1.9	1.9		6 5	5.5	
10-Dec-14	Cloudy	Moderate	15:08	Surface	1	21.1 21.1	21.1	7.9 7.9	7.9	30.1 27.6	28.9	97.7 96.9	97.3	7.3 7.3	7.3	7.3	1.7 1.7	1.7	1.9	8 9	8.5	7.7
				Middle	11	21.1 21.1	21.1	7.9 7.9	7.9	30.2 30.2	30.2	97.6 97.2	97.4	7.3 7.3	7.3		1.8 1.8	1.8		4 5	4.5	
				Bottom	21	21.1 21.1	21.1	7.8 7.9	7.9	30.2 30.2	30.2	97.5 97.1	97.3	7.3 7.2	7.3		2.2 2.3	2.3		10 10	10.0	
12-Dec-14	Cloudy	Moderate	16:01	Surface	1	21.1 20.8	21.0	7.9 7.8	7.9	29.4 29.6	29.5	103.8 101.4	102.6	7.8 7.6	7.7	7.5	3.8 3.5	3.7	3.8	3 4	3.5	6.0
				Middle	11.5	22.1 22.0	22.1	7.7 7.7	7.7	31.6 31.2	31.4	99.1 101.0	100.1	7.2 7.4	7.3		2.9 2.8	2.9		6 5	5.5	
				Bottom	22	22.1 21.9	22.0	7.7 7.9	7.8	33.3 33.6	33.5	97.0 98.6	97.8	7.0 7.1	7.1		4.8 4.7	4.8		9 9	9.0	
15-Dec-14	Cloudy	Moderate	19:24	Surface	1	19.8 19.8	19.8	8.2 8.2	8.2	31.1 31.2	31.2	112.4 112.5	112.5	8.5 8.5	8.5	8.5	1.1 1.1	1.1	1.8	4 4	4.0	4.8
				Middle	11.5	19.8 19.8	19.8	8.2 8.2	8.2	31.2 31.2	31.2	112.4 112.5	112.5	8.5 8.5	8.5		1.7 1.8	1.8		6 5	5.5	
				Bottom	22	19.8 19.8	19.8	8.2 8.2	8.2	31.2 31.3	31.3	112.5 112.5	112.5	8.5 8.5	8.5		2.2 2.5	2.4		5 5	5.0	
17-Dec-14	Cloudy	Moderate	09:06	Surface	1	19.5 19.7	19.6	8.0 8.0	8.0	26.0 26.0	26.0	107.1 106.3	106.7	8.4 8.3	8.4	8.4	3.7 3.7	3.7	4.3	<2.5 <2.5	<2.5	5.5
				Middle	11.5	19.6 19.7	19.7	8.0 8.0	8.0	26.0 26.0	26.0	106.6 106.2	106.4	8.4 8.3	8.4		4.7 4.9	4.8		3 3	3.0	
				Bottom	22	19.6 19.7	19.7	8.0 8.0	8.0	26.1 26.1	26.1	106.7 106.2	106.5	8.4 8.3	8.4		4.5 4.3	4.4		11 11	11.0	
19-Dec-14	Cloudy	Moderate	10:39	Surface	1	18.8 18.8	18.8	7.9 7.9	7.9	27.5 27.5	27.5	107.6 107.4	107.5	8.5 8.5	8.5	8.5	4.1 4.6	4.4	4.8	3 4	3.5	7.5
				Middle	11	18.8 18.8	18.8	7.9 7.9	7.9	27.5 27.5	27.5	107.6 107.5	107.6	8.5 8.5	8.5		5.3 5.2	5.3		11 11	11.0	
				Bottom	21	18.8 18.8	18.8	7.9 7.9	7.9	27.5 27.5	27.5	107.5 107.4	107.5	8.5 8.5	8.5		4.7 4.6	4.7		8 8	8.0	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:28	Surface	1	22.7 22.9	22.8	8.0 8.1	8.1	32.2 32.3	32.3	116.0 116.0	116.0	8.3 8.3	8.3	8.2	3.9 3.8	3.9	4.6	3 3	3.0	3.3
				Middle	12	23.2 23.3	23.3	8.1 8.1	8.1	32.6 32.5	32.6	114.5 113.9	114.2	8.1 8.1	8.1		4.1 4.2	4.2		4 4	4.0	
				Bottom	23	23.3 23.3	23.3	8.1 8.1	8.1	32.5 32.5	32.5	112.7 112.2	112.5	8.0 7.9	8.0		5.7 5.9	5.8		3 3	3.0	
3-Dec-14	Cloudy	Moderate	15:19	Surface	1	22.5 22.6	22.6	8.0 8.0	8.0	30.2 30.3	30.3	113.3 113.0	113.2	8.2 8.2	8.2	8.2	2.8 3.0	2.9	4.1	5 5	5.0	5.7
				Middle	11.5	22.5 22.6	22.6	8.0 8.0	8.0	30.2 30.3	30.3	113.3 113.1	113.2	8.2 8.2	8.2		4.4 4.5	4.5		4 5	4.5	
				Bottom	22	22.5 22.6	22.6	8.0 8.0	8.0	30.3 30.3	30.3	113.2 113.0	113.1	8.2 8.2	8.2		4.8 4.7	4.8		8 7	7.5	
5-Dec-14	Cloudy	Moderate	16:13	Surface	1	18.9 21.6	20.3	7.8 7.8	7.8	26.8 28.4	27.6	112.4 111.9	112.2	8.5 8.5	8.5	8.4	3.6 4.2	3.9	4.3	4 4	4.0	4.3
				Middle	11.5	20.9 21.6	21.3	7.8 7.8	7.8	29.5 29.1	29.3	108.2 108.1	108.2	8.2 8.2	8.2		3.2 3.7	3.5		6 6	6.0	
				Bottom	22	21.4 21.6	21.5	7.8 7.8	7.8	29.3 29.1	29.2	106.8 106.8	106.8	8.1 8.1	8.1		5.6 5.5	5.6		3 3	3.0	
8-Dec-14	Cloudy	Moderate	18:14	Surface	1	21.5 21.5	21.5	7.8 7.8	7.8	31.5 31.6	31.6	95.8 95.3	95.6	7.0 7.0	7.0	7.0	1.1 1.2	1.2	1.8	6 6	6.0	4.5
				Middle	11	21.5 21.5	21.5	7.8 7.8	7.8	31.5 31.6	31.6	95.8 95.3	95.6	7.0 7.0	7.0		2.1 2.1	2.1		4 4	4.0	
				Bottom	21	21.5 21.5	21.5	7.8 7.8	7.8	31.6 31.6	31.6	95.3 95.3	95.3	7.0 7.0	7.0		2.1 2.1	2.1		4 3	3.5	
10-Dec-14	Cloudy	Moderate	09:40	Surface	1	20.9 21.1	21.0	8.0 8.0	8.0	30.3 30.3	30.3	96.6 95.8	96.2	7.2 7.1	7.2	7.2	1.2 1.2	1.2	1.5	3 3	3.0	3.5
				Middle	12	20.9 21.1	21.0	8.0 8.0	8.0	30.3 30.3	30.3	96.8 95.7	96.3	7.2 7.1	7.2		1.6 1.6	1.6		3 3	3.0	
				Bottom	23	21.1 21.1	21.1	8.0 8.0	8.0	30.3 30.4	30.4	96.6 95.6	96.1	7.2 7.1	7.2		1.8 1.8	1.8		5 4	4.5	
12-Dec-14	Cloudy	Moderate	12:18	Surface	1	20.1 20.6	20.4	7.8 7.7	7.8	26.9 26.8	26.9	99.6 99.5	99.6	7.7 7.6	7.7	7.5	2.7 2.7	2.7	3.8	5 5	5.0	8.2
				Middle	11.5	21.5 22.2	21.9	7.7 7.7	7.7	28.2 28.9	28.6	96.1 99.0	97.6	7.2 7.3	7.3		3.6 3.6	3.6		7 6	6.5	
				Bottom	22	21.5 21.8	21.7	7.7 7.9	7.8	30.3 30.8	30.6	94.6 96.9	95.8	7.0 7.1	7.1		5.2 5.1	5.2		13 13	13.0	
15-Dec-14	Cloudy	Moderate	13:30	Surface	1	19.9 19.9	19.9	8.1 8.1	8.1	30.1 30.9	30.5	108.7 108.8	108.8	8.3 8.3	8.3	8.3	1.2 1.2	1.2	1.4	7 7	7.0	5.5
				Middle	11	19.9 19.9	19.9	8.1 8.1	8.1	30.5 31.0	30.8	108.7 108.8	108.8	8.3 8.3	8.3		1.4 1.4	1.4		5 6	5.5	
				Bottom	21	19.9 19.9	19.9	8.1 8.1	8.1	31.0 31.0	31.0	109.0 108.8	108.9	8.3 8.3	8.3		1.6 1.8	1.7		4 4	4.0	
17-Dec-14	Cloudy	Moderate	15:13	Surface	1	19.1 19.5	19.3	8.2 8.2	8.2	28.7 28.5	28.6	109.2 108.1	108.7	8.5 8.4	8.5	8.5	3.9 3.9	3.9	4.2	8 7	7.5	4.8
				Middle	11.5	19.3 19.5	19.4	8.2 8.2	8.2	28.6 28.5	28.6	108.9 108.3	108.6	8.5 8.4	8.5		4.5 4.4	4.5		3 3	3.0	
				Bottom	22	19.3 19.5	19.4	8.2 8.2	8.2	28.8 28.6	28.7	108.8 108.1	108.5	8.5 8.4	8.5		3.8 4.6	4.2		4 4	4.0	
19-Dec-14	Cloudy	Moderate	16:12	Surface	1	18.6 18.7	18.7	8.0 8.0	8.0	27.3 27.3	27.3	107.6 107.4	107.5	8.6 8.5	8.6	8.6	2.5 3.0	2.8	3.6	8 8	8.0	5.3
				Middle	11	18.7 18.7	18.7	8.0 8.0	8.0	27.2 27.4	27.3	107.5 107.3	107.4	8.5 8.5	8.5		3.9 4.4	4.2		4 4	4.0	
				Bottom	21	18.7 18.7	18.7	8.0 8.0	8.0	27.3 27.4	27.4	107.5 107.2	107.4	8.5 8.5	8.5		3.9 3.8	3.9		4 4	4.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C4 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	08:33	Surface	1	21.9 21.9	21.9	8.2 8.2	8.2	31.4 31.4	31.4	104.8 104.8	104.8	7.7 7.7	7.7	7.7	3.7 3.9	3.8	4.4	3 3	3.0	2.9
				Middle	9	21.8 21.8	21.8	8.2 8.2	8.2	31.2 31.3	31.3	104.9 105.0	105.0	7.7 7.7	7.7		4.5 4.6	4.6		3 3	3.0	
				Bottom	17	21.8 21.8	21.8	8.2 8.2	8.2	31.4 31.5	31.5	104.8 104.8	104.8	7.7 7.7	7.7		4.9 4.7	4.8		<2.5 3	2.8	
3-Dec-14	Cloudy	Moderate	09:38	Surface	1	22.6 22.6	22.6	8.1 8.1	8.1	29.8 29.9	29.9	111.5 111.4	111.5	8.1 8.1	8.1	8.1	2.2 2.0	2.1	4.2	7 7	7.0	6.5
				Middle	10	22.6 22.6	22.6	8.1 8.1	8.1	29.8 29.8	29.8	111.4 111.4	111.4	8.1 8.1	8.1		5.2 4.9	5.1		7 6	6.5	
				Bottom	19	22.6 22.6	22.6	8.1 8.1	8.1	29.9 29.9	29.9	111.3 111.0	111.2	8.1 8.1	8.1		5.4 5.2	5.3		6 6	6.0	
5-Dec-14	Cloudy	Moderate	11:25	Surface	1	19.1 22.0	20.6	7.7 7.8	7.8	29.6 29.0	29.3	111.2 111.5	111.4	8.4 8.4	8.4	8.4	3.1 3.0	3.1	3.5	3 3	3.0	3.7
				Middle	9	22.2 21.1	21.7	7.7 7.8	7.8	28.9 29.5	29.2	110.7 110.2	110.5	8.4 8.3	8.4		2.6 2.9	2.8		4 4	4.0	
				Bottom	17	22.2 21.7	22.0	7.7 7.8	7.8	28.9 29.2	29.1	109.3 109.0	109.2	8.3 8.3	8.3		4.4 4.7	4.6		4 4	4.0	
8-Dec-14	Cloudy	Moderate	13:13	Surface	1	21.5 21.4	21.5	7.8 7.8	7.8	31.4 31.7	31.6	98.1 97.4	97.8	7.2 7.2	7.2	7.2	1.2 1.1	1.2	1.5	4 4	4.0	3.7
				Middle	9.5	21.5 21.5	21.5	7.8 7.8	7.8	31.5 31.7	31.6	97.7 97.9	97.8	7.2 7.2	7.2		1.6 1.8	1.7		3 3	3.0	
				Bottom	18	21.4 21.5	21.5	7.8 7.8	7.8	31.7 31.7	31.7	95.6 96.9	96.3	7.0 7.1	7.1		1.6 1.6	1.6		4 4	4.0	
10-Dec-14	Cloudy	Moderate	14:58	Surface	1	21.0 21.1	21.1	8.0 8.0	8.0	30.2 30.3	30.3	97.0 96.3	96.7	7.3 7.2	7.3	7.3	1.6 1.4	1.5	1.7	3 3	3.0	5.2
				Middle	10	21.1 21.1	21.1	8.0 8.0	8.0	30.1 30.3	30.2	96.8 96.3	96.6	7.2 7.2	7.2		1.8 1.8	1.8		8 7	7.5	
				Bottom	19	21.1 21.1	21.1	8.0 7.9	8.0	30.2 30.4	30.3	96.7 96.2	96.5	7.2 7.2	7.2		1.8 1.8	1.8		5 5	5.0	
12-Dec-14	Cloudy	Moderate	15:37	Surface	1	22.5 21.7	22.1	8.0 7.9	8.0	23.7 23.9	23.8	100.9 96.8	98.9	7.6 7.4	7.5	7.7	2.8 2.6	2.7	2.3	7 7	7.0	5.0
				Middle	9	19.4 19.8	19.6	7.7 7.8	7.8	26.3 27.2	26.8	90.8 107.4	99.1	7.2 8.4	7.8		1.2 1.1	1.2		4 4	4.0	
				Bottom	17	21.3 21.8	21.6	7.8 7.9	7.9	31.2 33.8	32.5	95.7 97.9	96.8	7.1 7.1	7.1		3.1 2.7	2.9		4 4	4.0	
15-Dec-14	Cloudy	Moderate	19:08	Surface	1	19.8 19.9	19.9	8.1 8.1	8.1	31.1 31.1	31.1	109.2 109.1	109.2	8.3 8.3	8.3	8.3	1.5 1.5	1.5	1.8	5 5	5.0	4.3
				Middle	9.5	19.9 19.9	19.9	8.1 8.1	8.1	31.1 31.1	31.1	109.1 108.9	109.0	8.3 8.3	8.3		1.7 1.7	1.7		4 4	4.0	
				Bottom	18	19.9 19.9	19.9	8.1 8.1	8.1	31.2 31.2	31.2	109.0 109.1	109.1	8.3 8.3	8.3		2.1 2.2	2.2		4 4	4.0	
17-Dec-14	Cloudy	Moderate	08:55	Surface	1	19.5 19.6	19.6	8.0 8.0	8.0	25.6 24.0	24.8	106.1 105.3	105.7	8.4 8.4	8.4	8.4	4.0 4.0	4.0	4.2	4 4	4.0	4.2
				Middle	9.5	19.5 19.6	19.6	8.0 8.0	8.0	25.7 25.8	25.8	105.9 105.5	105.7	8.4 8.3	8.4		4.0 4.9	4.5		4 4	4.0	
				Bottom	18	19.5 19.6	19.6	8.0 8.0	8.0	25.8 25.9	25.9	105.8 105.6	105.7	8.3 8.3	8.3		3.8 4.2	4.0		5 4	4.5	
19-Dec-14	Cloudy	Moderate	10:28	Surface	1	18.7 18.7	18.7	7.8 7.8	7.8	27.3 27.6	27.5	107.1 107.1	107.1	8.5 8.5	8.5	8.5	3.8 3.9	3.9	4.1	6 6	6.0	6.0
				Middle	9.5	18.7 18.8	18.8	7.8 7.8	7.8	27.5 27.5	27.5	107.2 106.9	107.1	8.5 8.5	8.5		4.4 4.2	4.3		3 3	3.0	
				Bottom	18	18.7 18.8	18.8	7.8 7.8	7.8	27.6 27.6	27.6	107.2 106.9	107.1	8.5 8.5	8.5		4.1 4.0	4.1		9 9	9.0	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C4 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:41	Surface	1	22.5 22.7	22.6	8.1 8.1	8.1	32.4 32.4	32.4	111.6 111.3	111.5	8.0 8.0	8.0	7.9	4.2 4.2	4.2	4.8	<2.5 <2.5	<2.5	<2.5
				Middle	9.5	23.2 23.2	23.2	8.1 8.1	8.1	32.5 32.5	32.5	110.5 110.5	110.5	7.8 7.8	7.8		5.0 5.0	5.0		<2.5 <2.5	<2.5	
				Bottom	18	23.3 23.3	23.3	8.1 8.1	8.1	32.4 32.4	32.4	110.2 110.3	110.3	7.8 7.8	7.8		5.1 5.1	5.1		<2.5 <2.5	<2.5	
3-Dec-14	Cloudy	Moderate	15:10	Surface	1	22.6 22.7	22.7	8.0 8.0	8.0	29.2 30.0	29.6	113.8 113.9	113.9	8.3 8.3	8.3	8.3	3.8 3.7	3.8	4.2	4 4	4.0	4.3
				Middle	9.5	22.6 22.7	22.7	8.0 8.0	8.0	29.3 30.0	29.7	113.9 113.9	113.9	8.3 8.3	8.3		3.7 3.7	3.7		6 6	6.0	
				Bottom	18	22.7 22.7	22.7	8.0 8.0	8.0	29.8 30.0	29.9	113.7 113.7	113.7	8.3 8.3	8.3		5.1 5.0	5.1		3 3	3.0	
5-Dec-14	Cloudy	Moderate	16:33	Surface	1	22.1 19.5	20.8	7.7 7.9	7.8	27.5 29.7	28.6	113.5 111.8	112.7	8.6 8.5	8.6	8.5	4.7 4.5	4.6	4.8	5 4	4.5	4.5
				Middle	9	22.2 21.3	21.8	7.8 7.9	7.9	28.4 29.6	29.0	109.8 109.4	109.6	8.3 8.3	8.3		4.1 4.5	4.3		4 4	4.0	
				Bottom	17	21.9 22.3	22.1	7.9 7.8	7.9	28.7 28.9	28.8	105.8 106.0	105.9	8.0 8.0	8.0		5.1 5.9	5.5		5 5	5.0	
8-Dec-14	Cloudy	Moderate	18:27	Surface	1	20.8 20.8	20.8	7.9 7.9	7.9	31.7 31.9	31.8	106.6 102.6	104.6	7.9 7.6	7.8	7.8	1.2 1.3	1.3	1.6	4 4	4.0	5.3
				Middle	9	20.8 20.9	20.9	7.9 7.9	7.9	31.8 31.8	31.8	105.4 101.4	103.4	7.8 7.5	7.7		1.5 1.5	1.5		7 7	7.0	
				Bottom	17	20.8 20.9	20.9	7.9 7.9	7.9	31.9 31.9	31.9	103.4 99.0	101.2	7.7 7.3	7.5		1.9 1.9	1.9		5 5	5.0	
10-Dec-14	Cloudy	Moderate	09:29	Surface	1	21.1 21.1	21.1	8.0 8.0	8.0	30.3 30.2	30.3	96.6 95.6	96.1	7.2 7.1	7.2	7.2	1.5 1.5	1.5	1.8	4 4	4.0	6.0
				Middle	9.5	21.1 21.1	21.1	8.0 8.0	8.0	30.3 30.3	30.3	96.6 95.8	96.2	7.2 7.1	7.2		2.1 2.1	2.1		8 8	8.0	
				Bottom	18	21.1 21.1	21.1	8.0 8.0	8.0	30.4 30.4	30.4	96.6 95.6	96.1	7.2 7.1	7.2		1.8 1.8	1.8		6 6	6.0	
12-Dec-14	Cloudy	Moderate	11:53	Surface	1	20.3 20.7	20.5	8.0 7.8	7.9	21.5 21.5	21.5	94.9 95.8	95.4	7.6 7.6	7.6	7.7	2.6 2.6	2.6	3.6	5 5	5.0	7.7
				Middle	9.5	21.6 22.1	21.9	7.7 7.8	7.8	23.8 24.4	24.1	92.8 110.7	101.8	7.1 8.4	7.8		3.9 3.9	3.9		15 15	15.0	
				Bottom	18	21.5 21.9	21.7	7.8 7.9	7.9	27.7 30.6	29.2	95.2 97.0	96.1	7.2 7.1	7.2		4.2 4.1	4.2		3 3	3.0	
15-Dec-14	Cloudy	Moderate	13:19	Surface	1	19.8 19.9	19.9	8.0 8.0	8.0	29.6 30.7	30.2	109.3 109.3	109.3	8.4 8.3	8.4	8.4	1.1 1.1	1.1	1.2	6 6	6.0	7.7
				Middle	9.5	19.8 19.9	19.9	8.0 8.0	8.0	29.8 30.8	30.3	109.3 109.2	109.3	8.4 8.3	8.4		1.1 1.1	1.1		9 9	9.0	
				Bottom	18	19.9 19.9	19.9	8.0 8.0	8.0	30.6 30.9	30.8	109.3 109.3	109.3	8.3 8.3	8.3		1.5 1.5	1.5		8 8	8.0	
17-Dec-14	Cloudy	Moderate	15:02	Surface	1	19.6 19.8	19.7	8.2 8.2	8.2	28.6 28.6	28.6	109.0 108.2	108.6	8.4 8.3	8.4	8.4	3.3 3.8	3.6	4.2	<2.5 <2.5	<2.5	6.7
				Middle	9.5	19.7 19.8	19.8	8.2 8.2	8.2	28.6 28.6	28.6	108.4 108.2	108.3	8.4 8.3	8.4		4.6 4.8	4.7		9 9	9.0	
				Bottom	18	19.7 19.8	19.8	8.2 8.2	8.2	28.8 28.8	28.8	108.5 108.2	108.4	8.4 8.3	8.4		4.5 4.3	4.4		8 9	8.5	
19-Dec-14	Cloudy	Moderate	15:59	Surface	1	18.8 18.8	18.8	7.9 7.9	7.9	27.5 27.5	27.5	107.5 107.4	107.5	8.5 8.5	8.5	8.5	3.8 3.5	3.7	4.1	5 5	5.0	5.5
				Middle	9.5	18.8 18.8	18.8	7.9 7.9	7.9	27.5 27.5	27.5	107.5 107.5	107.5	8.5 8.5	8.5		3.9 3.8	3.9		9 9	9.0	
				Bottom	18	18.8 18.8	18.8	7.9 8.0	8.0	27.5 27.5	27.5	107.5 107.5	107.5	8.5 8.5	8.5		5.1 4.2	4.7		<2.5 <2.5	<2.5	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at GB3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	07:55	Surface	1	21.4 21.5	21.5	8.1 8.1	8.1	32.3 32.2	32.3	98.9 104.2	101.6	7.3 7.6	7.5	7.6	4.1 4.1	4.1	4.6	4 4	4.0	5.2
				Middle	3	21.6 21.6	21.6	8.1 8.1	8.1	32.3 32.4	32.4	104.0 104.0	104.0	7.6 7.6	7.6		4.5 4.5	4.5		8 7	7.5	
				Bottom	5	21.8 21.8	21.8	8.1 8.1	8.1	31.6 31.7	31.7	103.8 103.6	103.7	7.6 7.6	7.6		5.3 5.3	5.3		4 4	4.0	
3-Dec-14	Cloudy	Moderate	09:26	Surface	1	22.2 22.2	22.2	8.0 8.0	8.0	29.7 29.9	29.8	110.7 110.0	110.4	8.1 8.1	8.1	8.1	3.0 3.1	3.1	4.1	10 9	9.5	7.0
				Middle	4	22.2 22.2	22.2	8.0 8.0	8.0	29.7 29.9	29.8	110.9 110.3	110.6	8.1 8.1	8.1		3.9 3.8	3.9		5 6	5.5	
				Bottom	7	22.2 22.2	22.2	8.0 8.0	8.0	29.9 29.9	29.9	108.8 109.8	109.3	8.0 8.0	8.0		5.2 5.1	5.2		6 6	6.0	
5-Dec-14	Cloudy	Moderate	11:16	Surface	1	21.4 19.5	20.5	7.7 7.6	7.7	26.0 28.2	27.1	116.7 117.2	117.0	8.8 8.9	8.9	8.8	2.5 2.6	2.6	3.3	5 5	5.0	5.3
				Middle	3.5	20.7 21.5	21.1	7.7 7.7	7.7	29.2 29.2	29.2	114.4 113.9	114.2	8.7 8.6	8.7		2.9 3.0	3.0		6 6	6.0	
				Bottom	6	21.5 21.3	21.4	7.7 7.7	7.8	29.2 29.3	29.3	112.0 112.4	112.2	8.5 8.5	8.5		4.2 4.3	4.3		5 5	5.0	
8-Dec-14	Cloudy	Moderate	12:51	Surface	1	20.8 20.8	20.8	7.7 7.8	7.8	31.0 29.9	30.5	103.8 102.7	103.3	7.8 7.7	7.8	7.8	1.2 1.2	1.2	1.9	7 8	7.5	8.5
				Middle	3.5	20.8 20.8	20.8	7.7 7.8	7.8	31.6 31.6	31.6	103.4 102.8	103.1	7.7 7.7	7.7		1.6 1.6	1.6		10 11	10.5	
				Bottom	6	20.8 20.8	20.8	7.7 7.8	7.8	31.7 31.7	31.7	100.8 101.3	101.1	7.5 7.5	7.5		2.8 2.9	2.9		8 7	7.5	
10-Dec-14	Cloudy	Moderate	14:45	Surface	1	21.2 21.1	21.2	8.1 8.1	8.1	29.8 31.2	30.5	109.9 109.9	109.9	8.2 8.2	8.2	8.2	1.1 1.1	1.1	1.3	8 8	8.0	5.8
				Middle	3	21.2 21.1	21.2	8.1 8.1	8.1	29.9 31.2	30.6	109.7 109.8	109.8	8.2 8.1	8.2		1.4 1.4	1.4		5 5	5.0	
				Bottom	5	21.1 21.1	21.1	8.1 8.1	8.1	30.0 30.1	30.1	109.7 108.4	109.1	8.2 8.1	8.2		1.5 1.5	1.5		4 5	4.5	
12-Dec-14	Cloudy	Moderate	15:12	Surface	1	20.8 22.1	21.5	7.8 7.7	7.8	25.0 24.5	24.8	102.8 103.3	103.1	8.0 7.8	7.9	7.9	2.0 1.7	1.9	2.1	4 4	4.0	5.7
				Middle	3.5	21.3 20.5	20.9	7.9 8.0	8.0	27.0 25.9	26.5	102.9 101.5	102.2	7.8 7.9	7.9		1.5 1.5	1.5		7 7	7.0	
				Bottom	6	21.7 22.7	22.2	7.8 7.9	7.9	30.3 32.7	31.5	94.4 99.3	96.9	7.0 7.1	7.1		2.5 3.0	2.8		6 6	6.0	
15-Dec-14	Cloudy	Moderate	18:59	Surface	1	19.8 19.8	19.8	8.1 8.1	8.1	31.0 31.1	31.1	109.2 109.1	109.2	8.3 8.3	8.3	8.3	1.0 1.1	1.1	1.3	<2.5 <2.5	<2.5	3.7
				Middle	3.5	19.8 19.8	19.8	8.1 8.1	8.1	31.0 31.1	31.1	109.2 109.1	109.2	8.3 8.3	8.3		1.4 1.4	1.4		5 4	4.5	
				Bottom	6	19.9 19.9	19.9	8.1 8.1	8.1	31.0 31.1	31.1	108.9 108.9	108.9	8.3 8.3	8.3		1.5 1.5	1.5		4 4	4.0	
17-Dec-14	Cloudy	Moderate	08:42	Surface	1	18.7 18.7	18.7	7.9 7.9	7.9	25.6 25.8	25.7	107.7 107.2	107.5	8.6 8.6	8.6	8.6	5.0 4.9	5.0	4.7	4 4	4.0	3.2
				Middle	3	18.8 18.8	18.8	7.9 7.9	7.9	25.6 25.8	25.7	107.7 107.0	107.4	8.6 8.6	8.6		5.0 4.2	4.6		<2.5 <2.5	<2.5	
				Bottom	5	18.7 18.8	18.8	7.9 7.9	7.9	25.8 25.9	25.9	106.7 106.1	106.4	8.5 8.5	8.5		4.1 4.8	4.5		3 3	3.0	
19-Dec-14	Cloudy	Moderate	10:17	Surface	1	18.3 18.3	18.3	7.9 7.9	7.9	27.9 28.0	28.0	109.0 108.5	108.8	8.7 8.6	8.7	8.7	3.9 4.7	4.3	3.9	3 3	3.0	4.8
				Middle	3	18.3 18.3	18.3	7.9 7.9	7.9	28.0 28.0	28.0	108.9 108.7	108.8	8.7 8.7	8.7		3.8 3.8	3.8		6 6	6.0	
				Bottom	5	18.3 18.3	18.3	7.9 7.9	7.9	28.0 28.0	28.0	108.7 108.2	108.5	8.7 8.6	8.7		3.5 3.8	3.7		5 6	5.5	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at GB3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:09	Surface	1	23.2 23.3	23.3	8.0 8.1	8.1	32.4 32.4	32.4	110.0 109.7	109.9	7.8 7.8	7.8	7.7	3.6 3.4	3.5	4.4	5 6	5.5	6.8
				Middle	3	23.4 23.4	23.4	8.0 8.1	8.1	32.4 32.5	32.5	107.9 107.9	107.9	7.6 7.6	7.6		4.1 4.4	4.3		7 7	7.0	
				Bottom	5	23.5 23.5	23.5	8.1 8.1	8.1	32.5 32.5	32.5	106.0 105.3	105.7	7.5 7.4	7.5		5.3 5.6	5.5		8 8	8.0	
3-Dec-14	Cloudy	Moderate	15:00	Surface	1	22.2 22.2	22.2	7.9 8.0	8.0	30.5 30.4	30.5	115.7 115.0	115.4	8.4 8.4	8.4	8.4	4.3 4.1	4.2	4.5	9 9	9.0	5.8
				Middle	3.5	22.2 22.2	22.2	8.0 8.0	8.0	30.5 30.3	30.4	115.4 115.0	115.2	8.4 8.4	8.4		4.2 4.1	4.2		4 5	4.5	
				Bottom	6	22.2 22.2	22.2	7.9 8.0	8.0	30.5 30.4	30.5	114.8 114.7	114.8	8.4 8.4	8.4		5.0 5.0	5.0		4 4	4.0	
5-Dec-14	Cloudy	Moderate	16:45	Surface	1	21.9 18.1	20.0	7.8 7.8	7.8	27.6 27.3	27.5	112.4 112.4	112.4	8.5 8.5	8.5	8.5	2.8 2.9	2.9	4.5	4 4	4.0	4.2
				Middle	3.5	20.8 22.1	21.5	7.9 7.7	7.9	29.5 29.1	29.3	110.7 109.8	110.3	8.4 8.3	8.4		4.5 4.5	4.5		5 4	4.5	
				Bottom	6	22.1 21.5	21.8	7.7 7.9	7.8	29.2 29.4	29.3	108.7 109.3	109.0	8.2 8.3	8.3		6.2 6.1	6.2		4 4	4.0	
8-Dec-14	Cloudy	Moderate	18:01	Surface	1	21.5 21.5	21.5	7.8 7.8	7.8	31.6 30.8	31.2	98.3 97.7	98.0	7.2 7.2	7.2	7.2	1.1 1.2	1.2	1.5	3 4	3.5	4.7
				Middle	3	21.5 21.5	21.5	7.8 7.8	7.8	31.6 30.8	31.2	98.1 98.1	98.1	7.2 7.2	7.2		1.2 1.3	1.3		3 3	3.0	
				Bottom	5	21.5 21.5	21.5	7.8 7.8	7.8	31.7 31.7	31.7	97.4 97.7	97.6	7.2 7.2	7.2		1.9 2.1	2.0		8 7	7.5	
10-Dec-14	Cloudy	Moderate	09:17	Surface	1	20.9 20.7	20.8	8.0 7.9	8.0	30.4 30.3	30.4	104.9 104.7	104.8	7.8 7.9	7.9	7.9	1.1 1.2	1.2	1.5	3 4	3.5	6.8
				Middle	3.5	20.8 20.9	20.9	7.9 8.0	8.0	30.3 30.4	30.4	104.5 105.3	104.9	7.8 7.9	7.9		1.5 1.5	1.5		9 8	8.5	
				Bottom	6	20.8 20.9	20.9	7.9 8.0	8.0	30.3 30.7	30.5	103.2 104.6	103.9	7.7 7.8	7.8		1.8 1.7	1.8		8 9	8.5	
12-Dec-14	Cloudy	Moderate	11:19	Surface	1	19.6 19.5	19.6	7.7 7.7	7.7	21.4 22.2	21.8	97.4 98.4	97.9	7.9 7.9	7.9	7.9	2.7 2.5	2.6	2.8	4 4	4.0	4.5
				Middle	3.5	20.4 21.5	21.0	7.9 7.9	7.9	23.6 23.3	23.5	98.1 100.8	99.5	7.7 7.8	7.8		2.5 2.2	2.4		3 3	3.0	
				Bottom	6	20.9 21.6	21.3	7.8 7.9	7.9	27.0 29.2	28.1	93.8 93.6	93.7	7.2 7.0	7.1		3.5 3.4	3.5		6 7	6.5	
15-Dec-14	Cloudy	Moderate	13:08	Surface	1	19.8 19.8	19.8	8.0 8.1	8.1	30.0 30.2	30.1	111.5 111.6	111.6	8.5 8.5	8.5	8.5	1.2 1.2	1.2	1.5	9 9	9.0	6.8
				Middle	3.5	19.8 19.8	19.8	8.0 8.1	8.1	30.1 30.3	30.2	111.7 111.7	111.7	8.5 8.5	8.5		1.4 1.4	1.4		7 7	7.0	
				Bottom	6	19.8 19.8	19.8	8.1 8.1	8.1	30.3 30.4	30.4	111.6 111.7	111.7	8.5 8.5	8.5		1.8 1.7	1.8		4 5	4.5	
17-Dec-14	Cloudy	Moderate	14:48	Surface	1	19.7 19.0	19.4	8.1 8.2	8.2	27.7 28.2	28.0	110.9 111.6	111.3	8.6 8.8	8.7	8.7	4.7 4.2	4.5	4.8	8 8	8.0	4.5
				Middle	3	19.2 19.0	19.1	8.1 8.2	8.2	28.4 28.4	28.4	111.2 111.1	111.2	8.7 8.7	8.7		4.8 4.6	4.7		<2.5 <2.5	<2.5	
				Bottom	5	19.1 19.0	19.1	8.1 8.2	8.2	28.6 28.6	28.6	110.7 110.6	110.7	8.7 8.7	8.7		5.4 4.9	5.2		3 3	3.0	
19-Dec-14	Cloudy	Moderate	15:48	Surface	1	18.4 18.4	18.4	8.2 8.2	8.2	27.2 27.2	27.2	108.2 108.1	108.2	8.6 8.6	8.6	8.6	4.1 4.1	4.1	4.3	6 6	6.0	5.0
				Middle	3	18.4 18.4	18.4	8.2 8.2	8.2	27.2 27.3	27.3	108.3 108.3	108.3	8.6 8.6	8.6		4.6 4.5	4.6		3 3	3.0	
				Bottom	5	18.4 18.4	18.4	8.2 8.1	8.2	27.2 27.3	27.3	108.0 107.9	108.0	8.6 8.6	8.6		4.0 4.1	4.1		6 6	6.0	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	07:08	Surface	1	24.1 24.1	24.1	8.2 8.2	8.2	31.2 30.8	31.0	82.1 82.3	82.2	5.9 5.9	5.9	5.9	4.6 4.4	4.5	4.4	3 3	3.0	4.3
				Middle	8	24.1 24.1	24.1	8.2 8.2	8.2	32.1 33.2	32.7	81.7 81.3	81.5	5.8 5.8	5.8		5.0 4.3	4.7		4 4	4.0	
				Bottom	15	24.1 24.1	24.1	8.2 8.2	8.2	32.9 33.2	33.1	81.4 81.1	81.3	5.8 5.8	5.8		3.7 4.0	3.9		6 6	6.0	
3-Dec-14	Cloudy	Moderate	09:52	Surface	1	22.7 23.3	23.0	8.2 8.4	8.3	33.2 32.8	33.0	82.3 81.1	81.7	5.9 5.7	5.8	5.8	5.1 4.2	4.7	4.5	3 3	3.0	3.3
				Middle	8	23.2 23.3	23.3	8.4 8.7	8.6	33.3 33.4	33.4	80.9 80.8	80.9	5.7 5.7	5.7		4.6 3.9	4.3		3 3	3.0	
				Bottom	15	23.3 23.2	23.3	8.8 9.1	9.0	33.4 33.6	33.5	81.0 82.1	81.6	5.7 5.8	5.8		4.2 4.5	4.4		4 4	4.0	
5-Dec-14	Cloudy	Moderate	11:41	Surface	1	22.4 22.6	22.5	7.9 8.1	8.0	32.4 30.9	31.7	97.6 86.1	91.9	7.0 6.2	6.6	6.4	2.2 2.2	2.2	4.4	4 4	4.0	4.5
				Middle	7	22.5 22.6	22.6	8.2 8.4	8.3	30.8 30.4	30.6	84.7 84.6	84.7	6.1 6.1	6.1		2.8 2.8	2.8		5 5	5.0	
				Bottom	13	22.6 22.6	22.6	8.4 8.7	8.6	30.6 30.6	30.6	85.6 85.5	85.6	6.2 6.2	6.2		8.1 8.3	8.2		5 4	4.5	
8-Dec-14	Cloudy	Moderate	13:44	Surface	1	22.4 22.3	22.4	7.9 7.9	7.9	27.4 29.1	28.3	92.4 92.3	92.4	6.8 6.8	6.8	6.8	2.7 2.9	2.8	2.8	3 3	3.0	3.3
				Middle	8	21.9 21.9	21.9	8.2 8.2	8.2	30.9 30.9	30.9	91.7 91.5	91.6	6.7 6.7	6.7		2.7 2.6	2.7		4 4	4.0	
				Bottom	15	21.8 21.8	21.8	8.1 8.1	8.1	30.5 30.4	30.5	90.2 90.0	90.1	6.6 6.6	6.6		3.0 3.0	3.0		3 3	3.0	
10-Dec-14	Cloudy	Moderate	13:13	Surface	1	21.5 21.5	21.5	7.9 7.9	7.9	30.5 30.8	30.7	110.0 110.2	110.1	8.1 8.1	8.1	8.1	3.6 3.5	3.6	4.1	4 5	4.5	4.8
				Middle	8	21.5 21.5	21.5	8.1 8.1	8.1	31.1 31.2	31.2	108.7 108.7	108.7	8.0 8.0	8.0		4.3 4.2	4.3		4 4	4.0	
				Bottom	15	21.5 21.5	21.5	8.1 8.1	8.1	30.7 30.7	30.7	108.2 108.2	108.2	8.0 8.0	8.0		4.5 4.5	4.5		6 6	6.0	
12-Dec-14	Cloudy	Moderate	15:04	Surface	1	21.2 21.2	21.2	8.0 8.0	8.0	30.4 30.4	30.4	86.5 86.4	86.5	6.4 6.4	6.4	6.8	2.8 2.9	2.9	3.4	3 3	3.0	3.5
				Middle	8	21.2 21.2	21.2	8.2 8.2	8.2	30.6 30.6	30.6	96.4 96.0	96.2	7.2 7.1	7.2		3.2 3.2	3.2		5 4	4.5	
				Bottom	15	21.2 21.2	21.2	8.2 8.2	8.2	30.8 30.8	30.8	96.3 96.3	96.3	7.1 7.1	7.1		4.1 4.0	4.1		3 3	3.0	
15-Dec-14	Cloudy	Moderate	18:18	Surface	1	19.3 19.3	19.3	8.0 8.0	8.0	29.9 29.9	29.9	80.9 80.7	80.8	6.3 6.2	6.3	6.2	2.5 2.5	2.5	2.8	<2.5 <2.5	<2.5	3.5
				Middle	8	19.3 19.3	19.3	8.0 8.0	8.0	30.5 30.5	30.5	77.8 77.8	77.8	6.0 6.0	6.0		2.8 2.7	2.8		3 3	3.0	
				Bottom	15	19.3 19.3	19.3	8.0 8.0	8.0	30.6 30.6	30.6	69.4 71.3	70.4	5.3 5.5	5.4		2.9 3.0	3.0		5 5	5.0	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:47	Surface	1	24.0 24.0	24.0	8.2 8.2	8.2	33.5 33.6	33.6	81.8 81.8	81.8	5.8 5.8	5.8	5.7	5.0 4.0	4.5	5.0	3 3	3.0	4.5
				Middle	8	24.0 24.0	24.0	8.2 8.2	8.2	33.5 33.6	33.6	79.0 78.8	78.9	5.6 5.6	5.6		5.3 5.3	5.3		4 5	4.5	
				Bottom	15	24.0 24.0	24.0	8.2 8.2	8.2	33.6 33.6	33.6	79.0 78.6	78.8	5.6 5.6	5.6		5.6 4.7	5.2		6 6	6.0	
3-Dec-14	Cloudy	Moderate	16:10	Surface	1	21.5 23.2	22.4	8.4 8.4	8.4	31.2 31.6	31.4	90.7 83.0	86.9	6.7 5.9	6.3	6.1	4.5 4.6	4.6	4.9	3 3	3.0	4.0
				Middle	8	22.9 23.2	23.1	8.4 8.5	8.5	33.4 33.0	33.2	83.8 82.5	83.2	5.9 5.8	5.9		4.6 5.1	4.9		5 5	5.0	
				Bottom	15	23.2 23.2	23.2	8.6 8.7	8.7	33.2 33.1	33.2	82.5 82.3	82.4	5.8 5.8	5.8		5.2 5.2	5.2		4 4	4.0	
5-Dec-14	Cloudy	Moderate	16:29	Surface	1	22.6 22.5	22.6	8.2 8.2	8.2	28.2 30.1	29.2	105.8 88.0	96.9	7.8 6.4	7.1	6.8	2.2 2.3	2.3	5.2	4 4	4.0	4.3
				Middle	6.5	21.8 22.5	22.2	8.3 8.4	8.4	31.1 30.3	30.7	90.2 87.7	89.0	6.6 6.4	6.5		6.8 6.8	6.8		4 4	4.0	
				Bottom	12	22.4 22.5	22.5	8.6 8.9	8.8	30.6 30.4	30.5	88.2 87.7	88.0	6.4 6.4	6.4		6.5 6.5	6.5		5 5	5.0	
8-Dec-14	Cloudy	Moderate	17:32	Surface	1	22.2 22.1	22.2	7.9 7.9	7.9	30.1 30.2	30.2	91.3 91.0	91.2	6.7 6.7	6.7	6.8	2.8 2.7	2.8	2.9	4 5	4.5	4.2
				Middle	8	21.8 21.8	21.8	8.2 8.2	8.2	30.9 30.9	30.9	92.0 92.0	92.0	6.8 6.8	6.8		3.0 3.1	3.1		3 3	3.0	
				Bottom	15	21.8 21.8	21.8	8.1 8.1	8.1	30.9 30.8	30.9	90.5 90.2	90.4	6.6 6.6	6.6		2.8 2.9	2.9		5 5	5.0	
10-Dec-14	Cloudy	Moderate	09:41	Surface	1	21.5 21.5	21.5	7.9 7.9	7.9	30.3 30.4	30.4	109.8 110.0	109.9	8.1 8.1	8.1	8.1	3.2 3.1	3.2	4.0	4 4	4.0	3.2
				Middle	8	21.5 21.5	21.5	8.1 8.1	8.1	31.2 31.2	31.2	108.5 108.7	108.6	8.0 8.0	8.0		4.0 4.0	4.0		<2.5 <2.5	<2.5	
				Bottom	15	21.5 21.5	21.5	8.1 8.1	8.1	30.6 30.6	30.6	108.1 108.1	108.1	8.0 8.0	8.0		4.9 4.8	4.9		3 3	3.0	
12-Dec-14	Cloudy	Moderate	11:13	Surface	1	21.0 21.1	21.1	7.9 7.9	7.9	30.1 30.4	30.3	89.8 88.5	89.2	6.7 6.6	6.7	6.9	2.8 3.0	2.9	3.4	7 7	7.0	4.5
				Middle	8	21.2 21.2	21.2	8.2 8.2	8.2	30.6 30.6	30.6	95.5 94.8	95.2	7.1 7.0	7.1		3.4 3.1	3.3		<2.5 <2.5	<2.5	
				Bottom	15	21.2 21.2	21.2	8.2 8.2	8.2	30.7 30.8	30.8	96.4 96.4	96.4	7.2 7.2	7.2		3.9 4.1	4.0		4 4	4.0	
15-Dec-14	Cloudy	Moderate	13:29	Surface	1	20.0 20.0	20.0	7.9 8.0	8.0	23.2 23.2	23.2	111.2 104.9	108.1	8.8 8.3	8.6	8.2	3.9 3.9	3.9	3.9	3 3	3.0	4.7
				Middle	8	20.1 20.2	20.2	8.1 8.1	8.1	24.2 25.6	24.9	99.6 99.0	99.3	7.8 7.7	7.8		3.8 3.6	3.7		6 6	6.0	
				Bottom	15	20.4 20.4	20.4	8.3 8.3	8.3	29.9 31.3	30.6	93.4 93.4	93.4	7.1 7.0	7.1		4.1 4.3	4.2		5 5	5.0	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	07:56	Surface	1	23.8	23.8	8.3	8.3	33.2	33.2	89.1	89.1	6.4	6.4	6.4	3.6	3.6	4.3	4	4	3.5
						23.8	23.8	8.3	8.3	33.2	33.2	89.0	89.1	6.3	6.4		3.6	3.6		4	4	
				Middle	9	23.8	23.8	8.3	8.3	33.2	33.2	89.1	89.1	6.3	6.4		4.2	4.2		4	4	
				23.8	23.8	8.3	8.3	33.2	33.2	86.2	86.2	6.1	6.1	6.1	5.1	5.1		3	3	3	3	
3-Dec-14	Cloudy	Moderate	10:52	Surface	1	21.8	22.4	8.5	8.5	33.0	32.1	103.1	101.2	7.5	7.3	7.2	3.8	3.8	4.3	4	5	3.7
						23.0	23.0	8.8	8.8	33.4	33.4	100.8	100.0	7.1	7.1		3.8	3.8		4	4	
				Middle	9	23.0	23.0	8.8	8.8	33.4	33.4	99.2	100.0	7.0	7.1		4.1	4.2		4	4	
				23.0	23.0	9.6	9.6	33.5	33.6	100.4	100.4	7.1	7.1	7.1	5.0	4.8		<2.5	<2.5		<2.5	<2.5
5-Dec-14	Cloudy	Moderate	12:45	Surface	1	22.4	22.4	8.1	8.2	30.4	30.5	93.2	94.4	6.8	6.9	7.0	2.3	2.4	4.3	5	5	4.3
						22.4	22.4	8.2	8.2	30.6	30.5	95.5	94.4	6.9	6.9		2.4	2.4		4	4	
				Middle	7.5	21.9	22.2	8.4	8.5	31.4	31.1	97.0	96.6	7.1	7.1		4.7	4.8		4	4	
				22.2	22.3	8.8	8.8	31.0	31.0	98.3	97.8	7.2	7.2	7.2	5.5	5.6		4	4	4	4	
8-Dec-14	Cloudy	Moderate	13:03	Surface	1	21.8	21.8	7.9	7.9	31.3	31.3	101.9	101.9	7.5	7.5	7.6	2.7	2.8	3.0	4	4	4.0
						21.8	21.8	7.9	7.9	31.2	31.3	101.9	101.9	7.5	7.5		2.8	2.8		4	4	
				Middle	9	21.7	21.7	8.1	8.1	32.4	32.4	104.9	104.8	7.6	7.6		2.9	2.9		3	3	
				21.6	21.6	8.1	8.1	33.4	33.4	101.2	101.2	7.3	7.3	7.3	3.3	3.2		5	5	5	5	
10-Dec-14	Cloudy	Moderate	13:59	Surface	1	21.5	21.5	7.9	7.9	29.8	29.9	109.7	109.7	8.1	8.1	8.1	3.3	3.4	4.1	6	6	4.7
						21.5	21.5	7.9	7.9	29.9	29.9	109.6	109.7	8.1	8.1		3.4	3.4		6	6	
				Middle	9	21.5	21.5	8.1	8.1	31.4	31.5	108.8	108.8	8.0	8.0		4.0	4.1		3	3	
				21.5	21.5	8.1	8.1	31.5	31.5	108.7	108.7	8.0	8.0	8.0	4.1	4.1		3	3	3	3	
12-Dec-14	Cloudy	Moderate	15:48	Surface	1	21.1	21.1	7.9	7.9	30.7	30.7	106.5	106.5	7.9	7.9	8.0	2.8	2.8	3.6	3	3	4.0
						21.1	21.1	7.9	7.9	30.7	30.7	106.4	106.5	7.9	7.9		2.8	2.8		3	3	
				Middle	9	21.1	21.1	8.1	8.1	31.1	31.1	106.9	107.1	7.9	8.0		3.5	3.5		3	3	
				21.1	21.1	8.1	8.1	31.1	31.1	107.2	107.2	8.0	8.0	8.0	3.4	3.4		3	3	3	3	
15-Dec-14	Cloudy	Moderate	19:22	Surface	1	19.2	19.2	8.0	8.0	32.0	32.0	65.7	65.7	5.0	5.0	5.0	2.7	2.8	3.3	6	6	4.8
						19.2	19.2	8.0	8.0	32.0	32.0	65.6	65.7	5.0	5.0		2.8	2.8		6	6	
				Middle	9	19.2	19.2	8.0	8.0	32.1	32.1	63.5	63.5	4.9	4.9		3.3	3.4		5	4	
				19.2	19.2	8.0	8.0	32.1	32.1	63.5	63.5	4.9	4.9	4.9	3.4	3.4		4	4	4	4	
Bottom	17	19.2	19.2	8.0	8.0	32.3	32.3	58.8	58.8	58.7	58.8	4.5	4.5	4.5	4.5	3.6	3.7	3.3	4	4	4.0	
																						19.2

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:00	Surface	1	23.7	23.7	8.3	8.3	33.4	33.5	87.6	88.0	6.2	6.3	6.3	2.4	2.6	3.4	3	3	4.0
						23.7	23.7	8.3	8.3	33.5	33.5	88.3	87.3	6.3	6.2		2.7	3.9		6	6	
				Middle	8.5	23.7	23.7	8.3	8.3	33.4	33.5	87.3	87.0	6.2	6.2		3.9	3.9		6	6	
				23.7	23.7	8.3	8.3	33.5	33.5	85.9	85.5	6.1	6.1	6.1	3.6	3.7		3	3			
				23.7	23.7	8.3	8.3	33.5	33.5	85.1	85.5	6.1	6.1	6.1	3.8	3.7		3	3			
3-Dec-14	Cloudy	Moderate	15:09	Surface	1	22.7	22.8	8.5	8.5	33.2	32.5	101.9	101.4	7.3	7.3	7.3	4.1	4.1	4.6	<2.5	<2.5	3.5
						22.9	22.9	8.7	8.7	33.2	33.3	101.2	101.0	7.2	7.2		4.1	4.8		4	4	
				Middle	9	22.9	22.9	8.6	8.7	33.3	33.3	100.8	101.0	7.2	7.2		5.0	4.8		4	4	
				23.0	23.0	8.8	8.8	33.4	33.4	100.9	101.0	7.1	7.2	7.2	4.9	5.0		4	4			
				22.9	23.0	8.7	8.8	33.4	33.4	101.0	101.0	7.2	7.2	7.2	5.1	5.0		4	4			
5-Dec-14	Cloudy	Moderate	15:40	Surface	1	20.6	21.5	7.9	8.1	30.9	29.6	106.7	103.3	8.0	7.7	7.6	3.7	3.6	5.0	3	3	2.8
						22.2	22.3	8.4	8.4	30.6	30.6	102.6	102.5	7.5	7.5		3.5	5.1		3	3	
				Middle	7.5	22.3	22.3	8.4	8.4	30.6	30.6	102.4	102.5	7.5	7.5		5.0	5.1		3	3	
				22.2	22.3	8.5	8.6	30.7	30.7	102.9	102.9	7.5	7.5	7.5	6.1	6.3		3	3			
				22.3	22.3	8.6	8.6	30.7	30.7	102.8	102.8	7.5	7.5	7.5	6.4	6.3		3	3			
8-Dec-14	Cloudy	Moderate	18:27	Surface	1	22.2	22.1	7.7	7.8	27.3	27.7	100.2	100.2	7.5	7.5	7.6	3.0	2.9	3.0	3	3	3.3
						22.0	22.1	7.8	7.8	28.0	27.7	100.2	100.2	7.5	7.5		2.7	3.3		3	3	
				Middle	9	21.7	21.7	8.1	8.1	33.2	33.2	105.4	105.4	7.6	7.6		3.1	3.3		4	4	
				21.7	21.7	8.1	8.1	33.2	33.2	105.4	105.4	7.6	7.6	7.6	3.5	3.3		4	4			
				21.6	21.6	8.1	8.1	33.1	33.1	101.4	101.3	7.4	7.4	7.4	2.9	2.9		3	3			
				21.6	21.6	8.1	8.1	33.0	33.0	101.2	101.2	7.4	7.4	7.4	2.8	2.9		3	3			
10-Dec-14	Cloudy	Moderate	09:02	Surface	1	21.5	21.5	7.8	7.8	28.6	28.7	109.3	109.3	8.2	8.2	8.1	3.0	3.1	4.1	3	3	3.3
						21.5	21.5	7.8	7.8	28.8	28.7	109.3	109.3	8.2	8.2		3.1	3.1		3	3	
				Middle	9	21.5	21.5	8.1	8.1	31.7	31.7	109.0	109.1	8.0	8.0		4.2	4.2		4	4	
				21.5	21.5	8.1	8.1	31.7	31.7	109.2	109.2	8.0	8.0	8.0	4.2	4.2		4	4			
				21.5	21.5	8.1	8.1	30.9	30.9	108.3	108.3	8.0	8.0	8.0	5.1	5.1		4	4			
				21.5	21.5	8.1	8.1	30.8	30.9	108.2	108.2	8.0	8.0	8.0	5.1	5.1		3	3			
12-Dec-14	Cloudy	Moderate	10:35	Surface	1	20.9	21.0	7.8	7.8	31.0	30.9	107.2	107.0	8.0	8.0	8.0	3.1	3.2	3.8	3	4	3.5
						21.0	21.0	7.8	7.8	30.8	30.9	106.8	107.0	8.0	8.0		3.2	3.2		4	4	
				Middle	9	21.1	21.1	8.1	8.1	31.1	31.1	107.2	107.2	8.0	8.0		3.8	3.8		4	4	
				21.1	21.1	8.1	8.1	31.1	31.1	107.1	107.1	7.9	8.0	8.0	4.4	4.5		3	3			
				21.1	21.1	8.2	8.2	31.2	31.2	107.0	107.0	7.9	7.9	7.9	4.4	4.5		4	4			
				21.1	21.1	8.2	8.2	31.2	31.2	107.0	107.0	7.9	7.9	7.9	4.5	4.5		3	3			
15-Dec-14	Cloudy	Moderate	12:48	Surface	1	20.4	20.4	8.1	8.1	30.1	30.6	105.3	107.7	8.0	8.2	8.2	4.0	4.0	4.2	3	3	4.8
						20.4	20.4	8.1	8.1	31.0	30.6	110.0	107.7	8.3	8.2		3.9	4.0		3	3	
				Middle	9.5	20.4	20.4	8.2	8.3	33.6	33.6	110.6	110.6	8.2	8.2		4.2	4.2		7	7	
				20.4	20.4	8.3	8.3	33.6	33.6	110.5	110.5	8.2	8.2	8.2	4.1	4.2		7	7			
				20.4	20.4	8.3	8.3	32.6	33.0	110.2	110.3	8.2	8.2	8.2	4.4	4.5		5	5			
				20.4	20.4	8.3	8.3	33.3	33.0	110.4	110.4	8.2	8.2	8.2	4.5	4.5		4	4			

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	07:20	Surface	1	24.2 24.1	24.2	8.2 8.2	8.2	33.0 32.8	32.9	73.4 73.1	73.3	5.2 5.2	5.2	5.2	5.6 5.5	5.6	5.1	4 4	4.0	4.3
				Middle	5.5	24.2 24.1	24.2	8.2 8.2	8.2	32.9 32.8	32.9	73.4 73.6	73.5	5.2 5.2	5.2		5.0 4.9	5.0		4 4	4.0	
				Bottom	10	24.2 24.1	24.2	8.2 8.2	8.2	33.0 33.2	33.1	74.4 75.5	75.0	5.3 5.4	5.4		4.7 4.5	4.6		5 5	5.0	
3-Dec-14	Cloudy	Moderate	10:15	Surface	1	21.2 23.2	22.2	8.4 8.4	8.4	32.4 31.9	32.2	94.3 83.7	89.0	6.9 6.0	6.5	6.3	5.1 5.2	5.2	4.9	4 4	4.0	4.3
				Middle	5.5	22.6 23.2	22.9	8.4 8.4	8.4	33.8 33.3	33.6	86.5 83.6	85.1	6.2 5.9	6.1		4.8 4.8	4.8		4 4	4.0	
				Bottom	10	23.1 23.2	23.2	8.8 8.8	8.8	33.6 33.4	33.5	84.2 83.5	83.9	5.9 5.9	5.9		4.4 4.8	4.6		5 5	5.0	
5-Dec-14	Cloudy	Moderate	12:12	Surface	1	21.6 22.5	22.1	7.9 8.1	8.0	31.1 28.4	29.8	86.9 84.0	85.5	6.4 6.2	6.3	6.3	2.8 2.8	2.8	4.5	3 3	3.0	4.0
				Middle	5	22.4 22.5	22.5	8.1 8.1	8.1	30.8 30.7	30.8	84.7 84.0	84.4	6.2 6.1	6.2		4.5 4.5	4.5		5 5	5.0	
				Bottom	9	22.5 22.5	22.5	8.3 8.3	8.3	30.8 30.8	30.8	85.0 84.7	84.9	6.2 6.1	6.2		6.3 6.3	6.3		4 4	4.0	
8-Dec-14	Cloudy	Moderate	13:26	Surface	1	22.1 22.1	22.1	7.8 7.8	7.8	29.4 30.3	29.9	86.4 85.5	86.0	6.4 6.3	6.4	6.3	2.8 3.0	2.9	3.1	6 6	6.0	4.8
				Middle	5.5	21.8 21.9	21.9	8.0 8.0	8.0	31.3 31.1	31.2	84.1 83.6	83.9	6.2 6.1	6.2		3.1 2.9	3.0		4 5	4.5	
				Bottom	10	21.8 21.8	21.8	8.1 8.1	8.1	31.3 31.3	31.3	84.0 84.0	84.0	6.2 6.2	6.2		3.4 3.5	3.5		4 4	4.0	
10-Dec-14	Cloudy	Moderate	13:27	Surface	1	21.4 21.4	21.4	7.9 7.9	7.9	30.4 30.4	30.4	98.8 98.8	98.8	7.3 7.3	7.3	7.3	3.0 3.1	3.1	4.0	3 3	3.0	3.5
				Middle	5.5	21.5 21.5	21.5	8.0 8.0	8.0	30.7 30.7	30.7	98.1 98.2	98.2	7.2 7.3	7.3		3.8 4.1	4.0		4 3	3.5	
				Bottom	10	21.6 21.6	21.6	8.1 8.1	8.1	30.6 30.5	30.6	97.4 97.6	97.5	7.2 7.2	7.2		4.6 5.0	4.8		4 4	4.0	
12-Dec-14	Cloudy	Moderate	15:19	Surface	1	21.2 21.3	21.3	7.9 7.9	7.9	30.6 30.5	30.6	84.6 84.3	84.5	6.3 6.3	6.3	6.3	2.8 3.0	2.9	3.4	3 3	3.0	4.3
				Middle	5.5	21.3 21.3	21.3	8.0 8.0	8.0	30.5 30.5	30.5	85.2 85.2	85.2	6.3 6.3	6.3		3.5 3.4	3.5		4 4	4.0	
				Bottom	10	21.3 21.3	21.3	8.1 8.1	8.1	30.5 30.5	30.5	87.1 87.1	87.1	6.5 6.5	6.5		3.8 3.9	3.9		6 6	6.0	
15-Dec-14	Cloudy	Moderate	18:40	Surface	1	19.5 19.5	19.5	8.0 8.0	8.0	29.6 29.7	29.7	68.8 68.0	68.4	5.3 5.2	5.3	5.2	2.9 3.0	3.0	3.0	6 6	6.0	4.2
				Middle	5.5	19.5 19.5	19.5	8.0 8.0	8.0	30.3 30.3	30.3	64.9 64.7	64.8	5.0 5.0	5.0		2.6 2.7	2.7		4 4	4.0	
				Bottom	10	19.5 19.5	19.5	8.0 8.0	8.0	30.7 30.7	30.7	60.3 60.3	60.3	4.6 4.6	4.6		3.2 3.2	3.2		<2.5 <2.5	<2.5	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:31	Surface	1	23.9	23.9	8.2	8.2	33.3	32.2	73.7	73.3	5.3	5.3	5.3	2.5	2.5	3.5	3	3	4.0
						23.9	23.9	8.2	8.2	31.0	32.2	72.9	73.3	5.2	5.2		2.5	2.5		3	3	
				Middle	5.5	23.9	23.9	8.2	8.2	33.4	33.4	72.6	72.5	5.2	5.2		3.5	3.5		3	3	
				23.9	23.9	8.2	8.2	33.5	33.5	73.1	72.9	5.2	5.2	5.2	5.2	4.8	4.6	6	6	6.0		
3-Dec-14	Cloudy	Moderate	15:50	Surface	1	22.5	22.8	8.4	8.4	32.8	32.7	85.4	83.8	6.1	6.0	6.0	3.9	3.8	4.2	3	3	4.5
						23.1	22.8	8.4	8.4	32.5	32.7	82.1	83.8	5.8	5.8		3.7	3.8		5	5	
				Middle	5.5	23.0	23.0	8.4	8.4	33.0	32.8	83.1	82.7	5.9	5.9		3.6	3.8		4.0	3.8	
				23.1	23.1	8.6	8.6	33.0	33.0	82.9	82.7	5.9	5.9	5.9	5.9	4.9	4.9	6	5	5.5		
5-Dec-14	Cloudy	Moderate	16:12	Surface	1	20.5	21.5	8.2	8.2	30.8	29.4	91.2	87.2	6.9	6.5	6.4	2.6	2.6	4.9	3	3	4.3
						22.5	21.5	8.2	8.2	28.0	29.4	83.1	87.2	6.1	6.5		2.5	2.6		5	3	
				Middle	4.5	22.1	22.3	8.2	8.2	30.7	30.5	86.3	85.3	6.3	6.2		4.3	4.1		4	4	
				22.5	22.5	8.2	8.3	30.3	30.5	84.2	84.7	6.1	6.2	6.2	6.2	3.9	4.1	5	6	5.5		
8-Dec-14	Cloudy	Moderate	17:50	Surface	1	22.0	22.0	7.9	7.9	30.7	30.7	84.5	84.3	6.2	6.2	6.2	2.2	2.2	2.5	<2.5	<2.5	3.3
						22.0	22.0	7.9	7.9	30.7	30.7	84.1	84.3	6.2	6.2		2.1	2.2		4	4	
				Middle	5.5	21.8	21.8	8.0	8.0	31.3	31.4	83.9	84.0	6.1	6.1		2.3	2.3		4	4	
				21.8	21.8	8.1	8.1	31.2	31.2	84.0	84.0	6.2	6.2	6.2	6.2	2.9	3.0	4	3	3.5		
10-Dec-14	Cloudy	Moderate	09:27	Surface	1	21.4	21.4	7.9	7.9	30.2	30.3	90.9	90.7	6.7	6.7	6.8	2.9	3.0	3.9	3	4	4.3
						21.4	21.4	7.9	7.9	30.3	30.3	90.4	90.7	6.7	6.7		3.1	3.0		4	3	
				Middle	5.5	21.5	21.5	8.0	8.0	30.6	30.6	91.7	91.9	6.8	6.8		3.6	3.6		3	3	
				21.5	21.5	8.1	8.1	30.6	30.6	92.1	91.9	6.8	6.8	7.0	7.0	5.1	5.2	7	6	6.5		
12-Dec-14	Cloudy	Moderate	11:01	Surface	1	21.0	21.1	7.9	7.9	30.7	30.7	86.2	85.6	6.4	6.4	6.4	2.8	2.8	3.6	5	5	4.0
						21.2	21.1	7.9	7.9	30.6	30.7	85.0	85.6	6.3	6.4		2.8	2.8		4	4	
				Middle	5.5	21.3	21.3	8.0	8.0	30.6	30.6	85.2	85.3	6.3	6.3		3.5	3.5		4	4	
				21.3	21.3	8.0	8.1	30.6	30.6	85.3	86.7	6.3	6.4	6.4	6.4	4.3	4.6	3	3	3.0		
15-Dec-14	Cloudy	Moderate	13:10	Surface	1	18.3	18.3	7.9	7.9	23.5	22.7	104.5	102.4	8.6	8.5	7.8	3.7	3.8	3.9	4	4	4.5
						18.3	18.3	7.9	7.9	21.8	22.7	100.2	102.4	8.3	8.5		3.8	3.8		4	4	
				Middle	5.5	19.3	19.4	8.1	8.1	26.7	28.4	90.2	89.5	7.1	7.0		3.9	4.0		<2.5	<2.5	
				19.4	20.1	8.1	8.3	30.1	33.1	88.7	85.5	6.8	6.4	6.4	6.4	4.0	4.0	4	4	4.0		
				20.0	20.1	8.3	8.3	33.1	33.1	85.5	85.4	6.4	6.4	6.4	6.4	4.0	4.0	7	7	7.0		

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD9 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	07:40	Surface	1	23.9	23.9	8.2	8.2	33.1	33.2	81.7	81.8	5.8	5.8	5.9	2.7	2.7	2.8	7	7.0	4.5
						23.9	23.9	8.2	8.2	33.2	33.2	81.8	81.8	5.8	5.8		2.7	2.7		7	7.0	
				Middle	4	23.9	23.9	8.2	8.2	33.1	33.2	82.3	82.2	5.9	5.9		2.3	2.3		4	4.0	
				23.9	23.9	8.2	8.2	33.2	33.2	82.0	82.2	5.8	5.9									
				Bottom	7	23.8	23.9	8.2	8.2	33.3	33.3	81.1	80.9	5.8	5.8	5.8	3.1	3.5		<2.5	<2.5	
						23.9	23.9	8.2	8.2	33.3	33.3	80.6	80.9	5.7	5.8		3.8	3.5		<2.5	<2.5	
3-Dec-14	Cloudy	Moderate	10:30	Surface	1	22.1	22.6	8.5	8.5	33.7	33.5	98.5	97.0	7.1	7.0	7.0	2.4	2.4	2.8	3	3.0	4.8
						23.0	22.6	8.5	8.5	33.3	33.5	95.4	97.0	6.8	7.0		2.4	2.4		3	3.0	
				Middle	4	22.9	23.0	8.5	8.5	33.6	33.5	96.7	96.1	6.9	6.9		2.5	2.6		4	3.5	
						23.0	23.0	8.5	8.5	33.4	33.5	95.4	96.1	6.8	6.9		2.6	2.6		3	3.5	
				Bottom	7	23.0	23.0	8.8	8.8	33.6	33.6	96.1	95.8	6.8	6.8	6.8	3.3	3.3		8	8.0	
						23.0	23.0	8.8	8.8	33.5	33.6	95.5	95.8	6.8	6.8		3.3	3.3		8	8.0	
5-Dec-14	Cloudy	Moderate	12:29	Surface	1	22.7	22.5	8.1	8.1	30.8	30.8	122.1	111.9	8.8	8.1	7.9	1.1	1.1	4.1	5	5.0	4.8
						22.2	22.5	8.1	8.1	30.8	30.8	101.6	111.9	7.4	8.1		1.1	1.1		5	5.0	
				Middle	4.5	21.1	21.7	8.2	8.2	31.8	31.3	104.9	103.1	7.8	7.6		4.6	4.7		4	4.0	
						22.2	21.7	8.2	8.2	30.8	31.3	101.3	103.1	7.4	7.6		4.7	4.7		4	4.0	
				Bottom	8	22.0	22.2	8.4	8.4	31.2	31.0	102.0	101.3	7.4	7.4	7.4	6.3	6.4		6	5.5	
						22.3	22.2	8.4	8.4	30.8	31.0	100.5	101.3	7.3	7.4		6.4	6.4		5	5.5	
8-Dec-14	Cloudy	Moderate	13:15	Surface	1	21.7	21.7	8.0	8.0	31.7	31.7	97.9	97.8	7.2	7.2	7.2	2.7	2.7	3.0	4	4.0	4.0
						21.7	21.7	8.0	8.0	31.6	31.7	97.7	97.8	7.2	7.2		2.7	2.7		4	4.0	
				Middle	4	21.7	21.7	8.1	8.1	32.6	32.5	98.1	98.1	7.1	7.1		3.0	3.0		5	5.0	
						21.7	21.7	8.1	8.1	32.3	32.5	98.0	98.1	7.1	7.1		2.9	3.0		5	5.0	
				Bottom	7	21.6	21.6	8.2	8.2	32.6	32.7	98.3	98.3	7.2	7.2	7.2	3.1	3.3		3	3.0	
						21.6	21.6	8.2	8.2	32.7	32.7	98.3	98.3	7.2	7.2		3.5	3.3		3	3.0	
10-Dec-14	Cloudy	Moderate	13:43	Surface	1	21.5	21.5	7.9	7.9	30.2	30.3	90.0	90.1	6.7	6.7	6.8	2.5	2.6	3.8	3	3.0	3.5
						21.5	21.5	7.9	7.9	30.3	30.3	90.1	90.1	6.7	6.7		2.5	2.6		3	3.0	
				Middle	4	21.6	21.6	8.0	8.0	30.4	30.4	92.5	92.4	6.8	6.8		4.1	4.1		<2.5	<2.5	
						21.6	21.6	8.0	8.0	30.4	30.4	92.3	92.4	6.8	6.8		4.1	4.1		<2.5	<2.5	
				Bottom	7	21.5	21.5	8.1	8.1	30.5	30.5	95.0	95.0	7.0	7.0	7.0	4.8	4.8		5	5.0	
						21.5	21.5	8.1	8.1	30.5	30.5	95.0	95.0	7.0	7.0		4.7	4.8		5	5.0	
12-Dec-14	Cloudy	Moderate	15:35	Surface	1	21.1	21.1	7.9	7.9	30.9	30.9	103.0	102.9	7.7	7.7	7.7	3.1	3.2	3.6	3	3.0	4.8
						21.1	21.1	7.9	7.9	30.9	30.9	102.7	102.9	7.6	7.7		3.1	3.2		3	3.0	
				Middle	4	21.2	21.2	8.0	8.0	30.7	30.7	101.8	101.9	7.6	7.6		3.7	3.6		6	6.0	
						21.2	21.2	8.0	8.0	30.7	30.7	101.9	101.9	7.6	7.6		3.5	3.6		6	6.0	
				Bottom	7	21.2	21.2	8.0	8.0	30.6	30.6	101.3	101.2	7.5	7.5	7.5	4.0	4.1		6	5.5	
						21.2	21.2	8.0	8.0	30.6	30.6	101.0	101.2	7.5	7.5		4.1	4.1		5	5.5	
15-Dec-14	Cloudy	Moderate	18:56	Surface	1	19.6	19.6	8.1	8.1	31.7	31.7	87.8	87.7	6.7	6.7	6.6	2.9	2.9	3.0	3	3.0	3.0
						19.6	19.6	8.1	8.1	31.7	31.7	87.5	87.7	6.7	6.7		2.8	2.9		3	3.0	
				Middle	4	19.6	19.6	8.1	8.1	31.9	31.9	84.6	84.6	6.4	6.4		3.0	3.0		3	3.5	
						19.6	19.6	8.1	8.1	31.9	31.9	84.6	84.6	6.4	6.4		3.0	3.0		4	3.5	
				Bottom	7	19.6	19.6	8.1	8.1	31.9	32.0	77.9	78.0	5.9	5.9	5.9	3.1	3.2		<2.5	<2.5	
						19.6	19.6	8.1	8.1	32.0	32.0	78.0	78.0	5.9	5.9		3.2	3.2		<2.5	<2.5	

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD9 - Mid-Flood Tide

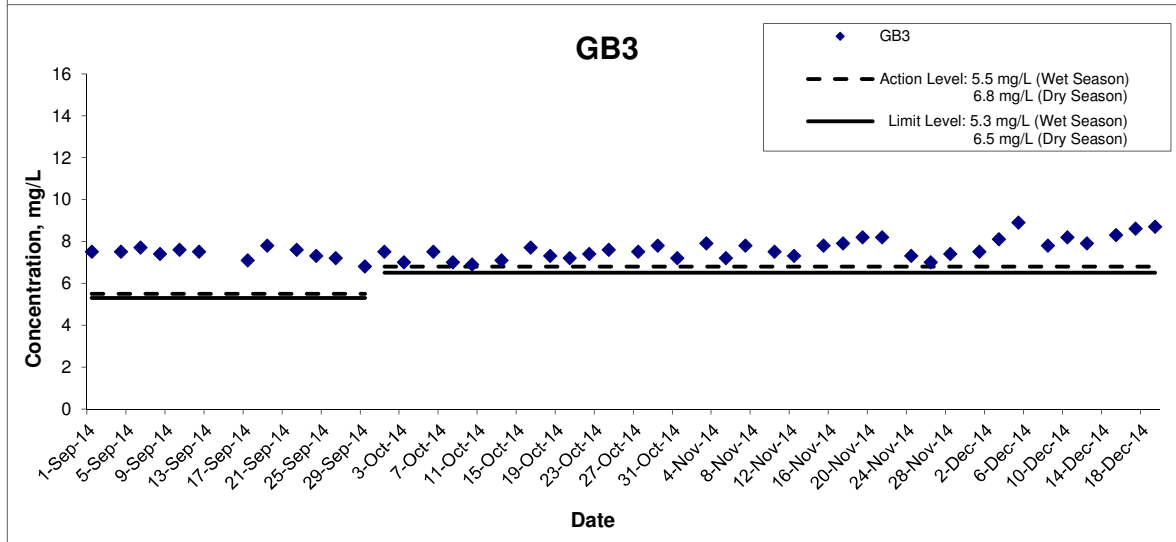
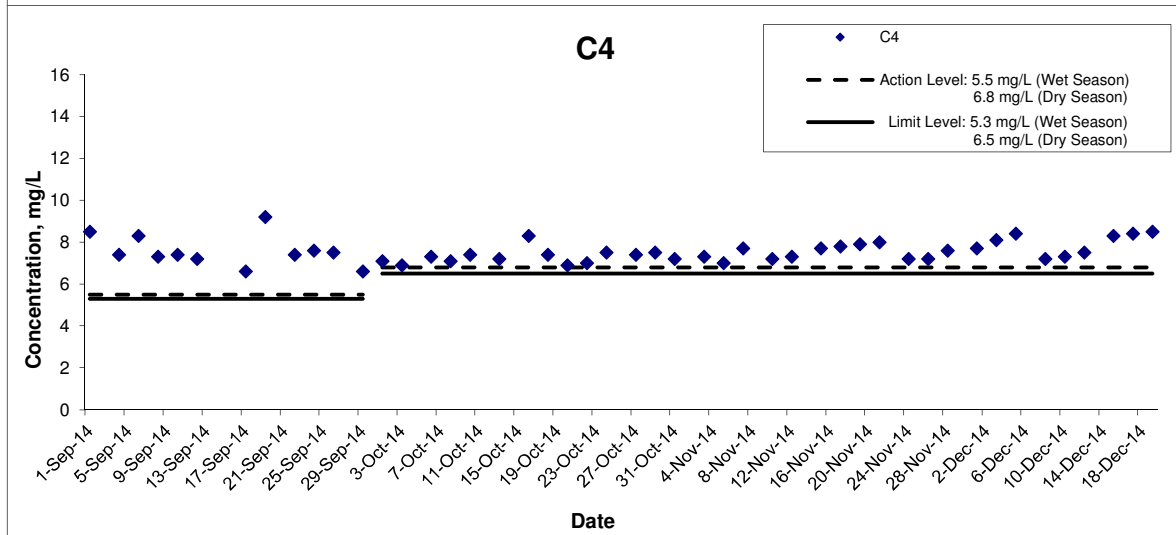
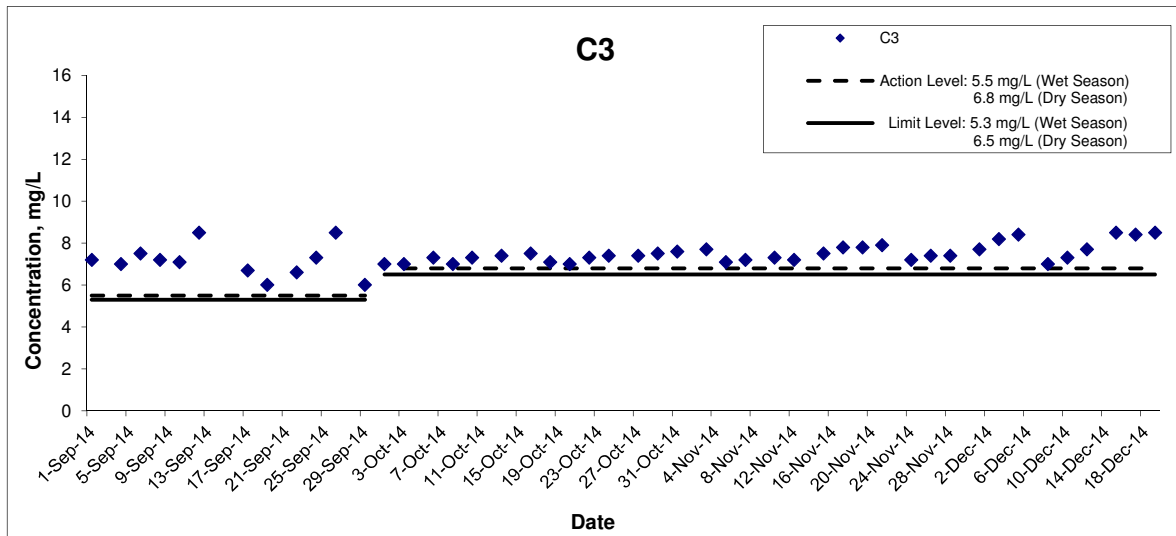
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-14	Cloudy	Calm	13:13	Surface	1	23.8	23.8	8.2	8.2	33.4	33.5	84.4	84.4	6.0	6.0	6.0	2.5	2.7	2.8	3	3	4.2
						23.8	23.8	8.2	8.2	33.5	33.5	81.6	83.0	5.8	5.9		2.9	2.6		5	4	
				Middle	4	23.8	23.8	8.2	8.2	33.5	33.5	84.4	83.0	6.0	5.9		2.6	2.6		4	4	
				23.8	23.8	8.2	8.2	33.5	33.5	84.5	83.1	6.0	5.9	5.9	2.9	3.0		5	5			
				23.8	23.8	8.2	8.2	33.5	33.5	81.6	83.1	5.8	5.9	5.9	3.0	3.0		5	5			
3-Dec-14	Cloudy	Moderate	15:38	Surface	1	21.9	22.5	8.4	8.4	33.3	33.2	95.7	91.2	6.9	6.6	6.5	4.2	4.6	4.9	4	3	3.5
						23.0	23.0	8.4	8.4	33.0	33.2	86.7	89.1	6.2	6.3		4.9	5.0		3	3	
				Middle	4	22.9	23.0	8.4	8.4	33.3	33.0	91.8	86.3	6.5	6.1		6.3	5.4		5.0	3	
				23.0	23.0	8.5	8.5	33.2	33.2	90.3	89.6	6.4	6.4	6.4	5.0	5.1		4	4			
				23.0	23.0	8.5	8.5	33.2	33.2	89.6	90.0	6.4	6.4	6.4	5.2	5.1		4	4			
5-Dec-14	Cloudy	Moderate	16:00	Surface	1	22.8	22.6	8.2	8.2	28.5	29.4	106.2	98.5	7.8	7.2	7.0	3.9	3.9	4.5	4	4	4.0
						22.3	22.1	8.2	8.2	30.3	30.6	90.8	91.6	6.6	6.7		3.9	4.8		3	3	
				Middle	4	21.9	22.3	8.3	8.3	30.8	30.4	92.3	90.8	6.8	6.6		6.7	4.8		4.8	3	
				22.2	22.3	8.3	8.3	30.6	30.5	91.4	91.0	6.7	6.7	6.7	4.9	4.9		5	5			
				22.3	22.3	8.3	8.3	30.4	30.4	91.0	91.2	6.6	6.7	6.7	4.8	4.9		5	5			
8-Dec-14	Cloudy	Moderate	18:14	Surface	1	22.0	22.0	7.9	7.9	30.8	30.9	98.1	98.1	7.2	7.2	7.2	2.9	2.8	2.8	3	3	3.3
						21.9	21.7	7.9	8.1	30.9	32.5	98.0	98.3	7.2	7.2		2.7	2.8		3	4	
				Middle	4	21.7	21.7	8.1	8.1	32.5	32.6	98.2	98.3	7.2	7.2		7.2	2.9		2.8	4	
				21.6	21.6	8.2	8.2	32.6	32.6	98.3	98.3	7.2	7.2	7.2	2.8	2.9		3	3			
				21.6	21.6	8.2	8.2	32.6	32.6	98.2	98.2	7.2	7.2	7.2	2.9	2.9		3	3			
10-Dec-14	Cloudy	Moderate	09:14	Surface	1	21.3	21.4	7.9	7.9	30.4	30.4	99.6	99.4	7.4	7.4	7.4	3.3	3.2	3.8	3	4	4.5
						21.4	21.5	7.9	8.0	30.4	30.8	99.1	98.4	7.3	7.3		3.1	3.8		3	3	
				Middle	4	21.5	21.4	8.0	8.0	30.7	30.8	98.4	98.3	7.3	7.3		7.3	3.9		3.8	3	
				21.4	21.6	8.0	8.1	30.8	30.7	98.3	98.0	7.3	7.2	7.2	4.5	4.5		7	7			
				21.5	21.6	8.1	8.1	30.7	30.7	98.0	97.8	7.2	7.2	7.2	4.4	4.4		7	7			
				21.6	21.6	8.1	8.1	30.7	30.7	97.8	97.8	7.2	7.2	7.2	4.4	4.4		7	7			
12-Dec-14	Cloudy	Moderate	10:48	Surface	1	20.8	20.9	7.9	7.9	31.1	31.1	104.7	104.3	7.8	7.8	7.7	2.9	3.0	3.3	7	6	4.8
						20.9	21.2	7.9	8.0	31.1	30.8	103.9	102.2	7.7	7.6		3.0	3.3		3	3	
				Middle	4	21.2	21.2	8.0	8.0	30.7	30.8	102.2	102.3	7.6	7.6		7.6	3.4		3.3	3	
				21.2	21.2	8.0	8.0	30.8	30.6	102.3	100.7	7.6	7.5	7.5	3.2	3.7		5	5			
				21.2	21.2	8.0	8.0	30.6	30.6	100.7	100.6	7.5	7.5	7.5	3.6	3.7		5	5			
				21.2	21.2	8.0	8.0	30.6	30.6	100.6	100.7	7.5	7.5	7.5	3.8	3.7		5	5			
15-Dec-14	Cloudy	Moderate	13:02	Surface	1	18.7	18.8	8.0	8.1	25.3	26.4	116.1	116.4	9.3	9.3	8.9	3.9	4.0	4.2	5	4	3.8
						18.9	19.4	8.1	8.2	27.4	30.5	116.6	111.9	9.2	8.6		4.0	4.3		4	4	
				Middle	4	19.3	19.5	8.2	8.2	30.6	30.6	109.3	109.3	8.4	8.4		8.5	4.2		4.2	4	
				20.1	20.2	8.3	8.3	33.8	33.8	105.8	105.8	7.9	7.9	7.9	4.4	4.4		3	3			
				20.2	20.2	8.3	8.3	33.8	33.8	105.6	105.6	7.8	7.9	7.9	4.3	4.4		3	3			
				20.2	20.2	8.3	8.3	33.8	33.8	105.6	105.6	7.8	7.9	7.9	4.3	4.4		3	3			

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Dissolved Oxygen (Surface) at Mid-Ebb Tide



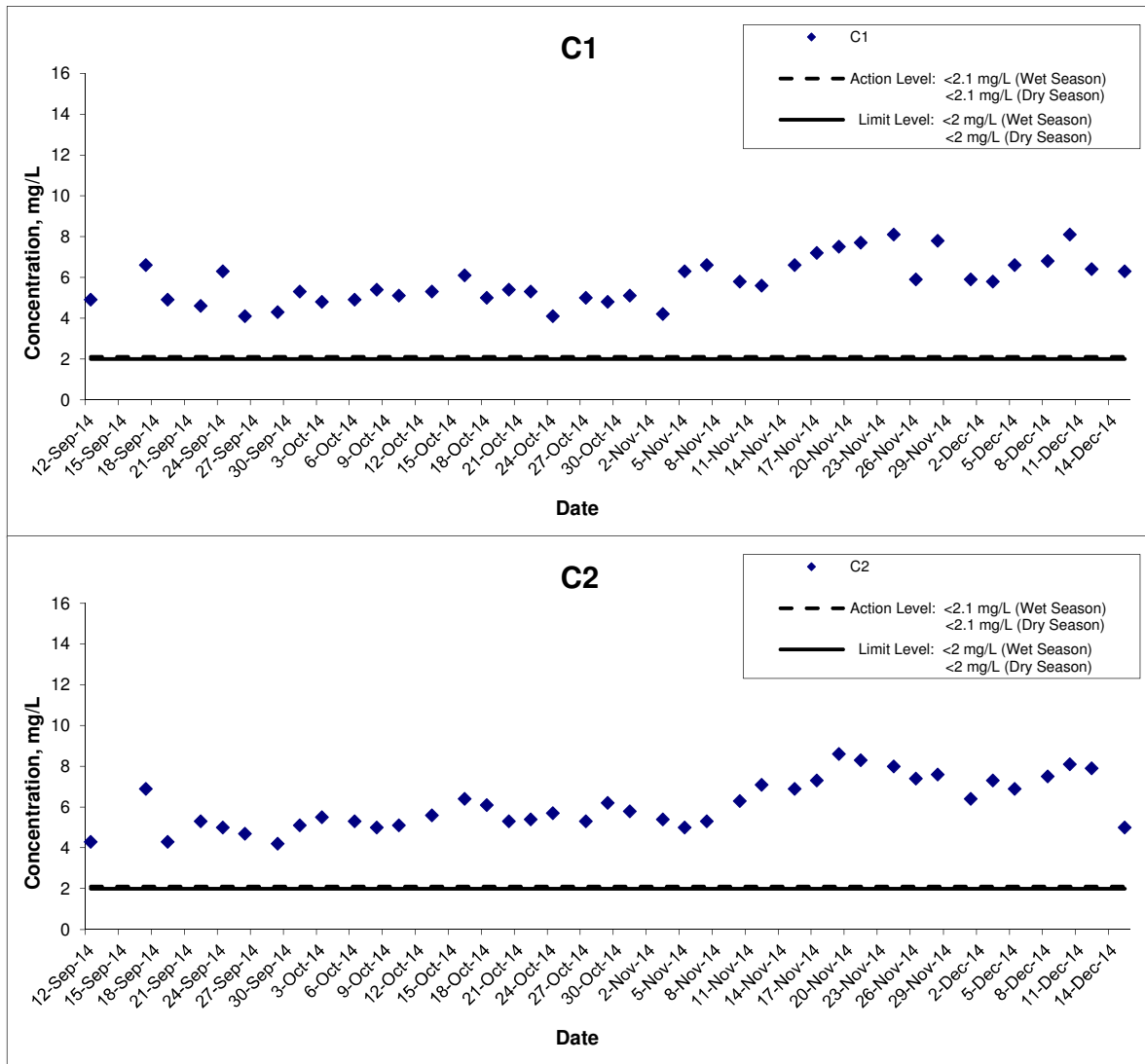
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 Shatin to Central Link – Contract 11227
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Dissolved Oxygen (Surface) at Mid-Ebb Tide



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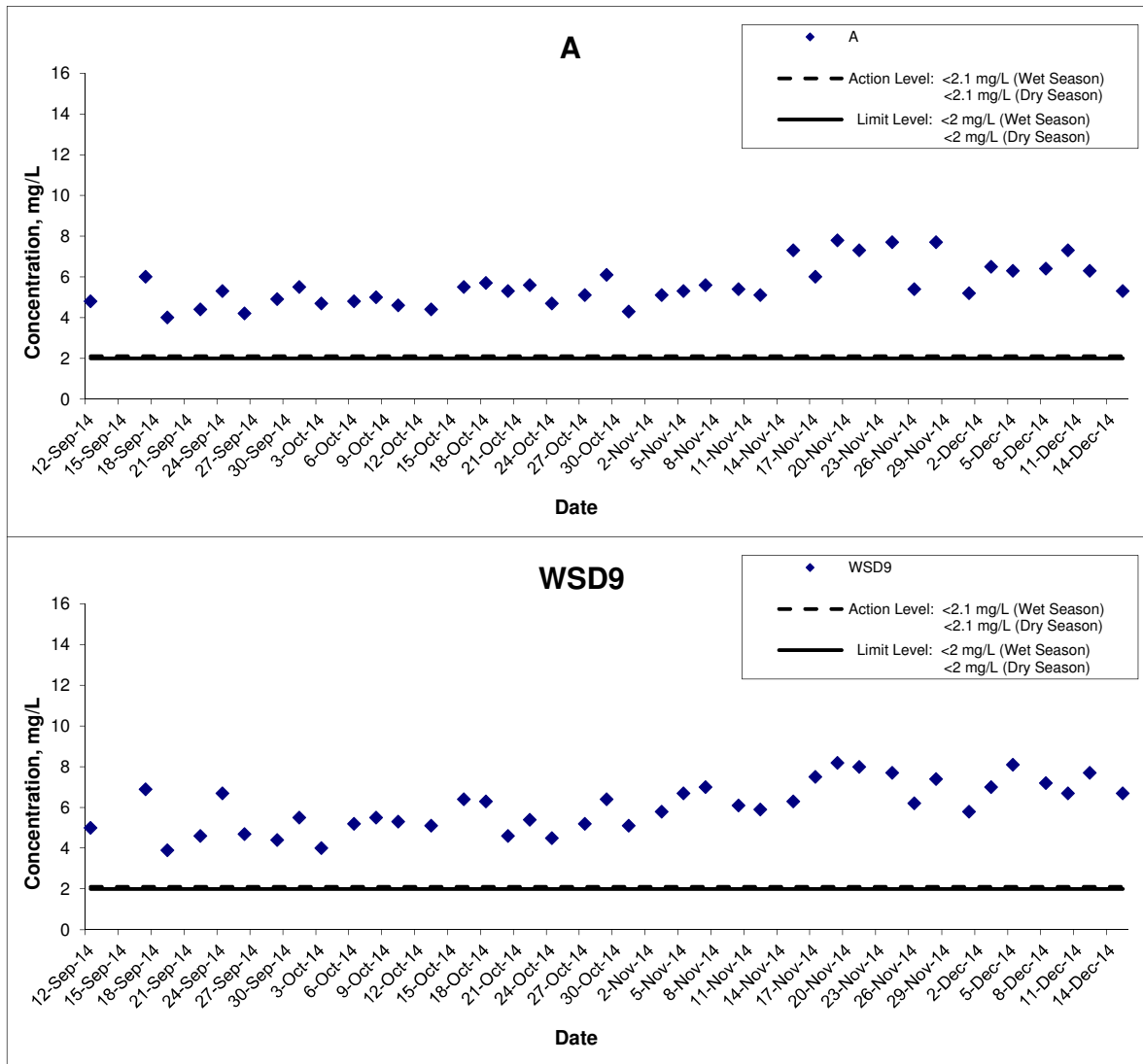
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Dissolved Oxygen (Surface) at Mid-Ebb Tide



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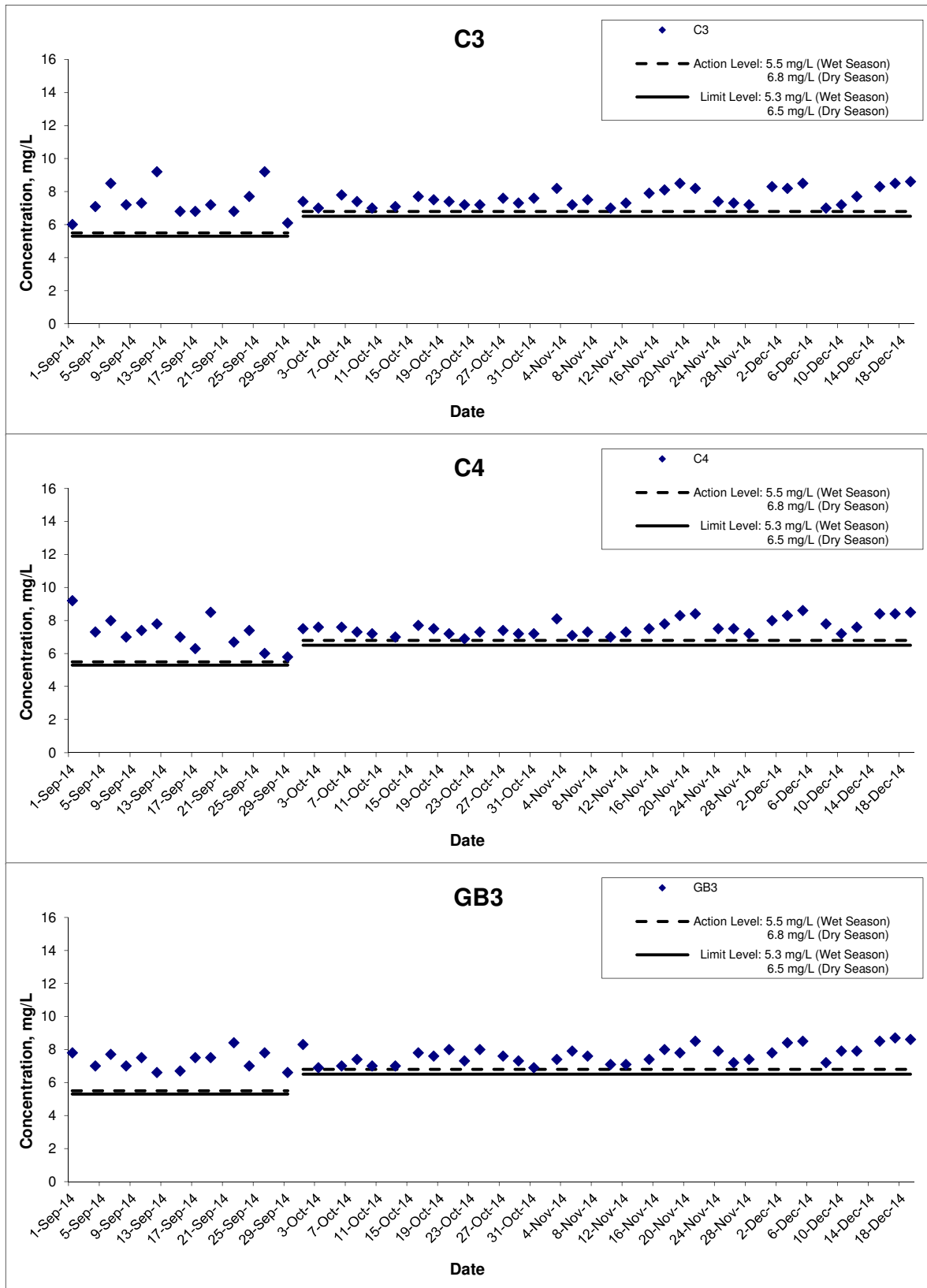
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Dissolved Oxygen (Surface) at Mid-Flood Tide



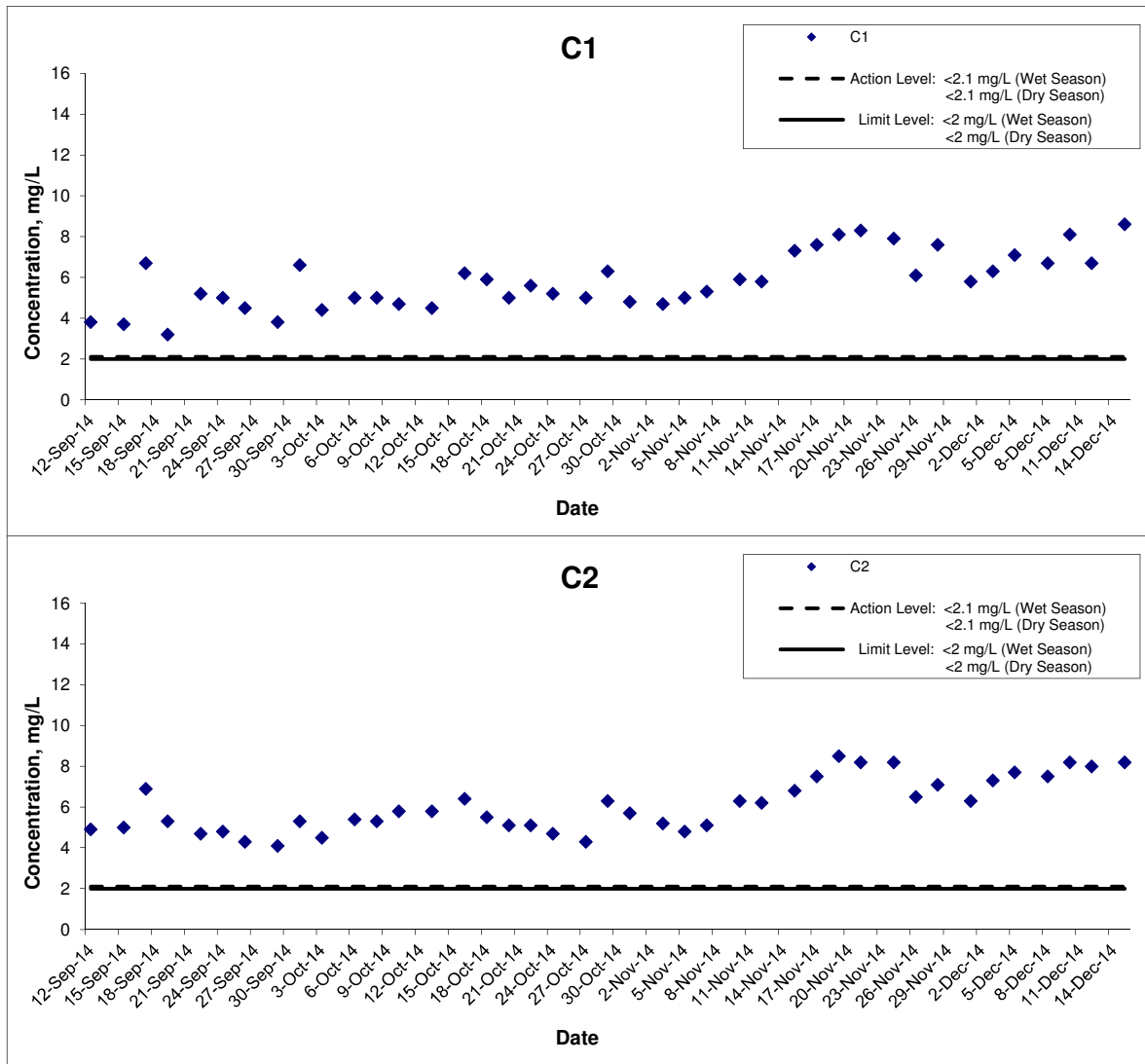
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Dissolved Oxygen (Surface) at Mid-Flood Tide



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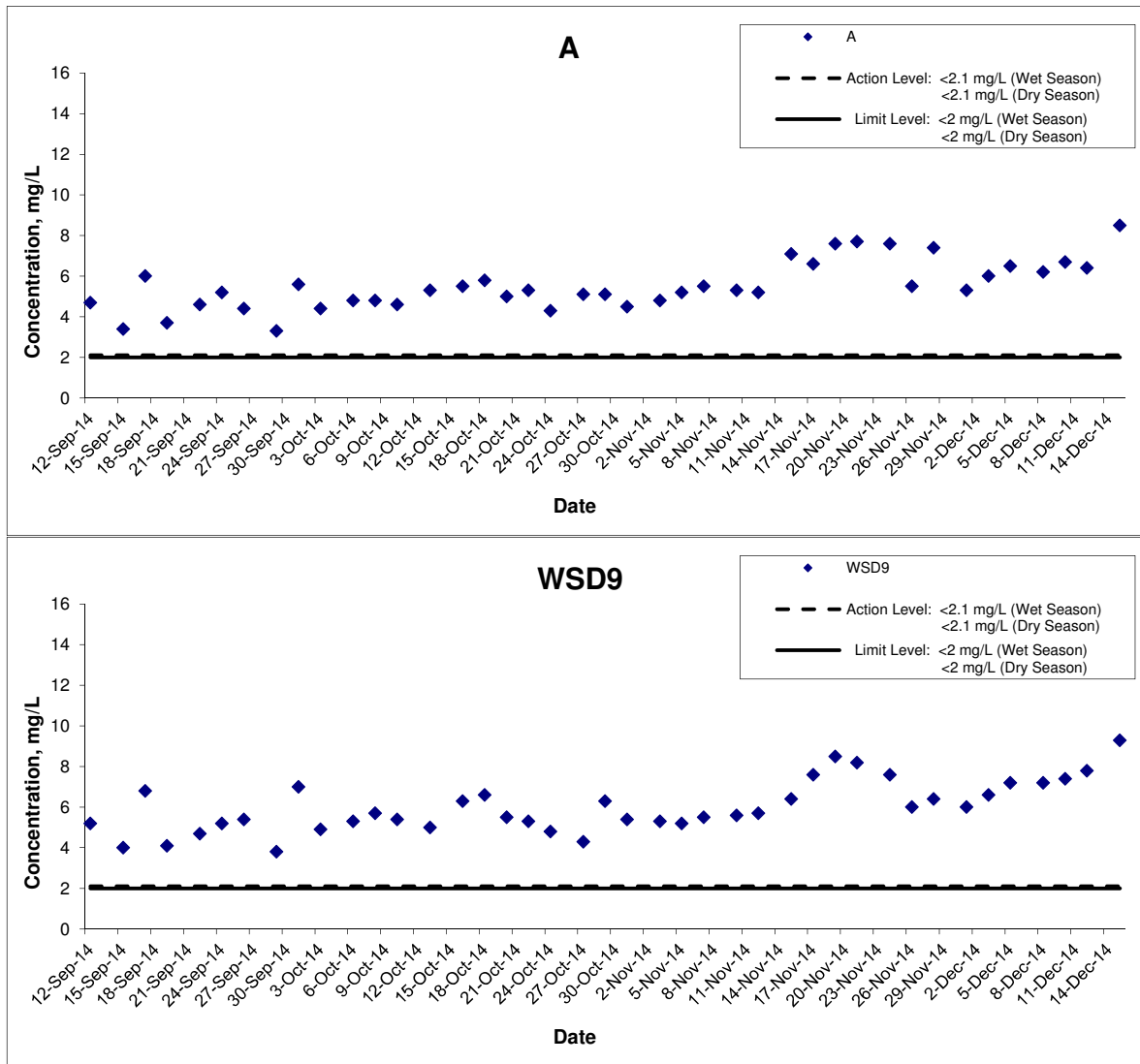
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Dissolved Oxygen (Surface) at Mid-Flood Tide



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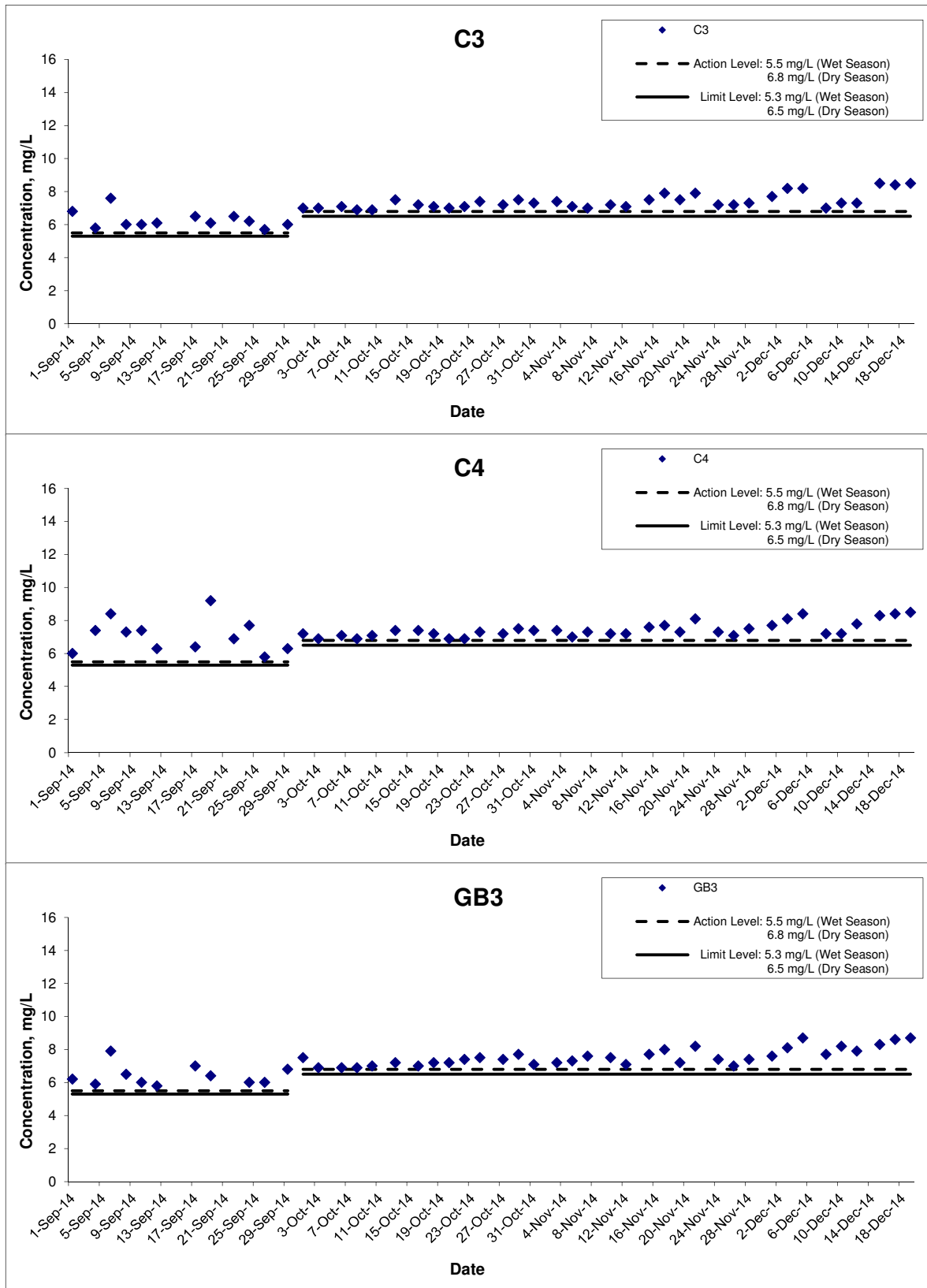
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Dissolved Oxygen (Middle) at Mid-Ebb Tide



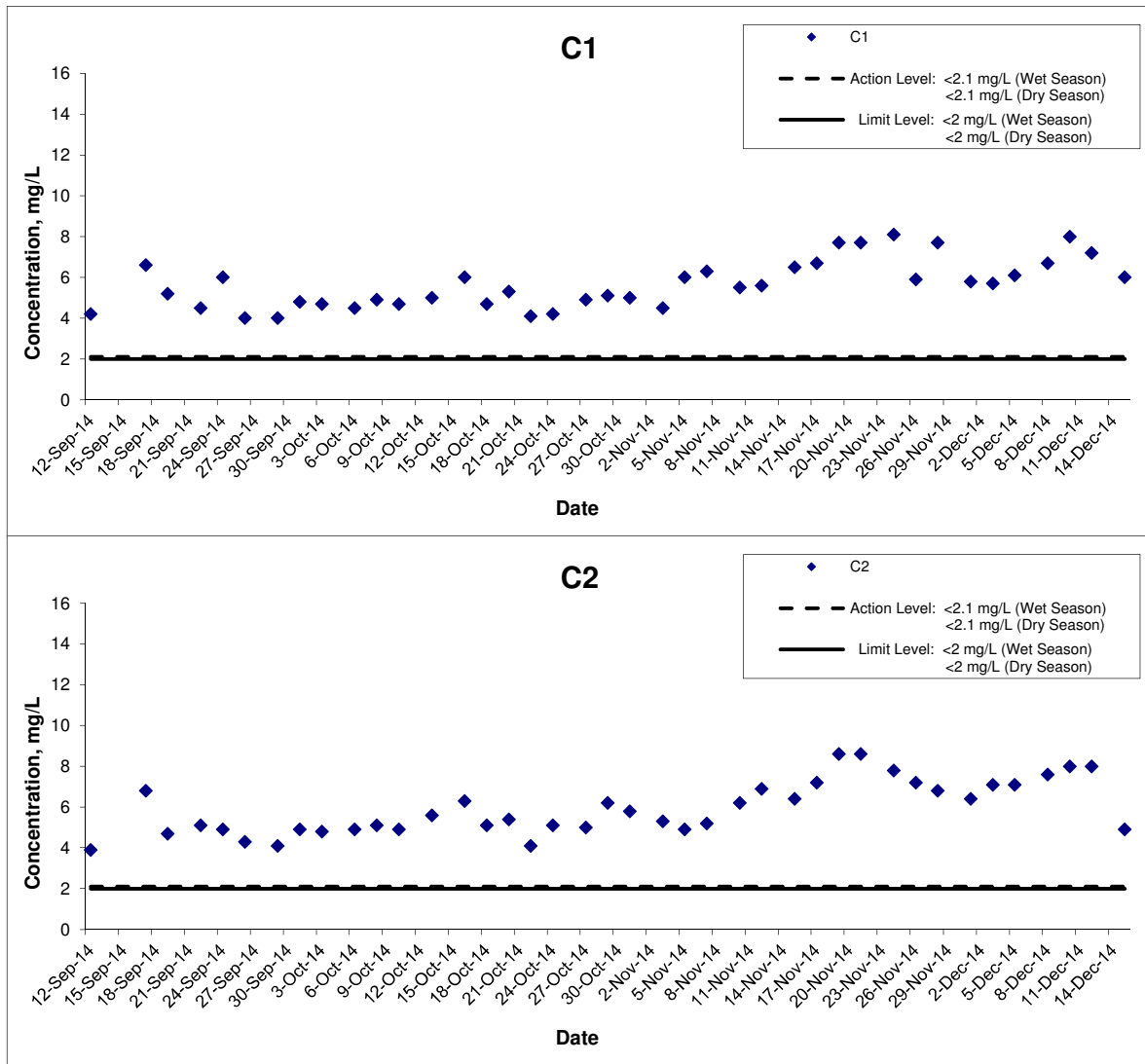
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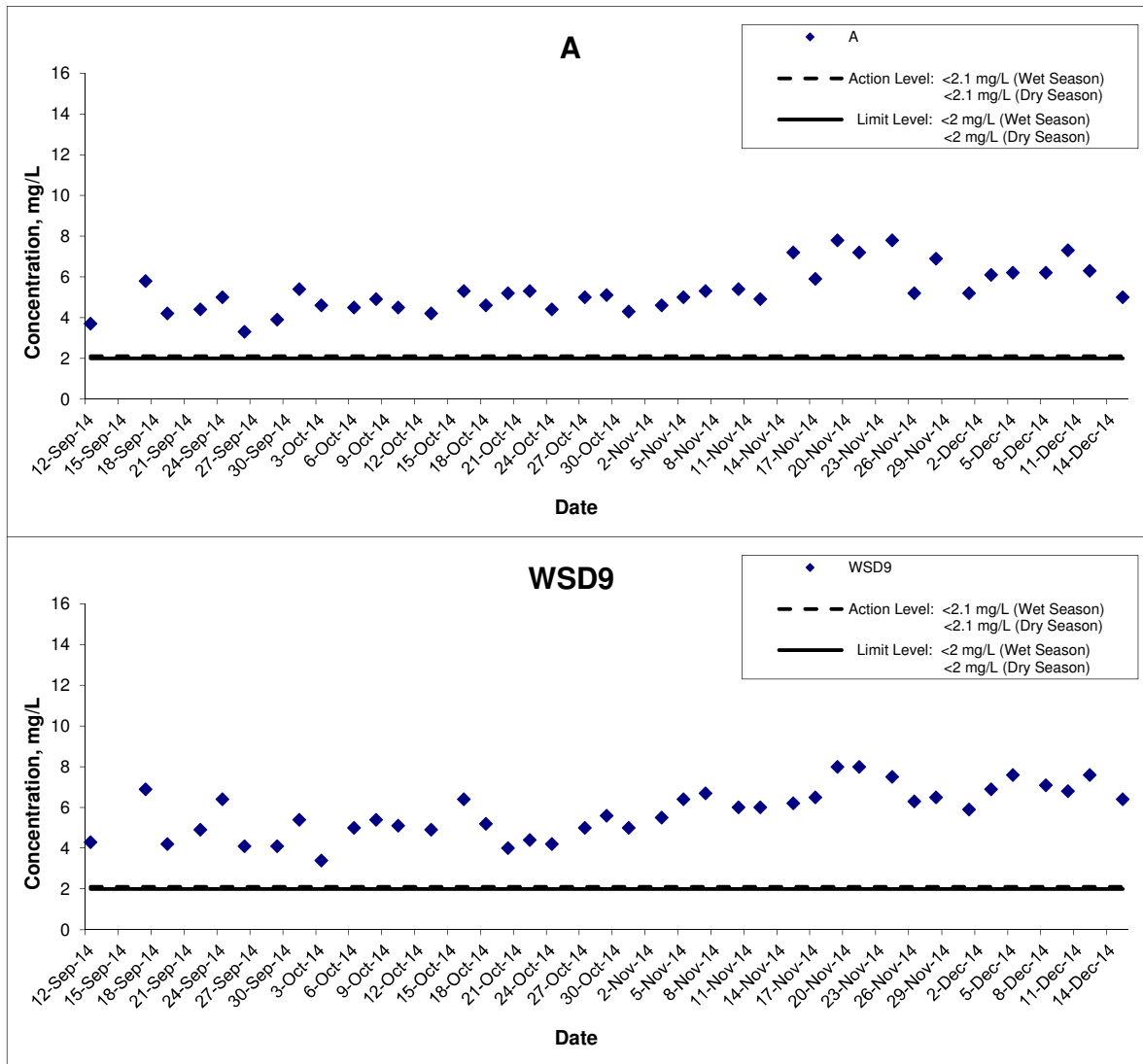
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Dissolved Oxygen (Middle) at Mid-Ebb Tide



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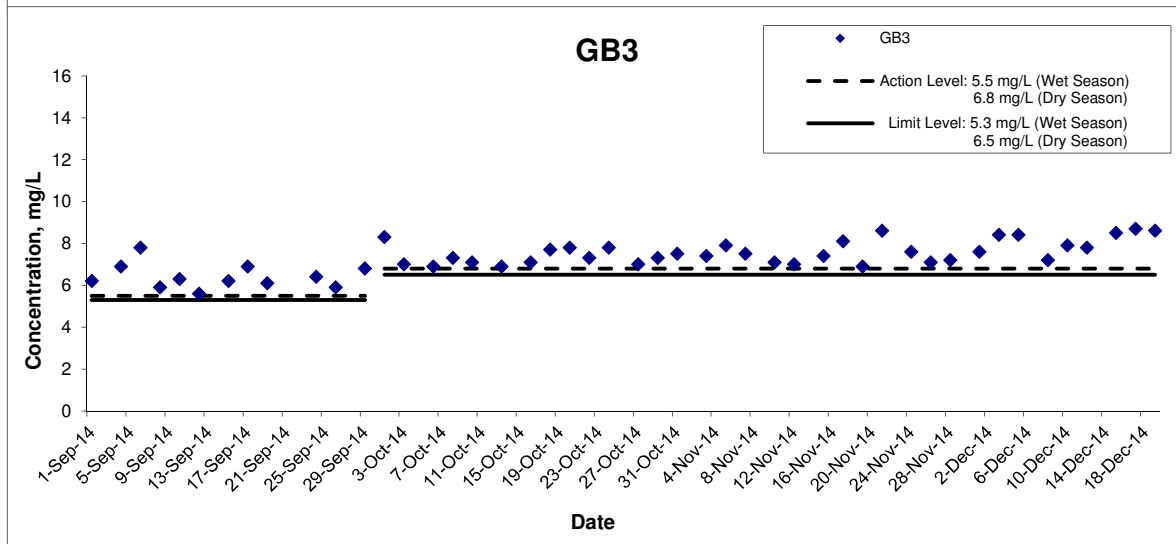
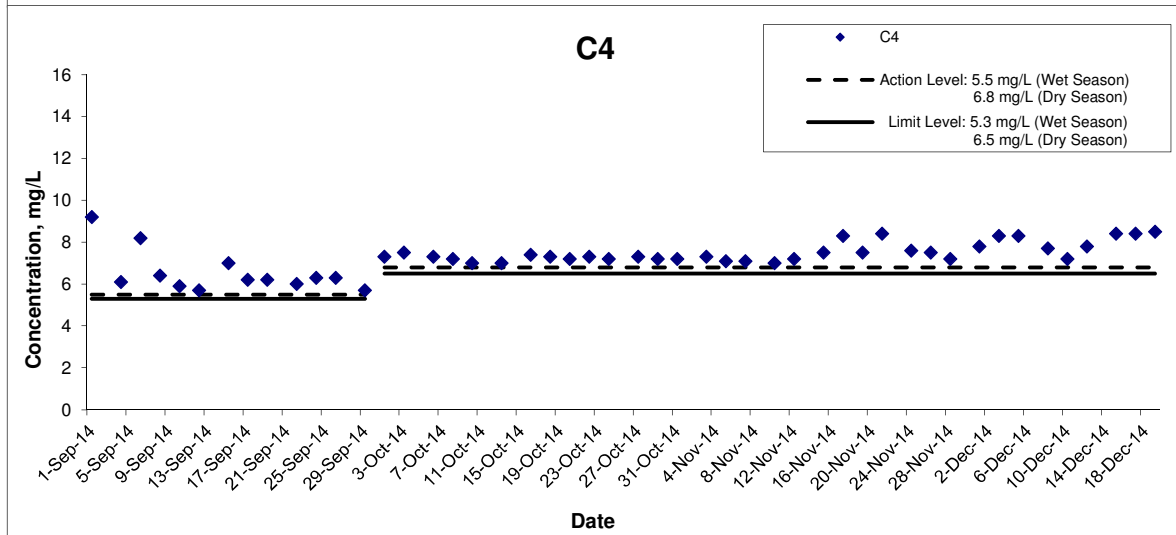
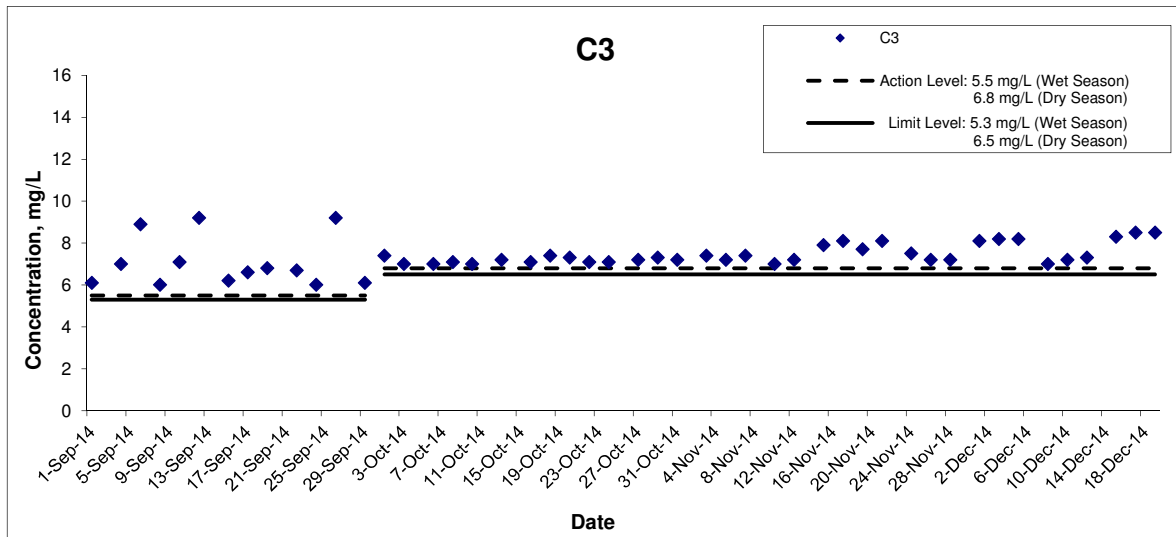
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Dissolved Oxygen (Middle) at Mid-Flood Tide



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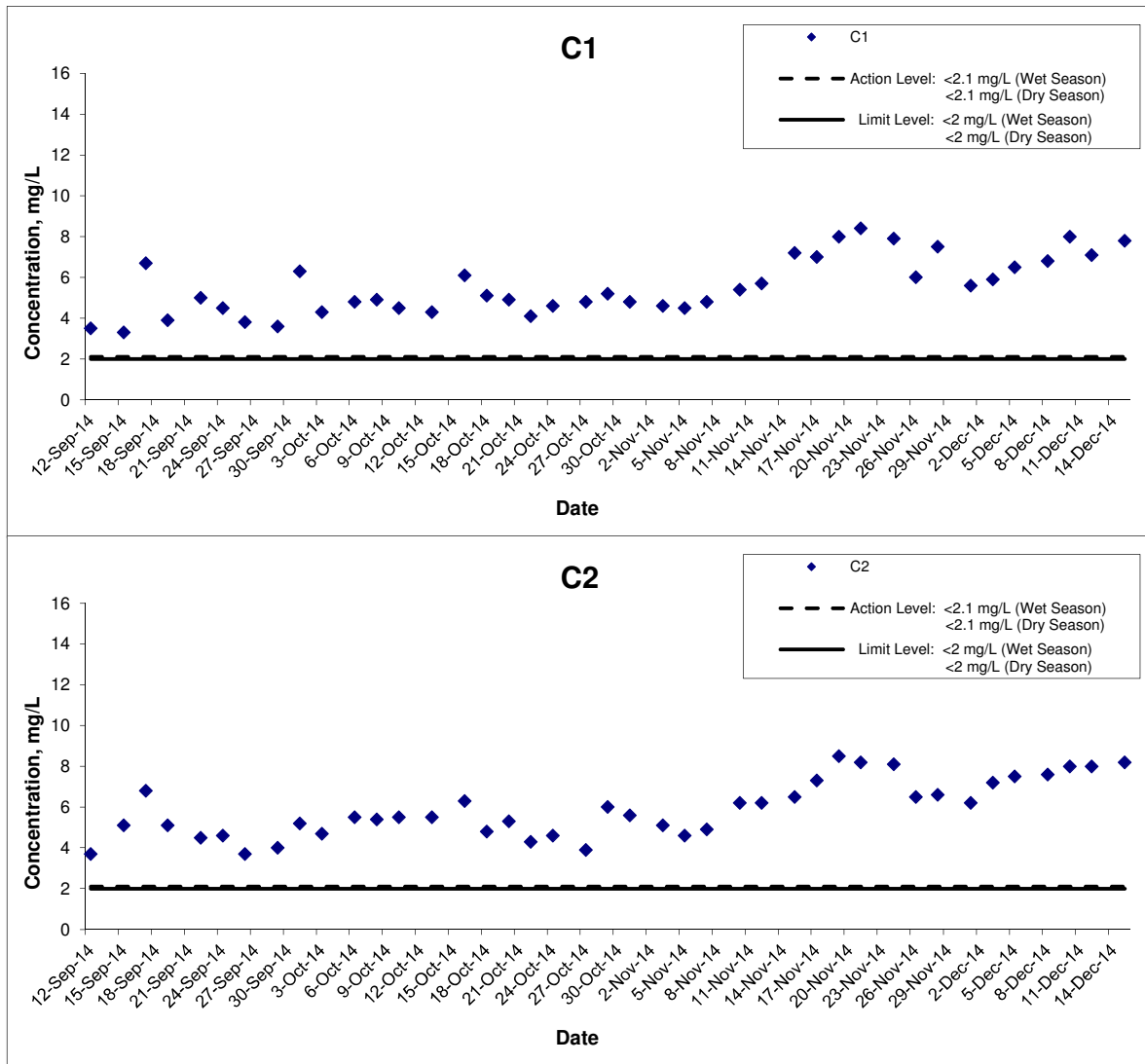
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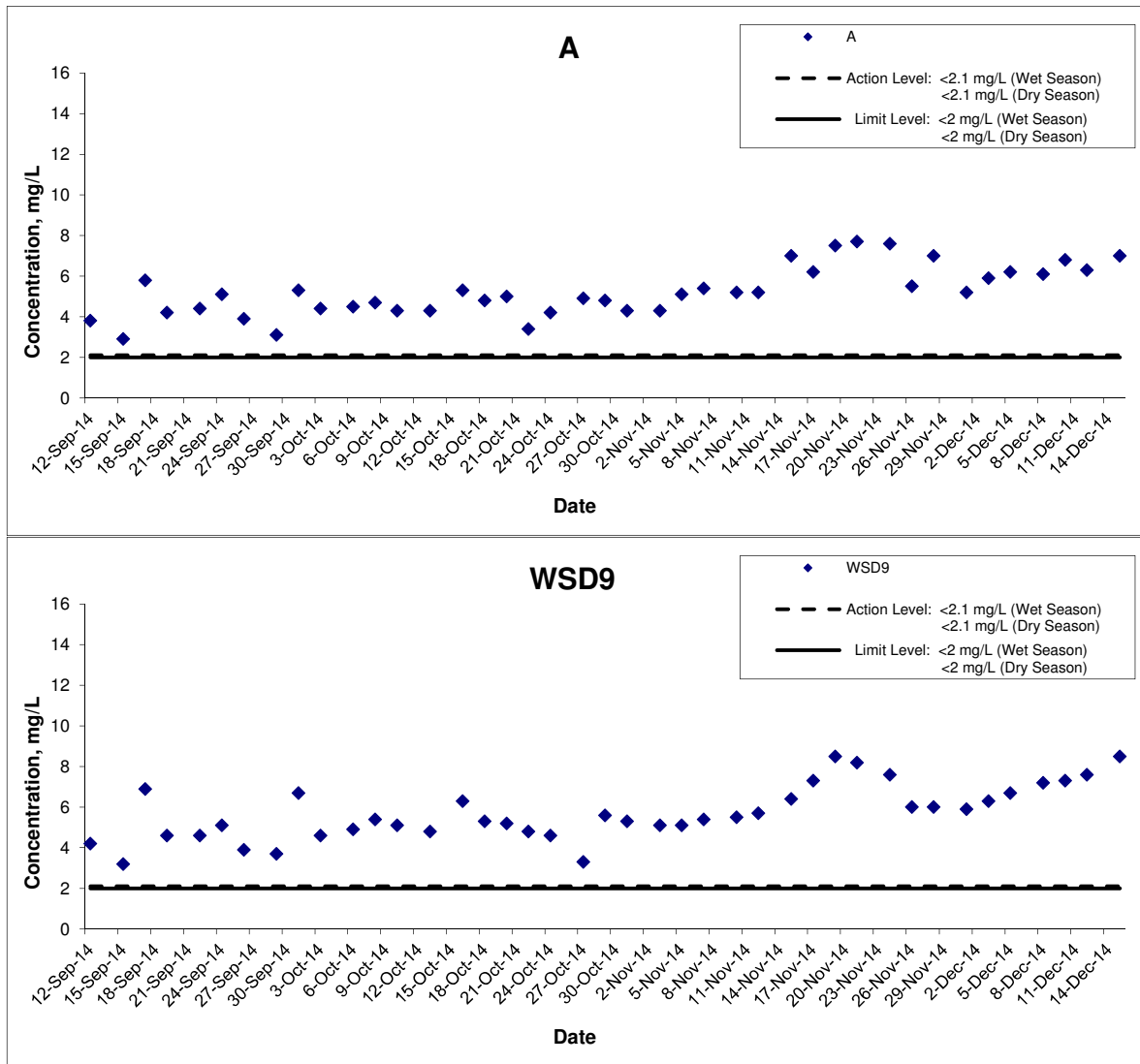


Dissolved Oxygen (Middle) at Mid-Flood Tide



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Dissolved Oxygen (Middle) at Mid-Flood Tide



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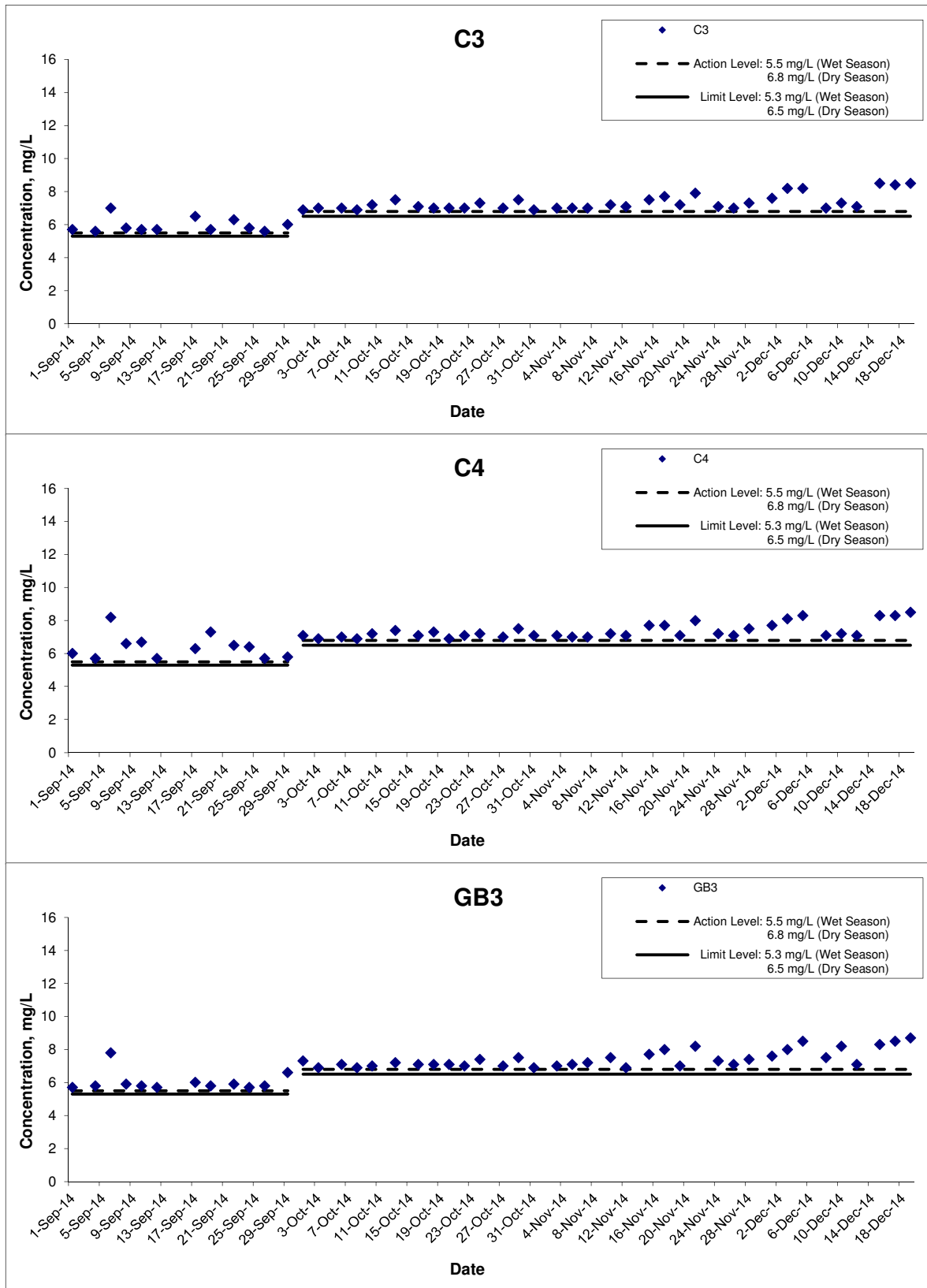
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



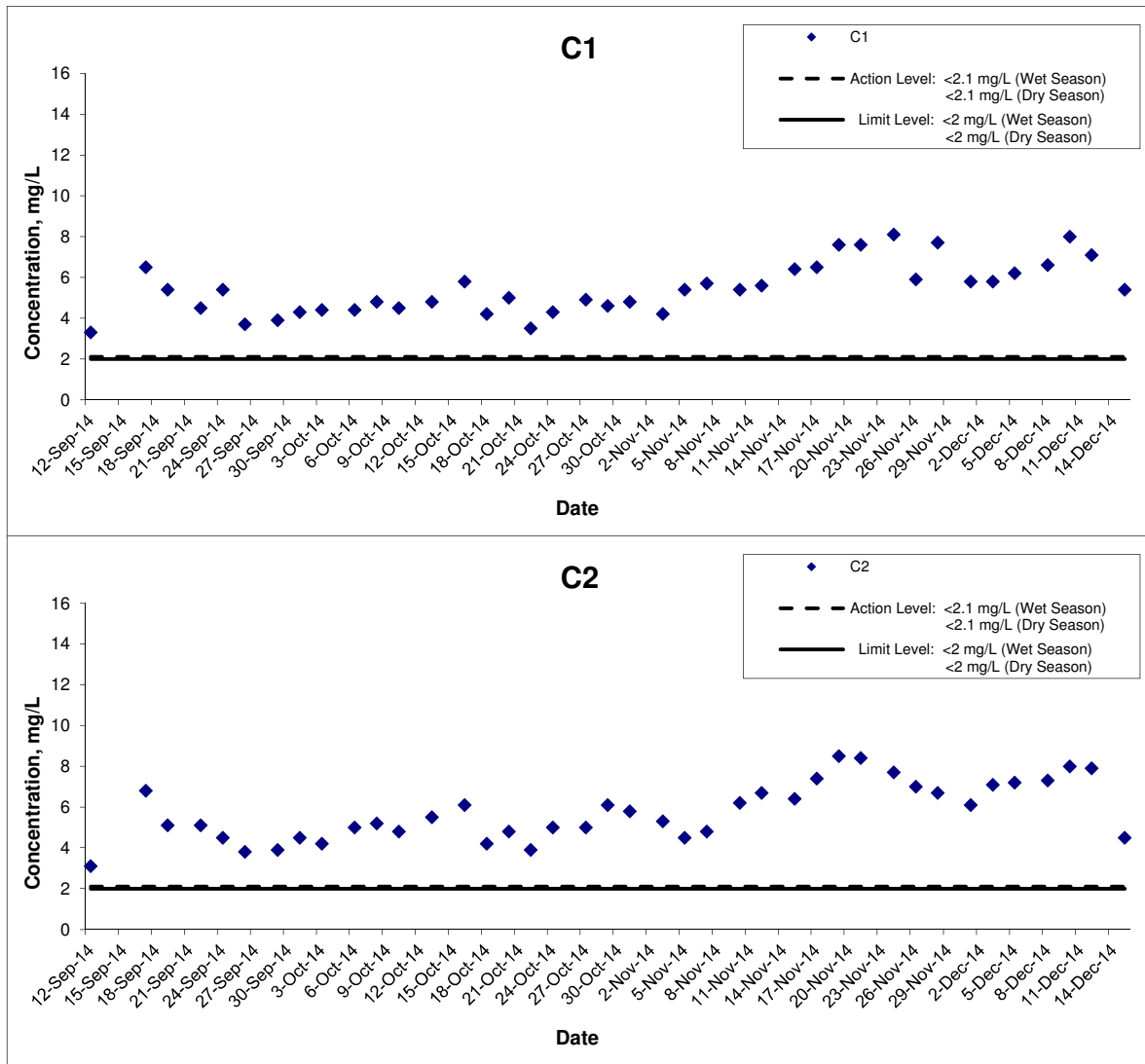
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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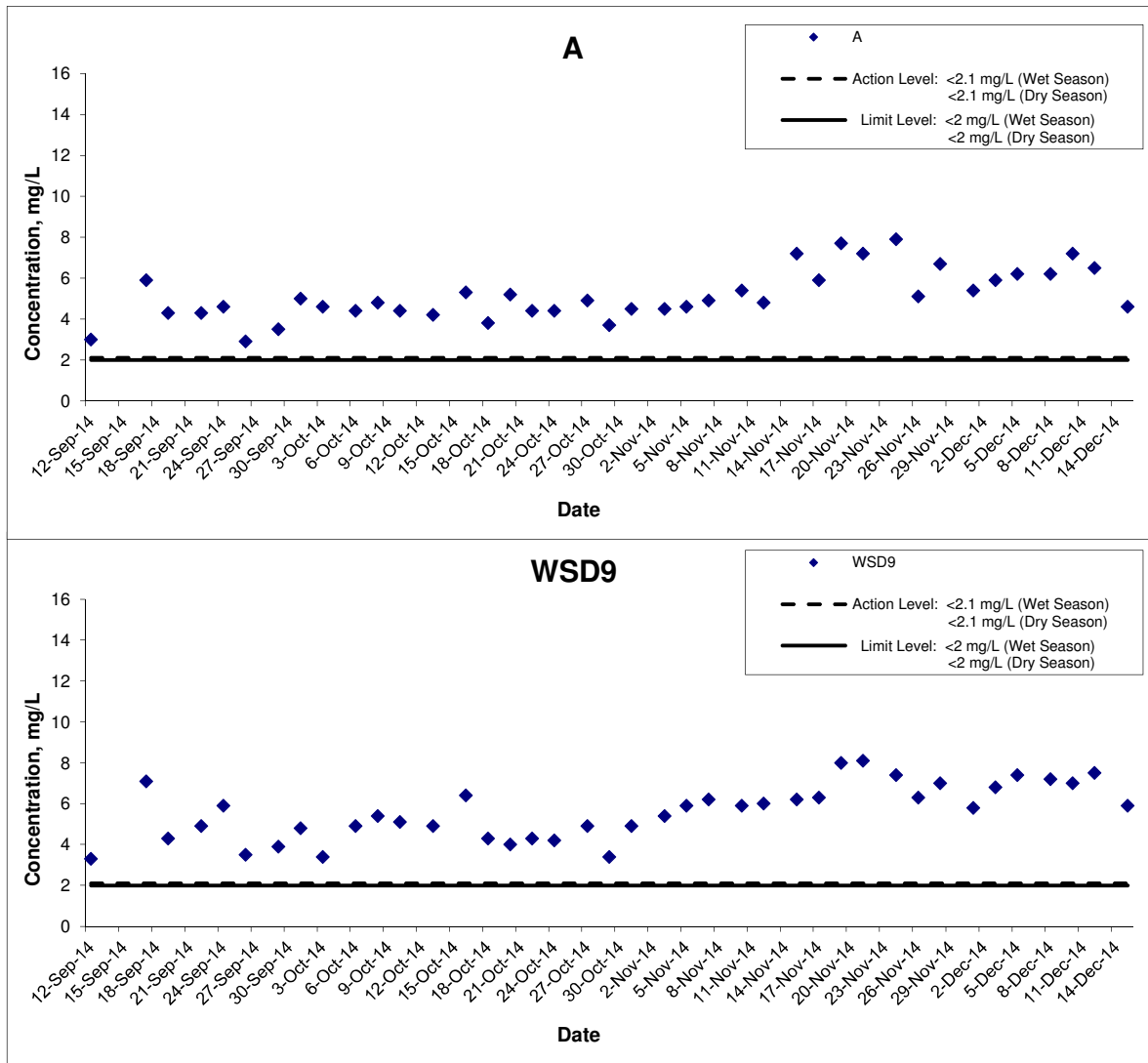
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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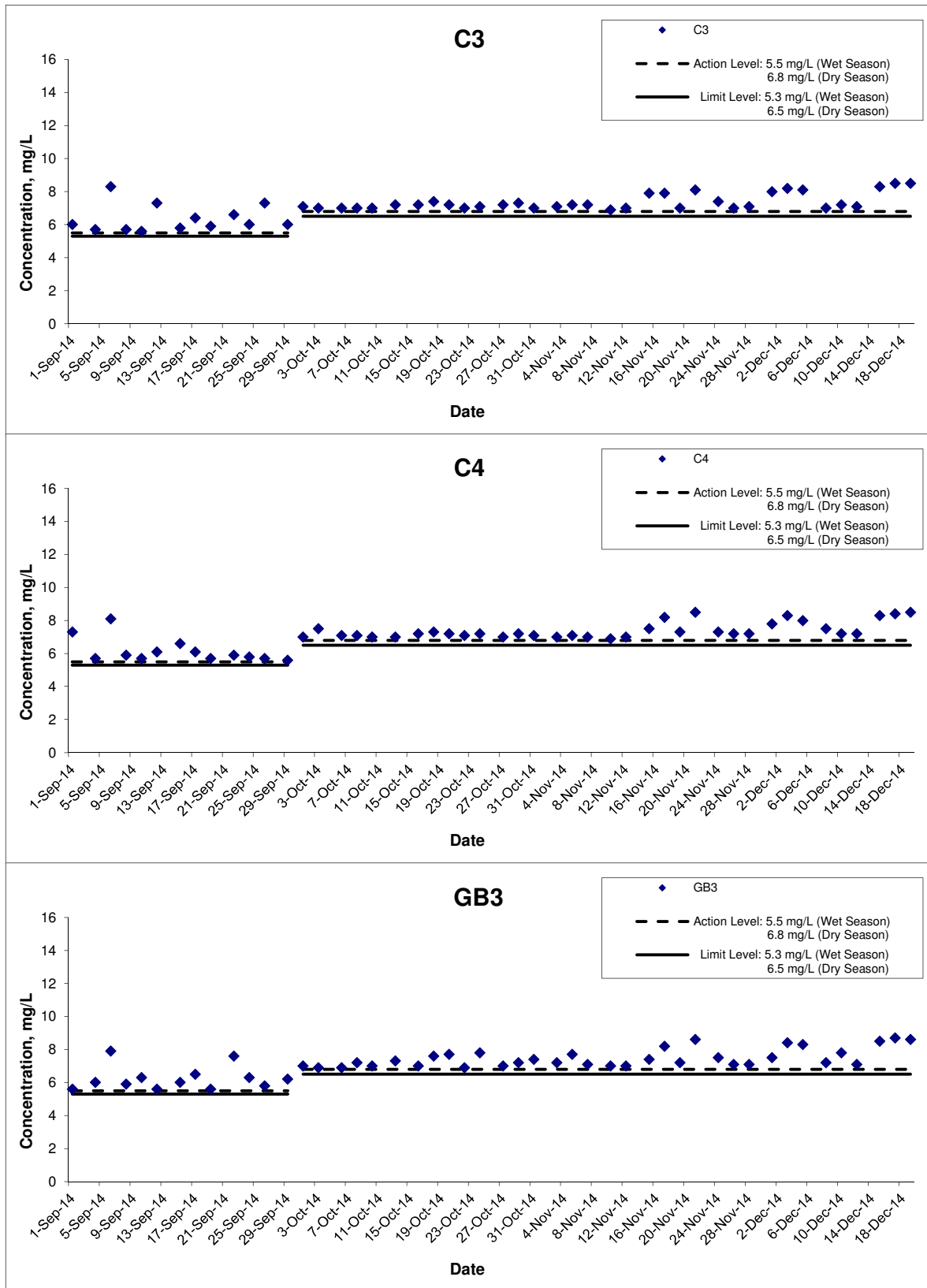
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



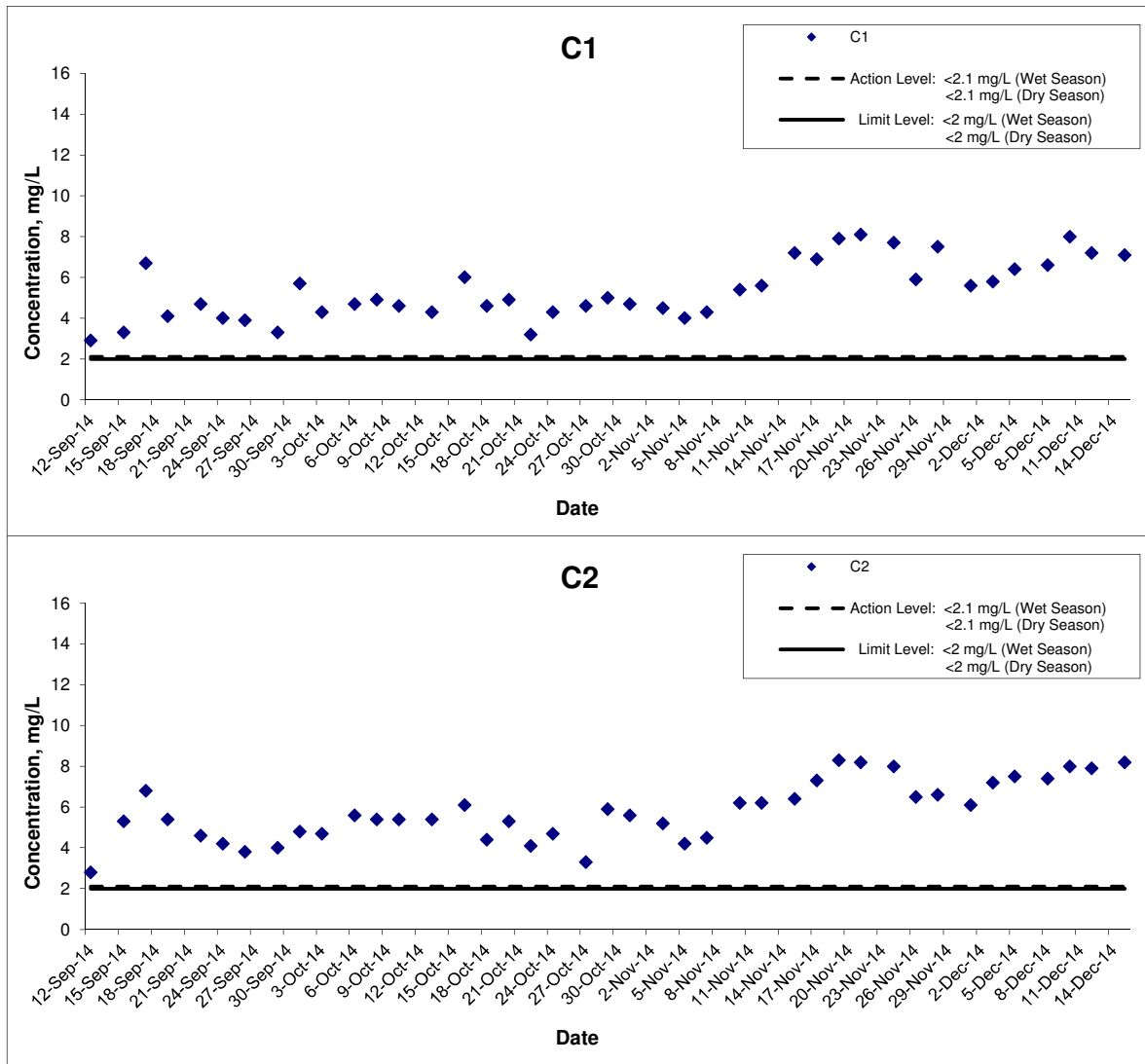
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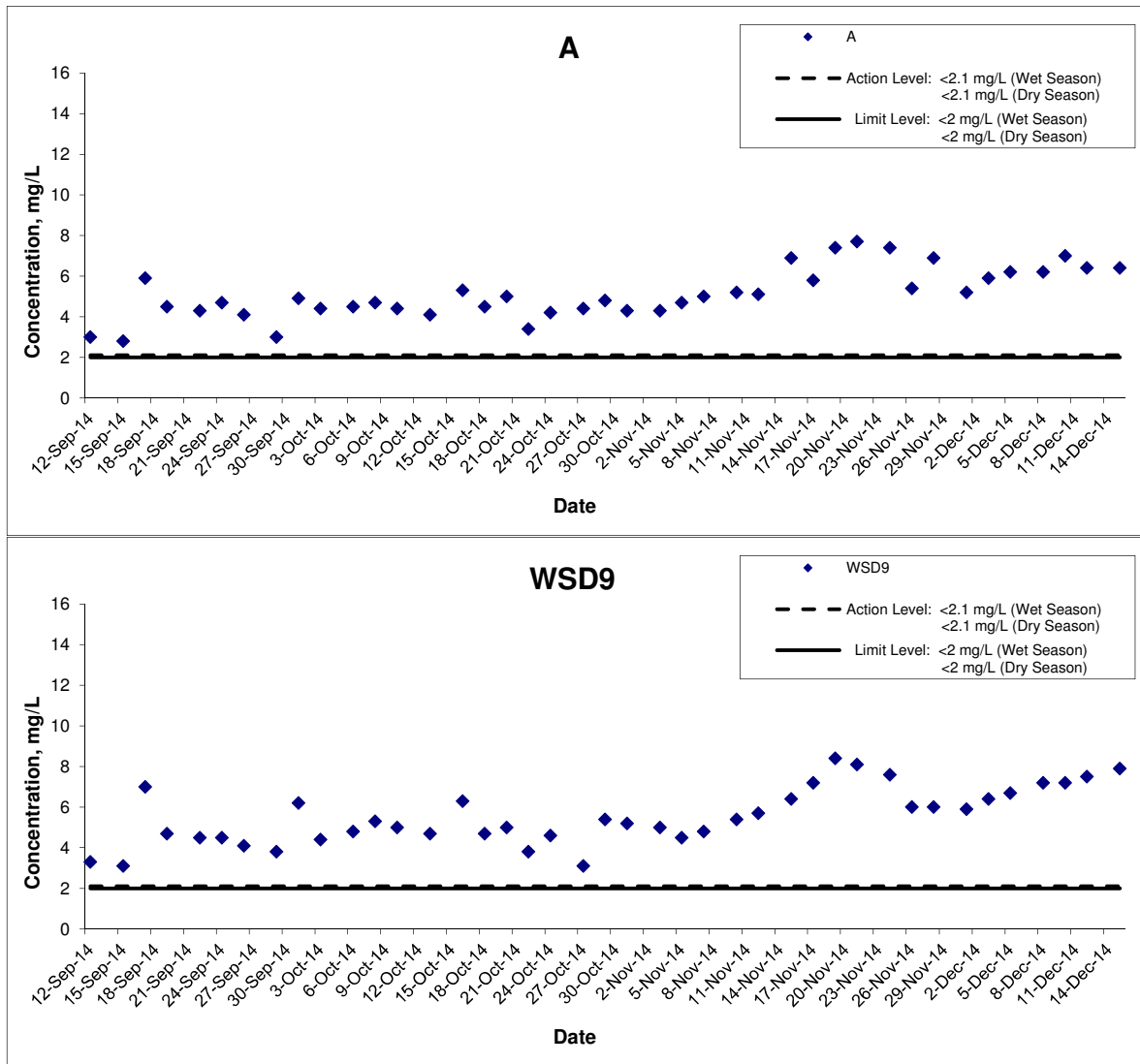
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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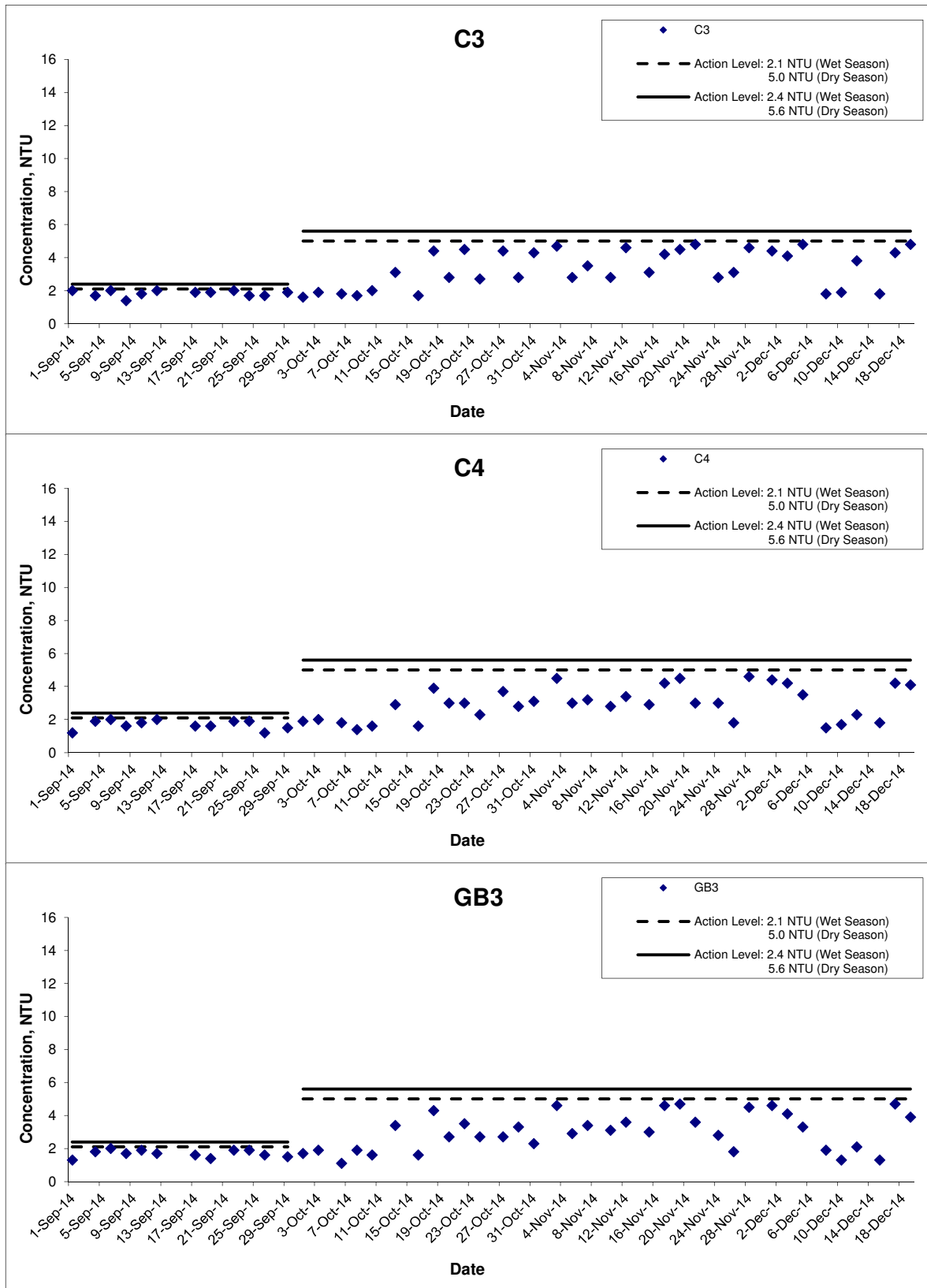
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Turbidity (Depth-averaged) at Mid-Ebb Tide



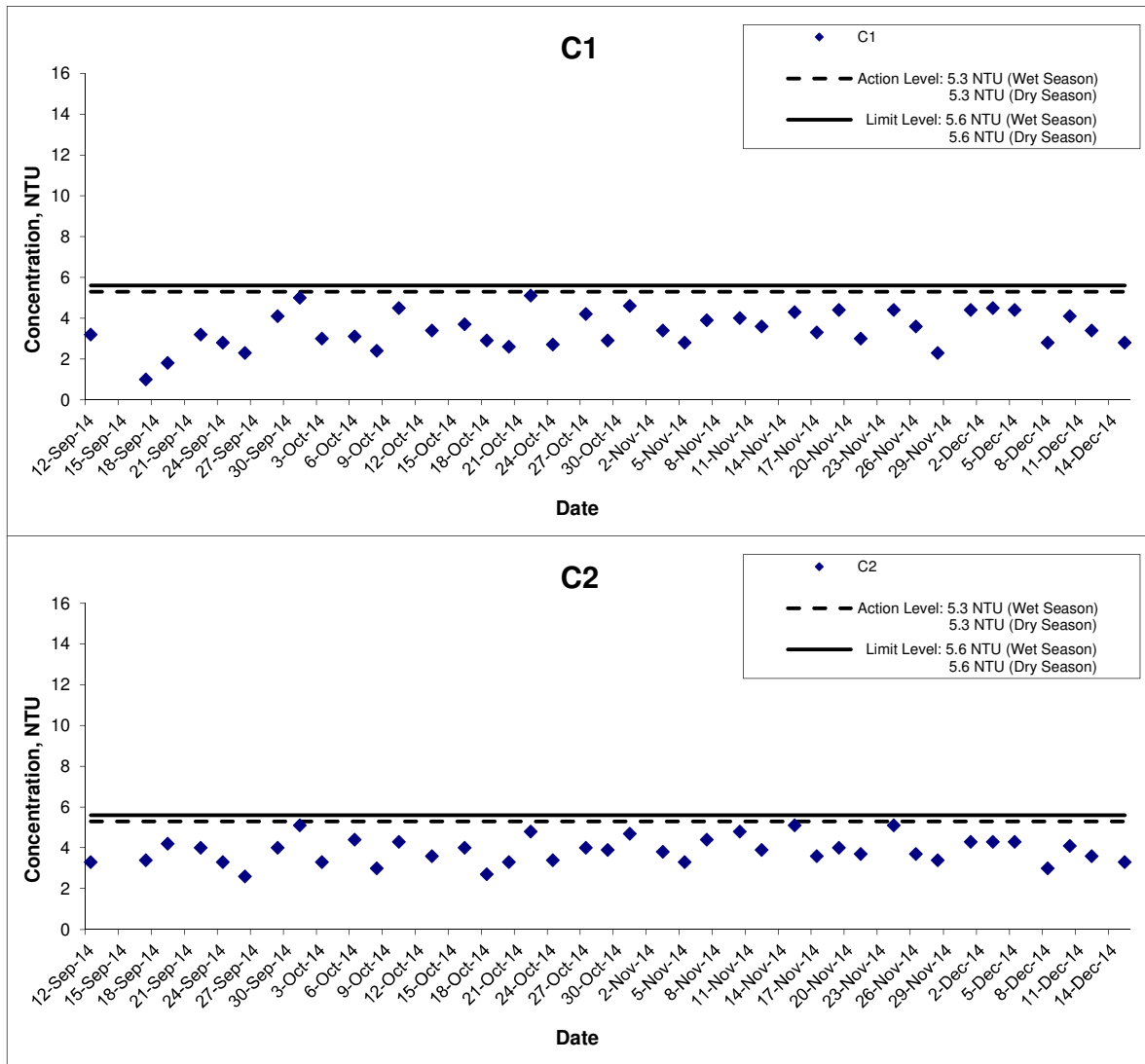
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Turbidity (Depth-averaged) at Mid-Ebb Tide



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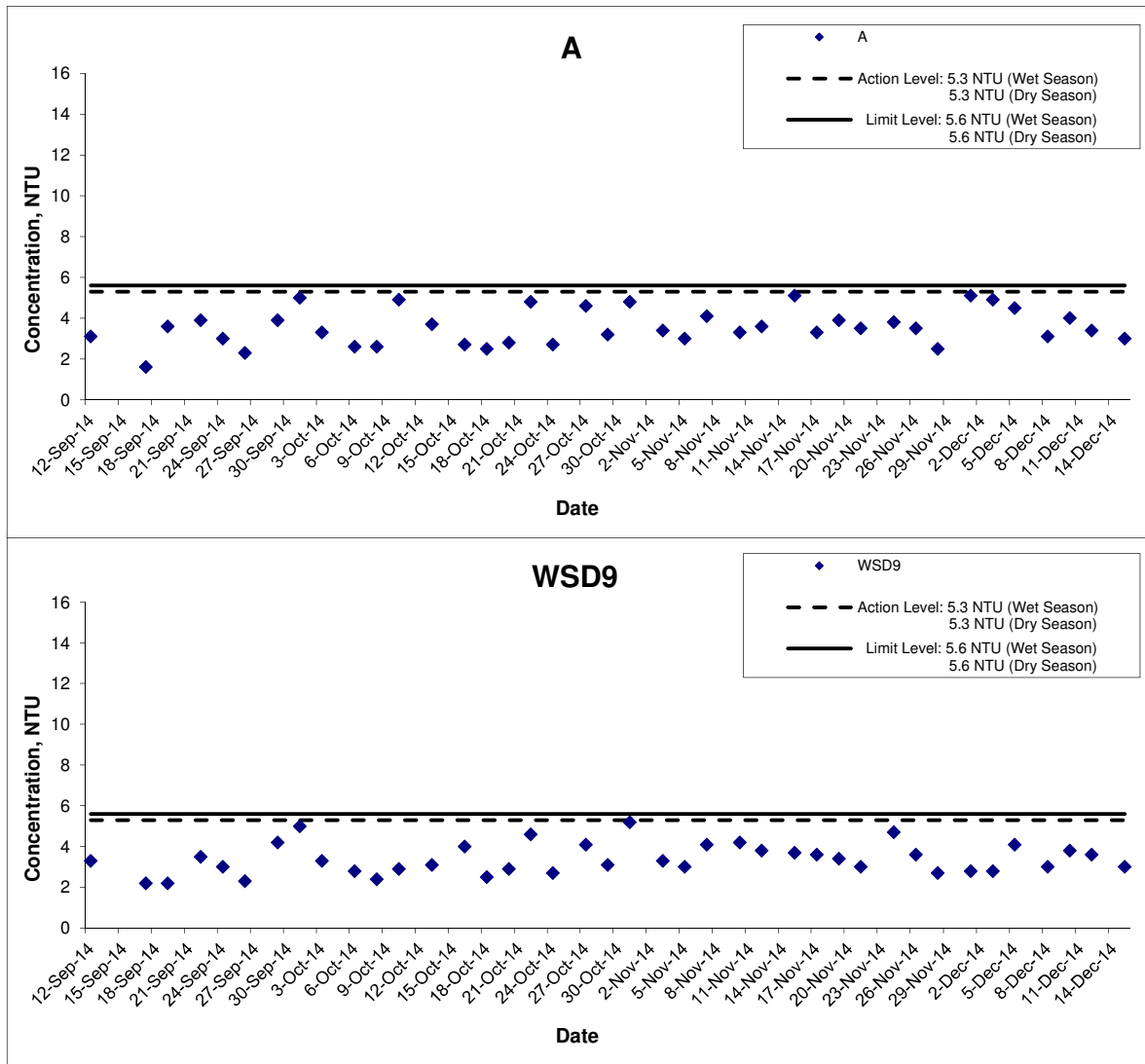
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Turbidity (Depth-averaged) at Mid-Ebb Tide



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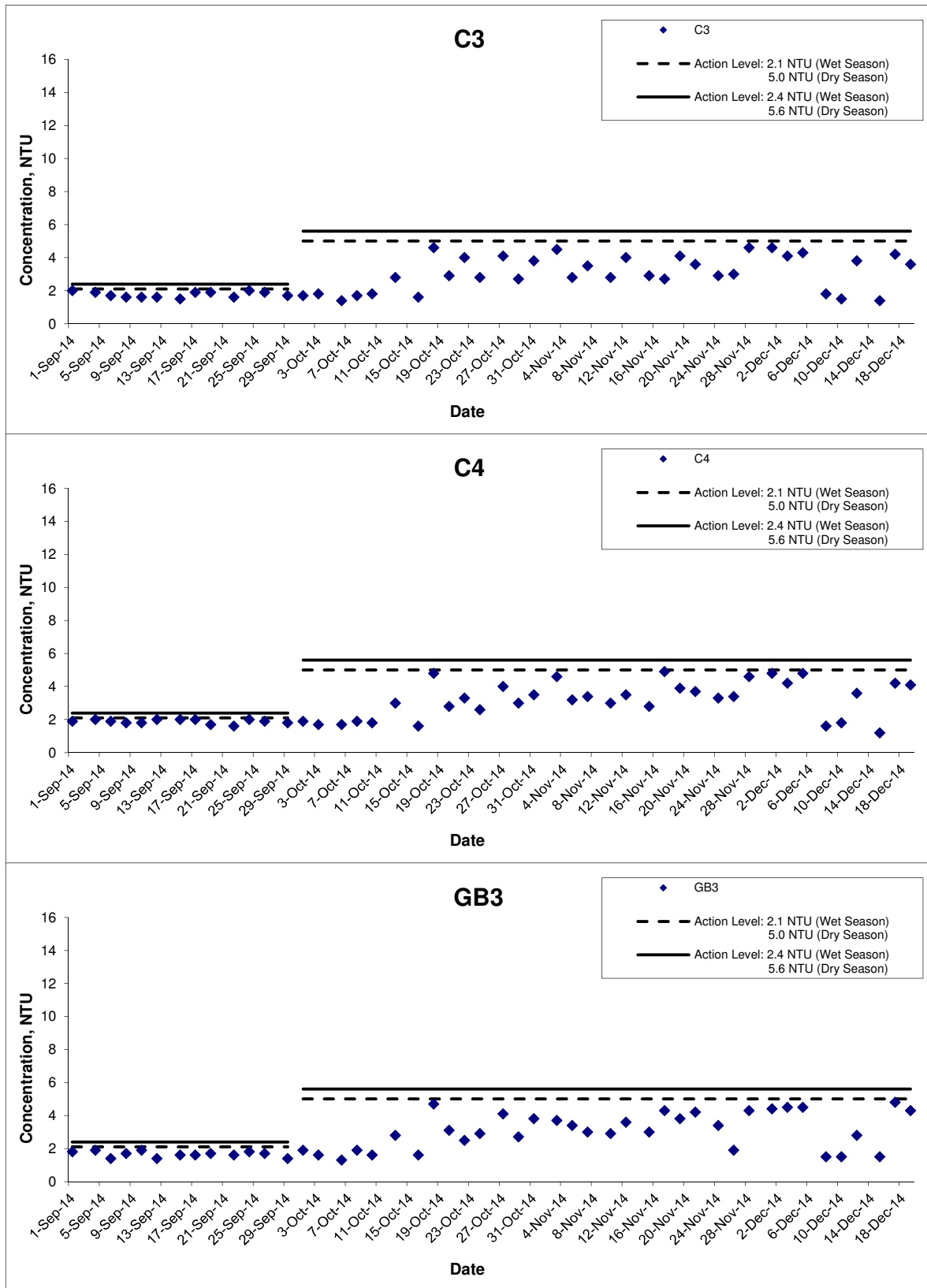
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Turbidity (Depth-averaged) at Mid-Flood Tide



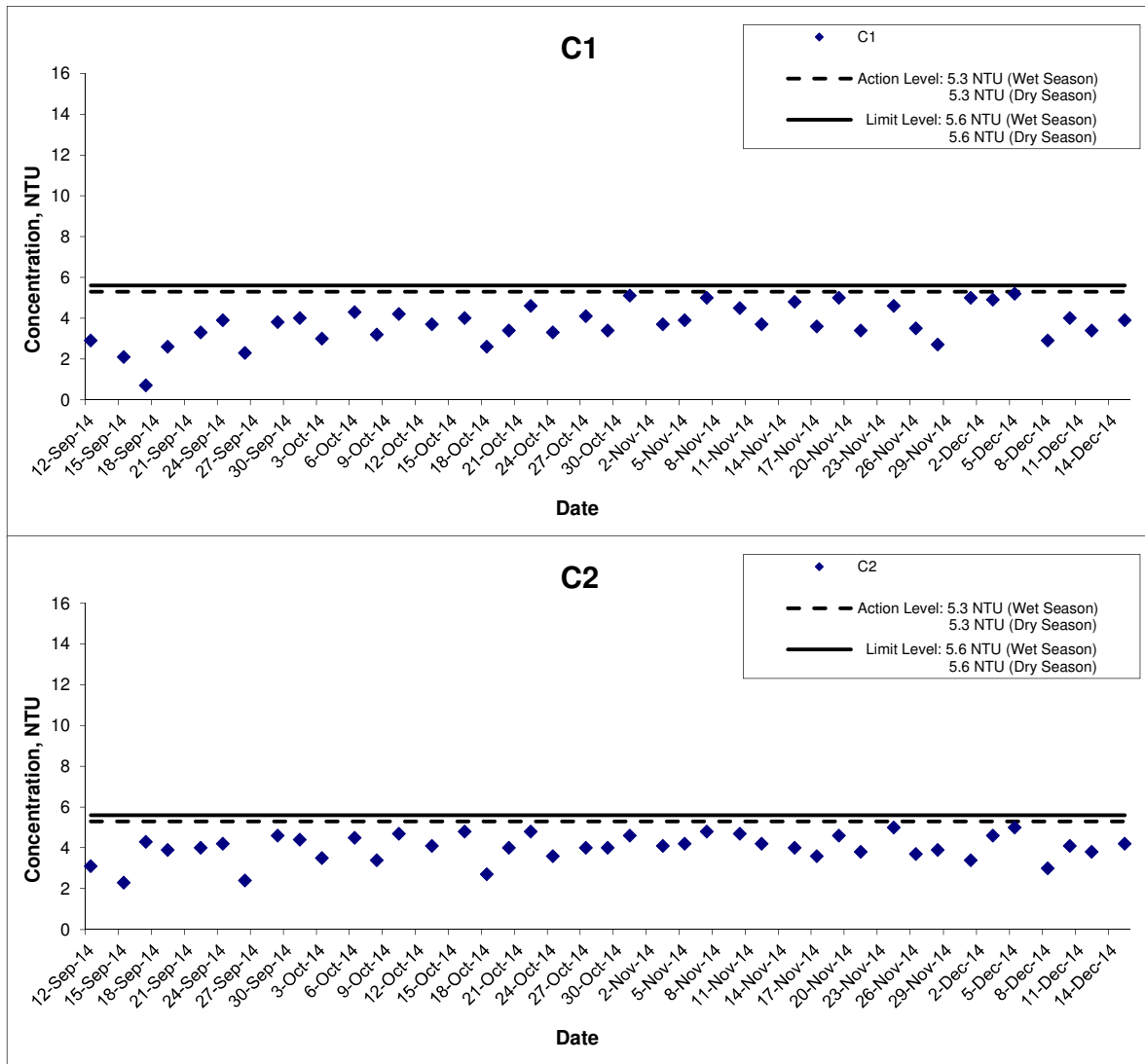
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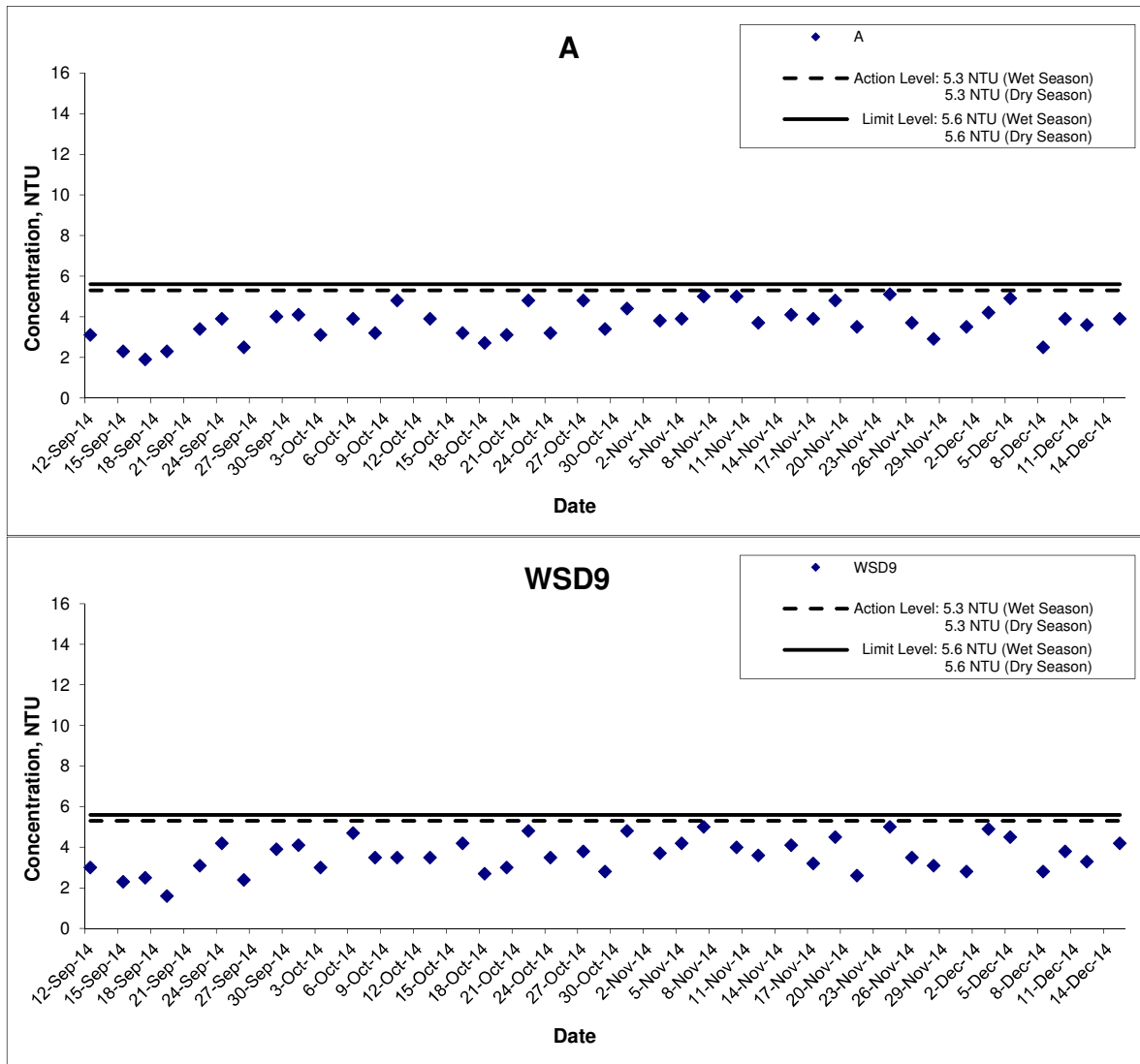
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Turbidity (Depth-averaged) at Mid-Flood Tide



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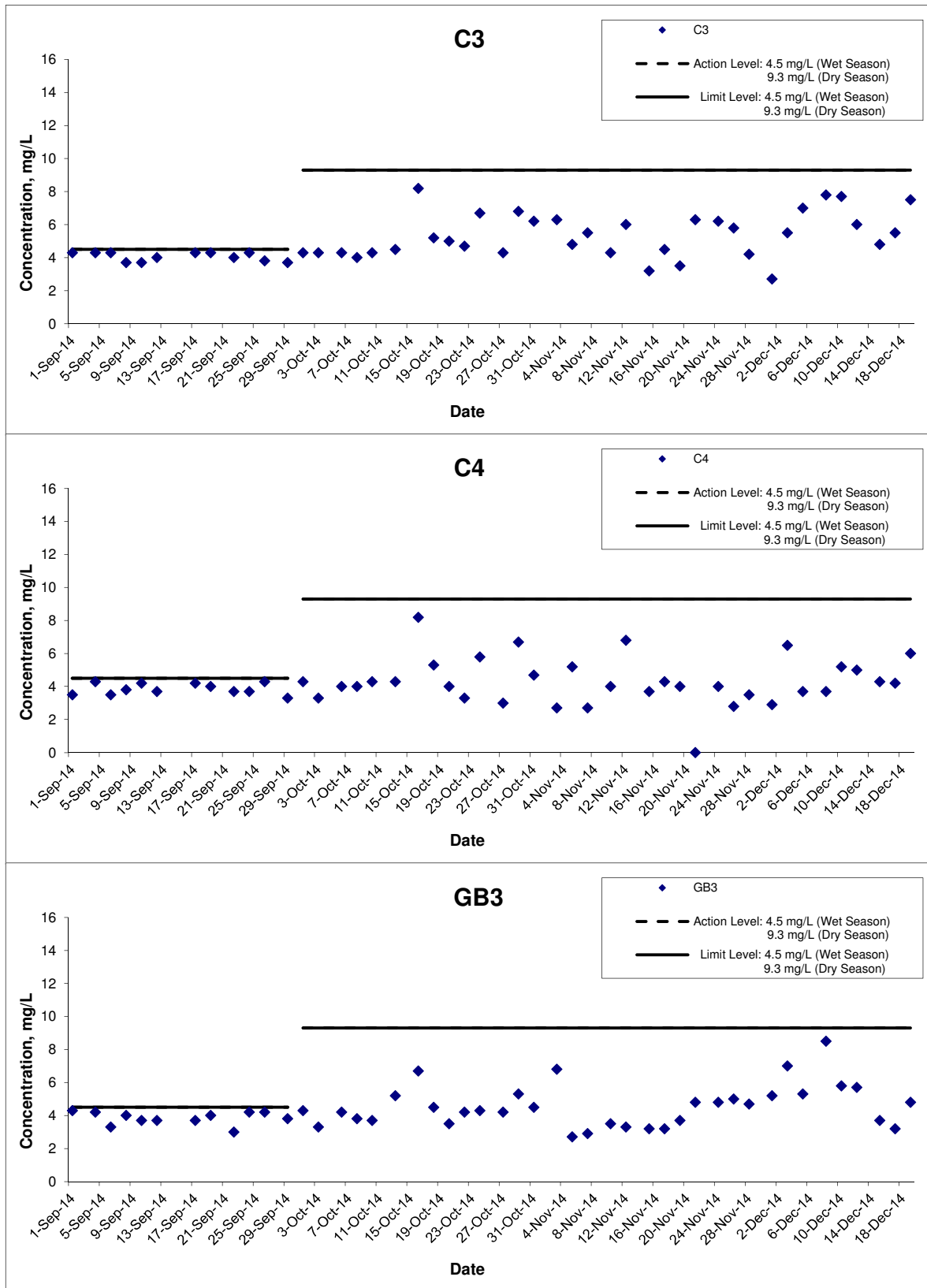
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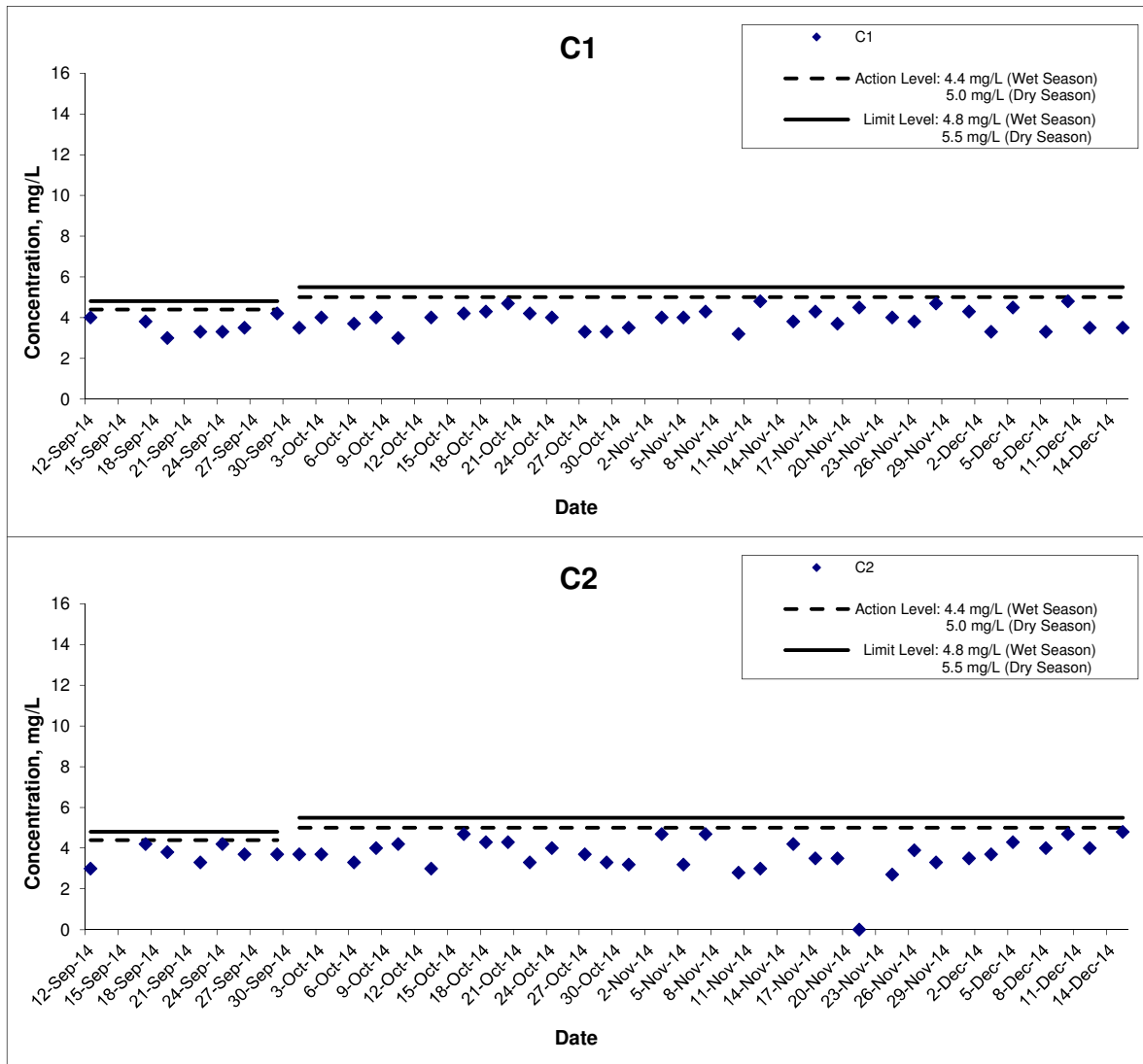
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title Shatin to Central Link – Contract 11227 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results (Shek O)	Scale	N.T.S	Project No. MA14028	CINOTECH
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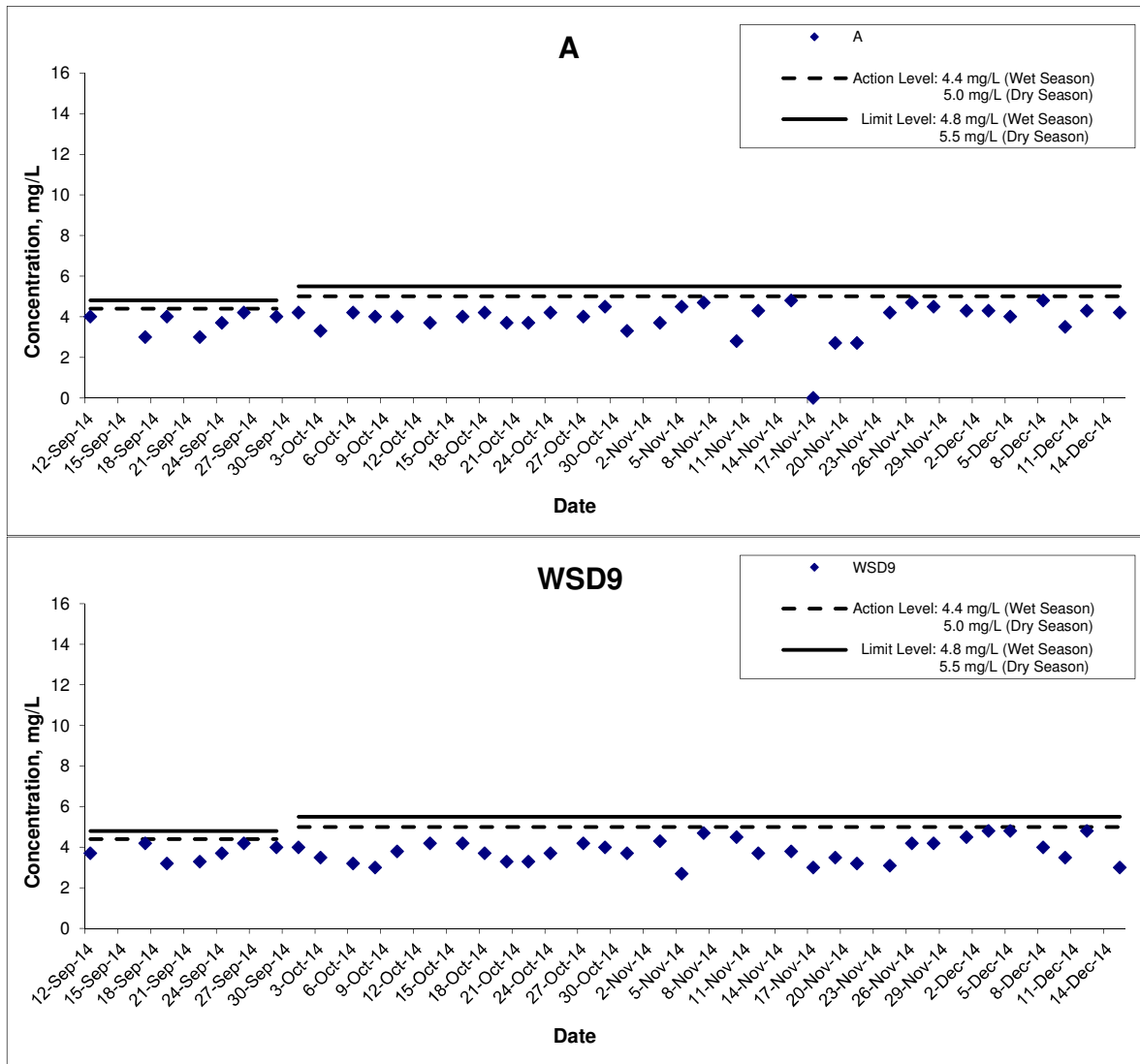
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title Shatin to Central Link – Contract 11227 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results (Victoria Harbour)	Scale N.T.S	Project No. MA14028	
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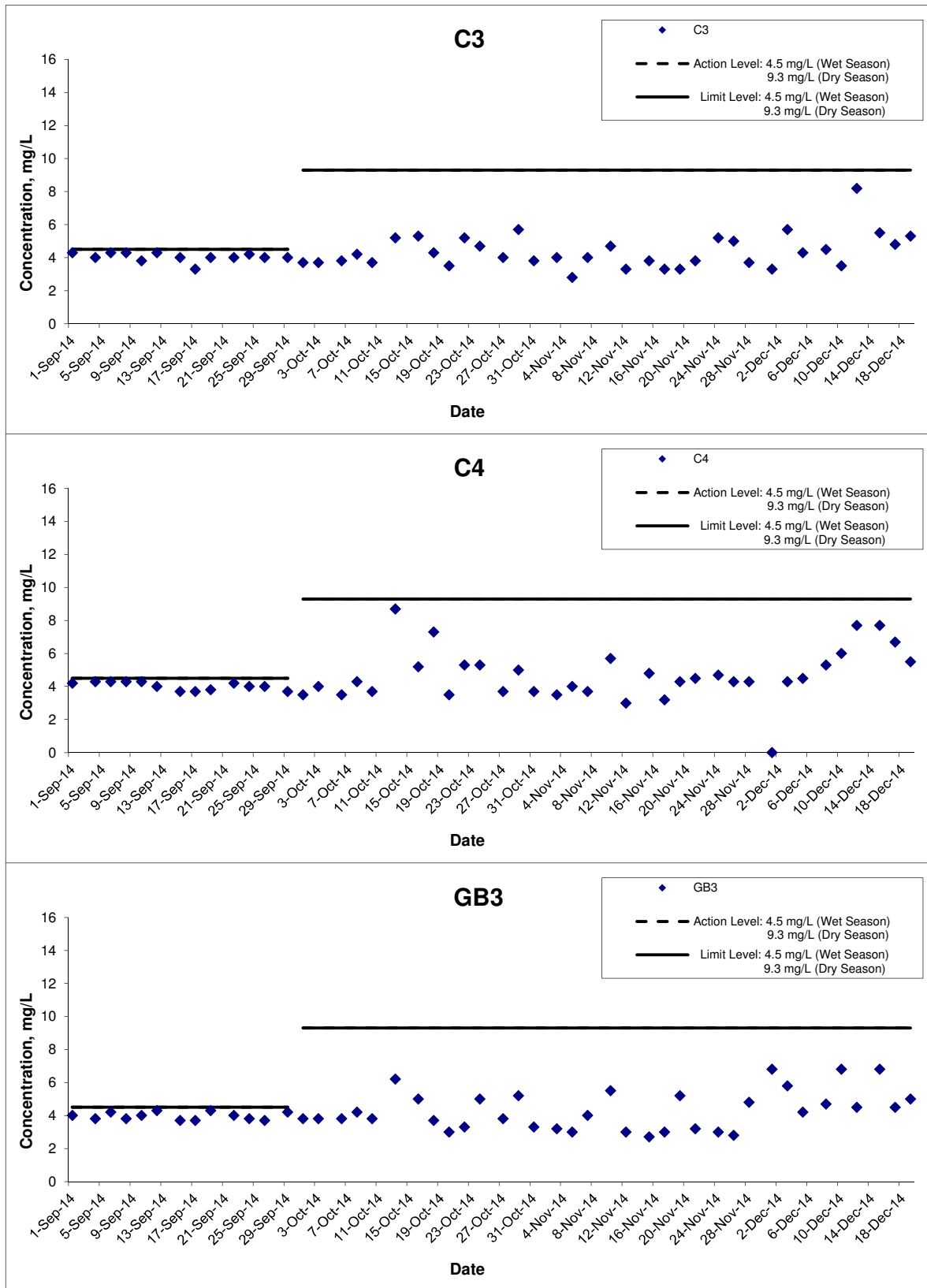
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title Shatin to Central Link – Contract 11227 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results (Victoria Harbour)	Scale N.T.S	Project No. MA14028	
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



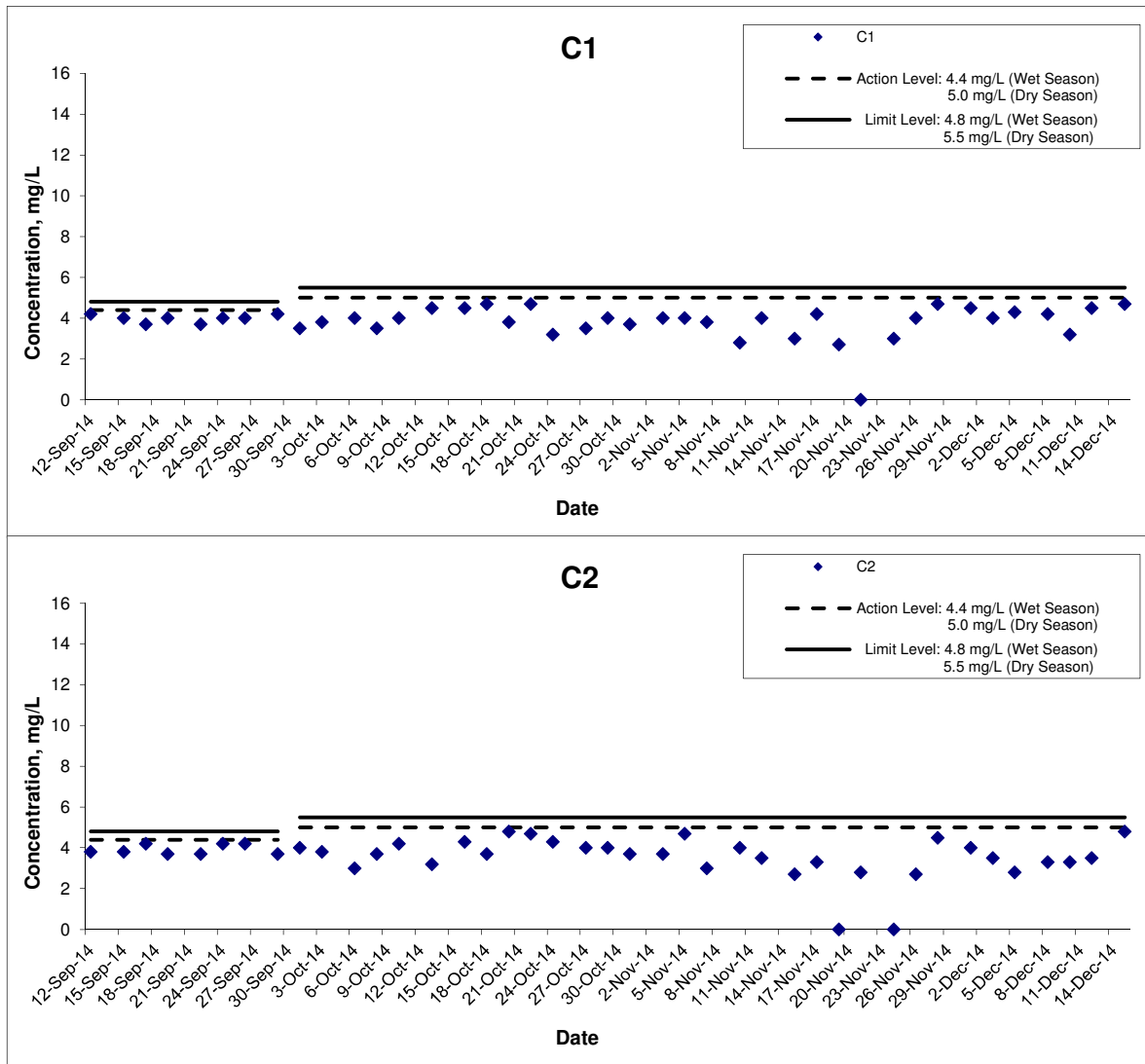
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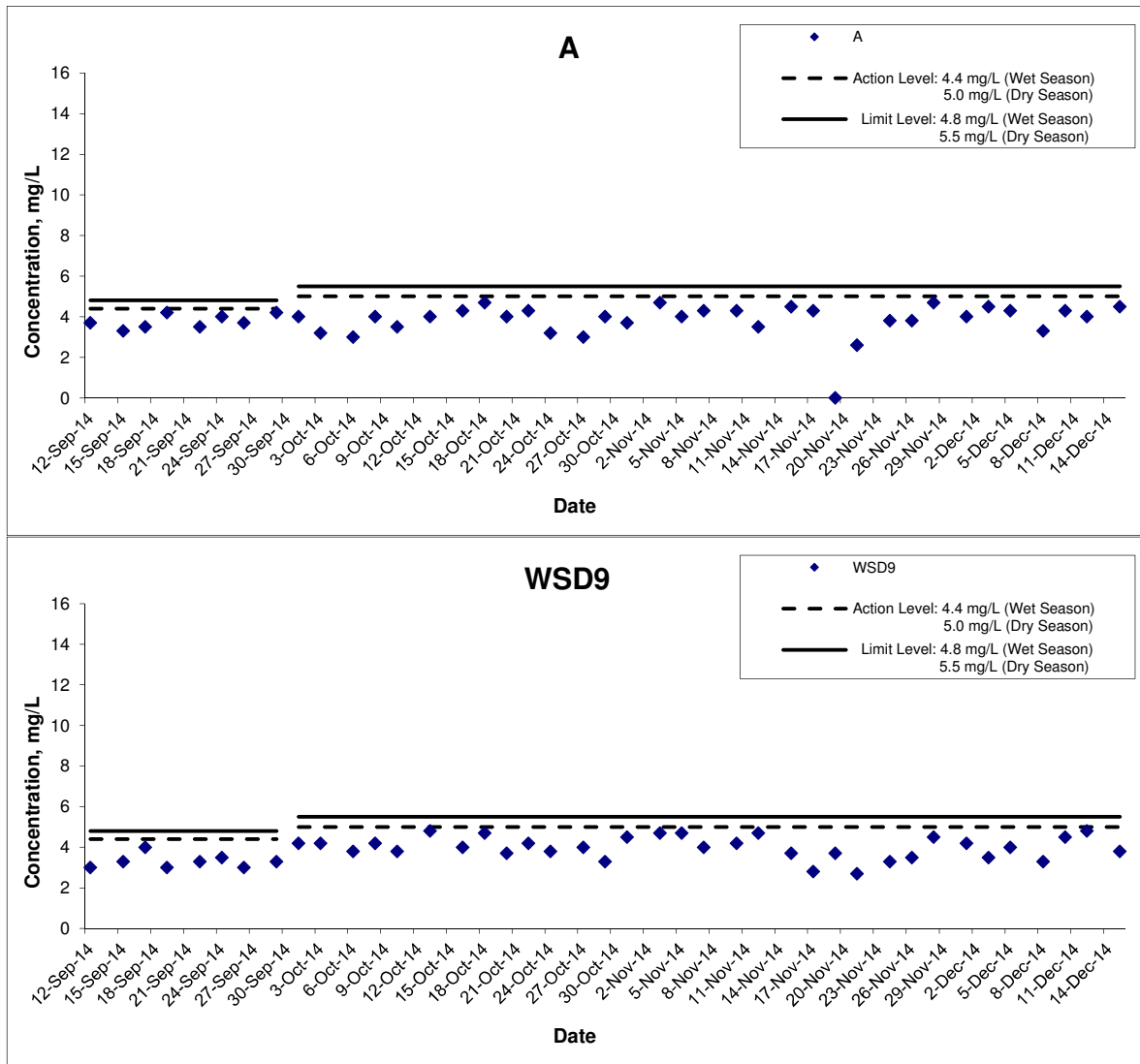
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title Shatin to Central Link – Contract 11227 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results (Victoria Harbour)	Scale N.T.S	Project No. MA14028	
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

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APPENDIX E
COPIES OF CALIBRATION CERTIFICATES

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/W/141031-1
Date of Issue:	2014-10-31
Date Received:	2014-10-31
Date Tested:	2014-10-31
Date Completed:	2014-10-31
Next Due Date:	2015-01-30

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : 6820-C-M
Serial No. : 02D0126AA
Equipment No. : W.03.01

Test conditions:

Room Temperature : 20 degree Celsius
Relative Humidity : 56%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, L/N: 11J100025
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, L/N: 07E100029
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 12B100900
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, L/N: 11H
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards
Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
pH (APHA 19th 4500-H+ B)

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

Test Report No.:	C/W/141031-1
Date of Issue:	2014-10-31
Date Received:	2014-10-31
Date Tested:	2014-10-31
Date Completed:	2014-10-31
Next Due Date:	2015-01-30

Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	$D = C1 - C2$	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

*****END OF REPORT*****

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/W/140913-2
Date of Issue:	2014-09-13
Date Received:	2014-09-13
Date Tested:	2014-09-13
Date Completed:	2014-09-13
Next Due Date:	2014-12-12

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : 6820-C-M
Serial No. : 12B100803
Equipment No. : W.03.12

Test conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 56%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, L/N: 12B10055
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, L/N: 12A100930
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 12B100644
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, L/N: 11H
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards
Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
pH (APHA 19th 4500-H+ B)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

Test Report No.:	C/W/140913-2
Date of Issue:	2014-09-13
Date Received:	2014-09-13
Date Tested:	2014-09-13
Date Completed:	2014-09-13
Next Due Date:	2014-12-12
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	$D = C1 - C2$	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.0	9.0	0.0	± 0.2
Half-saturated	5.8	5.8	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

*****END OF REPORT*****

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/W/141212-1
Date of Issue:	2014-12-12
Date Received:	2014-12-12
Date Tested:	2014-12-12
Date Completed:	2014-12-12
Next Due Date:	2015-03-11

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : 6820-C-M
Serial No. : 12B100803
Equipment No. : W.03.12

Test conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 58%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, L/N: 12B10055
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, L/N: 12A100930
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 12B100644
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, L/N: 11H
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards
Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
pH (APHA 19th 4500-H+ B)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

Test Report No.:	C/W/141212-1
Date of Issue:	2014-12-12
Date Received:	2014-12-12
Date Tested:	2014-12-12
Date Completed:	2014-12-12
Next Due Date:	2015-03-11

Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	$D = C1 - C2$	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.0	9.0	0.0	± 0.2
Half-saturated	5.8	5.8	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_l , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

*****END OF REPORT*****

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/W/141121-3
Date of Issue:	2014-11-21
Date Received:	2014-11-21
Date Tested:	2014-11-21
Date Completed:	2014-11-21
Next Due Date:	2015-02-20

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Multiparameter Water Quality Probe
Manufacturer : Aquaread Ltd
Model No. : AP-2000-D
Serial No. : 122430520
Equipment No. : W.18.08

Test conditions:

Room Temperature : 22 degree Celsius
Relative Humidity : 64%

Test Specifications:

Dissolved Oxygen, Conductivity & Salinity Sensor,
1. Performance check against Winkler titration
2. Conductivity performance check with Potassium Chloride standard solution
3. Salinity performance check with Sodium Chloride standard solution
Turbidity Sensor, Batch: 12213
1. Calibration check with Formazin standard solution
pH / ORP electrode, Batch: 11933
1. Calibration check with standard pH buffer
2. Redox performance check with ZoBell's standard solution
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. Aquaprobe AP-2000 Manual
2. In-house method with reference to APHA and ISO standards
Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
pH (ISO 10523, Section 9.1 and APHA 19ed 4500-H+ B),
Redox electrode (APHA 20ed 2580)

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

Test Report No.:	C/W/141121-3
Date of Issue:	2014-11-21
Date Received:	2014-11-21
Date Tested:	2014-11-21
Date Completed:	2014-11-21
Next Due Date:	2015-02-20

Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Instrument Reading	Theoretical Value		
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_l , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Redox Meter check

Redox, mV		Acceptable range
Instrument Reading	Theoretical Value	
228	229	229 ± 10

7. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

*****END OF REPORT*****

**APPENDIX F
QUALITY CONTROL REPORTS FOR SS
LABORATORY ANALYSIS**

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21527
Date of Issue:	2014/12/02
Date Received:	2014/12/01
Date Tested:	2014/12/01
Date Completed:	2014/12/02

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels

Sampling Date: 2014/12/01

Number of Sample: 84

Custody No.: MA14028/141201

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	3	3	1	95

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21535
Date of Issue:	2014/12/04
Date Received:	2014/12/03
Date Tested:	2014/12/03
Date Completed:	2014/12/04

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels

Sampling Date: 2014/12/03

Number of Sample: 84

Custody No.: MA14028/141203

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	5	5	1	107

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21558
Date of Issue:	2014/12/08
Date Received:	2014/12/05
Date Tested:	2014/12/05
Date Completed:	2014/12/08

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels
Sampling Date: 2014/12/05
Number of Sample: 84
Custody No.: MA14028/141205

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3me	9	9	3	101

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21573
Date of Issue:	2014/12/09
Date Received:	2014/12/08
Date Tested:	2014/12/08
Date Completed:	2014/12/09

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels
Sampling Date: 2014/12/08
Number of Sample: 84
Custody No.: MA14028/141208

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	6	6	4	109

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21589
Date of Issue:	2014/12/11
Date Received:	2014/12/10
Date Tested:	2014/12/10
Date Completed:	2014/12/11

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels

Sampling Date: 2014/12/10

Number of Sample: 84

Custody No.: MA14028/141210

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	3	3	2	108

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21606
Date of Issue:	2014/12/15
Date Received:	2014/12/12
Date Tested:	2014/12/12
Date Completed:	2014/12/15

Page: 1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels

Sampling Date: 2014/12/12

Number of Sample: 84

Custody No.: MA14028/141212

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	5	5	2	100

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21618
Date of Issue:	2014/12/16
Date Received:	2014/12/15
Date Tested:	2014/12/15
Date Completed:	2014/12/16

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels
Sampling Date: 2014/12/15
Number of Sample: 104
Custody No.: MA14028/141215

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	7	6	2	89

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21639
Date of Issue:	2014/12/18
Date Received:	2014/12/17
Date Tested:	2014/12/17
Date Completed:	2014/12/18

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels
Sampling Date: 2014/12/17
Number of Sample: 104
Custody No.: MA14028/141217

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Sampling Point				
C3sf	8	8	0	100

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	21653
Date of Issue:	2014/12/22
Date Received:	2014/12/19
Date Tested:	2014/12/19
Date Completed:	2014/12/22

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.11227
Advance Works for NSL Cross Harbour Tunnels

Sampling Date: 2014/12/19

Number of Sample: 104

Custody No.: MA14028/141219

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C3sf	8	8	0	99

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: December 2014

a) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Shatin to Central Link -

Contract 11227 Advance Works for NSL Cross Harbour Tunnels

(Shek O Casting Basin)



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141203
Date	3 December 2014 (Wednesday)
Time	14:30 – 15:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
141203-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Properly tighten the gap at the end of silt curtain of Southern Gate. <p>Part C – Ecology / Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:141126), all environmental deficiency was observed improved/rectified by the Contractor. 	B 9

	Name	Signature	Date
Recorded by	Johnny Fung		3 December 2014
Checked by	Dr. Priscilla Choy		3 December 2014

Shatin to Central Link -

Contract 11227 Advance Works for NSL Cross Harbour Tunnels

(Shek O Casting Basin)

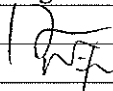
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141210
Date	10 December 2014 (Wednesday)
Time	14:00 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part C – Ecology / Others</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part F – Waste/Chemical Management</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part G – Permits/Licenses</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none">• Follow-up on previous audit section (Ref. No.:141203), all environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		10 December 2014
Checked by	Dr. Priscilla Choy		10 December 2014

Shatin to Central Link -

Contract 11227 Advance Works for NSL Cross Harbour Tunnels

(Shek O Casting Basin)

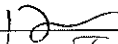

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141217
Date	17 December 2014 (Wednesday)
Time	13:45 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part C – Ecology / Others</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part F – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part G – Permits/Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:141210), no environmental deficiency was identified during the site inspection. 	

	Name	Signature	Date
Recorded by	Johnny Fung		17 December 2014
Checked by	Dr. Priscilla Choy		17 December 2014

**APPENDIX I
EVENT AND ACTION PLANS**

Appendix I - Event and Action Plan for Marine Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; and 3. Discuss remedial measures with the IEC and Contractor. 	<ol style="list-style-type: none"> 1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Supervise the implementation of agreed remedial measures. 	<ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER; and 7. Implement the agreed remedial measures.
Action level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC and ER; 3. Check monitoring data, all plant, equipment and 	<ol style="list-style-type: none"> 1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the 	<ol style="list-style-type: none"> 1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 	<ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable

Appendix I - Event and Action Plan for Marine Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<p>the Contractor's working methods;</p> <p>4. Discuss remedial measures with the IEC and Contractor; and</p> <p>5. Ensure remedial measures are implemented.</p>	<p>Contractor and advise the ER accordingly; and</p> <p>3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.</p>	<p>3. Discuss with the ET and IEC on the effectiveness of the implemented remedial measures.</p>	<p>practice;</p> <p>4. Check all plant and equipment;</p> <p>5. Consider changes of working methods;</p> <p>6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and</p> <p>7. Implement the agreed remedial measures.</p>

Appendix I - Event and Action Plan for Marine Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC, EPD and ER; 3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and the Contractor's working methods; 5. Discuss with the ET and IEC and propose remedial measures to the IEC, EPD and ER; and 6. Ensure the agreed remedial measures are implemented. 	<ol style="list-style-type: none"> 1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures. 	<ol style="list-style-type: none"> 1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Assess the effectiveness of the implemented remedial measures. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET , IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and 6. Implement the agreed remedial measures.
Limit level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC, EPD and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; 	<ol style="list-style-type: none"> 1. Discuss with the ET, ER and Contractor on the implemented measures; 2. Review proposals on remedial measures submitted by the 	<ol style="list-style-type: none"> 1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Request the Contractor to critically review the 	<ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable

Appendix I - Event and Action Plan for Marine Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<p>3. Discuss remedial measures with the the IEC, EPD, ER and Contractor;</p> <p>4. Ensure remedial measures are implemented; and</p> <p>5. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</p>	<p>Contractor and advise the ER accordingly; and</p> <p>3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.</p>	<p>working methods;</p> <p>3. Make agreement on the remedial measures to be implemented;</p> <p>4. Discuss with the the ET, IEC and Contractor on the effectiveness of the implemented remedial measures; and</p> <p>5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.</p>	<p>practice;</p> <p>4. Check all plant and equipment;</p> <p>5. Consider changes of working methods;</p> <p>6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification;</p> <p>7. Implement the agreed remedial measures; and</p> <p>8. As directed by the ER, to slow down or to stop all or part of the marine works or construction activities.</p>

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)							
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted	Minimise the contamination of wastewater discharge	Contractor	All land based works areas	Construction phase	• EIAO-TM	N/A
ERR S3.6.3	Installation of floating type silt curtains around the area of site levelling works and construction and removal of earth bund.	Minimize indirect impact to the nearby subtidal and intertidal flora and fauna	Contractor	Shek O Casting Basin	Construction phase	• EIAO-TM	^
Fisheries Impact							
S6.57	The size of the dredging and underwater blasting areas shall be minimized as much as possible	To minimize loss of fishing ground and fisheries resources	Contractor/ MTR	All dredging and underwater blasting works areas	Construction phase	• EIAO-TM	^
S6.57	Mitigation measures recommended in Sections 11.200 to 11.207, 11.209 to 11.211 and 11.213 to 11.256 of the EIA Report to control water quality, i.e. use of effective site drainage in land-based construction site and installation of silt curtain surrounding the dredging point, use of closed grab dredger and reduction of dredging rate shall be implemented.	To minimize change in water quality impact on fisheries resources and operation	Contractor	Works Areas	Construction phase	• EIAO-TM	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Landscape & Visual (Construction Phase)</i>							
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Control of height and deposition/arrangement of temporary facilities in works areas	MTR	All works sites	Construction phase	• EIAO-TM	^
<i>Construction Dust Impact</i>							
EP 2.25	All diesel fuelled construction plant used by the contractors within the works areas of the Project shall be powered by ultra low sulphur diesel fuel.	Mitigating Aerial Emissions from Construction Plant	Contractor	All works areas	Construction phase	• EIAO-TM	^
<i>Construction Noise (Airborne)</i>							
S9.55	The following good site practices shall be implemented: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the	Minimize construction noise impact	Contractor	All works areas	Construction phase	• EIAO-TM	^ ^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>construction program</p> <ul style="list-style-type: none"> • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 						^ ^ ^ ^
Water Quality (Construction Phase)							
S11.204	No more than one closed grab dredger shall be operated outside the CBTS in the open harbor for SCL construction.	To minimize loss of fines and contaminants from dredging in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO 	^
Table 11.23	Silt screens shall be installed at the WSD Flushing Water Intakes at Kowloon Station, Tai Wan, Quarry Bay and Wan Chai (namely Intakes 14, WSD9, WSD17 and A respectively) during any dredging / filling works outside the CBTS for	To protect the beneficial use of flushing water intakes in Victoria Harbour from dredging / filling	Contractor	Flushing water intake points in Victoria Harbour	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO 	N/A

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	temporary reclamation at SCL2 or for IMT construction	activities					
S11.210 - S11.211 & Table 11.24	<p>If the marine works for SCL are to be carried out concurrently with other dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction) shall not exceed 2,500 m³ per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS) shall not exceed 156 m³ per hour (if there are other concurrent marine works in Victoria Harbour) and the maximum working hour for the dredging / bulkfilling works shall be 16 hours per day.</p> <p>If the marine works for SCL are to be carried out with no other concurrent dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction) shall not exceed 4,500 m³ per day at any time throughout the entire construction period. The hourly</p>	To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	Construction phase	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS) shall not exceed 281 m ³ per hour (if there is no other concurrent marine works in Victoria Harbour) and the maximum working hour for the dredging / bulk filling works shall be 16 hours per day.						
S11.215	<p>The following good site practices shall be undertaken during dredging:</p> <ul style="list-style-type: none"> • mechanical grabs, if used, shall be designed and maintained to avoid spillage and sealed tightly while being lifted; • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • all hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; • loading of barges and hoppers shall be controlled to 	To minimize loss of fines and contaminants from dredging / filling	Contractor	Marine works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	nearby receiving waters.						
S11.218	Silt screens are recommended to be deployed at the seawater intakes during the construction works period. Regular maintenance of the silt screens and refuse collection shall be performed at the silt screens at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water behind the silt screen free from floating rubbish and debris during the impact monitoring period.	To avoid the pollutant and refuse entrapment problems at the silt screens to be installed at the water intakes	Contractor	Proposed silt screens at water intakes.	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO 	^
S11.219	It is recommended that collection and removal of floating refuse shall be performed within the marine construction areas at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish during the dredging works.	To minimize water quality impacts from illegal dumping and littering from marine vessels and runoff from the coastal area	Contractor	Marine works area	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • WDO 	^
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	minimize water quality impacts due to sewage generated from construction workforce	Contractor	All works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>The Contractor shall also be responsible for waste disposal and maintenance practices.</p> <p>Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p>						^
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	N/A
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO 	^
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes"	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS 	

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.the areas appropriately equipped to control these discharges. 					• WDO	^ ^ ^
ERR S 8.5.1	Floating type silt curtains would be installed around the area of site levelling works and construction and removal of earth bund during the respective works.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	^
ERR S 8.5.1	Floating type silt curtains would be installed around the entrances of the basin during rock filling works.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	*
EP 2.23.3	All fill materials used in marine works at the Basin shall contain no more than 5% fines (aggregates diameter smaller than 63µm) content.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
EP 2.23.4	The sea bed levelling works shall not involve any dumping of imported fill materials onto the seabed. The in-situ volume of sea bed materials to be moved during the sea bed leveling works shall not be more than 10,000m ³ . If sea bed materials other than coarse sand, cobble and gravel as identified in the previous marine investigation are encountered, alternative leveling methods and/or additional mitigation measures shall be proposed for the approval of the Director before the works can proceed. The silt curtain shall be properly installed prior to the commencement of sea bed leveling works, and if necessary, double silt curtains shall be deployed to ensure full enclosure of the leveling works at all times to prevent the escape of sediment to water column outside the silt curtains.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	^
EP 2.23.5	The filling of the southern part of the Basin shall be carried out using rocks or coarse aggregates with diameters between 20mm and 200mm and with no more than 5% fines (aggregates with diameter smaller than 63µm) content, up to a level not higher than -12mPD. The maximum filling rate shall be no more than 4,500m ³ /day.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	^
Waste Management (Construction Waste)							
S12.75	Good Site Practices and Waste Reduction Measures	reduce waste management	Contractor	All works sites	Construction	• Waste Disposal	

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	recycling of materials and their proper disposal; - Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and - Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.					28)	^ ^ ^ ^
S12.77	<i>Good Site Practices and Waste Reduction Measures (Con't)</i> - The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWBTCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project.</p> <p>The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.</p>						^
S12.78	C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^
S12.79	<p><i>Storage, Collection and Transportation of Waste</i></p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water 	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	-	^ ^ ^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	spraying system to prevent materials from wind-blown or being washed away; and - Different locations shall be designated to stockpile each material to enhance reuse						^
S12.80	<p><i>Storage, Collection and Transportation of Waste (Con't)</i></p> Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> - Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by their permits - Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) 	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	-	^ ^ ^ ^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<ul style="list-style-type: none"> - Waste shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed 						^ ^
S12.81	<p><i>Storage, Collection and Transportation of Waste (Con't)</i></p> <ul style="list-style-type: none"> - Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed 	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • DEVB TCW No. 6/2010 	^
S12.83 – 12.86	<p><i>Sorting of C&D Materials</i></p> <ul style="list-style-type: none"> - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be 	minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • DEVB TCW No. 6/2010 • ETWB TCW No. 33/2002 • ETWB TCW No. 19/2005 	^ ^ ^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>investigated before disposal of at designated landfills.</p> <p>- Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach</p>						^
S12.88	<p>Sediments</p> <p><i>The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance</i></p>	<p>To ensure the sediment to be disposed of in an authorized and least impacted way</p>	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^
S12.89	<p>Sediments</p> <p>The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all</p>	<p>To determine the best handling and disposal option of the sediments</p>	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.						
S12.91-12.94	<p>Sediments</p> <ul style="list-style-type: none"> - Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / 	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</p> <ul style="list-style-type: none"> - The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic selfmonitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S12.95	<p>Sediments</p> <p>A possible arrangement for Type 3 disposal is by geosynthetic</p>	To ensure handling of sediments are in	Contractor	Work Sites, Sediment	Construction Phase	ETWB TC(W) No. 34/2002 &	N/A

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.	accordance to statutory requirements		disposal sites		Dumping at Sea Ordinance	
S12.97	<p>Containers for Storage of Chemical Waste</p> <p>The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 liters unless the 	register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes 	<p style="text-align: right;">^</p> <p style="text-align: right;">^</p>

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	<p>specifications have been approved by EPD; and</p> <ul style="list-style-type: none"> - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation 						^
S12.98	<p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; - Be enclosed on at least 3 sides; - Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - Have adequate ventilation; - Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated. 	<p>prepare appropriate storage areas for chemical waste at works areas</p>	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> · Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes 	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
S12.98	<p>Chemical Waste</p> <ul style="list-style-type: none"> - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in 	<p>clearly label the chemical waste at works areas</p>	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> · Code of Practice on the Packaging, Labelling and 	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	individual containers which are fully labelled in English and Chinese and stored in a designated secure place.					Storage of Chemical Wastes	
S12.100	<p>Collection and Disposal of Chemical Waste</p> <p>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</p>	To monitor the generation, reuse and disposal of chemical waste	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> • Waste Disposal (Chemical Waste) (General) Regulation 	N/A
S12.101	<p>General Refuse</p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.</p>	properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	All works sites	Construction phase	-	^
S12.102	The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of	facilitate recycling of recyclable portions of refuse	Contractor	All works sites	Construction phase	-	^

SCL Works Contract 11227 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.						
S12.102	The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders	raise workers' awareness on recycling issue	Contractor	All works sites	Construction phase	-	^

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

N/A Not Applicable

**APPENDIX K
WASTE GENERATION IN THE
REPORTING MONTH**

Monthly Summary Waste Flow Table for Year 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000kg)	('000kg)	('000kg)	('000kg)	('000m ³)
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
October	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
November	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
December	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000

**APPENDIX L
CUMULATIVE LOG FOR COMPLAINT
LOGS, NOTIFICATION OF SUMMONS
AND SUCCESSFUL PROSECUTIONS**

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

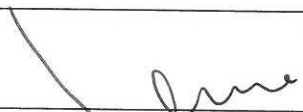

Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

Appendix D

**Monthly EM&A Report for December 2014 – SCL Works
Contract 1128 South Ventilation Building to Admiralty Tunnels**

Dragages Bouygues J.V.**Shatin to Central Link -
Hung Hom to Admiralty Section****Works Contract 1128 -
South Ventilation Building (SOV) to Admiralty Tunnels****Monthly EM&A Report for
December 2014****January 2015**

	Name	Signature
Prepared & Checked:	Lemon Lam	
Reviewed, Approved & Certified:	Y T Tang (Contractor's Environmental Team Leader)	

Version: 0

Date: 13 January 2015

Disclaimer

This Environmental Monitoring and Audit Report is prepared for Dragages Bouygues J.V. and is given for its sole benefit in relation to and pursuant to SCL1128 and may not be disclosed to, quoted to or relied upon by any person other than Dragages Bouygues J.V. without our prior written consent. No person (other than Dragages Bouygues J.V. into whose possession a copy of this Manual comes may rely on this plan without our express written consent and Dragages Bouygues J.V. may not rely on it for any purpose other than as described above.

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1128 – South Ventilation Building (SOV) to Admiralty Tunnels (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the Permanent Works and the associated temporary works necessary for TBM tunnels between SOV and Admiralty Tunnels, short sections of cut and cover tunnels near SOV and Fenwick Pier Emergency Egress Point (FPP), Re-provisioning, Remedial and Improvement Works (RRIW) for government and public bodies facilities.

The EM&A programme commenced on 17 November 2014. The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 December 2014. As informed by the Contractor, major activities in the reporting period were:

Area W1:

- Hoarding erection and road strengthening;
- Equipment mobilization.

Area W4a:

- Modification of 1129's box culvert base slab and construction of steel platform;
- Extract of 1129 sheet piles that obstruct east TBM.

Area W4b

- Sheetpile and start bulk excavation.

Area W6

- Implement TTMS for further pile investigation.

Area 14a & 14b

- Sheet pile installation and ELS work;
- Pre-drilling work for new bored pile works.

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action / Limit Level of air quality was recorded in the reporting month.

Breaches of Action and Limit Levels for Noise

Noise monitoring was carried out by SCL Contract 1129. Thus, no noise monitoring and no Action/Limit Level exceedance of noise were performed in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:-

- TTMS Implementation;
- Ground Investigation – Additional borehole and Obstruction detection;
- Underground utilities detection and diversion;
- Instrumentation installation;
- Sheet pile installation & ELS at Canal road flyover;

Dragages Bouygues J.V.

- Sheet pile installation and New bored piles construction at DSD Wan Chai west sewage screening plant;
- Preparation works at Canal road box culvert; and
- Pile detection at Wan Shing Street.

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

1 INTRODUCTION

Dragages Bouygues J.V. (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1128. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the second monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 December 2014.

1.2 Report Structure

1.2.1 This monthly EM&A Report is organised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) (VEP-433/2014) was applied on 2 April 2014 and the latest EP (EP No. EP-436/2012/A) was issued by the Director of Environmental Protection (DEP) on 30 April 2014.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and the Project comprises the Permanent Works and the associated temporary works necessary for TBM tunnels between SOV and Admiralty Tunnels, short sections of cut and cover tunnels near SOV and Fenwick Pier Emergency Egress Point (FPP), Re-provisioning, Remedial and Improvement Works (RRIW) for government and public bodies facilities under the EP.
- 2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1128 include:
- (a) Taking over the 160m section of the SCL tunnels (ME4 Tunnel) constructed under the Central Wan Chai Bypass (CWB) project and construction of walkways, sealing, connection and various finishing works inside the tunnels;
 - (b) Construction of cut and cover tunnels connecting from South Ventilation Building (SOV) to the ME4 Tunnel;
 - (c) Removal of temporary reclamation and reinstatement of seawall;
 - (d) Construction of SOV;
 - (e) Bored tunnels between SOV and Exhibition Station (EXH);
 - (f) Construction of cut and cover tunnels connecting from the SCL tunnels under Convention Avenue by Contract 1123 to the bored tunnels as stated in sub-clause
 - (g) Construction of Fenwick Pier Emergency Egress Point (FPP);
 - (h) Bored tunnels between Fenwick Pier Emergency Egress Point (FPP) and Admiralty Station (ADM);
 - (i) Pile/obstruction detections and removals for construction of SCL running tunnels and for future North Island Line (NIL) running tunnels;
 - (j) Demolition of existing Police Officer's Club (POC);
 - (k) Re-provisioning of new POC;
 - (l) Other RRIW;
 - (m) Essential piling works at future Government, Institution and Community (GIC) site
 - (n) Diversion and modification of utilities and services;
 - (o) Modification, re-provisioning or reinstatement of footpath, carriageway or road features;
 - (p) Provisions for Designated and Interfacing Contracts;
 - (q) Tree felling, tree compensation, transplanting works and landscaping works;
 - (r) Permanent re-provisioning works at the Fleet Arcade;
 - (s) Miscellaneous signage; and
 - (t) External works comprising new and reinstated roads, footpaths, drains, landscaping, staircase, street furniture and the like.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

Area W1:

- Hoarding erection and road strengthening;
- Equipment mobilization.

Area W4a:

- Modification of 1129's box culvert base slab and construction of steel platform;
- Extract of 1129 sheet piles that obstruct east TBM.

Area W4b

- Sheetpile and start bulk excavation.

Area W6

- Implement TTMS for further pile investigation.

Area 14a & 14b

- Sheet pile installation and ELS work;
- Pre-drilling work for new bored pile works.

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. T.C. Lam	3143 9129	3127 6424
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
JV	Contractor	Project Director	Mr. Alain Hervio	6112 9197	2171 3715
		Environmental Manager	Mr. Marcus Cheung	6628 2685	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-436/2012/A	30-Apr-2014	-	Valid	-
Construction Noise Permit				
GW-RS1216-14	7-Nov-14	6-May-15	Valid	Lung King Street near DSD Screening Plant (W14)
GW-RS1271-14	15-Nov-14	14-May-15	Valid	Rest Garden near Wan Chai Interchange (W4)
GW-RS1345-14	4-Dec-14	1-Jun-15	Valid	Wai Chai Interchange – Tunnel Approach Rest Garden (W4a/b)
GW-RS1377-14	12-Dec-14	9-Mar-15	Valid	Lung King Street near DSD Screening Plant (W14)
Wastewater Discharge License				
WT00020512-2014	9-Dec-2014	31-Dec-2019	Valid	Victoria Park Road near Police Officer Club (POC) (W1)
WT00020473-2014	9-Dec-2014	31-Dec-2019	Valid	Gloucester Road near Hung Hing Road (W4)
WT00020474-2014	9-Dec-2014	31-Dec-2019	Valid	Wang Shing Street (W6)
WT00020475-2014	9-Dec-2014	31-Dec-2019	Valid	Lung King Street (W14)
WT00020595-2014	22-Dec-2014	31-Dec-2019	Valid	Junction of Tonnochy Road and Hung Hing Road near Wan Chai Sports Ground
Chemical Waste Producer Registration				
-	-	-	Pending for Approval	Victoria Park Road near POC (W1)
5213-135-D2551-01	16-Dec-14	End of the Project	Valid	Gloucester Road near Hung Hing Road (W4)
5213-134-D2552-01	16-Dec-14	End of the Project	Valid	Lung King Street near DSD Screening Plant (W14)
Billing Account for Construction Waste Disposal				
7020686	15-Sep-14	End of Contract	Valid	For disposal of C&D waste to public fills and landfills
Notification Under Air Pollution Control (Construction Dust) Regulation				
378806	2-Sep-14	End of Contract	Valid	For Wan Chai, Casueway Bay, Hong Kong Island
380227	7-Oct-14	End of Contract	Valid	For Gloucester Road near Cross Harbour Tunnel
380228	7-Oct-14	End of Contract	Valid	Near Convention Avenue and Fenwick Pier Street, HK Island

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring station. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:10273))
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0988))

Monitoring Locations

3.1.3 One monitoring station was set up at the proposed location in accordance with the approved EM&A Manuals for SCL (HUH-ADM) as well as the works areas of the Project. The location of the construction dust monitoring station is summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

ID	Air Sensitive Receiver (ASR) ID in EIA Report	Dust Monitoring Station
AM4	EXA4	Pedestrian Plaza

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-
 - (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
 - (ii) Two samplers should not be placed less than 2m apart from each others;
 - (iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
 - (iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
 - (v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
 - (vi) No furnace or incinerator flues nearby.
 - (vii) Airflow around the sampler was unrestricted.
 - (viii) The sampler was located more than 20 meters from any dripline.
 - (ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.

- (x) Permission was obtained to set up the samplers and access to the monitoring station.
 - (xi) A secured supply of electricity was obtained to operate the sampler.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
 - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than ± 5 %. A convenient working RH was 40%.
 - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
 - (ii) The filter holder and the area surrounding the filter were cleaned.
 - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
 - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
 - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
 - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
 - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
 - (viii) A new flow rate record sheet was set into the flow recorder.
 - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/min).
 - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
 - (xi) The initial elapsed time was recorded.
 - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
 - (xiii) The final elapsed time was recorded.
 - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - (xv) It was then placed in a clean envelope and sealed.
 - (xvi) All monitoring information was recorded on a standard data sheet.
 - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
 - (ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
 - (iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.5 The schedule for environmental monitoring in December 2014 is provided in **Appendix F**.

3.2 Construction Noise Monitoring

Monitoring Requirements

- 3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L ₁₀ and L ₉₀ would be recorded.	At least once per week

Monitoring Locations

- 3.2.2 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.4** and shown in **Figure 3.1**.

Table 3.4 Noise Monitoring Station during Construction Phase

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station
NM1*	CH2	Hoi Kung Court

* The noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

3.3 Landscape and Visual

- 3.3.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6**.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/A)	Monthly EM&A Report for November 2014	12 December 2014

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM4	131.4	104.8 – 189.9	198	260

5.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring location in the reporting month.

5.1.3 The event and action plan is annexed in **Appendix I**.

5.1.4 Major dust sources during the monitoring included construction dust from nearby traffic emission and other nearby construction sites.

5.2 Construction Noise Monitoring

5.2.1 Noise monitoring at NM1 was carried out by SCL Contract 1129. Thus, no noise monitoring and no Action/Limit Level exceedance of noise were performed in the reporting month.

5.3 Waste Management

5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.3.2 As advised by the Contractor, 360m³ of inert C&D material was generated (360m³ was disposed of as fill bank at TKO137) in the reporting month. 1.1m³ general refuse was generated in the reporting month. No metals, no paper/cardboard packaging material and no plastic was collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix J**.

5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.4 Landscape and Visual

5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 22 December 2014. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 5 site inspections were carried out on 1, 8, 15, 22 and 29 December 2014. Joint inspection with the IEC, ER, the Contractor and the ET was conducted on 8 December 2014. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	22 Dec 2014	<ul style="list-style-type: none"> Site area at W14 was observed to be dry. The Contractor should water the exposed site area timely as dust suppression. 	The item was rectified by the Contractor on 24 December 2014.
Noise	N/A	N/A	N/A
Water Quality	8 Dec 2014	<ul style="list-style-type: none"> Water accumulated at W4, which might due to the leakage from the box culvert, was observed. Although sedimentation tank was observed to be provided for water treatment, the Contractor was advised to ensure the quality of water discharge meet the requirement of the WPCO discharge license. 	The item was improved by the Contractor on 31 December 2014.
		<ul style="list-style-type: none"> Water was observed runoff to the gully at W14. The Contractor should ensure the gully to be properly blocked and provide proper preventive measures to avoid potential runoff from site. 	The item was rectified by the Contractor on 12 December 2014.
	15 Dec 2014	<ul style="list-style-type: none"> The Contractor was advised to provide sufficient sedimentation facilities to ensure the site water is properly treated on-site. 	The item was improved by the Contractor on 31 December 2014.
	28 Dec 2014	<ul style="list-style-type: none"> The sedimentation facilities at W1 and W14 were observed insufficient and ineffective respectively. The Contractor should ensure the sedimentation facilities are functional. 	The item to be followed up in January 2015.
Waste/ Chemical Management	1 Dec 2014	<ul style="list-style-type: none"> Improper storage of chemical containers were observed at W1 and W14. The Contractor should provide drip tray for storage the chemical containers to retain leakage, if any. 	The item was rectified by the Contractor on 5 December 2014.
	8 Dec 2014	<ul style="list-style-type: none"> Chemical containers placed on ground without provision of drip tray were still observed at W14. The Contractor should provide drip tray to retain leakage, if any. 	The item was rectified by the Contractor on 12 December 2014.
	28 Dec 2014	<ul style="list-style-type: none"> Improper storage of painting materials and uncovered valve of drip tray were observed at W1. The Contractor should storage the painting material with drip tray or equivalent measures and cover/seal the valve of drip tray properly. 	The item to be followed up in January 2015.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.

6.1.4 The items of which their inspection for follow-up actions were outstanding as recorded in the last reporting month have already been rectified by the Contractor as confirmed by the ET during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring location in the reporting month.
- 7.1.2 No noise monitoring was carried out in the reporting month. Thus, no Action/ Limit Level exceedance for noise was performed in the reporting month.

7.2 Summary of Environmental Non-Compliance

- 7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

- 7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix I**.

7.4 Summary of Environmental Summon and Successful Prosecutions

- 7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix I**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The major construction works in between January and March 2015 will be:

- TTMS Implementation;
- Ground Investigation – Additional borehole and Obstruction detection;
- Underground utilities detection and diversion;
- Instrumentation installation;
- Sheet pile installation & ELS at Canal road flyover;
- Sheet pile installation and New bored piles construction at DSD Wan Chai west sewage screening plant;
- Preparation works at Canal road box culvert; and
- Pile detection at Wan Shing Street.

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

8.3 Monitoring Schedule for the Next Three Month

8.3.1 The tentative schedules for environmental monitoring in January 2015 to March 2015 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 24-hour TSP monitoring was carried out in the reporting month.
- 9.1.2 All 24-hour TSP monitoring result complied with the Action / Limit Level at in the reporting month.
- 9.1.3 No noise monitoring was carried out in the reporting month. Thus, no Action/ Limit Level exceedance for noise was performed in the reporting month.
- 9.1.4 5 nos. of environmental site inspections were carried out in December 2014. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

- 9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- Implement effective measures to avoid dust impact.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- Implement preventive measures to avoid surface runoff from the site.

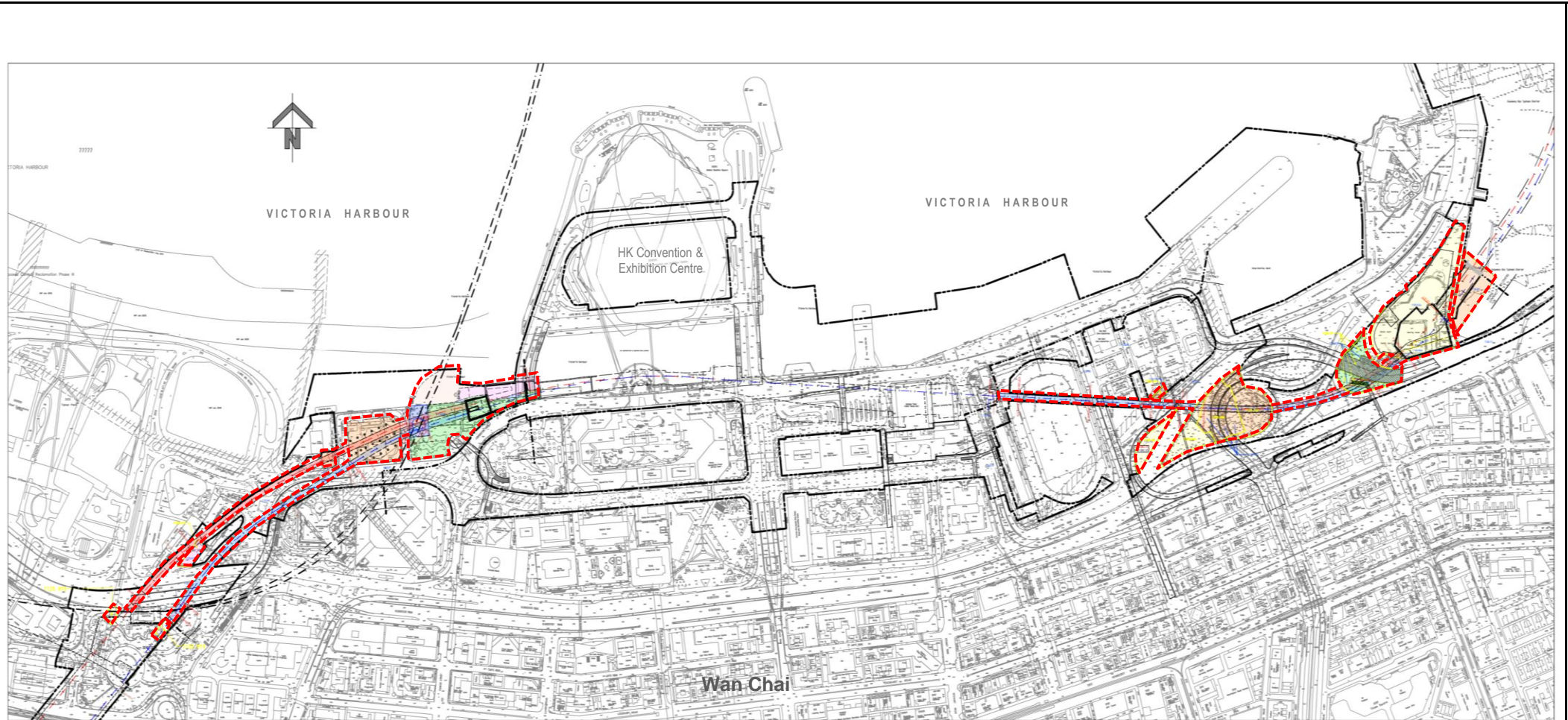
Chemical and Waste Management

- Provide proper chemical and construction waste management.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES



 Site Alignment

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SCL Contract 1128
South Ventilation Building to Admiralty Tunnels

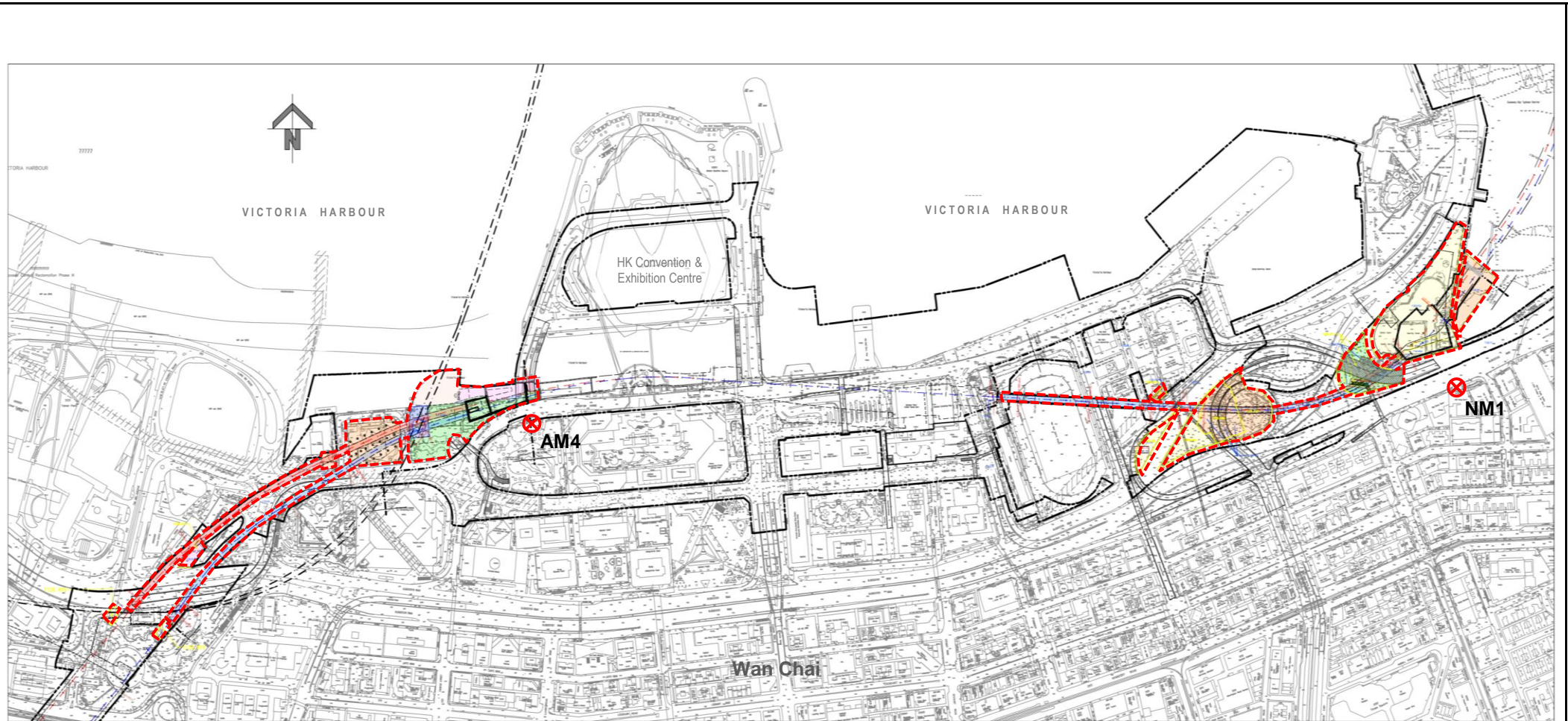


SITE LAYOUT PLAN of SCL1128

Project No.: 60331173

Date: December 2014

Figure 1.1



- Site Alignment
- ⊗ Monitoring Location

* The noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

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SCL Contract 1128
South Ventilation Building to Admiralty Tunnels

Air Quality and Noise Monitoring Locations



APPENDIX A

Construction Programme

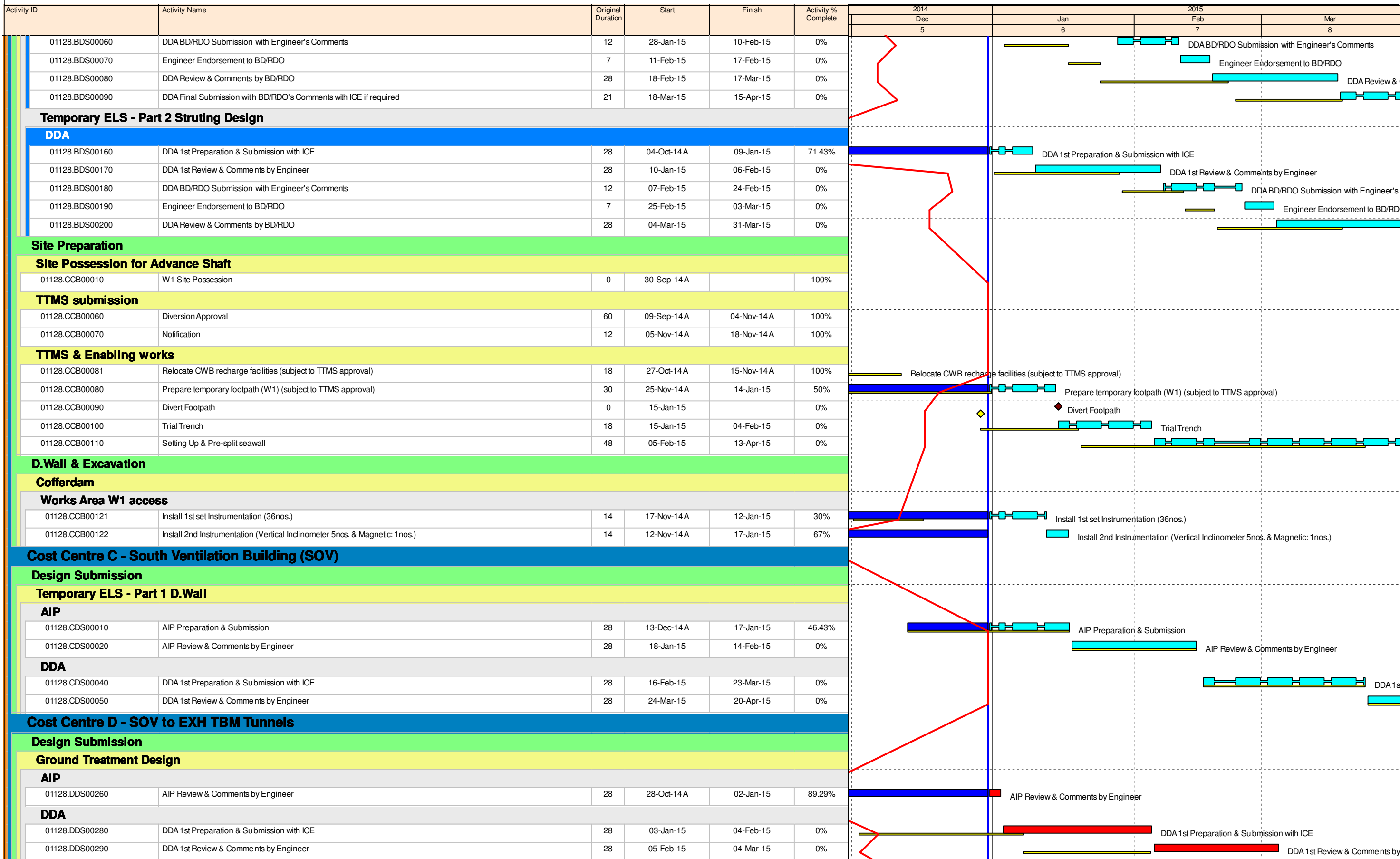
DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	2014				2015											
						Dec				Jan				Feb				Mar			
						5				6				7				8			
SCL 1128 - SOV to Admiralty Tunnel_PMP_A_1_3 Month Rolling Programme (Jan-15 to Mar-15)																					
Contract Dates																					
Schedule of Access Dates for Works Areas																					
Early Possession Date/ Access Date																					
01128.EAD170	1128.W8a (FPP)	0	05-Jan-15*		0%																
01128.EAD180	1128.W8b (FPP)	0	05-Jan-15*		0%																
01128.EAD370	1128.M1 (FPP)	0	05-Jan-15*		0%																
01128.EAD190	1128.W8c (FPP)	0	05-Jan-15*		0%																
01128.EAD200	1128.W8d (1) (FPP)	0	05-Jan-15*		0%																
01128.EAD220	1128.W8e (1) (FPP)	0	05-Jan-15*		0%																
01128.EAD240	1128.W8f (FPP)	0	05-Jan-15*		0%																
01128.EAD060	1128.W3 (Causeway Bay/Hung Hing Footbridge)	0	23-Feb-15*		0%																
Late Possession Date/ Access Date																					
01128.LAD380	1128.M1 (FPP)	0	16-Feb-15*		0%																
01128.LAD170	1128.W8a (FPP)	0	30-Mar-15*		0%																
01128.LAD180	1128.W8b (FPP)	0	30-Mar-15*		0%																
01128.LAD240	1128.W8f (FPP)	0	30-Mar-15*		0%																
01128.LAD190	1128.W8c (FPP)	0	30-Mar-15*		0%																
01128.LAD200	1128.W8d (1) (FPP)	0	30-Mar-15*		0%																
01128.LAD220	1128.W8e (1) (FPP)	0	30-Mar-15*		0%																
Cost Centre A - Preliminaries																					
General Submission (LOA: 18-Aug-14)																					
01128.GSA040	Condition Survey Submission for EBS	0		08-Dec-14 A	100%																
01128.GSA180	Tree Preservation and Protection Plan	0		24-Dec-14 A	100%																
01128.GSA110	Sub-contract Management Plan (PS P33)	0		09-Jan-15*	0%																
01128.GSA030	Schedule of Design	0		09-Jan-15*	0%																
01128.GSA310	Survey Method Statement for Tunnelling works	0		09-Jan-15*	0%																
01128.GSA340	Full Details of the TBMs	0		09-Jan-15*	0%																
01128.GSA120	Sub-contractor Management Plan	0		16-Jan-15*	0%																
01128.GSA130	Bond in form of GCC Appendix B	0		16-Jan-15*	0%																
01128.GSA150	Joint & Several Guarantee in form of GCC Appendix D	0		16-Jan-15*	0%																
01128.GSA210	Emergency Response Plan to Groundwater drawdown & Noise/Vibration	0		16-Jan-15*	0%																
01128.GSA270	Schedule of Utility Service arrangement	0		23-Jan-15*	0%																
01128.GSA350	Initial Site Survey Report	0		31-Jan-15*	0%																
Method Statement																					
Pile Detection																					
01128.CCA00100	Preparation & Submission	16	01-Dec-14 A	14-Jan-15	25%																
01128.CCA00110	Review & Approval	28	15-Jan-15	11-Feb-15	0%																
Cost Centre B - Cut & Cover Tunnel to SOV (Advance Shaft)																					
Design Submission																					
Advance Launch Shaft at Area W1 (Alternative Scheme)																					
Temporary ELS - Part 1 D.Wall																					
DDA																					
01128.BDS00040	DDA 1st Preparation & Submission with ICE	28	04-Oct-14 A	31-Dec-14 A	100%																
01128.BDS00050	DDA 1st Review & Comments by Engineer	28	31-Dec-14	27-Jan-15	0%																

— Primary Baseline — Critical Activity
█ Actual Work ◆ Baseline Milestone
█ Non Critical Activity ◆ Milestone

11283MRP141231 SCL 1128 - SOV to Admiralty Tunnels
 3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		



— Primary Baseline — Critical Activity
█ Actual Work ◆ Baseline Milestone
█ Non Critical Activity ◆ Milestone

11283MRP141231 SCL 1128 - SOV to Admiralty Tunnels
 3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

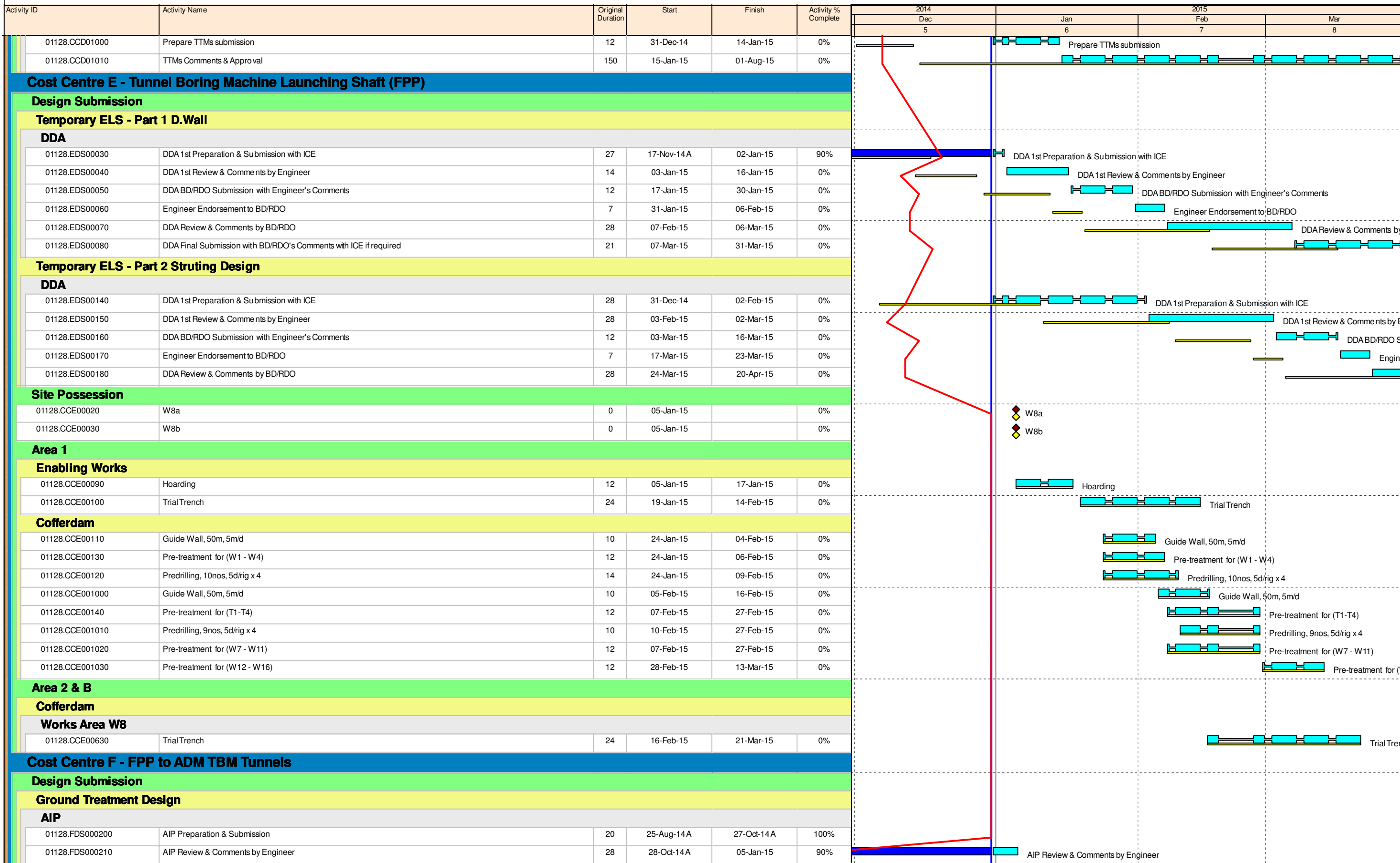
DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	2014			
						Dec	Jan	Feb	Mar
01128.DDS00300	DDA BD/RDO Submission with Engineer's Comments	12	05-Mar-15	18-Mar-15	0%				
01128.DDS00310	Engineer Endorsement to BD/RDO	7	19-Mar-15	25-Mar-15	0%				
01128.DDS00320	DDA Review & Comments by BD/RDO	28	26-Mar-15	22-Apr-15	0%				
Eastern TBM Tunnel Lining Design									
AIP									
01128.DDS00610	AIP Preparation & Submission	18	30-Sep-14A	13-Oct-14A	100%				
01128.DDS00630	AIP Review & Comments by Engineer	28	14-Oct-14A	11-Nov-14A	100%				
DDA									
01128.DDS00640	DDA 1st Preparation & Submission with ICE	28	12-Nov-14A	22-Jan-15	85%				
01128.DDS00650	DDA 1st Review & Comments by Engineer	28	23-Jan-15	19-Feb-15	0%				
01128.DDS00660	DDA BD/RDO Submission with Engineer's Comments	12	23-Feb-15	07-Mar-15	0%				
01128.DDS00670	Engineer Endorsement to BD/RDO	7	08-Mar-15	14-Mar-15	0%				
01128.DDS00680	DDA Review & Comments by BD/RDO	28	15-Mar-15	11-Apr-15	0%				
Sump Pit (SP5) Submission									
Instrumentation and Monitoring									
AIP									
01128.DDS00850	AIP Preparation & Submission	28	31-Dec-14	02-Feb-15	0%				
01128.DDS00870	AIP Review & Comments by Engineer	28	03-Feb-15	02-Mar-15	0%				
DDA									
01128.DDS00880	DDA 1st Preparation & Submission with ICE	28	03-Mar-15	08-Apr-15	0%				
Existing Structure Assessment (ground movements)									
AIP									
01128.DDS00970	AIP Preparation & Submission	28	31-Dec-14	02-Feb-15	0%				
01128.DDS00990	AIP Review & Comments by Engineer	28	03-Feb-15	02-Mar-15	0%				
DDA									
01128.DDS01000	DDA 1st Preparation & Submission with ICE	28	03-Mar-15	08-Apr-15	0%				
Temporary Support and Strengthening Structures									
AIP									
01128.DDS01090	AIP Preparation & Submission	28	31-Dec-14	02-Feb-15	0%				
01128.DDS01110	AIP Review & Comments by Engineer	28	03-Feb-15	02-Mar-15	0%				
DDA									
01128.DDS01120	DDA 1st Preparation & Submission with ICE	28	03-Mar-15	08-Apr-15	0%				
Associated Works									
Grouting - Wan Chai Sport Ground (Eastern & Western Running Tracks)									
Design Submission									
Permanent Concrete Slab									
DDA									
01128.DDS01350	DDA 1st Preparation & Submission with ICE	28	04-Oct-14A	26-Jan-15	85%				
01128.DDS01360	DDA Final Review & Approval by HyD/DSD/RDO/Engineer	28	27-Jan-15	23-Feb-15	0%				
01128.DDS01370	Construction Drawings Submission	12	24-Feb-15	09-Mar-15	0%				
Sea Wall Grouting									
Sea Wall Grouting at U97+687									
01128.CCD00940	Prepare TTMs submission	12	31-Dec-14	14-Jan-15	0%				
01128.CCD00950	TTMs Comments & Approval	150	15-Jan-15	01-Aug-15	0%				
Sea Wall Grouting at U97+628									

— Primary Baseline ■ Critical Activity
■ Actual Work ◆ Baseline Milestone
■ Non Critical Activity ◆ Milestone

11283MRP141231 SCL 1128 - SOV to Admiralty Tunnels
 3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		



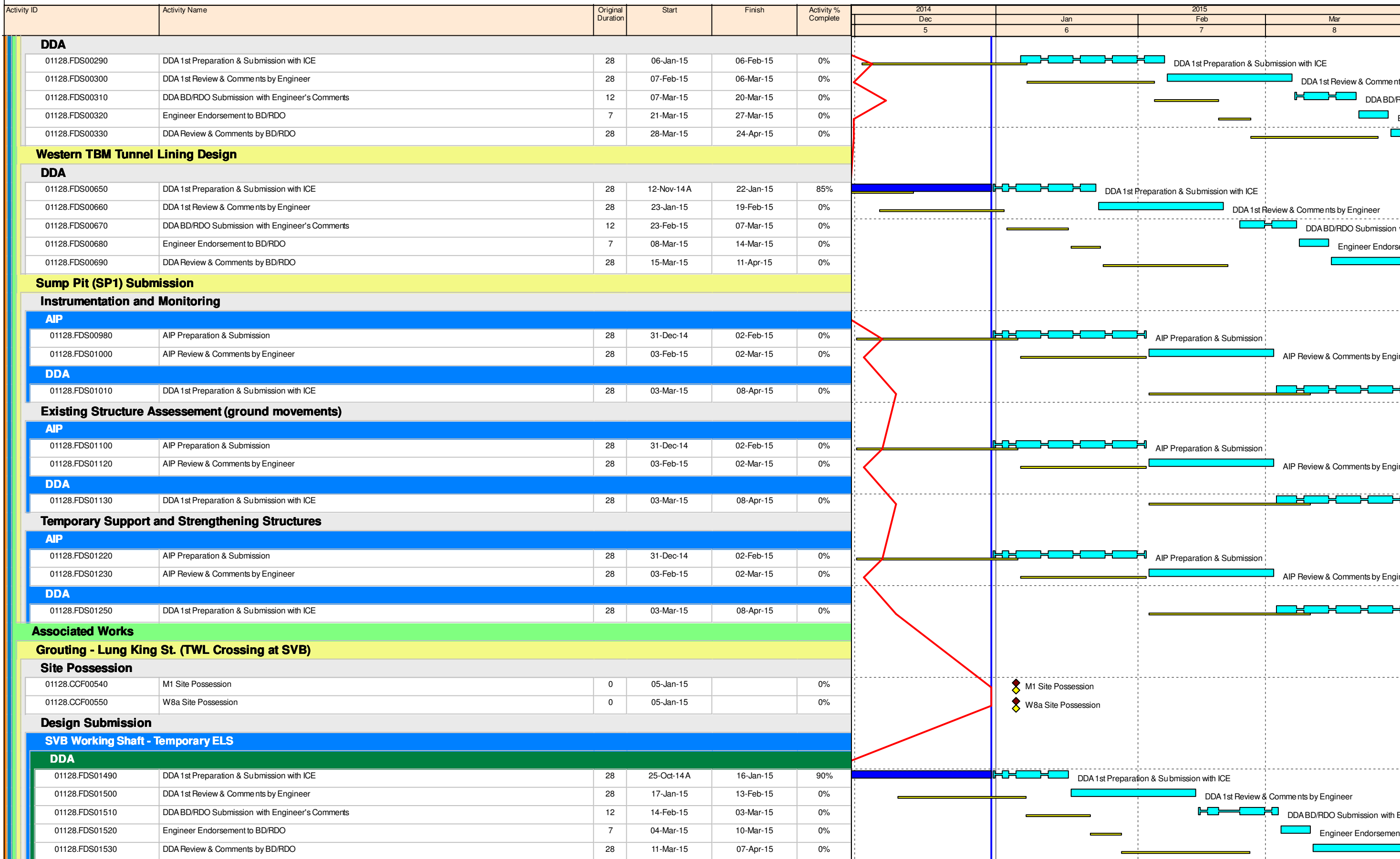
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— Actual Work ◆ Baseline Milestone
— Non Critical Activity ◆ Milestone

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SCL 1128 - SOV to Admiralty Tunnels
 3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
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31-Dec-14	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE



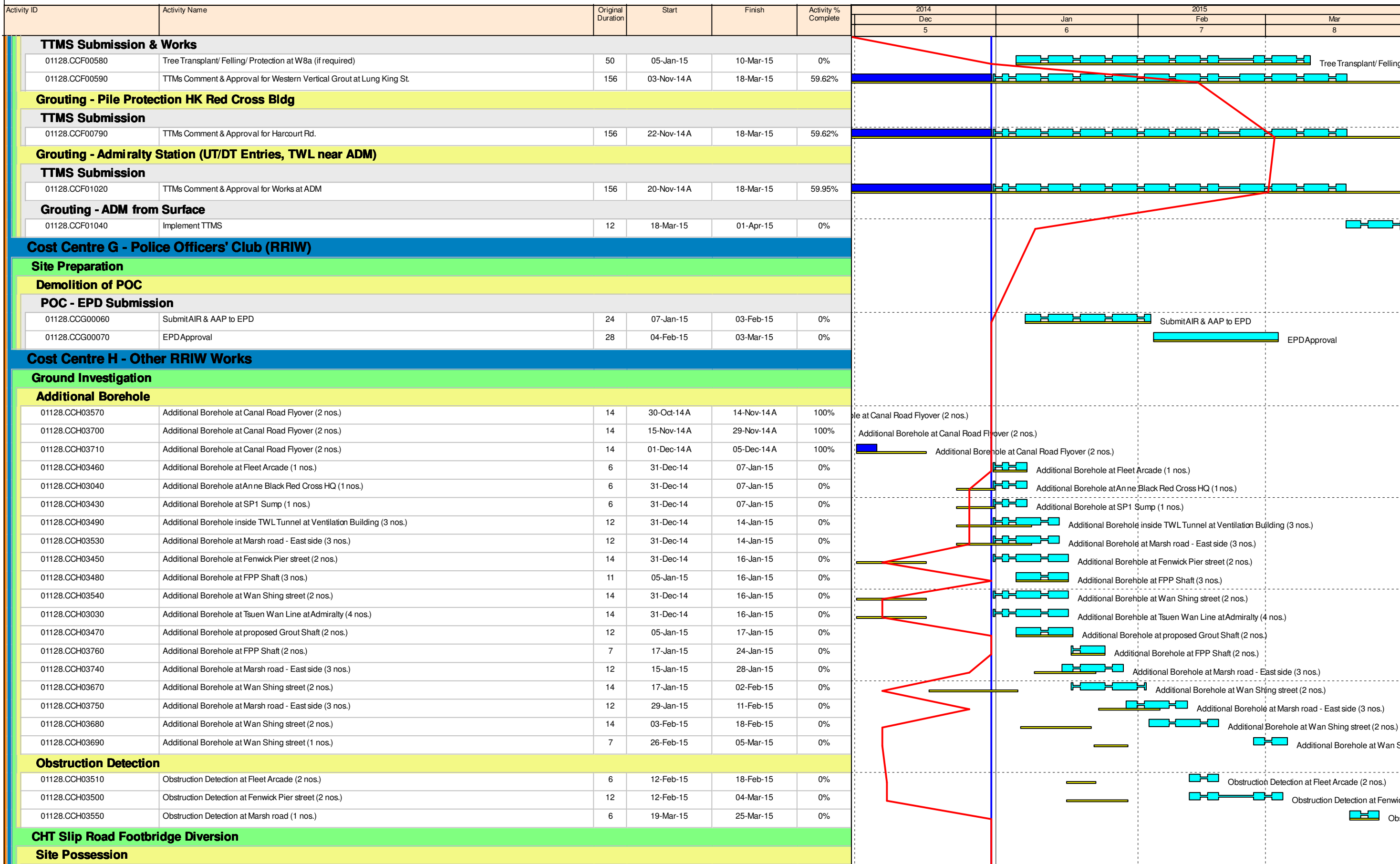
- Primary Baseline
- Critical Activity
- Actual Work
- Baseline Milestone
- Non Critical Activity
- Milestone

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SCL 1128 - SOV to Admiralty Tunnels
3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE



- Primary Baseline
- Critical Activity
- Actual Work
- ◆ Baseline Milestone
- Non Critical Activity
- ◆ Milestone

11283MRP141231

SCL 1128 - SOV to Admiralty Tunnels

3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	2014				2015										
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar							
01128.CCH00010	W3 Site Possession (Percival St. Footbridge)	0	23-Feb-15		0%															
TTMS & MS Submission																				
Egress/Ingress for Percival Street Footbridge																				
01128.CCH00020	Egress/IngressApplication & Approval	48	01-Dec-14A	09-Feb-15	29.17%															
TTMS for CHT Footbridge Underpinning																				
01128.CCH00110	Prepare & submit TTMS for CHT Footbridge Underpinning	12	01-Dec-14A	13-Dec-14 A	100%															
01128.CCH00120	TTMS Approval	183	15-Dec-14A	10-Mar-15	61.75%															
01128.CCH00130	TTMS Notification	14	11-Mar-15	24-Mar-15	0%															
MS for Percival Street Footbridge Demolition																				
01128.CCH00030	Prepare Method Statement for Footbridge Demolition	24	01-Dec-14A	20-Jan-15	29.17%															
01128.CCH00040	Engineer's comment method statement	24	21-Jan-15	17-Feb-15	0%															
01128.CCH00050	Resubmit method statement	14	18-Feb-15	12-Mar-15	0%															
01128.CCH00060	Approval of method statement	14	13-Mar-15	28-Mar-15	0%															
TTMS Works																				
01128.CCH00140	Take over 1129 & Modify site hoarding & entrance	6	26-Feb-15	04-Mar-15	0%															
01128.CCH00150	TTMs Implementation at W3	12	26-Feb-15	11-Mar-15	0%															
Pile Removal - Percival Street Footbridge (H16)																				
Design Submission																				
Temporary ELS																				
DDA																				
01128.HDS00020	DDA 1st Review & Comments by Engineer/HyD/DSD	28	31-Dec-14	27-Jan-15	0%															
01128.HDS00030	DDA HyD/DSD/RDO Submission with Engineer's Comments	12	28-Jan-15	10-Feb-15	0%															
01128.HDS00040	Engineer Endorsement to HyD/DSD/RDO	7	11-Feb-15	17-Feb-15	0%															
01128.HDS00050	DDA Review & Comments by HyD/DSD/RDO	28	18-Feb-15	17-Mar-15	0%															
01128.HDS00060	DDA Final Submission with HyD/DSD/RDO's Comments with ICE if required	21	18-Mar-15	15-Apr-15	0%															
Load Transfer of existing Footbridge Decking & Demolition																				
01128.CCH00160	Prepare footpath diversion	6	30-Mar-15	09-Apr-15	0%															
Cross Harbour Tunnel Footbridge (Underpinning)																				
Design Submission																				
Temporary ELS																				
DDA																				
01128.HDS00090	DDA 1st Preparation & Submission with ICE	28	02-Feb-15	09-Mar-15	0%															
01128.HDS00100	DDA 1st Review & Comments by Engineer	28	10-Mar-15	06-Apr-15	0%															
East CHT																				
01128.CCH00440	Cable detection & Trial trench	7	25-Mar-15	01-Apr-15	0%															
Causeway/Hung Hing Flyover (Underpinning)																				
Stage 1																				
01128.CCH00640	Cable Detection & Trial Pit	8	05-Mar-15	13-Mar-15	0%															
01128.CCH00650	Excavate underneath Deck 5-6 for grouting	6	14-Mar-15	20-Mar-15	0%															
Wan Shing St. Pile Removal Works (H10)																				
Design Submission																				
Pile Removal Design																				
DDA																				
01128.HDS00590	DDA Final Review & Approval by HyD/DSD/RDO/Engineer	28	31-Dec-14	27-Jan-15	0%															
01128.HDS00600	Construction Drawings Submission	12	28-Jan-15	10-Feb-15	0%															

— Primary Baseline — Critical Activity
— Actual Work ◆ Baseline Milestone
— Non Critical Activity ◆ Milestone

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 3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	2014				2015			
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar
						5	6	7	8				
TTMS Submission													
01128.CCH00950	TTMs Comments & Approval for W6	156	08-Sep-14A	18-Mar-15	59.62%	TTMs Comme							
TTMS Works													
01128.CCH00960	TTMs Implementation for Pile Removal (H10)	6	19-Mar-15	25-Mar-15	0%	TTM							
Pile Removal - Wan Shing St. Footbridge (H10)													
01128.CCH00990	Site Hoarding & Entrance	12	26-Mar-15	13-Apr-15	0%								
TARG (Pile Removal: D03, H13, D04 & Trunk Sewers)													
TTMS Submission													
Ingress/Egress													
01128.CCH01120	TTMs Comments & Approval for W4a/ W4b (Stage 2)	156	22-Nov-14A	18-Mar-15	59.62%								
TTMS Works													
01128.CCH01150	TTMs Implementation for Pile Removal of H10 & Grouting Works (Stage 2)	6	19-Mar-15	25-Mar-15	0%	TTM							
Canal Rd. Flyover (H13) - Pile Removal & Underpinning (Alternative scheme - 16nos. Pre-bored H-pile)													
Design Submission													
Temporary ELS													
DDA													
01128.HDS00630	Construction Drawings Submission	6	31-Dec-14	07-Jan-15	0%	Construction Drawings Submission							
Temporary Steel Frame to Support the Jacks													
AIP													
01128.HDS00710	AIP Preparation & Submission	28	14-Oct-14A	10-Jan-15	67.86%	AIP Preparation & Submission							
01128.HDS00720	AIP Review & Comments by Engineer/HyD/DSD/RDO	28	11-Jan-15	07-Feb-15	0%	AIP Review & Comments by Engineer/HyD/DSD/RDO							
DDA													
01128.HDS00730	DDA 1st Preparation & Submission with ICE	28	09-Feb-15	16-Mar-15	0%	DDA 1st Prepar							
01128.HDS00740	DDA 1st Review & Comments by Engineer/HyD/DSD	28	17-Mar-15	13-Apr-15	0%								
Permanent Pre-bored H-piles and Pile Caps													
DDA													
01128.HDS00960	Construction Drawings Submission	12	31-Dec-14	14-Jan-15	0%	Construction Drawings Submission							
Site Set-up & Initial works													
01128.CCH02720	Take over 1129 Instrumentation and Install 1128 Instrumentation (7nos.)	12	22-Oct-14A	05-Nov-14 A	100%	n and Install 1128 Instrumentation (7nos.)							
Stage 1 - ELS													
01128.CCH01200	Installation of Sheetpile (part 1)	9	14-Nov-14A	01-Dec-14 A	100%	Installation of Sheetpile (part 1)							
01128.CCH03770	Installation of Sheetpile (part 2)	9	02-Dec-14A	20-Dec-14 A	100%	Installation of Sheetpile (part 2)							
01128.CCH01210	Excavation to +1.0mPD (1500m3, 150m3/d) (part 1)	10	22-Dec-14A	09-Jan-15	20%	Excavation to +1.0mPD (1500m3, 150m3/d) (part 1)							
01128.CCH03780	Excavation to +1.0mPD (1026m3, 150m3/d) part 2)	7	10-Jan-15	17-Jan-15	0%	Excavation to +1.0mPD (1026m3, 150m3/d) part 2)							
Piling Works													
01128.CCH01220	Site Setup for Piling Rig	6	10-Jan-15	16-Jan-15	0%	Site Setup for Piling Rig							
01128.CCH01230	1. Construction of 2 no. of Pre-bored H-piles (2 rigs, 13d/pile)	13	17-Jan-15	31-Jan-15	0%	1. Constructi							
01128.CCH01240	2. Construction of 2 no. of Pre-bored H-piles (2 rigs, 13d/pile)	13	02-Feb-15	16-Feb-15	0%								
Canal Rd. Box Culvert & Pile Removal (D03) - Option 1: Re-sequence Comforming Scheme													
Design Submission													
Temporary ELS													
DDA													
01128.HDS01030	Engineer Endorsement to HyD/DSD/RDO	7	11-Dec-14 A	17-Dec-14 A	100%	Engineer Endorsement to HyD/DSD/RDO							
01128.HDS01040	DDA Review & Comments by HyD/DSD/RDO	28	18-Dec-14A	19-Jan-15	28.57%	DDA Review & Comments by HyD/DSD/RDO							
01128.HDS01050	DDA Final Submission with HyD/DSD/RDO's Comments with ICE if required	12	20-Jan-15	02-Feb-15	0%	DDA Final Submission with HyD/DSD/RDO's Comments with							

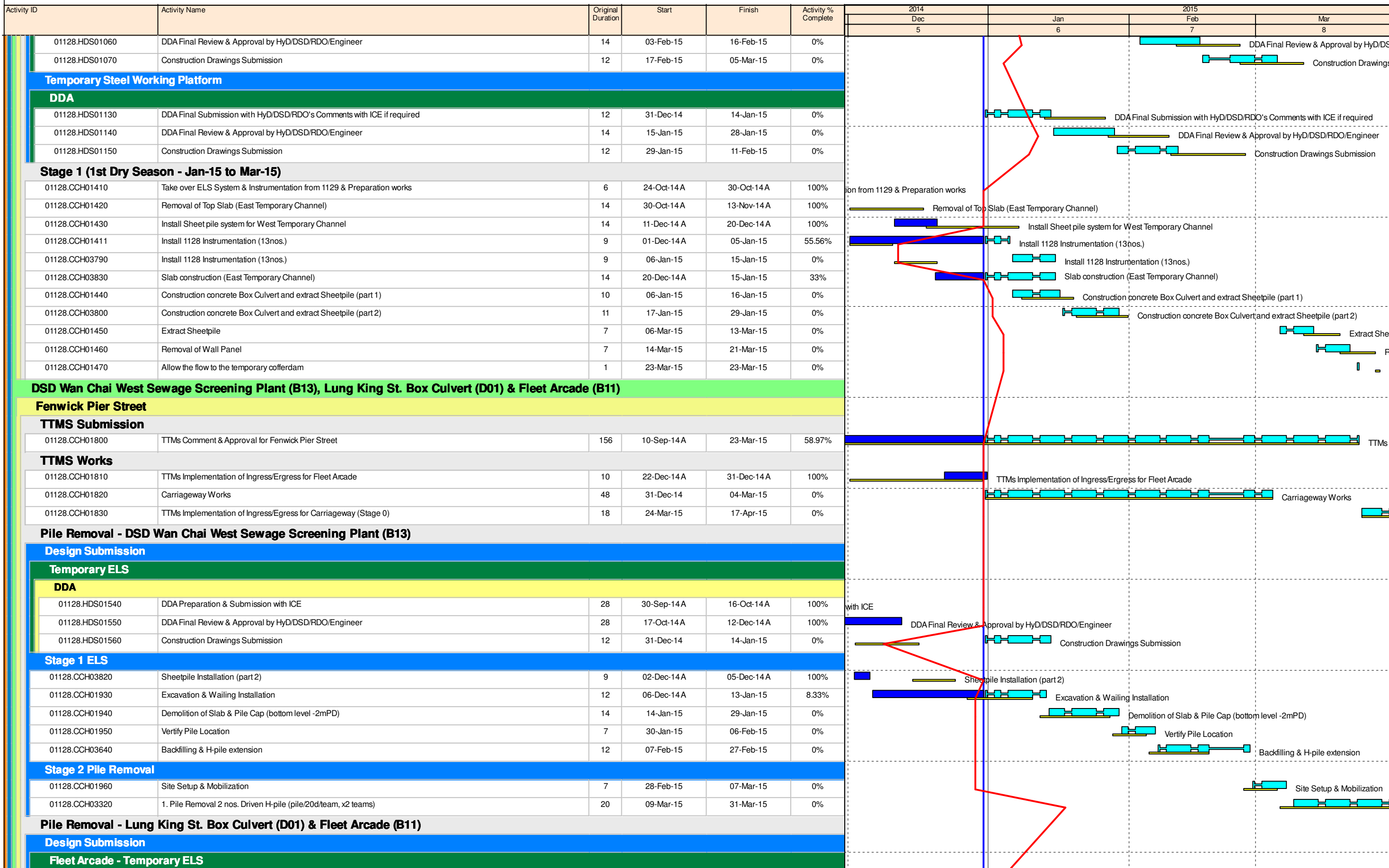
Primary Baseline	Critical Activity
Actual Work	Baseline Milestone
Non Critical Activity	Milestone

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3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

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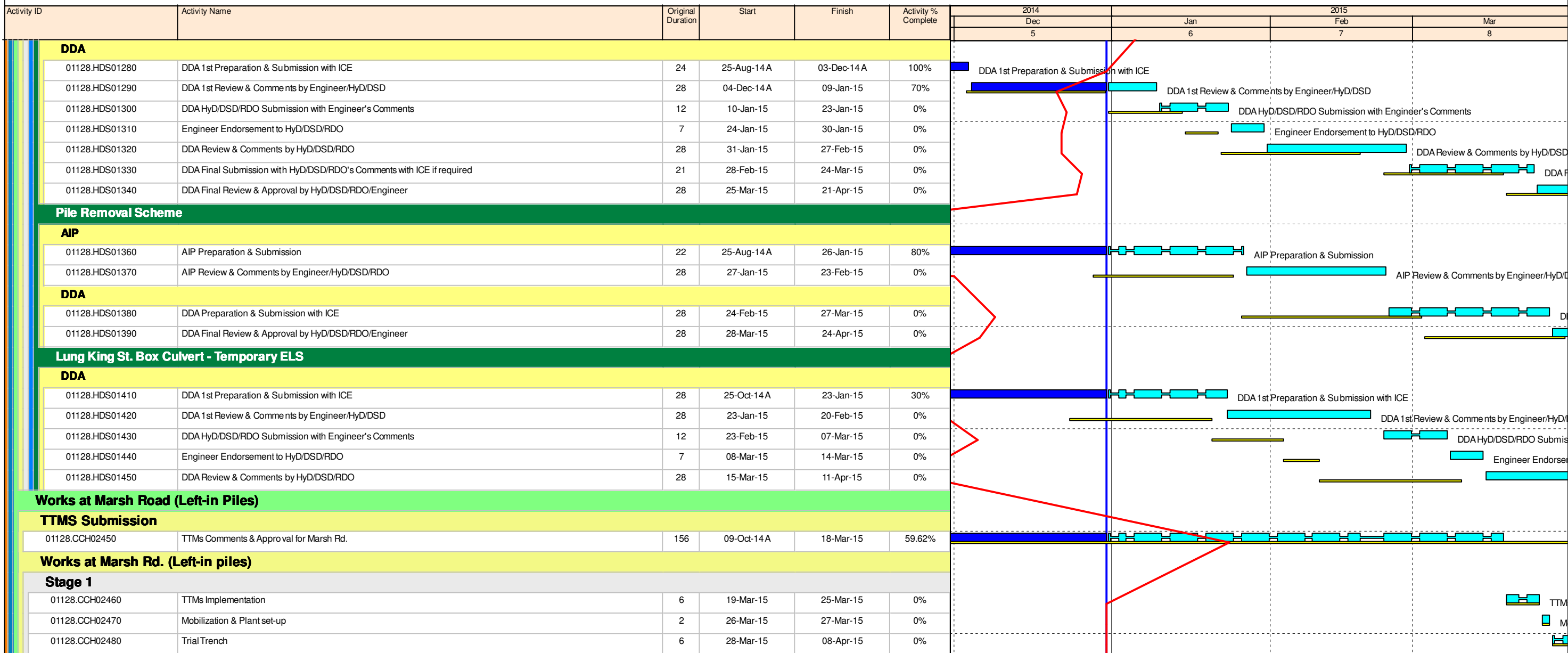
- Primary Baseline
- Critical Activity
- Actual Work
- Non Critical Activity
- Baseline Milestone
- Milestone

11283MRP141231

SCL 1128 - SOV to Admiralty Tunnels
 3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE



- Primary Baseline
- Critical Activity
- Actual Work
- Baseline Milestone
- Non Critical Activity
- Milestone

11283MRP141231

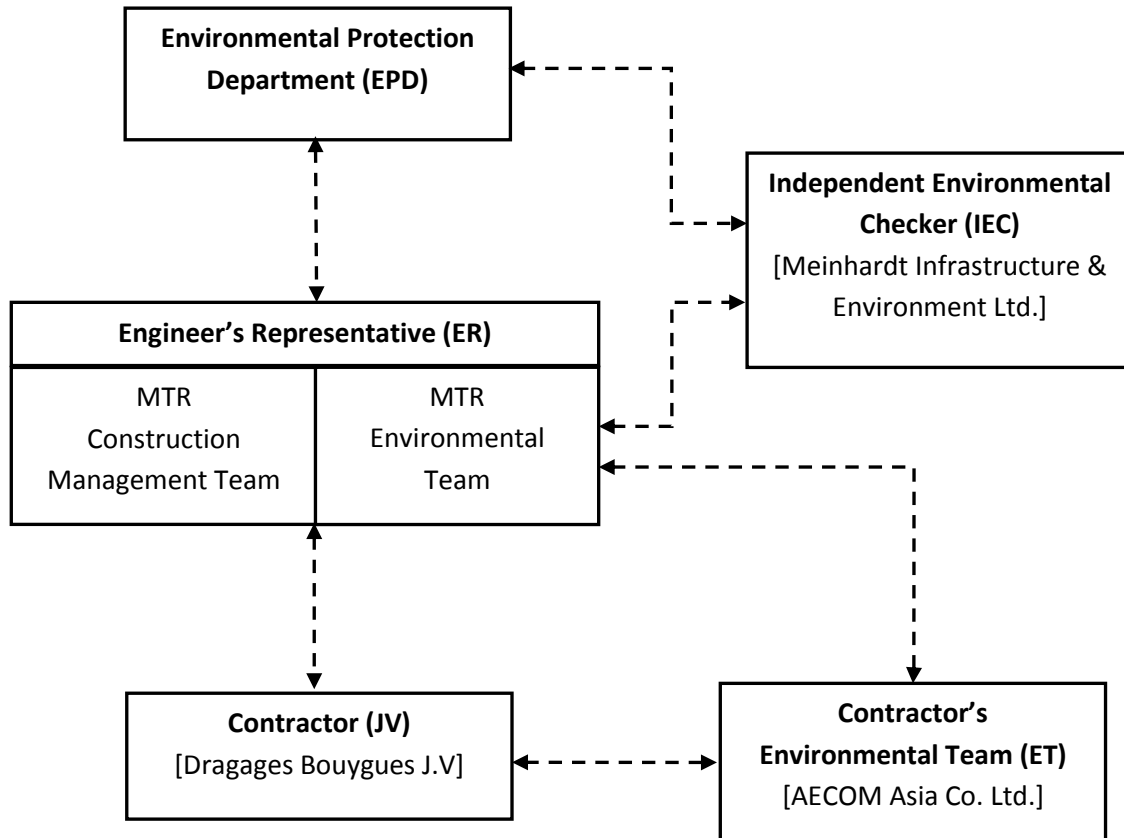
SCL 1128 - SOV to Admiralty Tunnels
3 Month Rolling Programme (Data Date: 31-Dec-14)

1128			
Date	Revision	Checked	Approved
31-Dec-14	1128 - 3MRP		

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Environmental Mitigation Measures Implementation Schedule

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Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	N/A
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and deposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	N/A
Air Quality						
/	Emission from Vehicles and Plants <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Construction Dust Impact						
Table 8.5	<p>Barging facilities:</p> <ul style="list-style-type: none"> (i) Transportation of spoils to the barging point – Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m² once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0L/m² to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. (ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits. 	To minimize dust impacts	Contractor	All barging points	Construction phase	N/A
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i> shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	N/A
Table 8.6	<p>During operation of concrete batching plant:</p> <ul style="list-style-type: none"> (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided. 	To minimize dust impacts	Contractor	Concrete Batching Plant	Construction phase	N/A
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	@

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S8.89	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission	To minimize dust impact	Contractor	All barging points	Construction phase	N/A
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: <ul style="list-style-type: none"> • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise 	To minimize dust impacts	Contractor	Works areas	Construction phase	@ @ N/A N/A N/A V N/A V V V N/A V
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: <ul style="list-style-type: none"> • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities 	To minimize construction noise impact	Contractor	Works areas	Construction phase	V N/A V V V N/A

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Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S9.56 & Table 9.16	<p>The following quiet PME shall be used:</p> <ul style="list-style-type: none"> • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory 	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel 	Construction phase	<p>N/A N/A N/A V N/A N/A N/A N/A N/A N/A V V V N/A N/A N/A</p>
S9.58 – S9.59 & Table 9.17	<p>Movable noise barrier shall be used for the following PME:</p> <ul style="list-style-type: none"> • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete 	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel 	Construction phase	<p>N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A</p>
S9.60 & Table 9.17	<p>Noise insulating fabric shall be used for</p> <ul style="list-style-type: none"> • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic) 	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel 	Construction phase	<p>N/A N/A N/A N/A N/A N/A N/A</p>

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Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Water Quality Impact						
Construction Phase						
S11.216	<p>The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront:</p> <ul style="list-style-type: none"> • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters. 	To minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction Phase	V N/A N/A
S11.222 to 11.245	<p>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable.</p> <p><u>Surface Run-off</u></p> <ul style="list-style-type: none"> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall 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. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. 	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	@ @ V N/A N/A N/A @ V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <p><u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance. 					<p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p>
S11.246 & 11.247	<p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p>	<p>To minimize water quality impacts due to sewage generated from construction workforce</p>	<p>Contractor</p>	<p>Works areas</p>	<p>Construction Phase</p>	<p style="text-align: center;">N/A</p>
S11.248	<p>In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.</p>	<p>To minimize impact from discharge of uncontaminated groundwater</p>	<p>Contractor</p>	<p>Works areas</p>	<p>Construction Phase</p>	<p style="text-align: center;">N/A</p>

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S11.249	If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.	To control site run-off generated from any potential contaminated works areas.	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.250 & S11.251	No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	To minimize potential water quality impact from discharge of contaminated groundwater	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.252	The following good site practices shall be adopted for the proposed barging points: <ul style="list-style-type: none"> • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash • all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site • loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation 	To minimize water quality impacts generated from the barging points.	Contractor	Barging points	Construction Phase	N/A
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction Phase	@

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S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	N/A
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area. 	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	N/A N/A N/A
Waste Management Implications						
Construction Phase						
S12.75	Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; Provision of sufficient waste disposal points and regular collection of waste; Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and Separation of chemical wastes for special handling and appropriate treatment. 	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V N/A N/A N/A
S12.76	Good Site Practices and Waste Reduction Measures (con't) <ul style="list-style-type: none"> Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; Proper storage and site practices to minimize the potential for damage or contamination of construction materials; Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. 	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A V N/A V V V
S12.77	Good Site Practices and Waste Reduction Measures (con't) The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V

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	The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.					
S12.78	Good Site Practices and Waste Reduction Measures (con't) C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; Maintain and clean storage areas routinely; Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and Different locations shall be designated to stockpile each material to enhance reuse. 	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	N/A N/A N/A
S12.80	Storage, Collection and Transportation of Waste (con't) Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> Remove waste in timely manner Waste collectors shall only collect wastes prescribed by their permits Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) Waste shall be disposed of at licensed waste disposal facilities Maintain records of quantities of waste generated, recycled and disposed 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	N/A N/A N/A N/A N/A N/A
S12.81	Storage, Collection and Transportation of Waste (con't) <ul style="list-style-type: none"> Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed. 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	Sorting of C&D Materials <ul style="list-style-type: none"> Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels. 	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V V
S12.88	Sediments <ul style="list-style-type: none"> The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance. 	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A

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S12.89	<p>Sediments (con't)</p> <ul style="list-style-type: none"> The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works. 	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A
S12.91 – 12.94	<p>Sediments (con't)</p> <ul style="list-style-type: none"> Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. 	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	<p>Sediments (con't)</p> <ul style="list-style-type: none"> A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed. 	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
/	<p>Accidental spillage</p> <p>To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> Proper storage and handling facilities will be provided. All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	<p>@</p> <p>@</p> <p>V</p> <p>N/A</p>

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S12.97	<p>Containers for Storage of Chemical Waste The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation. 	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	N/A N/A N/A
S12.98	<p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated. 	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	N/A N/A N/A N/A N/A
S12.99	<p>Chemical Waste</p> <ul style="list-style-type: none"> • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. 	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	N/A
S12.100	<p>Collection and Disposal of Chemical Waste <i>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</i> to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>.</p>	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	N/A
S12.101	<p>General Refuse General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.</p>	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.102	<p>General Refuse (con't) The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.</p>	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	N/A
S12.103	<p>General Refuse (con't) The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.</p>	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V

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Land Contamination Impact						
S13.23–13.24	For construction works at sites under the current stage of site investigation (Stage 1 SI): <ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP). 	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Within Project Boundary where signs of contamination is identified	During excavation works for Cut-and-Cover	N/A
S13.30	For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28)	During excavation works for Cut-and-Cover	N/A
S13.36 – 13.38	For areas inaccessible for proper site appraisal and investigation (Stage 2 SI) <p>(i) Site 2-15</p> <ul style="list-style-type: none"> Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation A supplementary CAP shall then be submitted to EPD for endorsement. A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. No construction work shall be carried out prior to the endorsement of the RR by EPD. 	<p>To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary.</p> <p>To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.</p>	Contractor	Areas unable to be accessed during Stage 1 SI (Site 2-15)	After land resumption and prior to the construction works commencement at the site	N/A
S13.39	Potential Remediation of Contaminated Soil <ul style="list-style-type: none"> Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material is needed after excavation; If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; Speed control for the trucks carrying contaminated materials shall be enforced; Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines. 	To remediate contaminated soil	Contractor	Identified contaminated sites	Site remediation	N/A

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S13. 40	In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible: <ul style="list-style-type: none"> • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers. 	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	Identified contaminated sites	Site remediation and prior to construction phase	N/A

Legend: V = implemented;
 x = not implemented;
 @ = partially implemented;
 N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
AM4	Pedestrian Plaza	198 µg/m ³	260 µg/m ³

**Table 2 Action and Limit Levels for Construction Noise
 (0700 – 1900 hrs of normal weekdays)**

ID	Location	Action Level	Limit Level
NM1*	Hoi Kung Court	When one documented complaint is received	75 dB(A)

* The noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited

TSP High Volume Sampler

Field Calibration Report

Station: Pedestrian Plaza Operator: Shum Kam Yuen
 Cal. Date: 24-Nov-14 Next Due Date: 24-Feb-15
 Equipment No.: A-001-70T Serial No.: 10273

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	764.0

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (m ³ /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	7.4	2.74	1.39	45.0	45.35
13	6.2	2.51	1.28	39.0	39.30
10	5.0	2.25	1.15	35.0	35.27
7	3.4	1.86	0.95	27.0	27.21
5	2.2	1.49	0.76	21.0	21.16

By Linear Regression of Y on X
 Slope, mw = 37.8140 Intercept, bw = -8.1030
 Correlation Coefficient* = 0.9954
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 40.74

Remarks: _____

QC Reviewer: WS CHAN Signature: [Signature] Date: 25/11/14



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 28, 2014 Rootsmeter S/N 0438320 Ta (K) - 296
 Operator Tisch Orifice I.D. - 0988 Pa (mm) - 751.84

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	1.3790	3.2	2.00
2	NA	NA	1.00	0.9720	6.4	4.00
3	NA	NA	1.00	0.8690	7.9	5.00
4	NA	NA	1.00	0.8260	8.8	5.50
5	NA	NA	1.00	0.6830	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9917	0.7191	1.4113	0.9957	0.7221	0.8874
0.9875	1.0159	1.9959	0.9915	1.0201	1.2549
0.9854	1.1339	2.2315	0.9894	1.1385	1.4030
0.9843	1.1916	2.3405	0.9883	1.1965	1.4715
0.9790	1.4333	2.8227	0.9829	1.4392	1.7747
Qstd slope (m) = 1.97518			Qa slope (m) = 1.23683		
intercept (b) = -0.01001			intercept (b) = -0.00630		
coefficient (r) = 0.99998			coefficient (r) = 0.99998		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

$$Vstd = \text{Diff. Vol} [(Pa - \text{Diff. Hg}) / 760] (298 / Ta)$$

$$Qstd = Vstd / \text{Time}$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg}) / Pa]$$

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

$$Qa = 1/m \{ [\text{SQRT} H2O(Ta/Pa)] - b \}$$

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Impact Environmental Monitoring Schedule for December 2014**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
		Air Quality (AM4)				
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
	Air Quality (AM4)					Air Quality (AM4)
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
					Air Quality (AM4)	
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
			Air Quality (AM4)			
28-Dec	29-Dec	30-Dec	31-Dec			
		Air Quality (AM4)				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Environmental Monitoring Schedule for January 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Jan	2-Jan	3-Jan
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
	Air Quality (AM4)					Air Quality (AM4)
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
			Air Quality (AM4)			
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
		Air Quality (AM4)				
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
	Air Quality (AM4)					Air Quality (AM4)

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Environmental Monitoring Schedule for February 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb
					Air Quality (AM4)	
8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb
				Air Quality (AM4)		
15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb
			Air Quality (AM4)			
22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb
		Air Quality (AM4)				Air Quality (AM4)

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Environmental Monitoring Schedule for March 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Mar	2-Mar	3-Mar	4-Mar	5-Mar	6-Mar	7-Mar
					Air Quality (AM4)	
8-Mar	9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar
				Air Quality (AM4)		
15-Mar	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar
			Air Quality (AM4)			
22-Mar	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar
		Air Quality (AM4)				
29-Mar	30-Mar	31-Mar				
	Air Quality (AM4)					

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

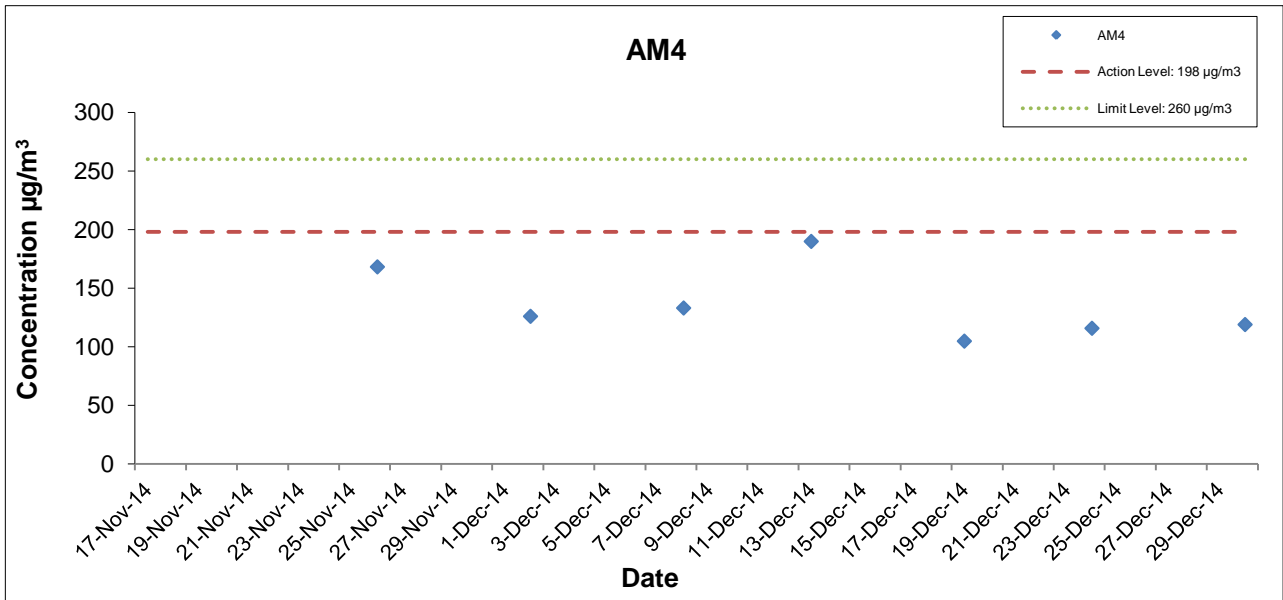
APPENDIX G

**Air Quality Monitoring Results and
their Graphical Presentations**

**Appendix G
Air Quality Monitoring Results**

24-hour TSP Monitoring Results at Station AM4 (Pedestrian Plaza)

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
2-Dec-14	0:00	3-Dec-14	0:00	Cloudy	16.4	1019.5	1.27	1.27	1.27	1833.1	2.7725	3.0035	0.2310	16953.00	16977.00	24.00	126.0
8-Dec-14	0:00	9-Dec-14	0:00	Fine	18.3	1020.5	1.27	1.27	1.27	1833.1	2.7814	3.0254	0.2440	16977.00	17001.00	24.00	133.1
13-Dec-14	0:00	14-Dec-14	0:00	Fine	14.6	1025.6	1.27	1.27	1.27	1833.1	2.7200	3.0682	0.3482	17001.00	17025.00	24.00	189.9
19-Dec-14	0:00	20-Dec-14	0:00	Rainy	13.0	1024.0	1.27	1.27	1.27	1833.1	2.7275	2.9197	0.1922	17025.00	17049.00	24.00	104.8
24-Dec-14	0:00	25-Dec-14	0:00	Fine	18.7	1021.4	1.27	1.27	1.27	1833.1	2.7128	2.9251	0.2123	17049.00	17073.00	24.00	115.8
30-Dec-14	0:00	31-Dec-14	0:00	Sunny	14.9	1019.8	1.27	1.27	1.27	1833.1	2.7148	2.9324	0.2176	17073.00	17097.00	24.00	118.7
Average																131.4	
Minimum																104.8	
Maximum																189.9	



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Shatin Central Link Contract No. 1128
 South Ventilation Building to Admiralty Tunnels



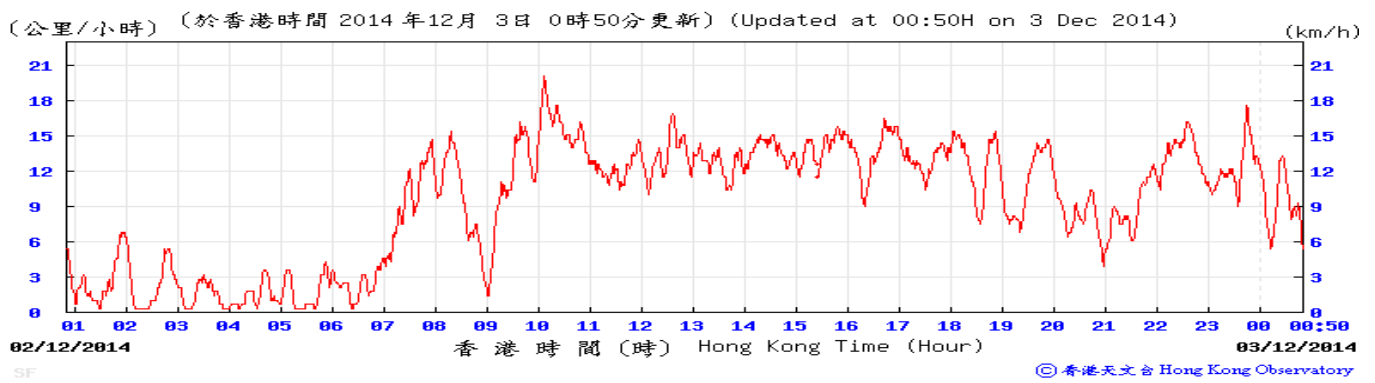
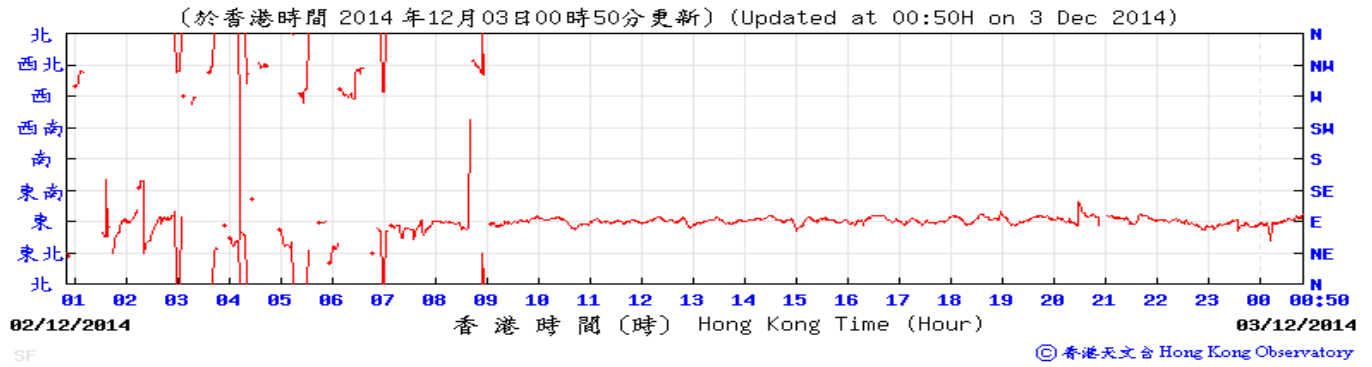
Graphical Presentation of Impact 24-hr TSP Monitoring Results

Date: December 2014

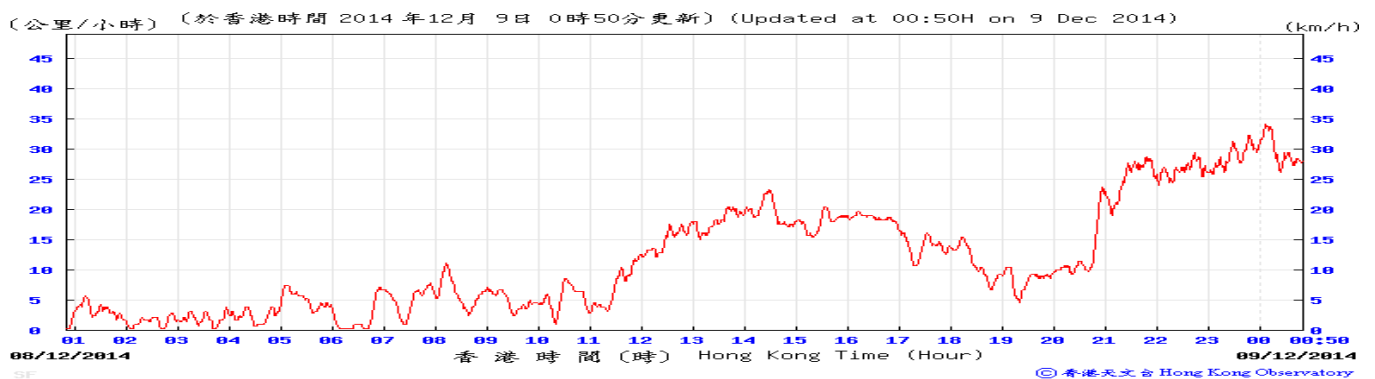
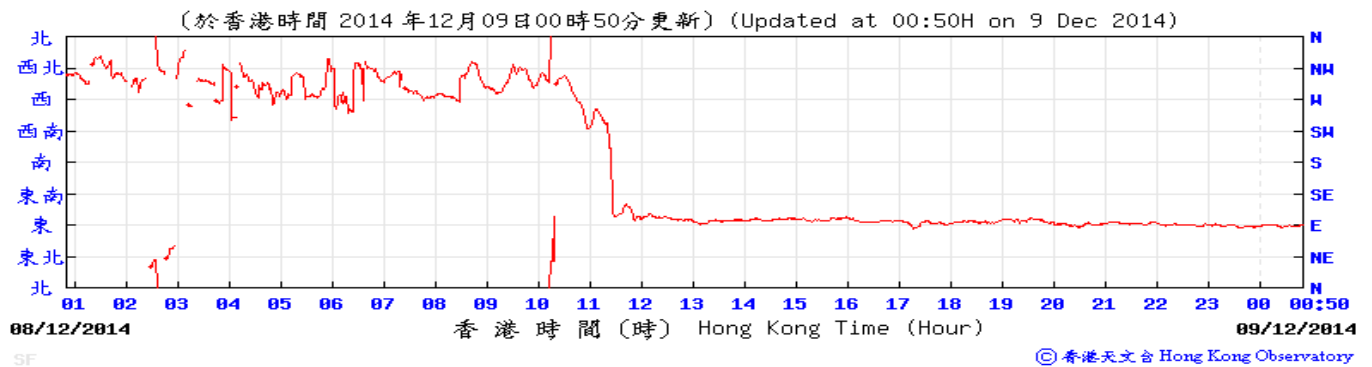
Appendix G

Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, December 2014

2-Dec-14

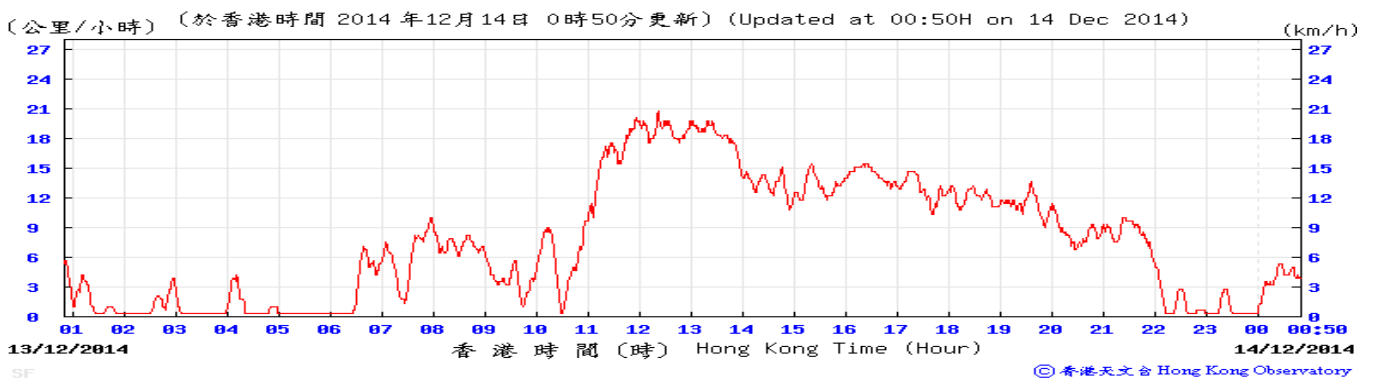
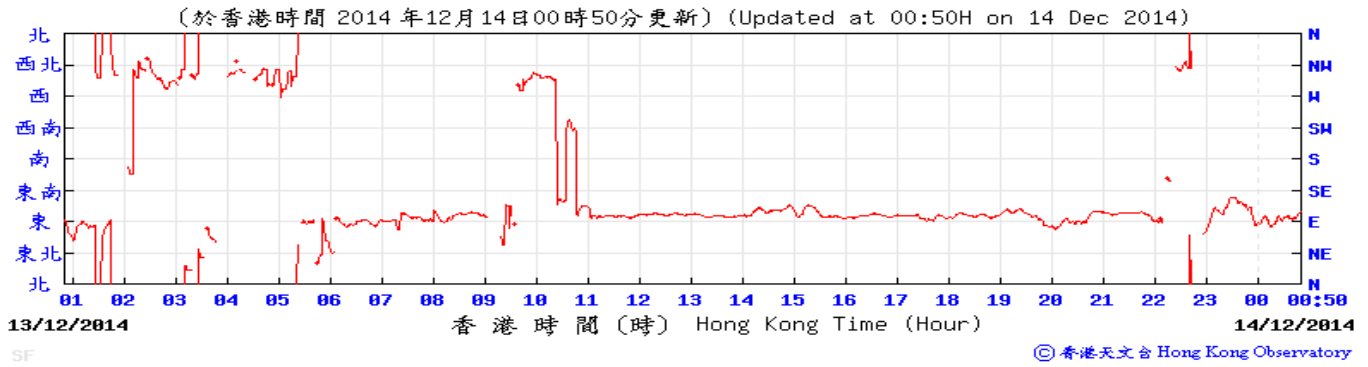


8-Dec-14

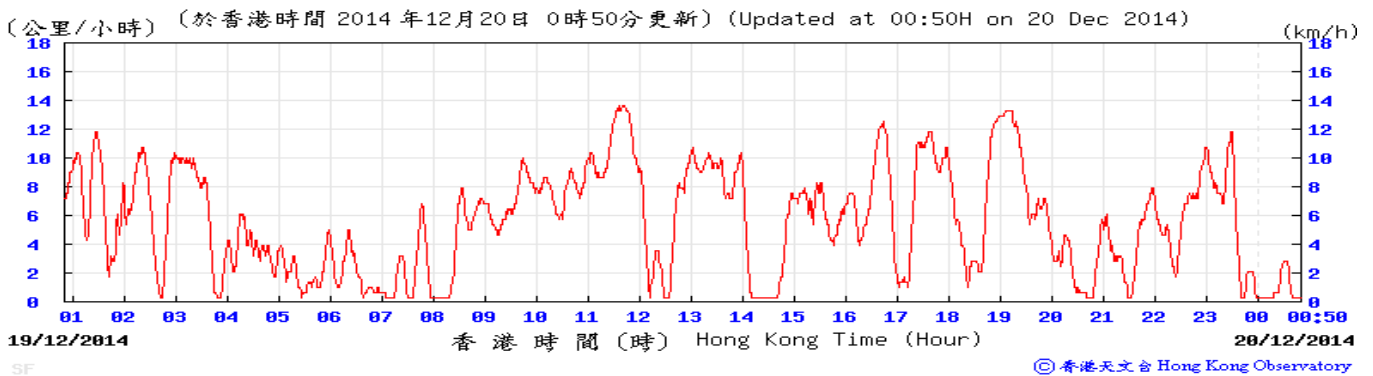
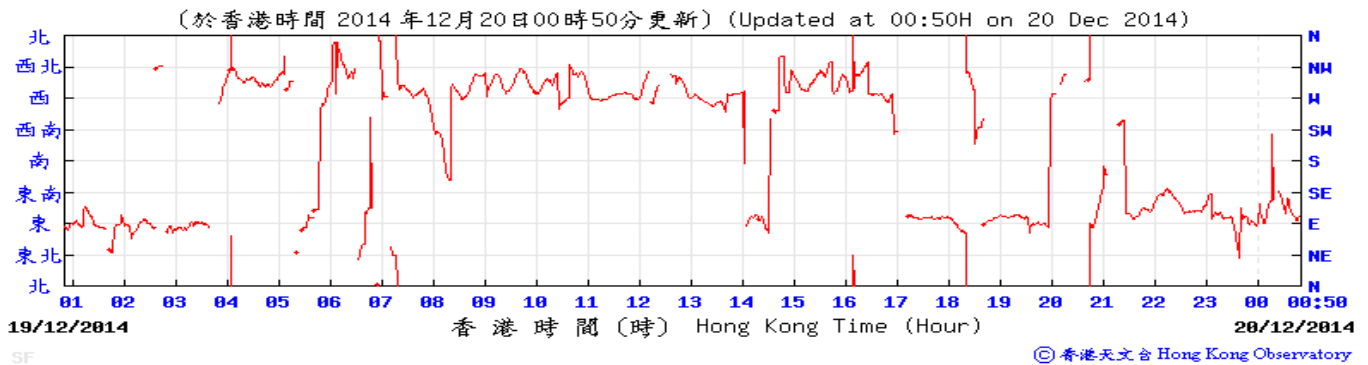


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, December 2014

13-Dec-14

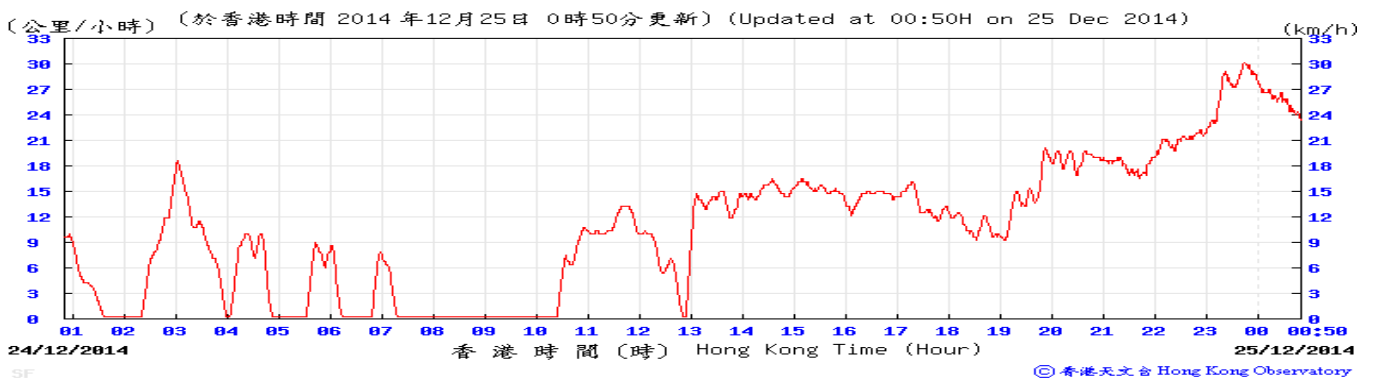
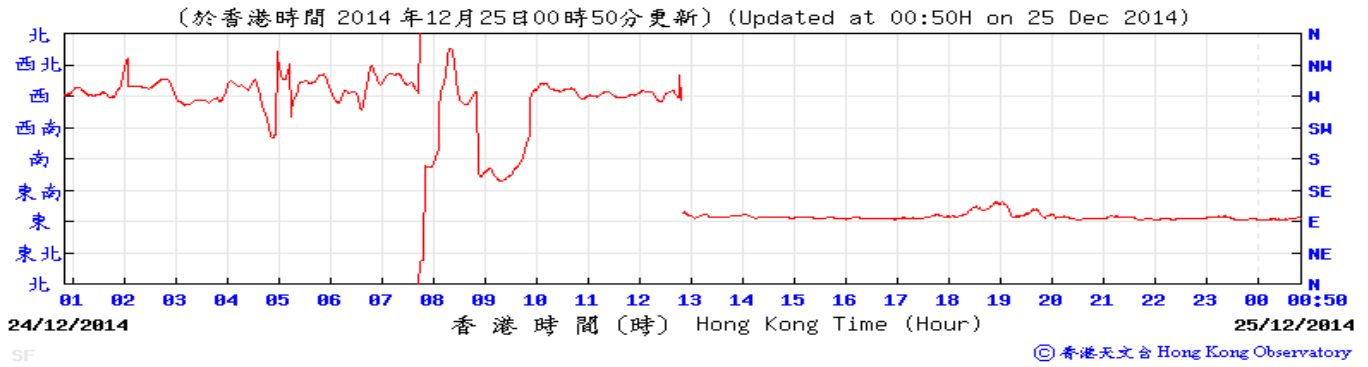


19-Dec-14

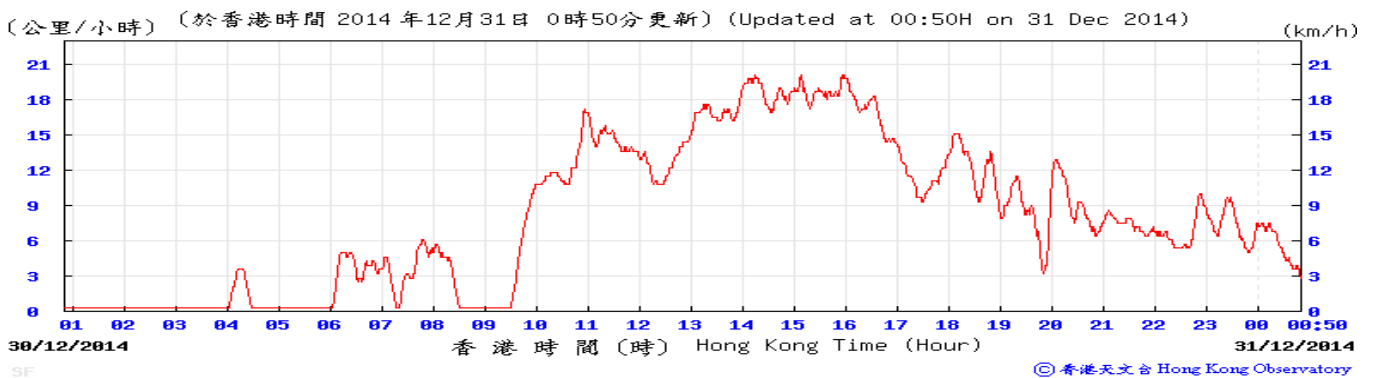
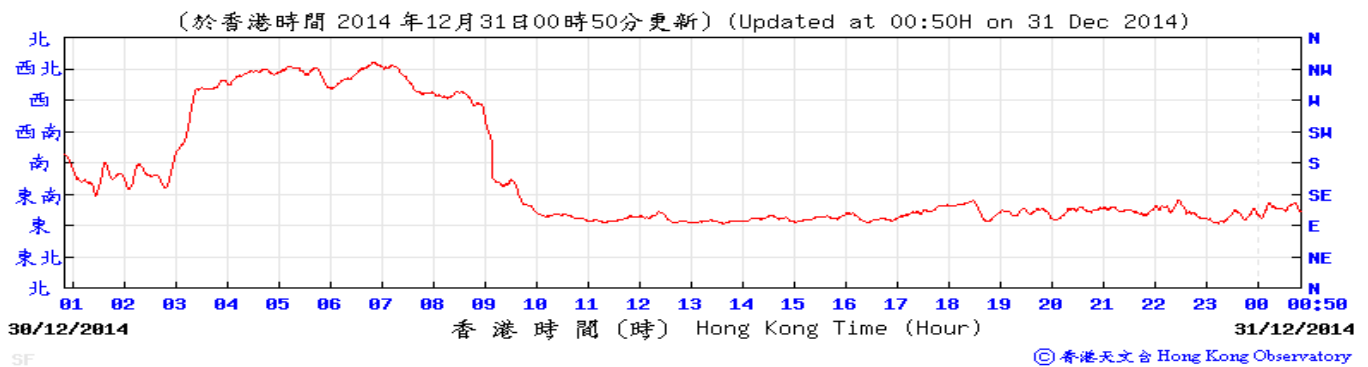


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, December 2014

24-Dec-14



30-Dec-14



APPENDIX H

Event Action Plan

Appendix H Event Action Plan

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing. 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

Appendix H Event Action Plan

EVENT	ACTION			
	ET	IEC	ER	Contractor
LIMIT LEVEL				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix H Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX I

**Cumulative Statistics of Complaints, Notification of Summons
and Successful Prosecutions**

Appendix I

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX J

Waste Flow Table

SCL Contract 1128

updated to 31st Dec 2014

Monthly Summary C&D Material Flow Table for 2014

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m ³)						Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m ³)						Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m ³)	Sediment (m ³)
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	TM38FB	^Other Site	Total (m ³)	Total	Total		Total	Total	Total
2014/11 (Actual)	0	313	0	0	0	313	0	0	0	0	0.0	0
2014/12 (Actual)	0	360	0	0	0	360	0	0	0	0	1.1	0
Total	0	673	0	0	0	673	0	0	0	0	1.1	0

- Remark:**
- *Assume the density is 2 tonnes per cubic metre
 - ^Required to be approved by EPD and MTR
 - 1 **CWPFBP** Chai Wan Public Fill Barging Point
 - 2 **TKO137FB** Fill Bank at Tseung Kwan O Area 137
 - 3 **TM38FB** Fill Bank at Tuen Mun
 - 4 **TKO137SF** Sorting Facilities at Tseung Kwan O Area 137