

MTR Corporation Limited

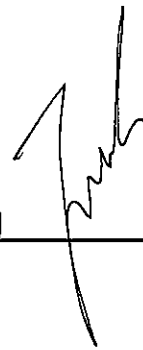
**Shatin to Central Link –  
Hung Hom to Admiralty Section**

Monthly EM&A Report No. 10

[Period from 1 to 28 February 2015]

(March 2015)

Verified by: Fredrick Leong



Position: Independent Environmental Checker

Date: 11 March 2015

MTR Corporation Limited

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

Monthly EM&A Report No. 10

[Period from 1 to 28 February 2015]

(March 2015)

Certified by: Richard Kwan



Position: Environmental Team Leader

Date: 11 March 2015

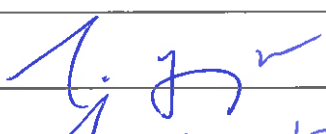

**MTR Corporation Limited**

Consultancy Agreements  
No. C11033B

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

**Monthly EM&A Report No. 10**

[Period from 1 to 28 February 2015]

	Name	Signature
Prepared & Checked:	Joanne Tsoi	
Reviewed & Approved:	Josh Lam	

Version: A

Date: 11 March 2015

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## Table of Contents

	Page
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 Background .....	1
1.2 Project Programme .....	1
1.3 Purpose of the Report .....	2
<b>2 ENVIRONMENTAL MONITORING AND AUDIT .....</b>	<b>2</b>
<b>3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>5</b>

## List of Tables

Table 1.1	Summary of Awarded Works Contracts
Table 2.1	Summary of Major Construction Activities in the Reporting Period
Table 2.2	Summary of 24-Hour TSP Monitoring Results in the Reporting Period
Table 2.3	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 2.4	Log for Environmental Complaints, Notification of Summons and Successful Prosecutions
Table 3.1	Summary of EP Submissions Status

## List of Appendices

Appendix A	Monthly EM&A Report for February 2015 – SCL Works Contract 1129 Advance Works for NSL
Appendix B	Monthly EM&A Report for February 2015 – SCL Works Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool
Appendix C	Monthly EM&A Report for February 2015 – SCL Works Contract 1128 South Ventilation Building to Admiralty Tunnels



## 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 <sup>(1)</sup>	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)

Note:

- (1) Construction works in Victoria Harbour and Shek O Casting Basin under Works Contract 11227 were completed in 15 and 20 December 2014 respectively.

- 1.2.2 Works including trial trenching in Victoria Harbour and site levelling and rock filling in Shek O Casting Basin under Works Contract 11227 have completed in mid-December 2014. Post-project water quality monitoring of 4 weeks has also been undertaken and completed that Final EM&A Review Report was submitted to EPD on 12 February 2015.

### 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 tenth 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 28 February 2015.

## 2 ENVIRONMENTAL MONITORING AND AUDIT

### 2.1 EM&A Results

- 2.1.1 The EM&A Report for Works Contracts 1129, 1126 and 1128 prepared by the respective Contractor's ETs are provided in **Appendices A to C** 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"> <li>Construction of Site Office; and</li> <li>Material storage.</li> </ul>
	Public Transport Interchange (PTI) Area	<ul style="list-style-type: none"> <li>Soil Replacement Works;</li> <li>Construction of Store Room;</li> <li>Manhole construction &amp; underground utilities connection;</li> <li>Construction of ducting for street lighting;</li> <li>Construction of footing for bus shelter and signage post; and</li> <li>Construction of Temporary Public Toilet.</li> </ul>
1128	Area W1 (Reclamation Works Area)	<ul style="list-style-type: none"> <li>Hoarding erection, pedestrian path concreting, ground treatment; and</li> <li>Equipment mobilization.</li> </ul>
	Area W4a (Canal Road box culvert)	<ul style="list-style-type: none"> <li>Modification of 1129's box culvert base slab and construction of steel platform; and</li> <li>Saw cut top slab.</li> </ul>
	Area W4b (Canal Road flyover)	<ul style="list-style-type: none"> <li>Pre-bored H-piles; and</li> <li>Commence pile for Pier 20 after high mast support.</li> </ul>
	Area W6 (Wan Shing Street)	<ul style="list-style-type: none"> <li>Pile removed by drilling rig.</li> </ul>
	Area W8	<ul style="list-style-type: none"> <li>Tree felling, pruning for transplant, site clearance &amp; installation, pretreatment &amp; GI.</li> </ul>
	Area 14a & 14b	<ul style="list-style-type: none"> <li>Sheet pile installation and ELS work; and</li> <li>Construction of new road through Area W14.</li> </ul>
1129	Area W1	<ul style="list-style-type: none"> <li>Painting Temporary Star Case and E&amp;M Installation;</li> <li>Jack up Pile Cap;</li> <li>Erection of Covered Walkway;</li> <li>Site Reinstatement;</li> <li>Backfilling to +2mPD; and</li> <li>Handover to SCL Contract 1128.</li> </ul>
	Area W2	<ul style="list-style-type: none"> <li>Nil</li> </ul>
	Area W3	<ul style="list-style-type: none"> <li>Remove Concrete Piles.</li> </ul>

- 2.1.3 During the reporting month, impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual and EP Condition 2.23.7. As construction works in Victoria Harbour and Shek O Casting Basin under Works Contract 11227 were completed in December 2014, no water quality impact monitoring was required to be conducted during this reporting period whilst the result of the post-project water quality

monitoring was presented in the Final EM&A Review Report for Works Contract 11227 (February 2015) which was submitted to EPD on 12 February 2015. Continuous noise monitoring was also 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 and construction noise due to the Project construction were recorded. Results of air quality and construction noise are summarised in **Tables 2.2** and **2.3** respectively. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Reports (**Appendices A to C**).

**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)
<b>Works Contract 1126</b>					
AM2	Wan Chai Sports Ground <sup>(1)</sup>	37.2 – 143.3	160	260	No
AM3	Existing Harbour Road Sports Centre	37.9 – 84.2	169	260	No
<b>Works Contract 1128</b>					
AM4	Pedestrian Plaza	106.5 – 177.5	198	260	No
<b>Works Contract 1129<sup>(2)</sup></b>					

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 Contract 1129.

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

Monitoring Station ID	Location	Noise Level (L <sub>Aeq,30mins</sub> , dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected <sup>(1)</sup>		
Works Contract 1126						
NM2 <sup>(2)(3)</sup>	Harbour Centre	65.0 – 73.5	69.6	< Baseline – 71.2	75	No
Work Contract 1128 and 1129						
NM1	Hoi Kung Court	70.2 – 72.2	71	< Baseline – 66.0	75	No

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.

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 2.4**.

**Table 2.4 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
1126	0	0	0
1128	0	0	0
1129	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 <sup>st</sup> Submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	9 Jun 2014 (1 <sup>st</sup> Submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 <sup>st</sup> Submission) 12 Sept 2012 (2 <sup>nd</sup> Submission) 15 Oct 2012 (approved)
Condition 2.10	Works Contract 11227: Silt Curtain Deployment Plan for Trial Trenching in Victoria Harbour	11 Jul 2014
	Works Contract 1121: Silt Curtain Deployment Plan for Hung Hom Landfall and Trial Trench in Victoria Harbour	17 Feb 2015
Condition 2.11	Works Contract 11227: Silt Screen Deployment Plan	11 Jul 2014
	Works Contract 1121: Silt Screen Deployment Plan	13 Feb 2015
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1 <sup>st</sup> Submission) 12 Sept 2012 (2 <sup>nd</sup> Submission) 15 Oct 2012 (approved) 3 Jul 2014 (3 <sup>rd</sup> submission)
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1 <sup>st</sup> Submission) 15 Feb 2013 (2 <sup>nd</sup> Submission) 3 Dec 2013 (3 <sup>rd</sup> Submission) 21 Aug 2014 (4 <sup>th</sup> Submission) 9 Feb 2015 (5 <sup>th</sup> Submission)
Condition 2.23.1	Works Contract 11227: Silt Curtain Deployment Plan for Shek O	23 Jul 2014 (1 <sup>st</sup> Submission) 31 Jul 2014 (approved)
	Works Contract 1121: Silt Curtain Deployment Plan for Shek O	4 Feb 2015 (1 <sup>st</sup> Submission)
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 <sup>st</sup> Submission) 12 Nov 2012 (2 <sup>nd</sup> Submission) 22 Nov 2012 (approved)  CAR: 19 Mar 2013 (1 <sup>st</sup> Submission) 16 Apr 2013 (2 <sup>nd</sup> Submission) 21 May 2013 (3 <sup>rd</sup> Submission) 7 Jun 2013 (approved)
Condition 3.3	Baseline Monitoring Report (for noise and air quality)	4 Dec 2013 (1 <sup>st</sup> Submission) 5 Feb 2014 (2 <sup>nd</sup> Submission)
	Baseline Water Quality Monitoring Report	23 Sep 2014 (1 <sup>st</sup> Submission) 18 Dec 2014 (2 <sup>nd</sup> Submission)

EP Condition (EP-436/2012/A)	Submission	Submission date
	Baseline Water Quality Monitoring Report for Temporary Marine Works at Shek O Casting Basin	8 Jul 2014 (1 <sup>st</sup> Submission) 11 Aug 2014 (2 <sup>nd</sup> Submission)
Condition 3.4	Monthly EM&A Reports No.1 - 8	Reported in previous Monthly EM&A Reports
	Final EM&A Review Report for Works Contract 11227	12 Feb 2015
	Monthly EM&A Report No.9	13 Feb 2015

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## **Appendix A**

**Monthly EM&A Report for February 2015 – SCL Works  
Contract 1129 Advance Works for NSL**

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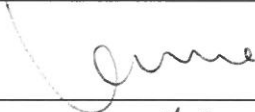

**Hsin Chong Construction Co. Ltd.**

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

**Works Contract 1129 -  
Advance Works for NSL**

**Monthly EM&A Report for  
February 2015**

**March 2015**

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

Version: 0

Date: 9 March 2015

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**Table of Contents**

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1 INTRODUCTION.....</b>	<b>3</b>
1.1 Purpose of the Report .....	3
1.2 Report Structure.....	3
<b>2 PROJECT INFORMATION.....</b>	<b>4</b>
2.1 Background .....	4
2.2 Site Description .....	4
2.3 Construction Programme and Activities .....	5
2.4 Project Organisation.....	5
2.5 Status of Environmental Licences, Notification and Permits .....	6
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS.....</b>	<b>7</b>
3.1 Construction Noise Monitoring .....	7
3.2 Landscape and Visual.....	8
<b>4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....</b>	<b>9</b>
<b>5 MONITORING RESULTS .....</b>	<b>10</b>
5.1 Construction Noise Monitoring .....	10
5.2 Waste Management .....	10
5.3 Landscape and Visual.....	10
<b>6 ENVIRONMENTAL SITE INSPECTION AND AUDIT.....</b>	<b>11</b>
<b>7 ENVIRONMENTAL NON-CONFORMANCE.....</b>	<b>12</b>
7.1 Summary of Monitoring Exceedances .....	12
7.2 Summary of Environmental Non-Compliance.....	12
7.3 Summary of Environmental Complaints.....	12
7.4 Summary of Environmental Summon and Successful Prosecutions.....	12
<b>8 FUTURE KEY ISSUES.....</b>	<b>13</b>
8.1 Construction Programme for the Next Two Month .....	13
8.2 Key Issues for the Coming Month.....	13
8.3 Monitoring Schedule for the Next Month.....	13
<b>9 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>14</b>
9.1 Conclusions.....	14
9.2 Recommendations .....	14

**List of Tables**

Table 2.1	Contact Information of Key Personnel
Table 2.2	Status of Environmental Licenses, Notifications and Permits
Table 3.1	Noise Monitoring Parameters, Frequency and Duration
Table 3.2	Noise Monitoring Equipment for Regular Noise Monitoring
Table 3.3	Noise Monitoring Stations during Construction Phase
Table 4.1	Status of Required Submission under Environmental Permit
Table 5.1	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 6.1	Observations and Recommendations of Site Audit

**List of Figures**

Figure 1.1	Works Area and Site Location of SCL1129
Figure 3.1	Location of Air-borne Noise Sensitive Receiver NM1

**List of Appendices**

Appendix A	Construction Programme
Appendix B	Project Organisation Structure
Appendix C	Environmental Mitigation Implementation Schedule
Appendix D	Summary of Action and Limit Levels
Appendix E	Calibration Certificates of Equipment
Appendix F	EM&A Monitoring Schedules
Appendix G	Noise Monitoring Results and their Graphical Presentations
Appendix H	Event and Action Plan
Appendix I	Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions
Appendix J	Monthly Summary Waste Flow Table

## 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. Also, W1 has been handed over to other SCL contract on 23 February 2015.

This report documents the findings of EM&A works conducted in the period between 1 and 28 February 2015. As informed by the Contractor, major activities in the reporting period were:

### Area W1

- Painting Temporary Star Case and E&M Installation;
- Jack up Pile Cap;
- Erection of Covered Walkway;
- Site Reinstatement;
- Backfilling to +2mPD; and
- Handover to SCL Contract 1128.

### Area W2

- Nil.

### Area W3

- Remove Concrete Piles.

## 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

- Nil.

Area W2

- Nil.

Area W3

- Remove Portion of Abandoned Box Culvert; and
- Pile P2A (Pile Head Retrieval).

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 tenth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 28 February 2015.

### **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. Also, W1 has been handed over to other SCL on 23 February 2015.  
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

- Painting Temporary Star Case and E&M Installation;
- Jack up Pile Cap;
- Erection of Covered Walkway;
- Site Reinstatement;
- Backfilling to +2mPD; and
- Handover to SCL Contract 1128.

Area W2

- Nil.

Area W3

- Remove Concrete Piles.

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		
<b>Environmental Permit</b>				
EP-436/2012/A	30 Apr 2014	-	Valid	-
<b>Construction Noise Permit</b>				
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)
<b>Wastewater Discharge License</b>				
WT00020241-2014	4 Nov 2014	30 Apr 2019	Valid	-
<b>Chemical Waste Producer Registration</b>				
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)
<b>Billing Account for Construction Waste Disposal</b>				
7019335	13 Feb 2014	End of Contract	Valid	-
<b>Notification Under Air Pollution Control (Construction Dust) Regulation</b>				
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 <sub>10</sub> and L <sub>90</sub> 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))
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 February 2015 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 January 2015	13 February 2015

## 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 – 66.0	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, 49m<sup>3</sup> of inert C&D material was generated (0m<sup>3</sup> was disposed as public fills at CWPFBP, 44.5m<sup>3</sup> was disposed as fill bank at TKO137 and 4.5m<sup>3</sup> was disposed at TKO137 sorting facilities) in the reporting month. 16.7m<sup>3</sup> 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 Practice 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 5 and 17 February 2015. 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, 4 site inspections were carried out on 5, 12, 17, and 27 February 2015. The one held on 12 January 2015 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	N/A	N/A	N/A
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 March and April 2015 will be:

Area W1

- Nil.

Area W2

- Nil.

Area W3

- Remove Portion of Abandoned Box Culvert;
- Pile P2A (Pile Head Retrieval);
- Concrete Pile Post-drilling; and
- Re-diversion of DN150 DI Fresh Water Main to Northern Sheet.

### **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 March, April and May 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 4 nos. of environmental site inspections were carried out in February 2015. 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

- No specific observation was identified in the reporting month.

#### Permits/licenses

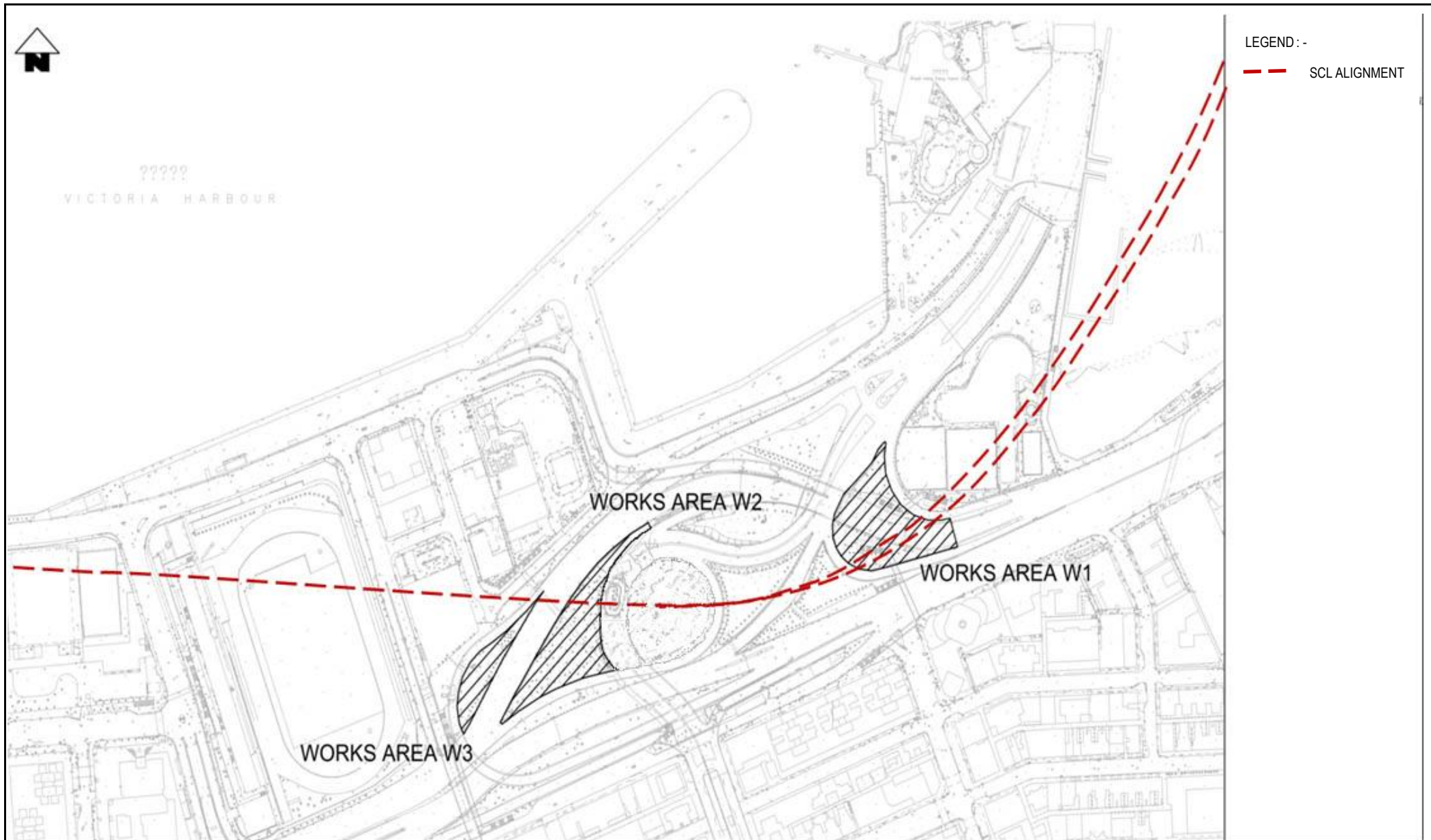
- No specific observation was identified in the reporting month.



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## FIGURES

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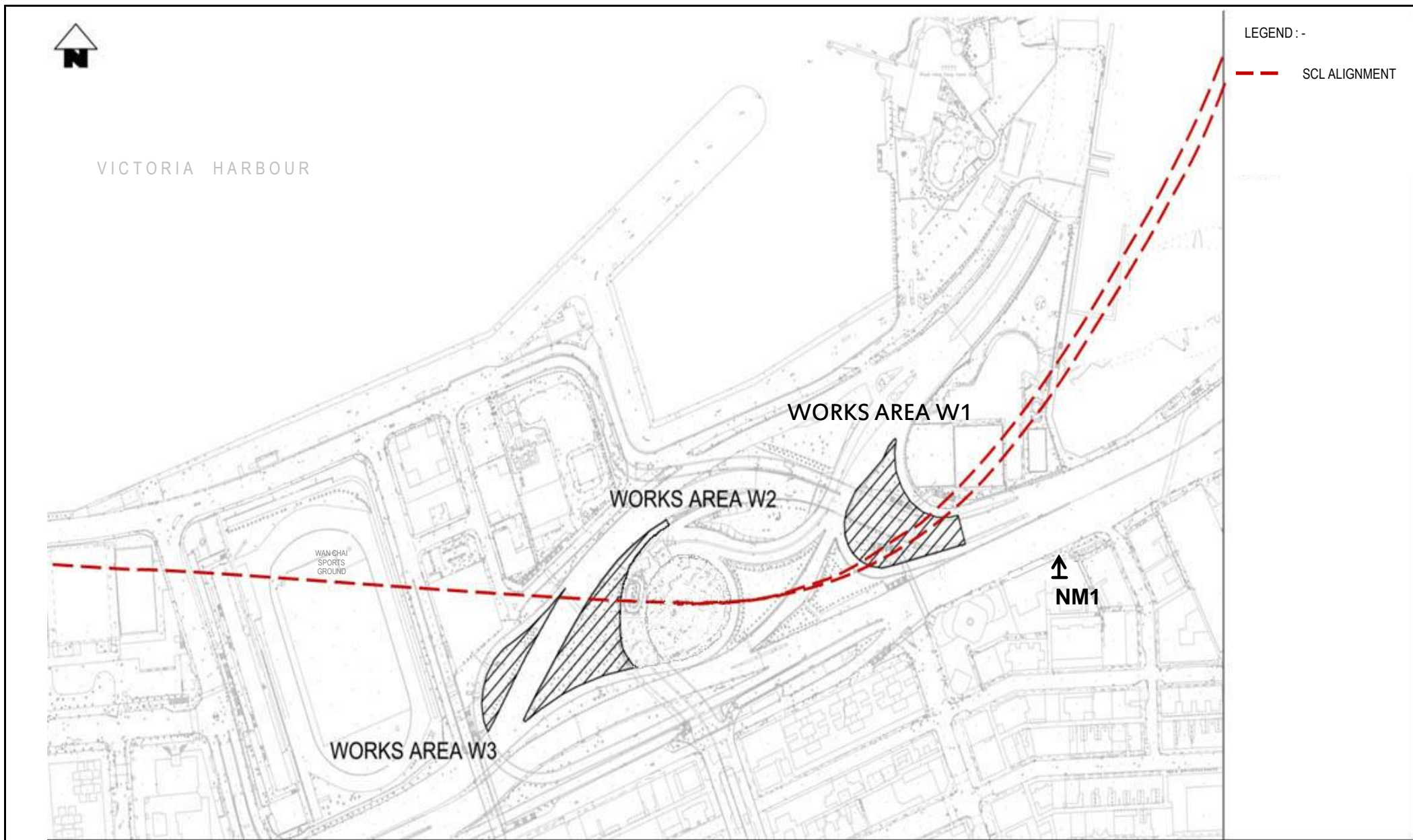
**CONTRACT 1129**  
**ADVANCED WORKS FOR NSL**

### 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

Project No.: -

Date: November 2014

Figure 3.1

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## **APPENDIX A**

### **Construction Programme**

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CONTRACT 1129 - ADVANCE WORK FOR NSL



Activity ID	Activity Name	Duration	BL Start	BL Finish	Start	Finish	TF	Variance- BL Project Finish Date	Qtr 1, 2015				Qtr 2, 2015			Qtr 3, 2015			Qtr 4, 2015			2016	
									Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan
MTRC-1129 - Advance Work for NSL (Working Programme) 3MRP Feb 15 (02-Mar-15) NC SM Meeting																						MT	
Schedule of Completion Obligations																						Sch	
01129.PD0002	Whole of the Works	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Wh	
Section of the Works																						Sec	
01129.CD002E	Complete all Tree Compensation at Wan Chai Gap Park and ready for handover (Wk39/15)	0.00d		27-Sep-15		27-Sep-15*	0.00d	0.00d														◆ Complete all Tree Comp	
01129.CD002D	Complete all works of abandoned box culvert underneath Gloucester Road (Wk52/15)	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Cor	
Vacation Dates for Works Areas																						▼ Vac	
01129.VD1180	Works Area 1129.A1	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Wo	
01129.VD1120	Works Area 1129.W2C	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Wo	
01129.VD1150	Works Area 1129.W3	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Wo	
Schedule of Milestones																						Sch	
Cost Centre A- Preliminaries																						Cost	
01129.MSA04	Engineer's confirmation of satisfactory implementation of Approved Specified Plans. (Wk13/15)	0.00d		29-Mar-15		29-Mar-15*	0.00d	0.00d														◆ Engineer's confirmation of satisfactory implementation of Approved	
01129.MSA05	Engineer's confirmation of satisfactory implementation of Programming Management System (PMS) (Wk39/15)	0.00d		27-Sep-15		27-Sep-15*	0.00d	0.00d														◆ Engineer's confirmation of	
Cost Centre E - Abandoned Box Culvert Underneath Gloucester Road																						Cost	
01129.MSE04	50% of Box culvert demolition & 50% pile removal works in no. completed. Traffic diversion of Route D impl'd (Wk17/15)	0.00d		26-Apr-15		26-Apr-15*	0.00d	0.00d														◆ 50% of Box culvert demolition & 50% pile removal works in n	
01129.MSE05	All box culvert demo and pile removal works completed (Wk43/15)	0.00d		25-Oct-15		25-Oct-15*	0.00d	0.00d														◆ All box culvert den	
01129.MSE06	Complete all works within Cost Centre E. (Wk52/15)	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Cor	
Cost Centre F - Associated Works																						Cost	
01129.MSF03	All tree compensation works at various areas in Wan Chai district as per Appendix A1 completed (WK34/15)	0.00d		23-Aug-15		23-Aug-15*	0.00d	0.00d														◆ All tree compensation works at v	
01129.MSF04	Complete all works within Cost Centre F (Wk52/15)	0.00d		27-Dec-15		27-Dec-15*	0.00d	0.00d														◆ Cor	
Construction Works																						Constructi	
Contract Work 4 - Pile Removal at Tunnel Approach Road																							Contract V
01129.CD002D10E	Complete all works of abandoned box culvert underneath Gloucester Road (Wk52/15)	0.00d		16-Dec-15		27-Nov-15	30.00d	19.00d														◆ Complete	
Submissions and Approvals																						Submissio	
TTMS Scheme																							TTMS
01129.CW41120E	Implement TTM Stage 1 to Set-up Works Area at Tunnel Approach Road (Wk 30/14: 27 Jul 14)	9.00d	23-Jun-14	03-Jul-14	23-Jun-14 A	28-Jun-14 A		2.00d														Works Area at Tunnel Approach Road (Wk 30/14: 27 Jul 14)	
01129.CW41250E	Implement TTM Stage 2 to Set-up Works Area at Tunnel Approach Road (Wk 17/15: 26 Apr 15) (TBC)	6.00d	01-Jun-15	06-Jun-15	01-Jun-15	06-Jun-15	16.00d	0.00d														Implement TTM Stage 2 to Set-up Works Area at T	
Site Construction																						Site Const	
01129.CW41161B	Works Area Handover Preparation	0.00d		16-Sep-15		28-Aug-15	23.00d	16.00d														◆ Works Area Handover Prepar	
01129.CW41304E	Site & Carriageway Reinstatement (Wk52/15)	40.00d	27-Oct-15	16-Dec-15	12-Oct-15	27-Nov-15	23.00d	16.00d														Site &	
Works Area W3B																						Works Area W3B	
Stage 1																						Stage 1	
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)	36.89d	14-Jan-15	10-Mar-15	13-Dec-14 A	14-Feb-15 A		18.00d														■ Remove 3 nos. Concrete Piles (Wk 17/15: 26 Apr 15)	
01129.CW41200E10	RC Pile P1 extraction	15.00d			13-Dec-14 A	02-Jan-15 A																■ RC Pile P1 extraction	
01129.CW41200E20	RC Pile P2 extraction	15.00d			07-Jan-15 A	28-Jan-15 A																■ RC Pile P2 extraction	
01129.CW41200E30	RC Pile P3 extraction	15.00d			30-Jan-15 A	14-Feb-15 A																■ RC Pile P3 extraction	
Stage 2																						Stage 2	
01129.CW41274E10	Setting-Up of Equipment for Pile P4 Extraction	3.00d			16-Feb-15 A	18-Feb-15 A																■ Setting-Up of Equipment for Pile P4 Extraction	
01129.CW41220E10	RC Pile P4 Excavation (may or may not be successful)	14.00d			18-Feb-15 A	02-Mar-15	16.00d															■ RC Pile P4 Excavation (may or may not be successful)	
01129.CW41200E40	Pile P2A (Pile Head Retrieval)	14.00d			03-Mar-15	18-Mar-15	16.00d															■ Pile P2A (Pile Head Retrieval)	
01129.CW41210E	Remove Portion of Abandoned Box Culvert surrounding P1, P2 & P3 (Wk 17/15: 26 Apr 15)	12.00d	11-Mar-15	02-Apr-15	19-Mar-15	01-Apr-15	16.00d	1.00d														■ Remove Portion of Abandoned Box Culvert surrounding P1, P2 &	
01129.CW41220E	Concrete Pile Post-Drilling	5.00d	08-Apr-15	16-Apr-15	02-Apr-15	11-Apr-15	16.00d	4.00d														■ Concrete Pile Post-Drilling	
01129.CW41230E	Re-diversion of DN150 DI Fresh Water Main to Northern Sheet Pile	32.00d	17-Apr-15	30-Apr-15	13-Apr-15	20-May-15	16.00d	-16.00d														■ Re-diversion of DN150 DI Fresh Water Main to Northe	
01129.CW41240E	Construct Temporary Carriageway (TBC. Not needed once R.C. Pile P4 is extracted)	24.00d	02-May-15	30-May-15	02-May-15	30-May-15	16.00d	0.00d														■ Construct Temporary Carriageway (TBC. Not neede	
01129.CW41252E	Dig Trial Trenches to Identify Utilities Location (Upper Portion) (TBC. Not needed once R.C. Pile P4 is extracted)	12.00d	08-Jun-15	22-Jun-15	08-Jun-15	22-Jun-15	16.00d	0.00d														■ Dig Trial Trenches to Identify Utilities Location (	
01129.CW41253E	Install Sheet Pile at Both Sides of Works Area (TBC. Not needed once R.C. Pile P4 is extracted)	24.00d	23-Jun-15	21-Jul-15	23-Jun-15	21-Jul-15	16.00d	0.00d														■ Install Sheet Pile at Both Sides of Works	
01129.CW41254E	Site Formation for Pile Removal Works (TBC. Not needed once R.C. Pile P4 is extracted)	8.00d	22-Jul-15	30-Jul-15	22-Jul-15	30-Jul-15	16.00d	0.00d														■ Site Formation for Pile Removal Works	
01129.CW41264E	Utilities Protection by sheet piles demarcation (TBC. Not needed once R.C. Pile P4 is extracted)	28.00d	31-Jul-15	15-Sep-15	31-Jul-15	01-Sep-15	16.00d	12.00d														■ Utilities Protection by sheet	
01129.CW41274E	Remove 1 no. Concrete Pile (Wk43/15: 25 Oct 14) (TBC. Not needed once R.C. Pile P4 is extracted)	15.00d	16-Sep-15	05-Oct-15	02-Sep-15	18-Sep-15	16.00d	12.00d														■ Remove 1 no. Concret	
01129.CW41275E	Remove Remaining Abandoned Box Culvert (Wk43/15 : 25 Oct 14)	12.00d	06-Oct-15	19-Oct-15	19-Sep-15	05-Oct-15	16.00d	12.00d														■ Remove Remaining	
01129.CW41294E	Pile Removal 1no. Post-drilling	5.00d	20-Oct-15	26-Oct-15	06-Oct-15	10-Oct-15	23.00d	12.00d														■ Pile Removal 1no.	

Remaining Level of Effort

Actual Level of Effort

Primary Baseline

Actual Work

Remaining Work

Critical Remaining Work

Milestone

Summary

Project ID: 3MRP(2015-02)  
PROGRESSED MASTER PROGRAMME (Remaining Works)

Date	Revision	Checked	Approved
28-Feb-15	Rev.-	AB	NC

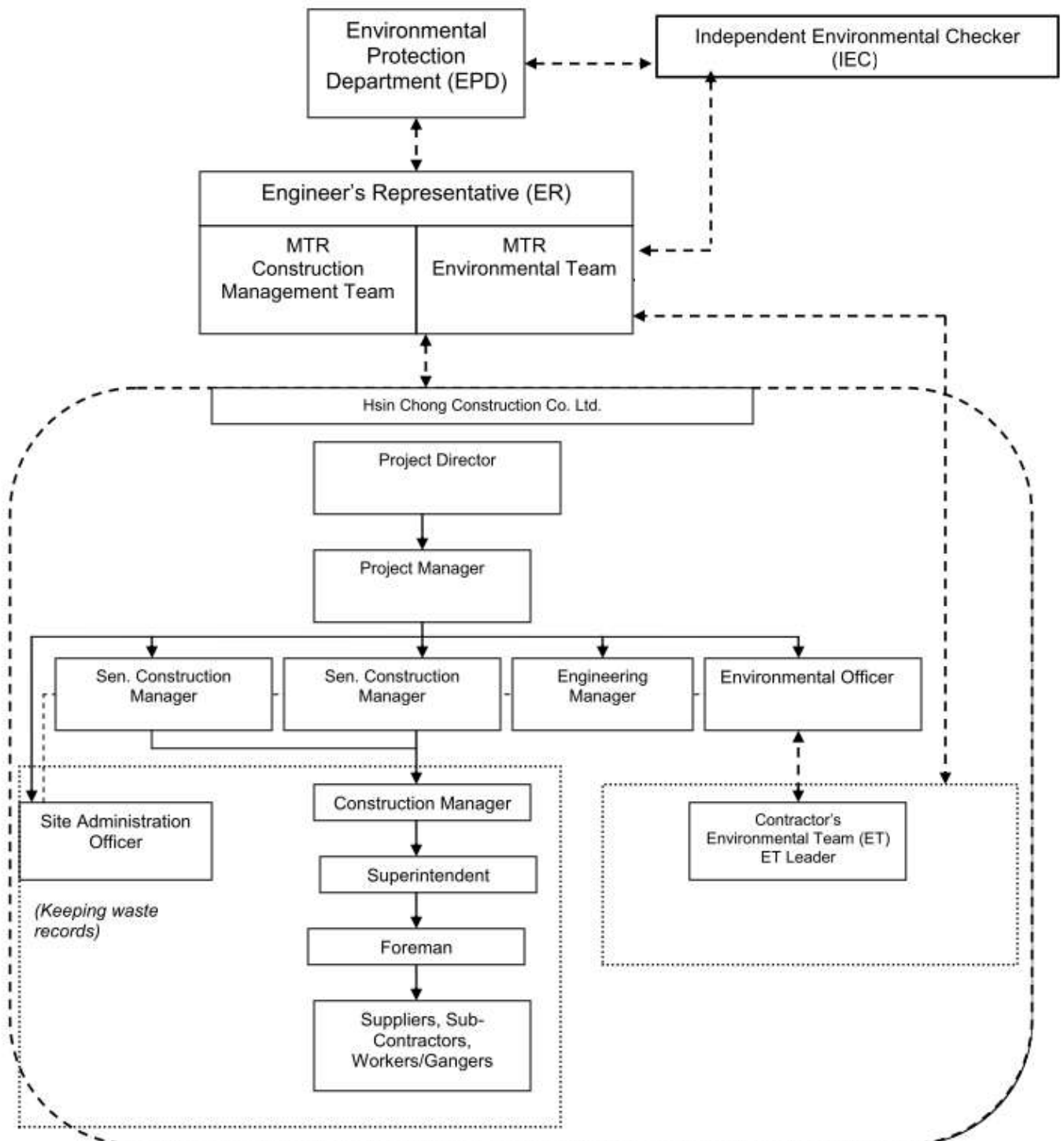
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## **APPENDIX B**

### **Project Organization Structure**

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**Appendix B Project Organisation Structure**

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## **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
<b>Cultural Heritage Impact</b>						
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
<b>Ecological Impact</b>						
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
<b>Landscape and Visual Impact</b>						
<b>Construction Phase</b>						
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

## 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
<b>Air Quality</b>						
/	Emission from Vehicles and Plants <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	V V V
<b>Construction Dust Impact</b>						
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 <sup>2</sup> for Kowloon side and 1.0 L/m <sup>2</sup> 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 <sup>2</sup> for Kowloon side and 1.0 L/m <sup>2</sup> 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"> <li>Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li> <li>Use of frequent watering for particularly dusty construction areas and areas close to ASRs.</li> <li>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.</li> <li>Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li> <li>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> <li>Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li> <li>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.</li> <li>Provision of not less than 2.4m high hoarding from ground level along site</li> </ul>	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V V 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
	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"> <li>Imposition of speed controls for vehicles on site haul roads.</li> <li>Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs.</li> <li>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.</li> <li>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</li> </ul>					V V V V
<b>Airborne Noise Impact</b>						
<b>Construction Phase</b>						
S9.55	The following good site practices shall be implemented: <ul style="list-style-type: none"> <li>Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program</li> <li>Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program</li> <li>Mobile plant, if any, shall be sited as far from NSRs as possible</li> <li>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</li> <li>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</li> <li>Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities</li> </ul>	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V V V V V
S9.56 & Table 9.16	The following quiet PME shall be used: <ul style="list-style-type: none"> <li>Crane lorry, mobile</li> <li>Crane, mobile</li> <li>Asphalt paver</li> <li>Backhoe with hydraulic breaker</li> <li>Breaker, excavator mounted (hydraulic)</li> <li>Hydraulic breaker</li> <li>Concrete lorry mixer</li> <li>Poker, vibrator, hand-held</li> <li>Concrete pump</li> <li>Crawler crane, mobile</li> <li>Mobile crane</li> <li>Dump truck</li> <li>Excavator</li> <li>Truck</li> <li>Rock drill</li> </ul>	To minimize construction noise impact	Contractor	Works areas at: <ul style="list-style-type: none"> <li>Hung Hom</li> <li>Cross Harbour section up to Breakwater of CBTS</li> <li>Breakwater of CBTS to SOV</li> <li>SOV to EXH</li> <li>EXH</li> <li>EXH to open space at the junction of Expo Drive and Convention Avenue</li> <li>Open space at the junction of Expo Drive and Convention Avenue</li> </ul>	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



## 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>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"> <li>• 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.</li> <li>• 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.</li> <li>• Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• If the used bentonite slurry is intended to be disposed of through the public</li> </ul>					<p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</p> <p>V</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
	<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 &amp; Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass.</li> <li>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.</li> </ul>					<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	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.	To minimize water quality impacts due to sewage generated from construction workforce	Contractor	Works areas	Construction Phase	V
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.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction Phase	V
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	To control site run-off generated from any	Contractor	Any potential contaminated areas to	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
	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.	potential contaminated works areas.		be identified from the Stage 2 SI		
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 <b>Sections 11.189 to 11.192</b> 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
S11.253	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	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	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
	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"> <li>Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> <li>Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.</li> </ul>	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V V V
<b>Waste Management Implications</b>						
<b>Construction Phase</b>						
S12.75	<b>Good Site Practices and Waste Reduction Measures</b> <ul style="list-style-type: none"> <li>Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites;</li> <li>Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures;</li> <li>Provision of sufficient waste disposal points and regular collection of waste;</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and</li> <li>Separation of chemical wastes for special handling and appropriate treatment.</li> </ul>	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V 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
S12.76	<b>Good Site Practices and Waste Reduction Measures (con't)</b> <ul style="list-style-type: none"> <li>Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.);</li> <li>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;</li> <li>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;</li> <li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials;</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and</li> <li>Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.</li> </ul>	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V V V V V V
S12.77	<b>Good Site Practices and Waste Reduction Measures (con't)</b> 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.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V
S12.78	<b>Good Site Practices and Waste Reduction Measures (con't)</b> 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	<b>Storage, Collection and Transportation of Waste</b> Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> <li>Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> <li>Maintain and clean storage areas routinely;</li> <li>Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> <li>Different locations shall be designated to stockpile each material to enhance reuse.</li> </ul>	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	V V V V
S12.80	<b>Storage, Collection and Transportation of Waste (con't)</b> Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal	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
	outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> <li>Remove waste in timely manner</li> <li>Waste collectors shall only collect wastes prescribed by their permits</li> <li>Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers</li> <li>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)</li> <li>Waste shall be disposed of at licensed waste disposal facilities</li> <li>Maintain records of quantities of waste generated, recycled and disposed</li> </ul>	impacts arising from waste collection and disposal				V V V V V V
S12.81	<b>Storage, Collection and Transportation of Waste (con't)</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	<b>Sorting of C&amp;D Materials</b> <ul style="list-style-type: none"> <li>Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.</li> <li>Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials.</li> <li>The C&amp;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.</li> <li>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.</li> </ul>	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	<b>Sediments</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	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	<b>Sediments (con't)</b> <ul style="list-style-type: none"> <li>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</li> </ul>	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
	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.					
S12.91 – 12.94	<b>Sediments (con't)</b> <ul style="list-style-type: none"> <li>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).</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	<b>Sediments (con't)</b> <ul style="list-style-type: none"> <li>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</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	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
	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.					
/	<b>Accidental spillage</b> To prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> <li>• Proper storage and handling facilities will be provided.</li> <li>• 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.</li> <li>• 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.</li> <li>• Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	V V  V  V
S12.97	<b>Containers for Storage of Chemical Waste</b> 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: <ul style="list-style-type: none"> <li>• Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed;</li> <li>• Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and</li> <li>• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	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	<b>Chemical Waste Storage Area</b> <ul style="list-style-type: none"> <li>• Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only;</li> <li>• Be enclosed on at least 3 sides;</li> <li>• 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;</li> <li>• Have adequate ventilation;</li> <li>• Be covered to prevent rainfall from entering; and</li> <li>• Be properly arranged so that incompatible materials are adequately separated.</li> </ul>	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V  V V  V V V
S12.99	<b>Chemical Waste</b> <ul style="list-style-type: none"> <li>• 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.</li> </ul>	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	<b>Collection and Disposal of Chemical Waste</b> <b>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</b> 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	<b>General Refuse</b> 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	<b>General Refuse (con't)</b> 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	<b>General Refuse (con't)</b> 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

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## **APPENDIX D**

### **Summary of Action and Limit Levels**

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**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**

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## 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:  $22 \pm 1$  °C  
Relative humidity:  $65 \pm 10$  %  
Air pressure:  $1010 \pm 10$  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 responsiveness 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 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> 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:  $22 \pm 1$  °C  
Relative humidity:  $65 \pm 10$  %  
Air pressure:  $1010 \pm 10$  hPa

### Test specifications

- 1, 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.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 3, 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 $\mu$ 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.

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## **APPENDIX F**

### **EM&A Monitoring Schedules**

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**Shatin to Central Link Contract 1129 - Advance Works for NSL  
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

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Apr	2-Apr	3-Apr	4-Apr
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr
					Noise (NM1)	
12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
			Noise (NM1)			
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
		Noise (NM1)				
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr		
	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 May 2015**

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

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

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## **APPENDIX G**

### **Noise Monitoring Results and their Graphical Presentations**

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## Appendix G - Impact Daytime Construction Noise Monitoring Results

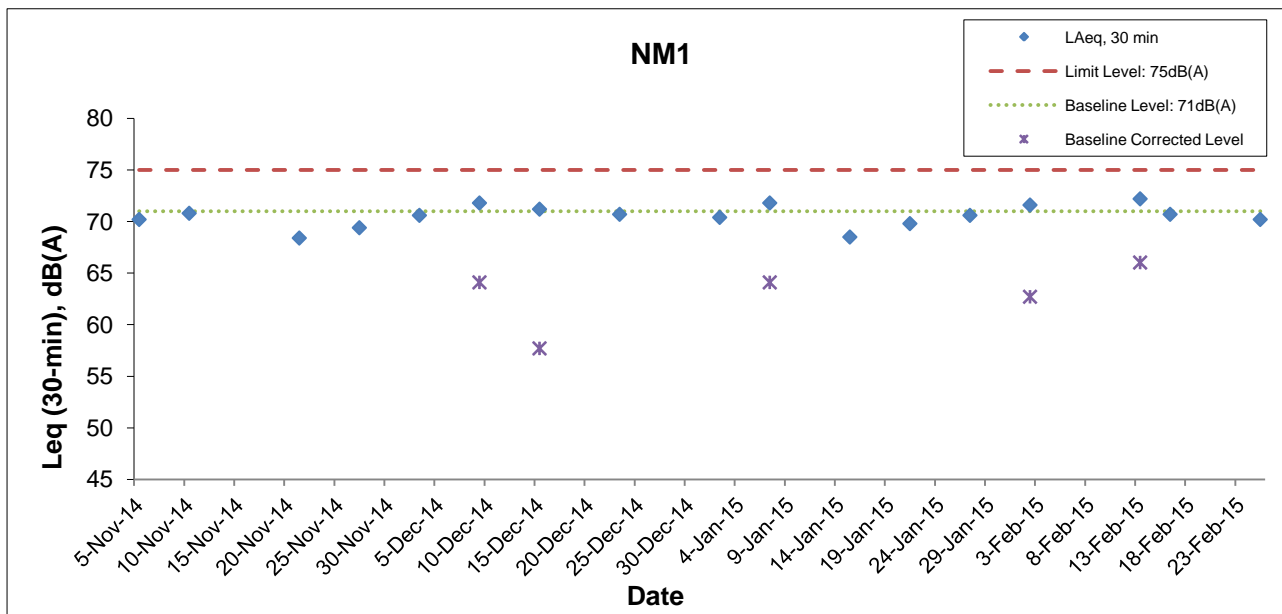
Daytime Noise Monitoring Results at Station NM1 - Hoi Kung Court, Rooftop-20/F

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				
2-Feb-15	Fine	14:43	68.5	73.3	71.6	62.7	71	75	N
13-Feb-15	Sunny	9:25	68.9	74.1	72.2	66.0	71	75	N
16-Feb-15	Sunny	15:00	69.0	72.5	70.7	<Baseline Level	71	75	N
25-Feb-15	Cloudy	10:40	68.6	73.4	70.2	<Baseline Level	71	75	N

Remark:

\* Façade measurement.

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



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## **APPENDIX H**

### **Event Action Plan**

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

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## **APPENDIX I**

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

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

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



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**APPENDIX J**

**Waste Flow Table**

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**SCL Contract 1129 Advance Works For NSL**

updated to 28 February 2015

**Monthly Summary C&D Material Flow Table for 2015**

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m <sup>3</sup> )					Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m <sup>3</sup> )					Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m <sup>3</sup> )	Sediment (m <sup>3</sup> )
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	^Other Site	Total (m <sup>3</sup> )	Total	Total		Total	Total	Total
2015/01 (Actual)	0.00	40.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	16.90	0.00
2015/02 (Actual)	0.00	44.50	4.50	0.00	49.00	0.00	0.00	0.00	0.00	16.70	0.00
2015/03 (Actual)											
2015/04 (Actual)											
2015/05 (Actual)											
2015/06 (Actual)											
Sub-total	0.00	84.50	4.50	0.00	89.00	0.00	0.00	0.00	0.00	33.60	0.00
2015/07 (Actual)											
2015/08 (Actual)											
2015/09 (Actual)											
2015/10 (Actual)											
2015/11 (Actual)											
2015/12 (Actual)											
Sub-total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>					89.00	0.00	0.00	0.00	0.00	33.60	0.00

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

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## **Appendix B**

**Monthly EM&A Report for February 2015 – SCL Works  
Contract 1126 Reprovisioning of Harbour Road Sports Centre  
and Wan Chai Swimming Pool**

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1

MTR Corporation Limited

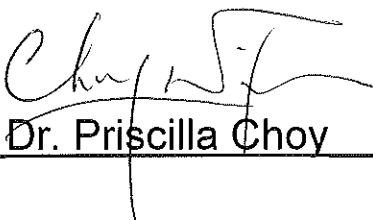
**Shatin to Central Link –  
Hung Hom to Admiralty Section**

Monthly EM&A Report No.8

[Period from 1 to 28 February 2015]

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

(March 2015)

Certified by:  Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 10<sup>th</sup> March 2015

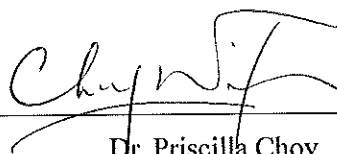
## **Kaden – Leader Joint Venture**

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

#### **Monthly Environmental Monitoring and Audit Report for February 2015**

(Version 2.0)

Certified By



Dr. Priscilla Choy  
(Environmental Team Leader)

#### **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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## +TABLE OF CONTENTS

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
Introduction .....	1
Summary of Construction Works undertaken during Reporting Month.....	1
Environmental Monitoring and Audit Progress .....	1
Regular Construction Noise and Construction Dust Monitoring .....	1
Waste Management .....	2
Landscape and Visual.....	2
Environmental Site Inspection .....	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution .....	2
Future Key Issues .....	2
<b>1 INTRODUCTION .....</b>	<b>4</b>
Purpose of the Report .....	4
Structure of the Report .....	4
<b>2 PROJECT INFORMATION.....</b>	<b>5</b>
Background .....	5
General Site Description .....	5
Construction Programme and Activities .....	5
Project Organisation .....	6
Status of Environmental Licences, Notification and Permits.....	6
Summary of EM&A Requirements .....	6
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS .....</b>	<b>8</b>
<i>Regular Construction Noise Monitoring</i> .....	8
Monitoring Parameter and Frequency .....	8
Monitoring Equipment and Methodology .....	8
Field Monitoring.....	8
Monitoring Equipment .....	9
Maintenance and Calibration.....	9
Action & Limit Level for Construction Noise Monitoring .....	9
<i>Continuous Noise Monitoring</i> .....	10
<i>Regular Construction Dust Monitoring</i> .....	10
Monitoring Parameter and Frequency .....	10
Monitoring Equipment .....	11
Instrumentation.....	11
HVS Installation .....	11
Filters Preparation .....	12
Operating/Analytical Procedures .....	12
Maintenance/Calibration .....	13
Action and Limit Levels for Dust Monitoring .....	13
<i>Landscape and Visual</i> .....	13
<b>4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>14</b>
<b>5 MONITORING RESULTS .....</b>	<b>15</b>
Regular Construction Noise Monitoring .....	15
Regular Dust Monitoring.....	15

Waste Management .....	16
Landscape and Visual.....	16
<b>6 ENVIRONMENTAL SITE INSPECTION.....</b>	<b>17</b>
Site Audit.....	17
Implementation Status of Environmental Mitigation Measures.....	17
<b>7 ENVIRONMENTAL NON-CONFORMANCE.....</b>	<b>19</b>
Summary of Exceedances .....	19
Summary of Environmental Non-Compliance.....	19
Summary of Environmental Complaint .....	19
Summary of Environmental Summon and Successful Prosecution .....	19
<b>8 FUTURE KEY ISSUES .....</b>	<b>20</b>
Construction Programme for the Next Month.....	20
Key Issues in the Next Month .....	20
Monitoring Schedule in the Next Month.....	20
<b>9 CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>21</b>
Conclusions .....	21
Recommendations .....	21

## LIST OF TABLES

Table 2.1	Status of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Location
Table 3.2	Noise Monitoring Equipment
Table 3.3	Dust Monitoring Location
Table 3.4	Dust Monitoring Parameters and Frequency
Table 3.5	Dust Monitoring Equipment
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Dust Monitoring Results during the reporting month
Table 5.2	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

## LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1126
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Location of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

## **LIST OF APPENDICES**

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Calibration Certificates for Monitoring Equipment
Appendix D	Impact Monitoring Schedule
Appendix E	24-hour TSP Monitoring Results and Graphical Presentations
Appendix F	Noise Monitoring Results and Graphical Presentations
Appendix G	Summary of Exceedance
Appendix H	Site Audit Summary
Appendix I	Event and Action Plans
Appendix J	Updated Environmental Mitigation Implementation Schedule
Appendix K	Waste Generation in the Reporting Month
Appendix L	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions



## EXECUTIVE SUMMARY

### Introduction

1. This is the 8<sup>th</sup> 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 28 February 2015.

### 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

- Soil Replacement Works;
- Construction of Store Room;
- Manhole construction & underground utilities connection;
- 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<sup>(1)(3)(4)</sup> (Harbour Centre) 4 times

- Construction Dust (24-hour TSP) Monitoring

#### Dust Monitoring Station ID

- AM2<sup>(1)(2)</sup> (Wan Chai Sports Ground) 5 times
- AM3<sup>(1)</sup> (Existing Harbour Road Sports Centre) 5 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 4 and 18 February 2015. 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 4, 11, 18 and 25 February 2015. The representative of the IEC joined the site inspection on 11 February 2015. 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)

All works related to Works Contract 1126 will be completed.

At Public Transport Interchange (PTI) Area

- Construction of Store Room;
- Manhole construction & underground utilities connection;
- Construction of ducting for street lighting;
- Construction of footing for bus shelter and signage post;
- Construction of concrete pavement, tactile and kerb;
- Erection of bus shelter;

- Construction of Temporary Public Toilet; and
- Construction of ducting and draw pits for traffic signal at Marsh 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; 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 8<sup>th</sup> EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 28 February 2015. 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

- Soil Replacement Works;
- Construction of Store Room;
- Manhole construction & underground utilities connection;
- 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 <sup>(1)</sup>	14/05/2014	N/A	Valid
5213-135-K3131-01 <sup>(2)</sup>	10/11/2014	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00019352-2014 <sup>(1)</sup>	17/06/2014	30/06/2019	Valid
WT00020565-2014 <sup>(2)</sup>	16/12/2014	31/12/2019	Valid
Construction Noise Permit (CNP)			
GW-RS1194-14 <sup>(4)</sup>	06/11/2014	05/05/2015	Cancelled on 23 Feb 2015 and replaced by GW-RS0152-15
GW-RS0061-15 <sup>(5)</sup>	23/01/2015	11/04/2015	Valid
GW-RS0095-15 <sup>(3)</sup>	01/02/2015	31/07/2015	Valid
GW-RS0152-15 <sup>(4)</sup>	23/02/2015	22/08/2015	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.

(5) For construction works at the Junction of Hung Hing Road and Marsh Road.

**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**

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

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**, compile 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)
	SVAN 957 (Serial no.: 21459)
	B&K Light 2250 (Serial no.: 2648969)
Calibrator	SV30A (Serial no.: 24780) B&K 4231 (Serial no.: 2326353, 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 <sup>(1)</sup>	Wan Chai Sports Ground <sup>(2)</sup>
AM3 <sup>(1)</sup>	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 <sup>(1)</sup>	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	1
	GMWS Model no. GS-2310-105 Serial no.: 5280	1
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  $\mu\text{m}$  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  $\pm 3$  °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  $\pm 3^\circ\text{C}$ ; 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**

<b>EP Condition</b>	<b>Submission</b>	<b>Submission Date</b>
Condition 3.4	Monthly EM&A Report (January 2015)	13 February 2015

## 5 MONITORING RESULTS

### Regular Construction Noise Monitoring

- 5.1 A total of 4 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 <sup>(1)</sup>	Location	Range, dB(A), Leq (30 mins) <sup>(2)</sup>	Limit Level, dB(A), Leq (30 mins)
Noise (NM2)	Harbour Centre <sup>(3)</sup>	< Baseline – 71.2	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 10 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 <sup>3</sup>	Maximum µg/m <sup>3</sup>	Average µg/m <sup>3</sup>	Action Level, µg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>
24-hr TSP (AM2 <sup>(1)</sup> )	37.2	143.3	91.1	160	260
24-hr TSP (AM3 <sup>(1)</sup> )	37.9	84.2	65.4	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 m<sup>3</sup> 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) <sup>(a)</sup>	C&D Materials (non-inert) <sup>(b)</sup>				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
February 2015	305 m <sup>3</sup>	27 m <sup>3</sup>	0 kg	0 kg	0 kg	0 kg
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 4 and 18 February 2015. 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 4, 11, 18 and 25 February 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 11 February 2015. 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>	21 Jan 2015	<u>Observation:</u> Some works area in PTI Area was observed dry. 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 4 February 2015.
	28 Jan 2015	<u>Observation:</u> Unpaved area in PTI Area was observed dry. 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 4 February 2015.
	4 Feb 2015	<u>Observation:</u> Stockpile of dusty material observed uncovered in PTI Area. The Contractor is reminded to cover the stockpile by impervious material.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 February 2015.
	11 Feb 2015	<u>Observation:</u> Unpaved area in PTI was observed dry. The Contractor was reminded to provide water spray to prevent dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 18 February 2015.
	18 Feb 2015	<u>Reminder:</u> Stockpile of dusty material was observed not covered properly. The Contractor is reminded to cover properly by	The observation was observed to be improved/rectified by the Contractor during the

Parameters	Date	Observations and Recommendations	Follow-up
		tarpaulin sheets. (PTI Area)	audit session on 25 February 2015.
	28 Jan, 4, 11, 18 and 25 Feb 2015	<u>Reminder:</u> Visible smoke observed emitted from generator (as well as excavator on 4 Feb 2015) in PTI Area. The Contractor is reminded to repair the machinery properly.	Follow up action will be reported in next reporting month.
<b>Waste / Chemical Management</b>	25 Feb 2015	<u>Observation:</u> Overflow of accumulated of C&D waste observed in PTI Area. The Contractor is reminded to store the C&D waste in the designated area and clear it regularly.	Follow up action will be reported in next reporting month.
<b>Permits/ Licenses</b>	--	--	--

## **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)

All works related to Works Contract 1126 will be completed.

At Public Transport Interchange (PTI) Area

- Construction of Store Room;
- Manhole construction & underground utilities connection;
- Construction of ducting for street lighting;
- Construction of footing for bus shelter and signage post;
- Construction of concrete pavement, tactile and kerb;
- Erection of bus shelter;
- Construction of Temporary Public Toilet; and
- Construction of ducting and draw pits for traffic signal at Marsh 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; 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 3 months 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 28 February 2015 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 4 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

- N/A

#### 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 store the C&D waste in the designated area and clear it regularly.

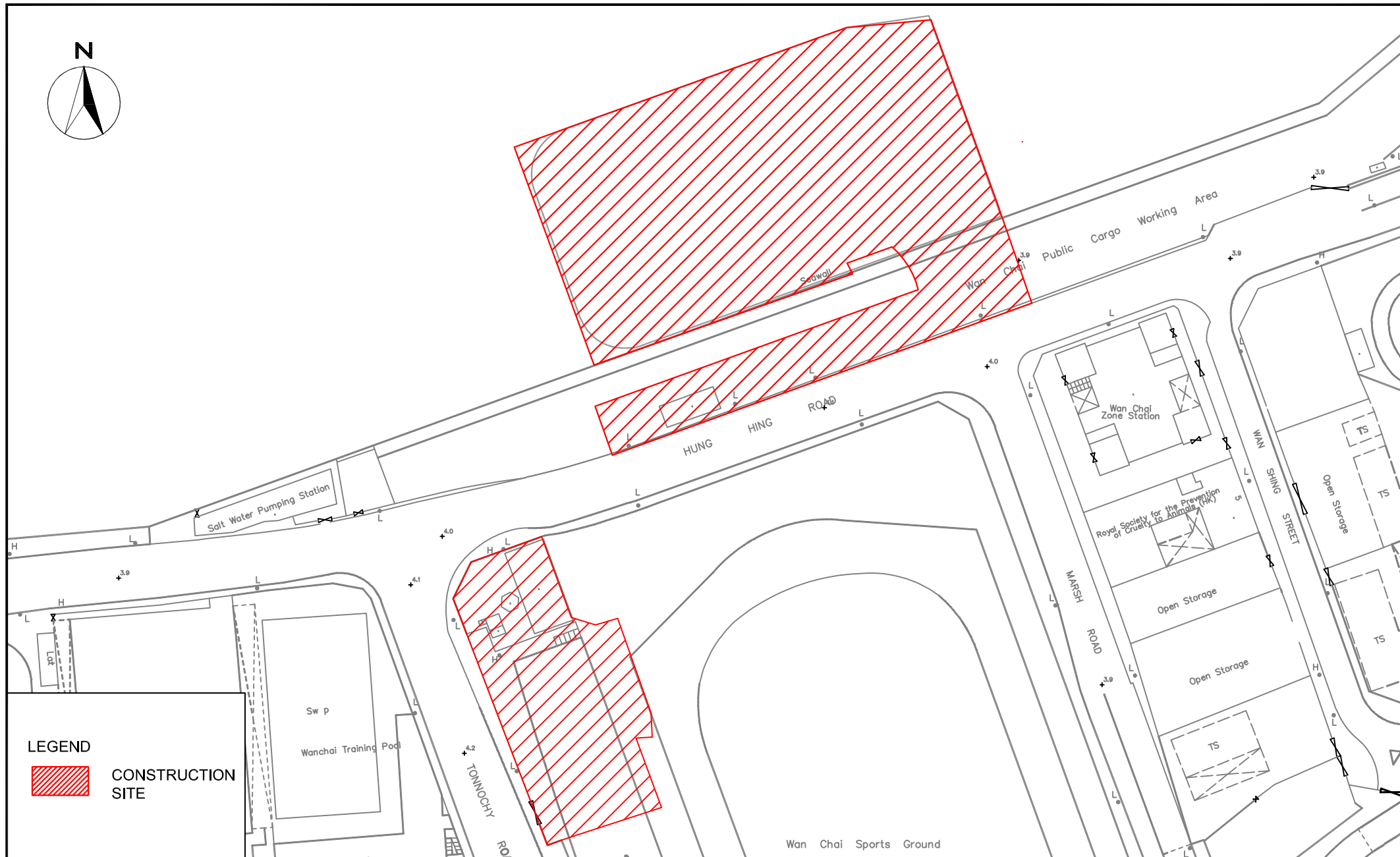
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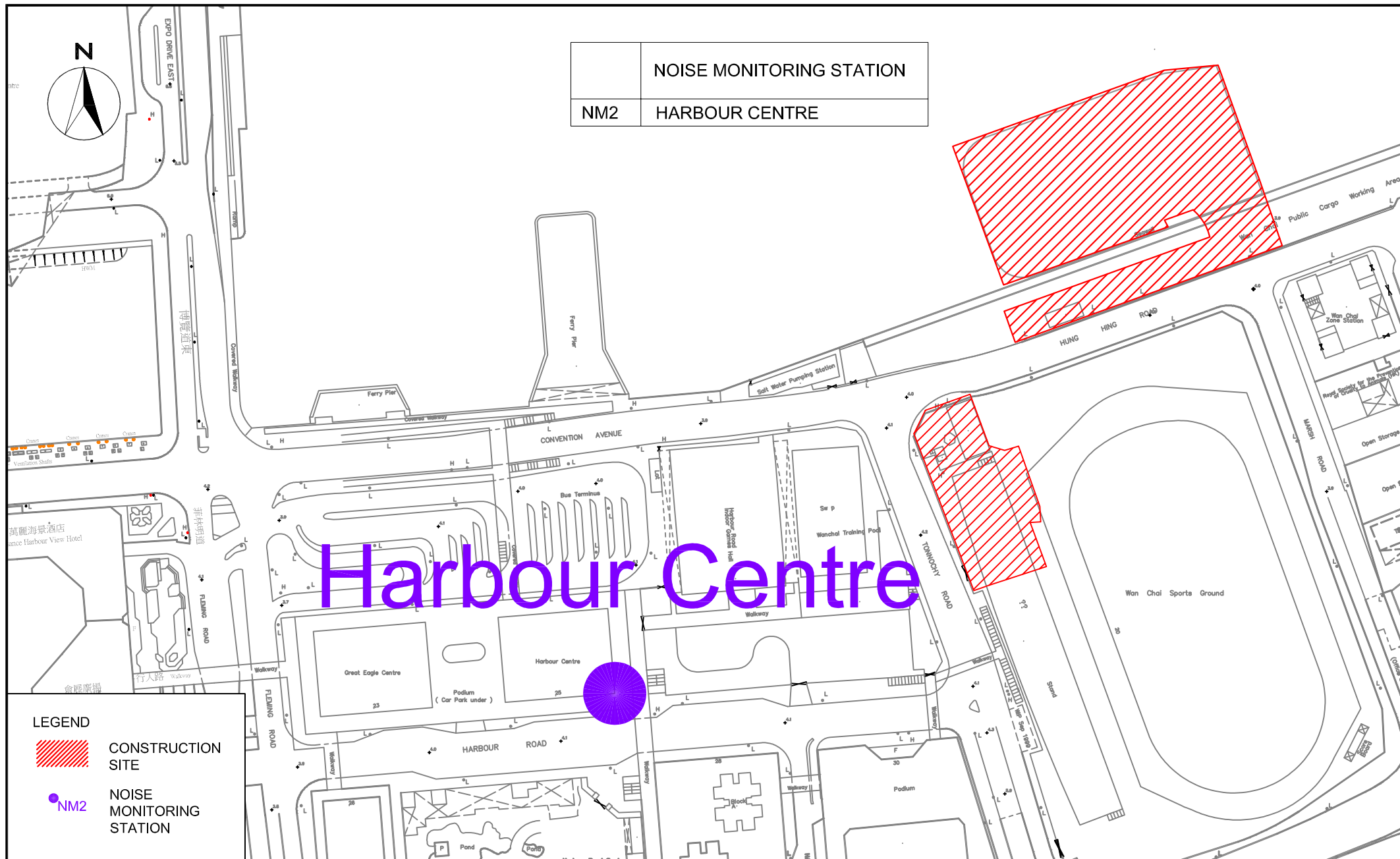
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## FIGURES

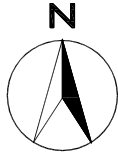
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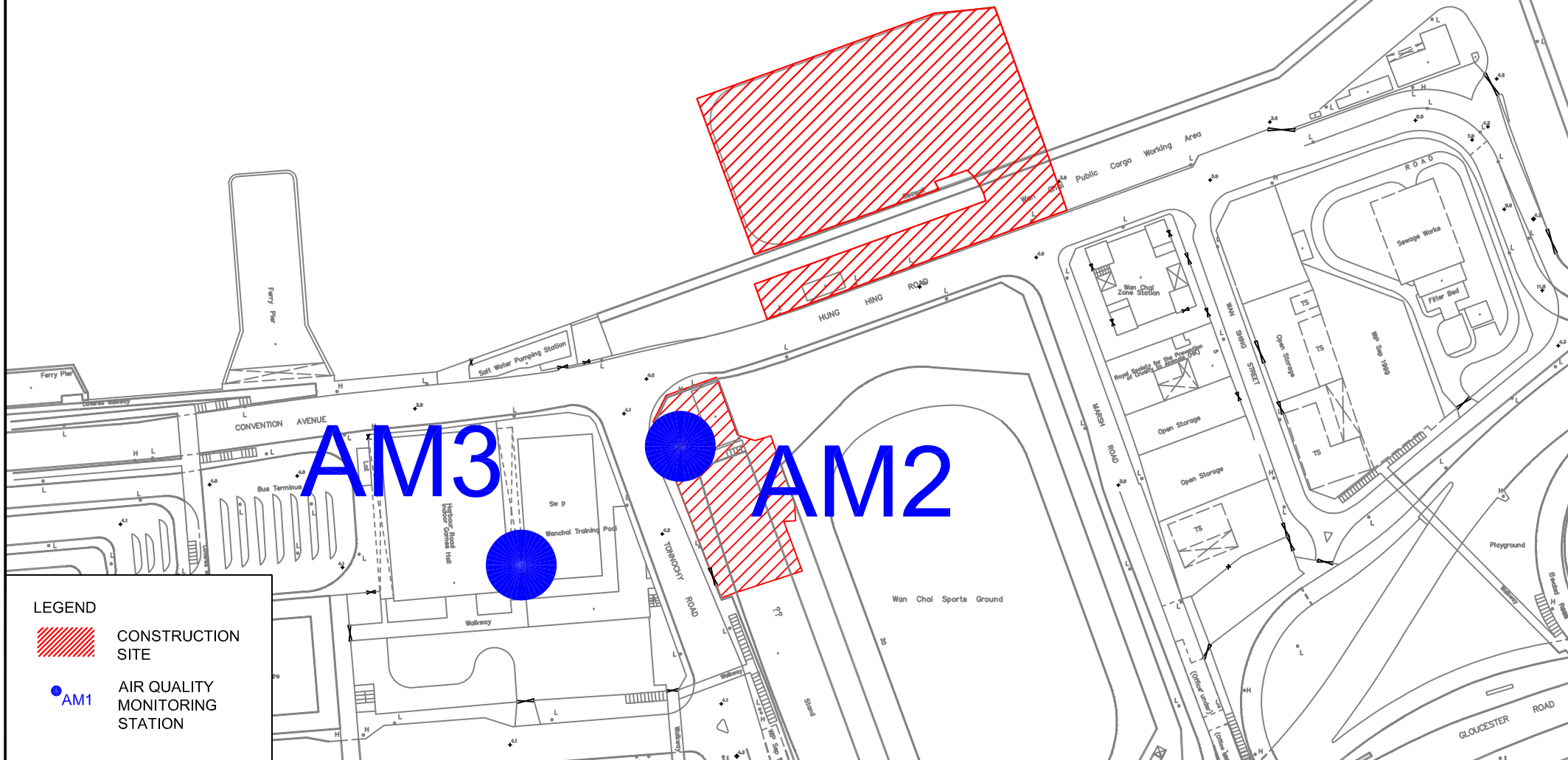








	AIR QUALITY MONITORING STATION
AM2	WAN CHAI SPORTS GROUND
AM3	EXISTING HARBOUR ROAD SPORTS CENTRE



LEGEND



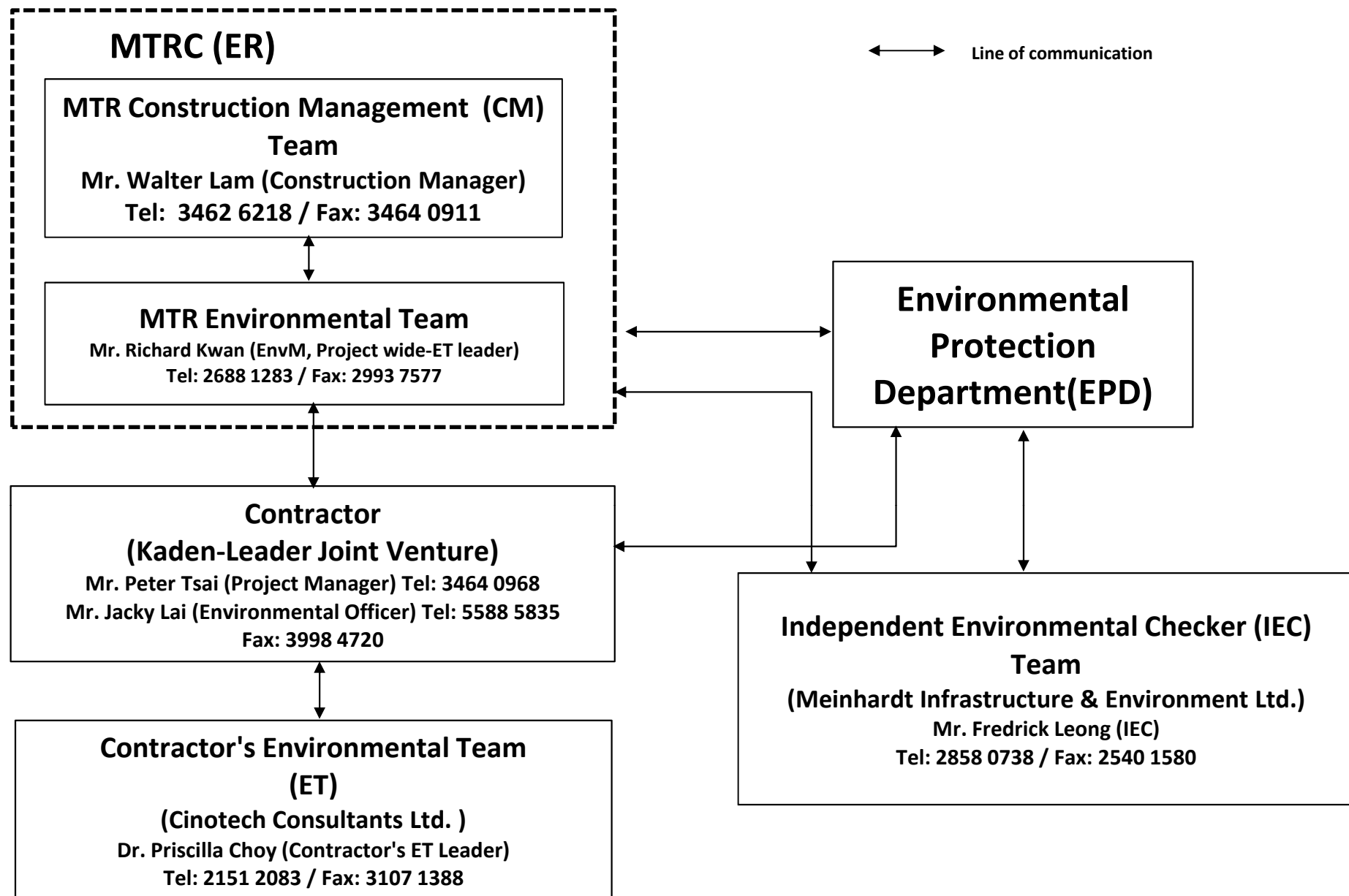
CONSTRUCTION SITE



AM1

AIR QUALITY MONITORING STATION

SCALE	1:5000 @ A4	DATE	MAR 2015
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO.	3
		REV	-



Title SCL Contract 1126  
The Shatin to Central Link -  
Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool  
Project Organisation for Environmental Works

Scale	N.T.S	Proposal No.	MA14009
Date	Jul-14	Figure	4

**CINOTECH**

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**APPENDIX A  
TENTATIVE CONSTRUCTION  
PROGRAMME**

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015			
						Feb	Mar	Apr	May
SCL1126 - Reprovisioning of HRSC & WCSP (20 Jan 2014) _ Rev									
Cost Centre E - Temporary Reprovisioning Works at WCSG									
Design & Shop Drawing									
Weight Lifting Room									
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									
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									
Fitness Room and Kiosk									
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									
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									
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					
Weightlifing Room									
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									
A4180	Demolition of existing warn 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									
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									
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
- 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 WCSG ( Feb 2015 ~ May 2015 )

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015			
						Feb	Mar	Apr	May
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	28-Feb-15 A					
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	28-Feb-15 A					
A9610	Site Proccession	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 utilty 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	28-Feb-15 A					
A9690	Ready for site handover and Handover	60	30-Sep-14 A	30-Sep-14 A					

Primary Baseline

Last Month Baseline

Actual Work

Remaining WorkCritical Remaining WorkMilestone

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

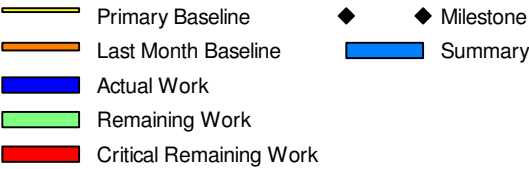
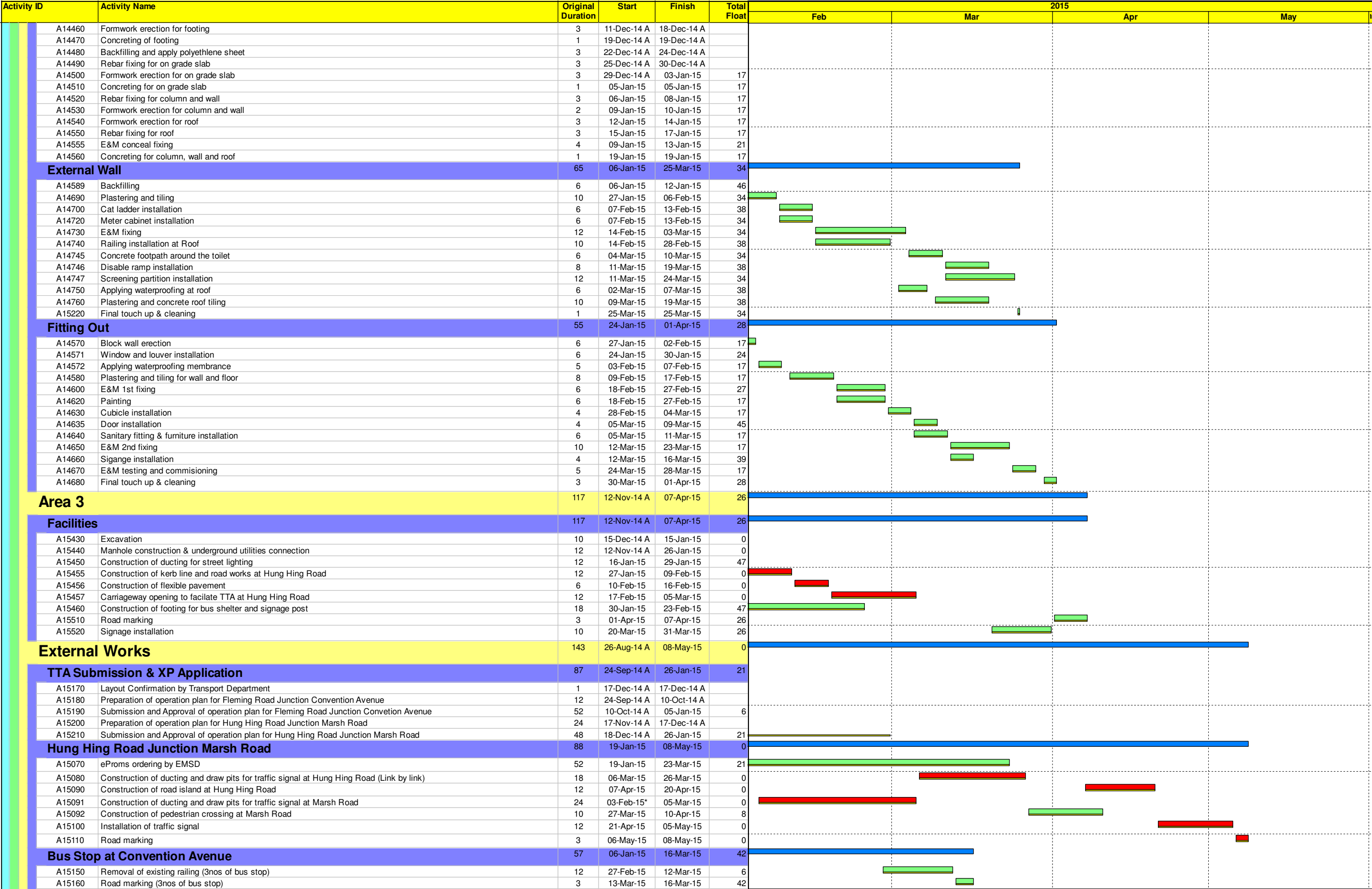
Three Months Rolling Programme for WCSG ( Feb 2015 ~ May 2015 )

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015			
						Feb	Mar	Apr	May
SCL1126 - Reprovisioning of HRSC & WCSP (20 Jan 2014) _ Proj									
Contractual Dates and Project Key Dates									
IPS Milestone Dates									
Cost Centre H - Temporary PTI Facilities at Wan Chai North (Option1)									
01126.MS H4 - Complete all orks within Cost Centre H; Complete trial runs & Ready for handover to TD (Wk. 50/14, 15-Mar-15)									◆
Cost Centre H - Temporary Public Transport Interchange Faciliti									
Site Procession									
A14400	Site procession for Area 1	1	06-Oct-14 A	06-Oct-14 A					
A14401	Site procession for Area 2	1	15-Oct-14 A	15-Oct-14 A					
A14402	Site procession for Area 3	1	31-Oct-14 A	31-Oct-14 A					
A14403	Site procession 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									
Petrol interception									
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									
Store Room									
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									
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									
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									
A15530	Temporary toilet design confirmation	1	02-Dec-14 A	02-Dec-14 A					
Footing & Superstructure									
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					
A14450	Rebar fixing for footing	3	01-Dec-14 A	10-Dec-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 TPTI ( Feb 2015 ~ May 2015 )



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

Three Months Rolling Programme for TPTI ( Feb 2015 ~ May 2015 )



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				
						Feb	Mar	Apr	May	
	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
- 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 TPTI ( Feb 2015 ~ May 2015 )



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**APPENDIX B**  
**ACTION AND LIMIT LEVELS**

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## 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 <sup>(1)(2)</sup>	Wan Chai Sports Ground	160	260
AM3 <sup>(1)</sup>	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 <sup>(1)</sup>	Description	Time Period	Action Level	Limit Level
NM2 <sup>(1)(2)(3)</sup>	Harbour Centre (8/F)	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)

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.

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**APPENDIX C  
CALIBRATION CERTIFICATES FOR  
MONITORING EQUIPEMENT**

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# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET

**CINOTECH**

File No. MA14009/53/0005

Station AM2 - Wan Chai Sports Ground Operator: WK  
 Date: 21-Jan-15 Next Due Date: 20-Mar-15  
 Equipment No.: A-01-53 Serial No. 1535

Ambient Condition			
Temperature, Ta (K)	288.7	Pressure, Pa (mmHg)	769.2

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

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.4	3.45	59.72	7.0	2.70
2	8.7	3.01	52.23	5.2	2.33
3	7.4	2.78	48.20	4.5	2.17
4	5.0	2.29	39.70	3.1	1.80
5	3.2	1.83	31.84	2.0	1.45

### By Linear Regression of Y on X

Slope, mw = 0.0447 Intercept, bw : 0.0204

Correlation coefficient\* = 0.9996

\*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

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

Therefore, Set Point; W =  $(mw \times Q_{std} + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.60

Remarks: \_\_\_\_\_

Conducted by: Wk Tang Signature: [Signature]  
 Checked by: LA Signature: [Signature]

Date: 21/1/15  
 Date: 21 January 2015

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET

**CINOTECH**

File No. MA14009/41/0005

Station AM3 - Existing Harbour Road Sports Centre Operator: WK  
 Date: 21-Jan-15 Next Due Date: 20-Mar-15  
 Equipment No.: A-01-41 Serial No. 5280

Ambient Condition			
Temperature, Ta (K)	288.4	Pressure, Pa (mmHg)	769.8

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

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	10.9	3.38	58.46	7.4	2.78
2	8.7	3.02	52.28	5.9	2.48
3	6.4	2.59	44.90	4.6	2.19
4	4.2	2.10	36.45	3.1	1.80
5	2.2	1.52	26.50	1.7	1.33

### By Linear Regression of Y on X

Slope, mw = 0.0450 Intercept, bw : 0.1535  
 Correlation coefficient\* = 0.9996

\*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	
$mw \times Q_{std} + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; W = $(mw \times Q_{std} + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>4.16</u>	

Remarks: \_\_\_\_\_

Conducted by: Wk Tang Signature: Kwai  
 Checked by: lor Signature: \_\_\_\_\_

Date: 21/1/15  
 Date: 21 January 2015

## TEST REPORT

Description Calibration Orifice  
Serial No. 0993  
Model No. TE-5025A  
Date 27 September 2014

Manufacturer TISCH  
Temperature, Ta (K) 299  
Pressure, Pa (mmHg) 761.8  
Equipment No.: A-04-04

Plate	Diff.Vol (m <sup>3</sup> )	Diff.Time (min)	Diff.Hg (mm)	Diff.H <sub>2</sub> 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

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

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

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

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

For subsequent flow rate calculations:

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

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

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

*Patrick Tse*

**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/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/140523-1
Date of Issue:	2014-05-24
Date Received:	2014-05-23
Date Tested:	2014-05-23
Date Completed:	2014-05-24
Next Due Date:	2015-05-23

**ATTN:** Mr. WK. Tang

Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: 2250 Light
Serial No.	: 2648969
Microphone No.	: 2698609
Equipment No.	: N-11-01

**Test conditions:**

Room Temperature	: 19 degree Celsius
Relative Humidity	: 62%

**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

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**APPENDIX D**  
**IMPACT MONITORING SCHEDULE**

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**Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool  
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 Monitoring		24 hr TSP		
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	

**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
			Noise Monitoring	24 hr TSP		
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				
		Noise Monitoring				

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 April 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Apr	2-Apr	3-Apr	4-Apr
			Noise Monitoring	24 hr TSP		
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr
			24 hr TSP	Noise Monitoring		
12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
		24 hr TSP	Noise Monitoring			
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
	24 hr TSP	Noise Monitoring			24 hr TSP	
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr		
			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 May 2015**

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

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

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

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## Appendix E - 24-hour TSP Monitoring Results

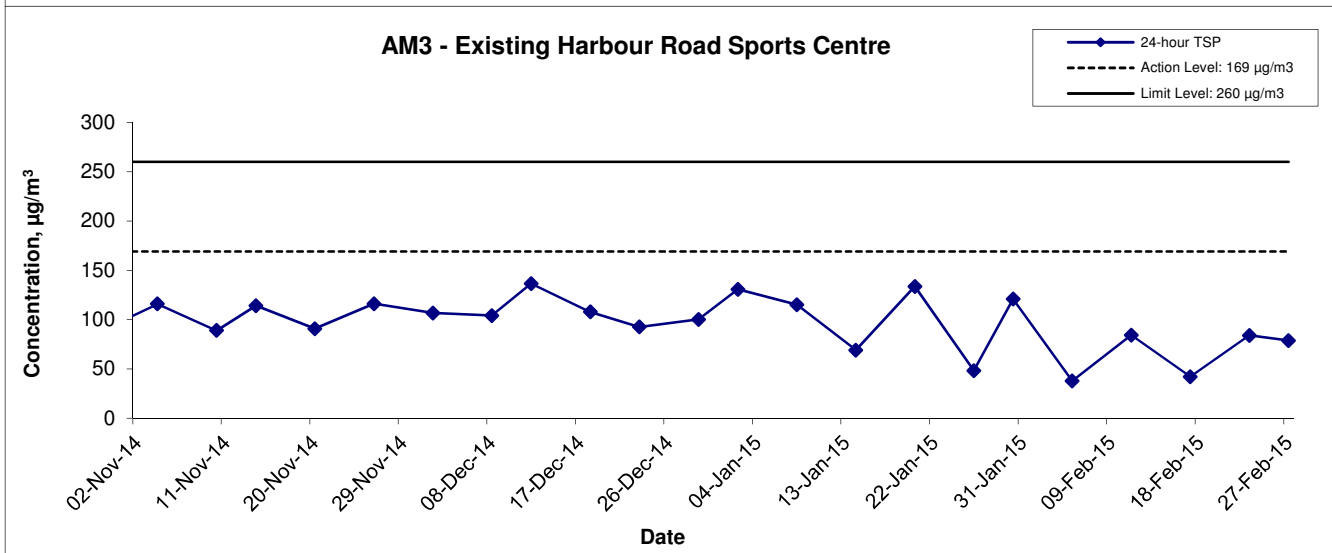
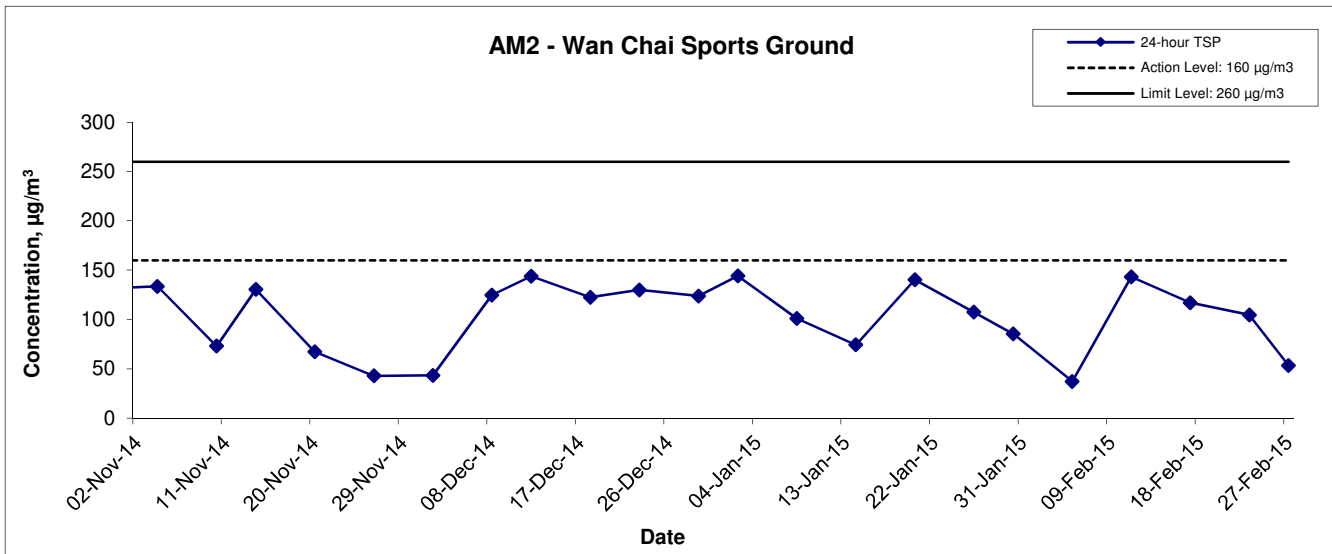
### Location AM2 - Wan Chai Sports Ground

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 <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
					Initial	Final		Initial	Final		Initial	Final			
5-Feb-15	9:00	Cloudy	285.4	772.9	3.2522	3.3178	0.0656	6570.4	6594.4	24.0	1.23	1.22	1.22	1763.8	37.2
11-Feb-15	9:00	Sunny	288.7	767.5	3.2546	3.5051	0.2505	6594.4	6618.4	24.0	1.21	1.21	1.21	1747.6	143.3
17-Feb-15	9:00	Cloudy	290.7	766.3	3.2480	3.4518	0.2038	6618.4	6642.4	24.0	1.21	1.21	1.21	1740.0	117.1
23-Feb-15	9:00	Cloudy	291.2	765.4	3.2386	3.4205	0.1819	6642.4	6666.4	24.0	1.21	1.21	1.21	1737.5	104.7
27-Feb-15	9:00	Cloudy	291.6	765.7	3.1923	3.2849	0.0926	6666.4	6690.4	24.0	1.21	1.21	1.21	1736.6	53.3
														Min	37.2
														Max	143.3
														Average	91.1

### 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 <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
					Initial	Final		Initial	Final		Initial	Final			
5-Feb-15	9:00	Cloudy	285.8	772.3	3.2539	3.3211	0.0672	4231.3	4255.3	24.0	1.23	1.23	1.23	1771.4	37.9
11-Feb-15	9:00	Sunny	288.8	767.6	3.2680	3.4158	0.1478	4255.3	4279.3	24.0	1.22	1.22	1.22	1755.7	84.2
17-Feb-15	9:00	Cloudy	290.2	766.7	3.2086	3.2823	0.0737	4279.3	4303.3	24.0	1.22	1.21	1.22	1750.0	42.1
23-Feb-15	9:00	Cloudy	291.5	765.4	3.2158	3.3621	0.1463	4303.3	4327.3	24.0	1.21	1.21	1.21	1744.1	83.9
27-Feb-15	9:00	Cloudy	291.9	765.3	3.1964	3.3336	0.1372	4327.3	4351.3	24.0	1.21	1.21	1.21	1742.9	78.7
														Min	37.9
														Max	84.2
														Average	65.4

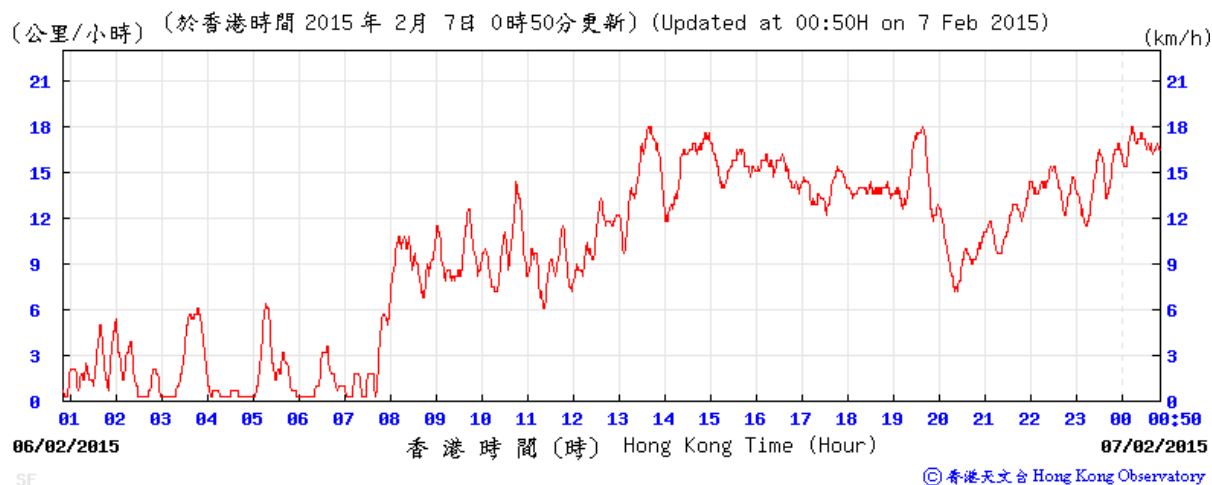
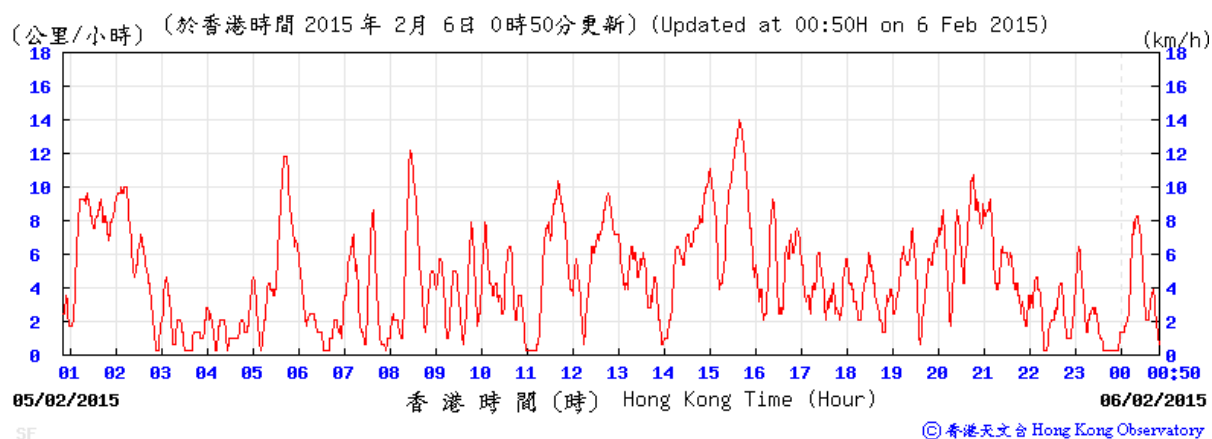
## 24-hour TSP Concentration Levels



<b>Title</b> 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	<b>Scale</b> N.T.S	<b>Project No.</b> MA14009	
	<b>Date</b> Mar-15	<b>Appendix</b> E	

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

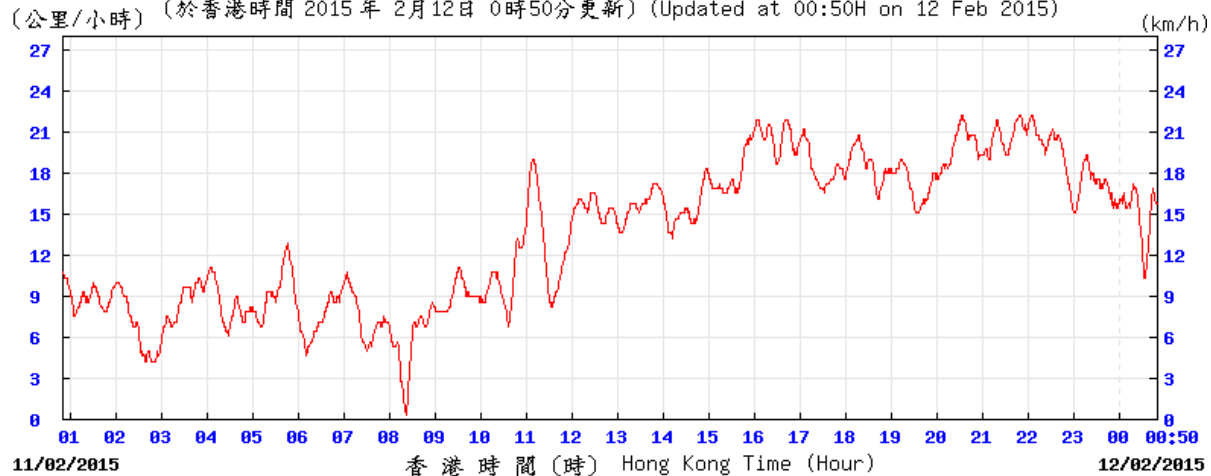
5-6 February 2015



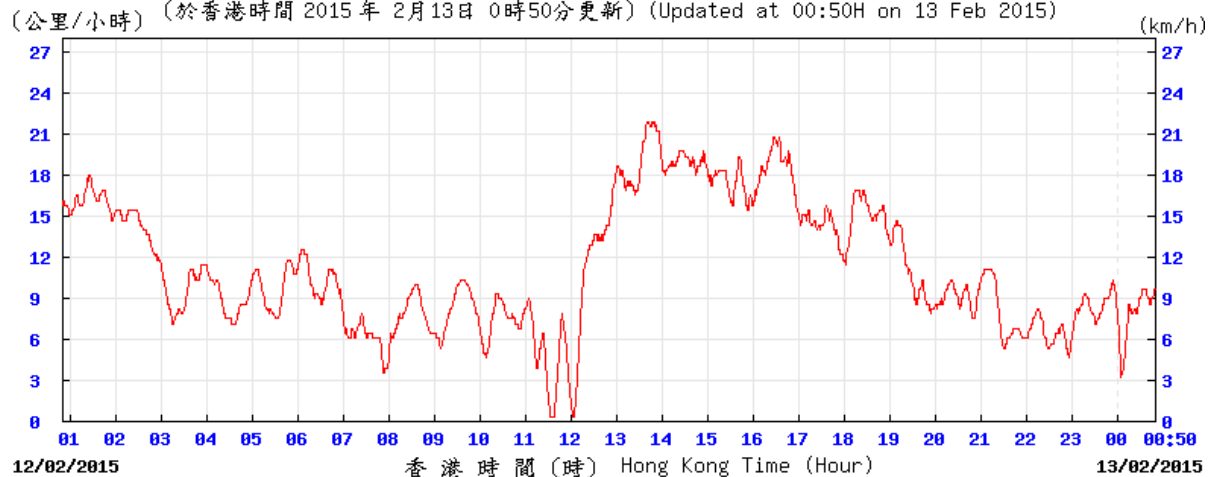
# Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

11-12 February 2015

(公里/小時) (於香港時間 2015 年 2月12日 0時50分更新) (Updated at 00:50H on 12 Feb 2015)

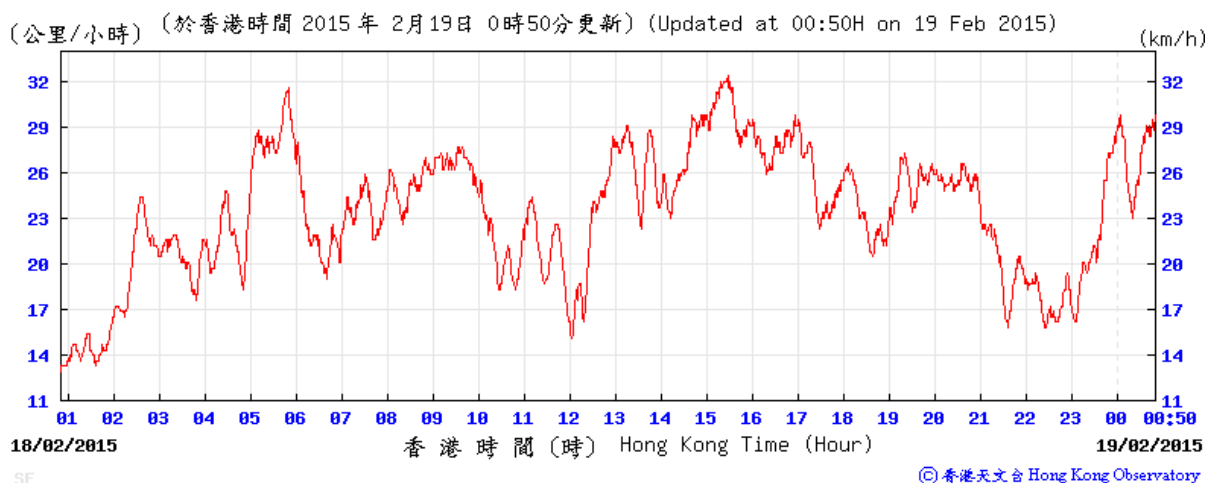
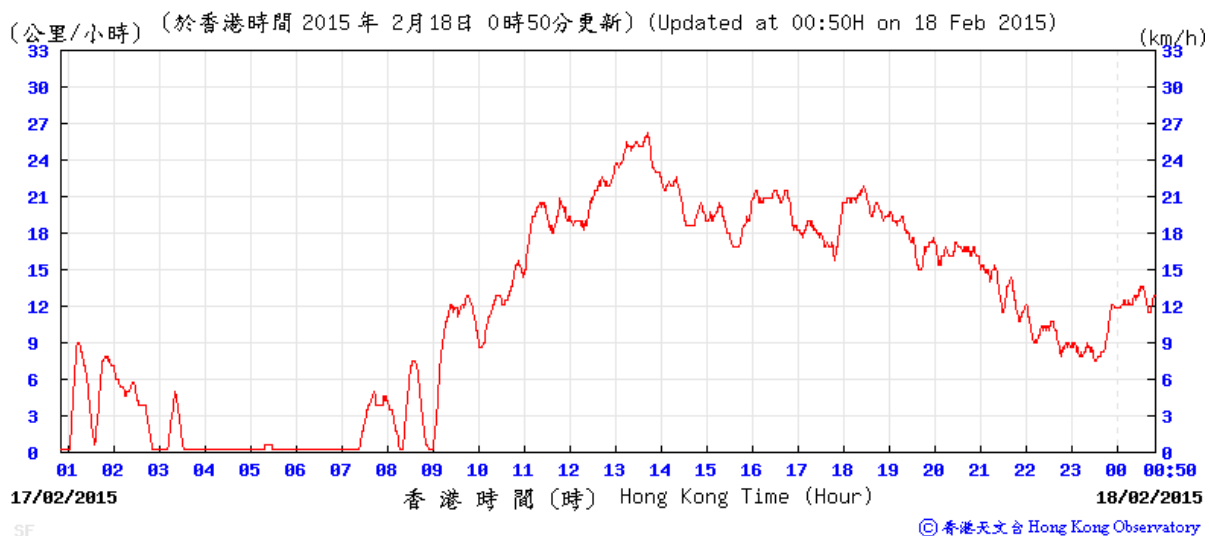


(公里/小時) (於香港時間 2015 年 2月13日 0時50分更新) (Updated at 00:50H on 13 Feb 2015)



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

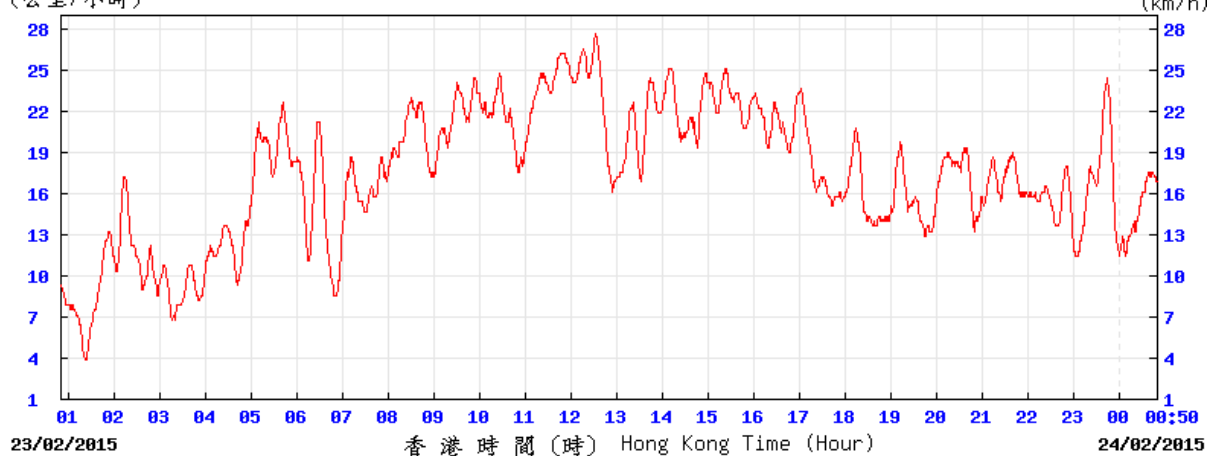
17-18 February 2015



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

23-24 February 2015

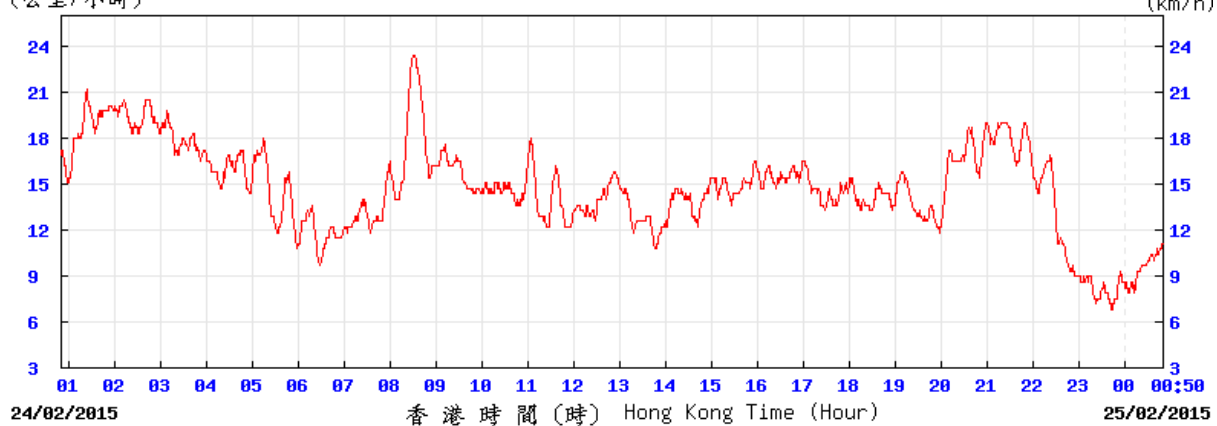
(公里/小時) (於香港時間 2015 年 2月24日 0時50分更新) (Updated at 00:50H on 24 Feb 2015)



SF

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(公里/小時) (於香港時間 2015 年 2月25日 0時50分更新) (Updated at 00:50H on 25 Feb 2015)



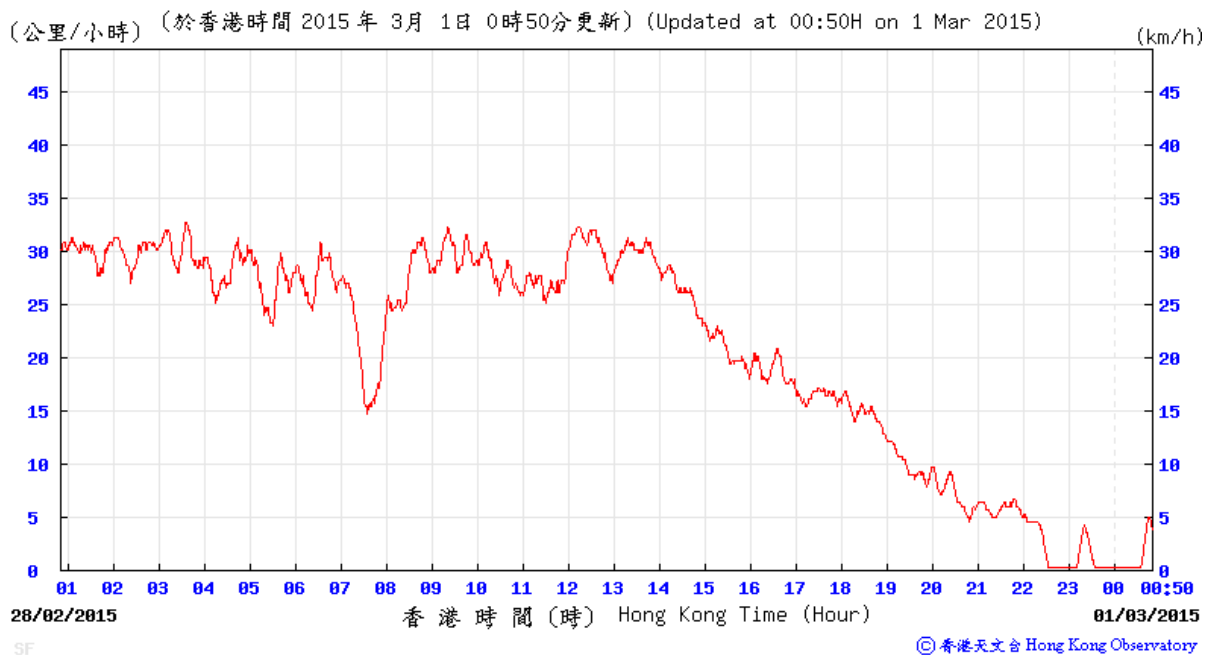
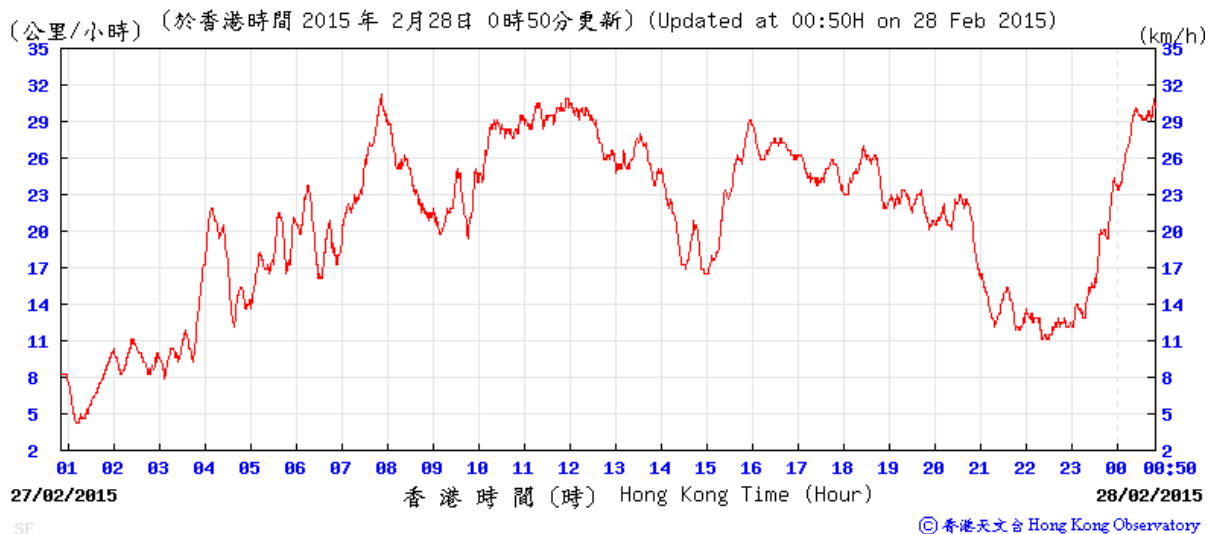
SF

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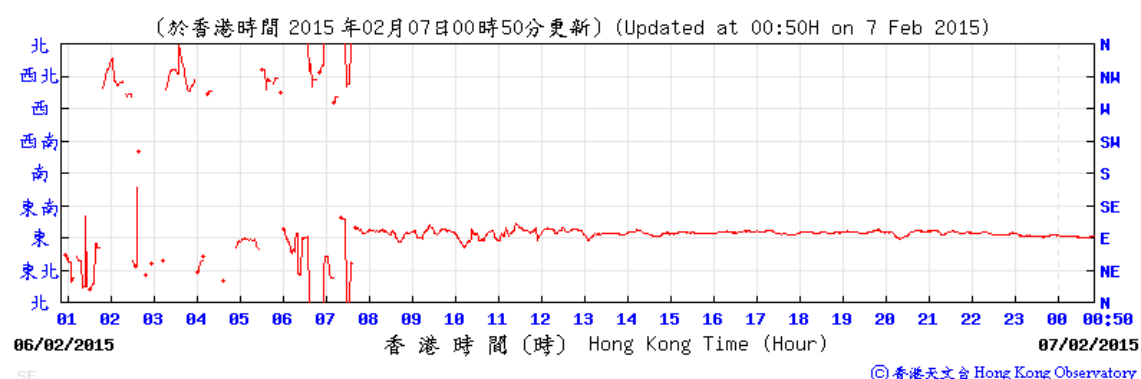
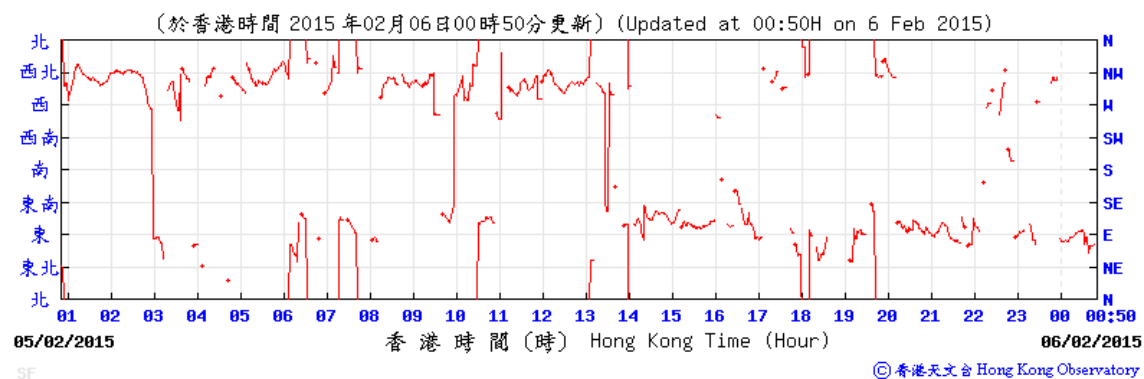
# Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

27-28 February 2015



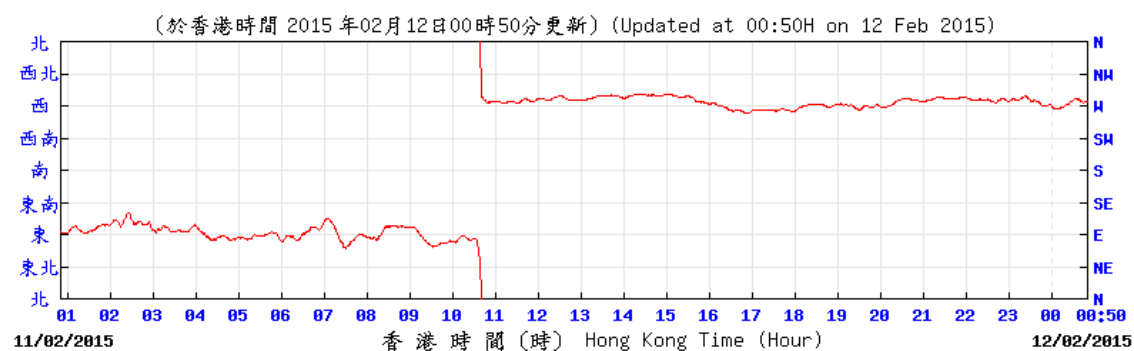
# Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

5-6 February 2015



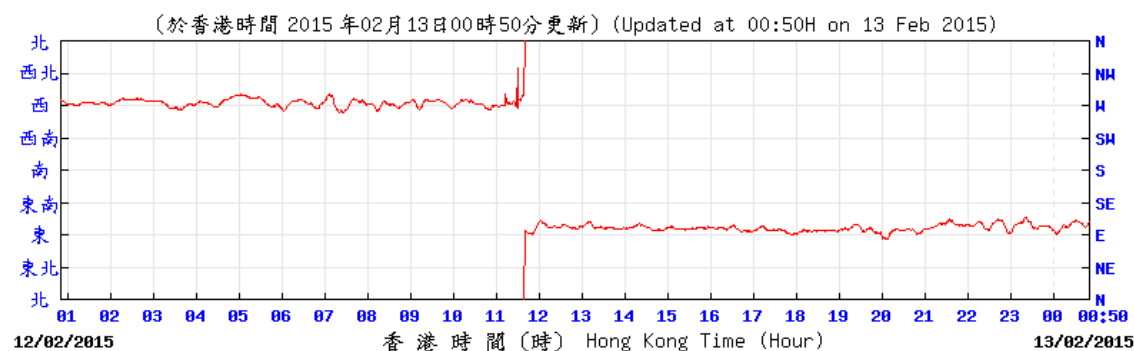
# Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

11-12 February 2015



SF

© 香港天文台 Hong Kong Observatory

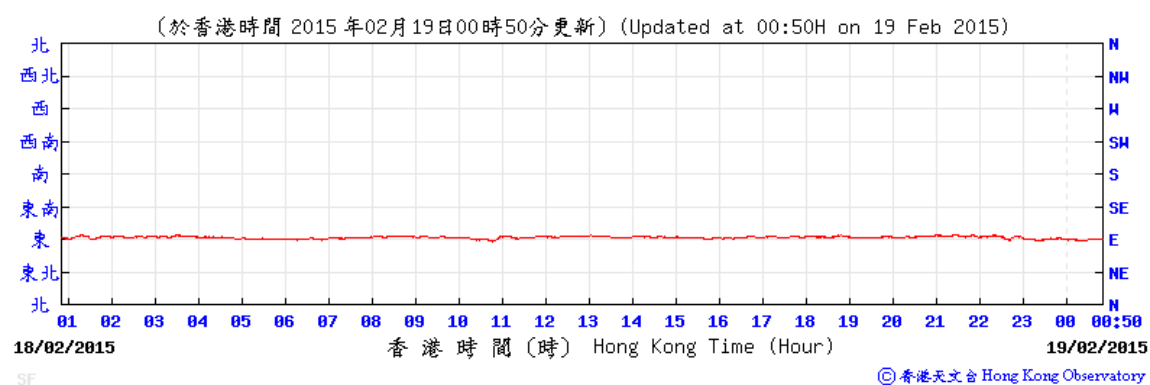
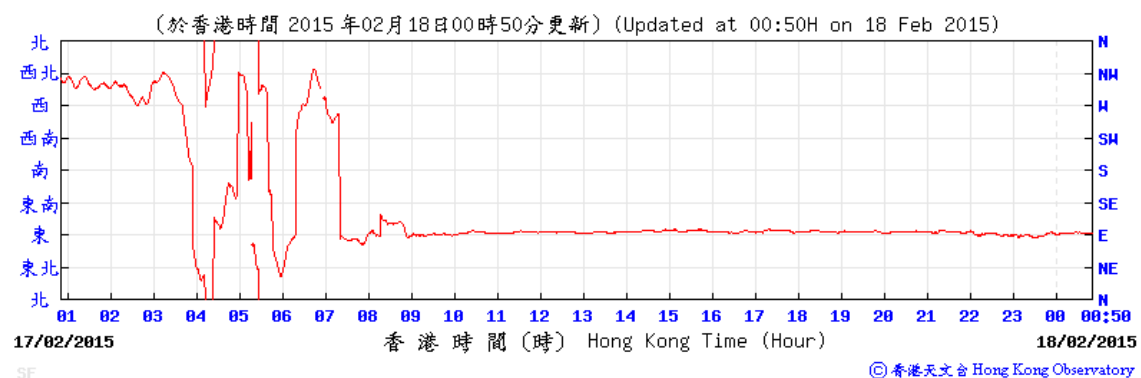


SF

© 香港天文台 Hong Kong Observatory

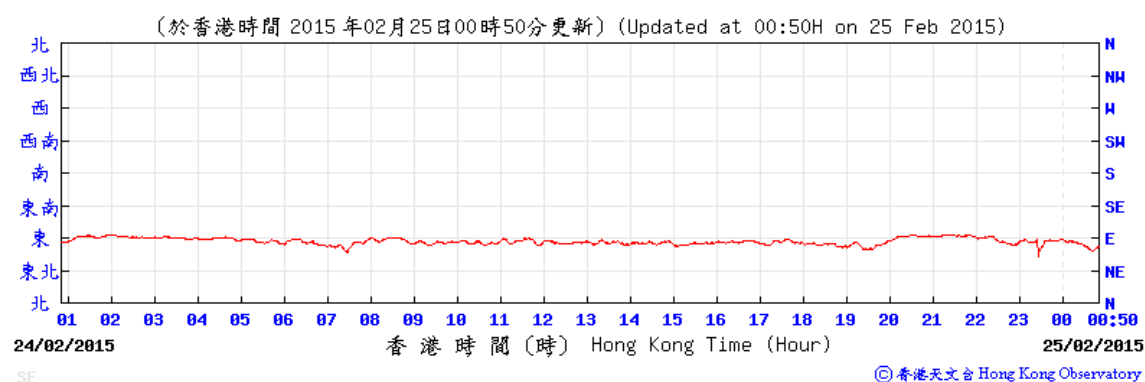
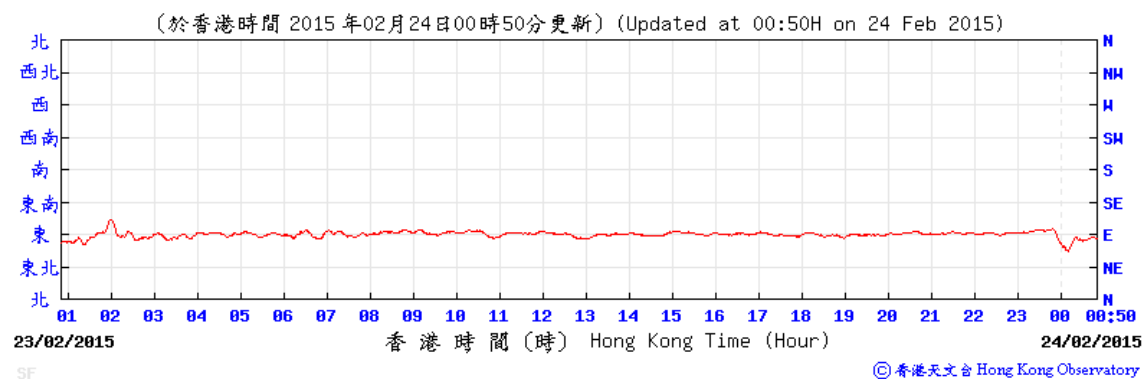
# Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

17-18 February 2015



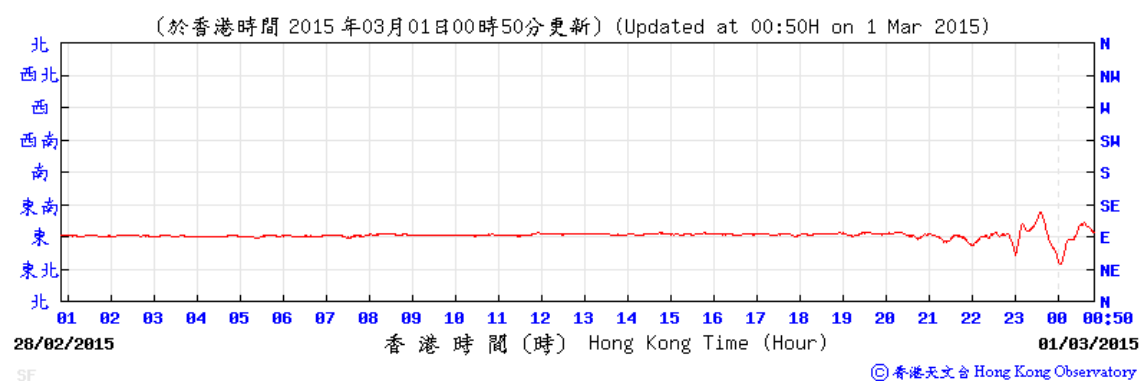
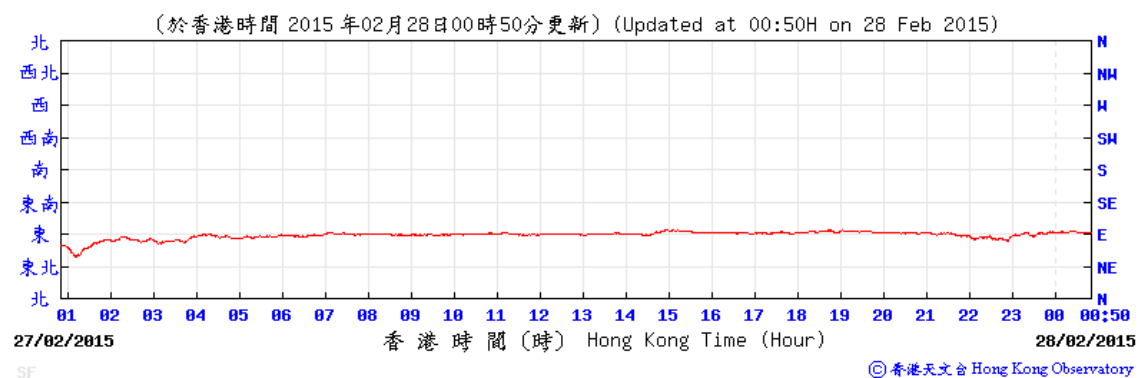
# Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

23-24 February 2015



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

27-28 February 2015



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

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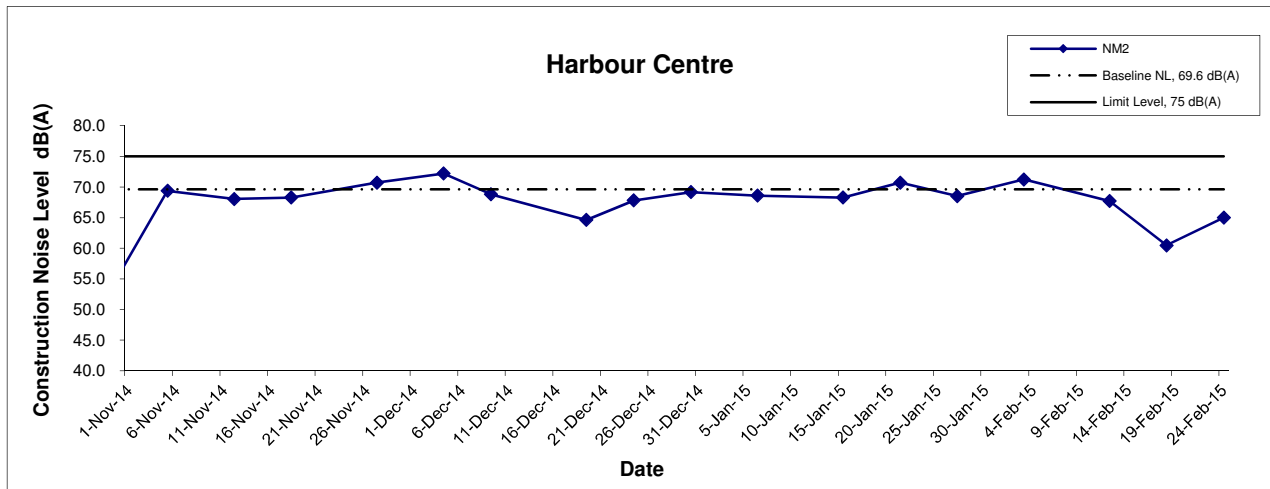
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## App F - Noise Monitoring Results

Location NM2 - Harbour Centre							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>
3-Feb-15	13:05	Sunny	73.5	75.5	68.8	69.6	71.2
12-Feb-15	14:30	Sunny	67.7	68.6	66.2		67.7 Measured ≤ Baseline
18-Feb-15	11:30	Cloudy	70.1	71.8	65.7		60.5
24-Feb-15	11:25	Cloudy	65.0	66.3	63.6		65.0 Measured ≤ Baseline



## Noise Levels



<b>Title</b> Shatin to Central Link - Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool  Graphical Presentation of Construction Noise Monitoring Results	<b>Scale</b> N.T.S	<b>Project No.</b> MA14009	<b>CINOTECH</b>
	<b>Date</b> Feb 15	<b>Appendix</b> F	

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**APPENDIX G**  
**SUMMARY OF EXCEEDANCE**

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## **APPENDIX G – SUMMARY OF EXCEEDANCE**

**Reporting Month:** February 2015

**a) Exceedance Report for Dust Monitoring (NIL)**

**b) Exceedance Report for Noise Monitoring (NIL)**

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**APPENDIX H**  
**SITE AUDIT SUMMARY**

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*Shatin to Central Link -*

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

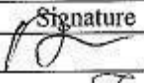

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150204
Date	4 February 2015 (Wednesday)
Time	13:30 – 15:00

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

Ref. No.	Remarks/Observations	Related Item No.
150204-001	<b>Part B – Water Quality</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul>	D 6
150204-R03	<b>Part C – Landscape &amp; Visual</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part D – Air Quality</b> <ul style="list-style-type: none"><li>Stockpile of dusty material observed uncovered in PTI Area. The Contractor is reminded to cover the stockpile by impervious material.</li><li>Visible smoke observed from generator &amp; excavator in PTI Area. The Contractor is reminded to repair the machinery properly.</li></ul>	D 15
150204-002	<b>Part E - Construction Noise Impact</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part F – Waste/Chemical Management</b> <ul style="list-style-type: none"><li>Oil stain observed on the ground in WCSP. The Contractor is reminded to clear it properly as chemical waste.</li></ul> <b>Part G – Permits/Licenses</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part H - Others</b> <ul style="list-style-type: none"><li>Follow-up on previous audit section (Ref. No.:150128), follow up action is needed to reviewed for item no. 150128-R02 during the next site inspection.</li></ul>	F 9

	Name	Signature	Date
Recorded by	Johnny Fung		4 February 2015
Checked by	Dr. Priscilla Choy		4 February 2015



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150211
Date	11 February 2015 (Wednesday)
Time	13:30 – 14:45

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

Ref. No.	Remarks/Observations	Related Item No.
150211-001	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	D 5
150211-R02	<p><b>Part C – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Air Quality</b></p> <ul style="list-style-type: none"> <li>Unpaved area in PTI was observed dry. The Contractor was reminded to provide water spray to prevent dust generation.</li> <li>Visible smoke observed from generator in PTI Area. The Contractor is reminded to repair the machinery properly.</li> </ul>	D 15
150211-R03	<p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>Some C&amp;D waste and spoil was observed deposited near the site boundary at 1/F of WCSP. The Contractor is reminded to clear the waste and spoil to prevent washout to out of site.</li> </ul> <p><b>Part G – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.:150204), follow up action is needed to reviewed for item no. 150204-R03 during the next site inspection.</li> </ul>	F 4ii

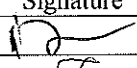

	Name	Signature	Date
Recorded by	Johnny Fung		11 February 2015
Checked by	Dr. Priscilla Choy		11 February 2015

**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	150218
Date	18 February 2015 (Wednesday)
Time	13:30 – 14:15

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

Ref. No.	Remarks/Observations	Related Item No.
150218-R01	<b>Part B – Water Quality</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul>	D 6
150218-R02	<b>Part C – Landscape &amp; Visual</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part D – Air Quality</b> <ul style="list-style-type: none"><li>Stockpile of dusty material was observed not covered properly. The Contractor is reminded to cover properly by tarpaulin sheets. (PTI Area)</li><li>Visible smoke observed emitted from generator in PTI Area. The Contractor is reminded to repair the machinery properly.</li></ul> <b>Part E - Construction Noise Impact</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part F – Waste/Chemical Management</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part G – Permits/Licenses</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part H - Others</b> <ul style="list-style-type: none"><li>Follow-up on previous audit section (Ref. No.:150211), follow up action is needed to reviewed for item no. 150211-R02 during the next site inspection.</li></ul>	D 15



	Name	Signature	Date
Recorded by	Johnny Fung		18 February 2015
Checked by	Dr. Priscilla Choy		18 February 2015

**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	150225
Date	25 February 2015 (Wednesday)
Time	13:30 – 14:30

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

Ref. No.	Remarks/Observations	Related Item No.
150225-R02	<b>Part B – Water Quality</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part C – Landscape &amp; Visual</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part D – Air Quality</b> <ul style="list-style-type: none"><li>Visible smoke observed emitted from generator in PTI Area. The Contractor is reminded to repair the machinery properly.</li></ul> <b>Part E – Construction Noise Impact</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul>	D 15
150225-O01	<b>Part F – Waste/Chemical Management</b> <ul style="list-style-type: none"><li>Overflow of accumulated of C&amp;D waste observed in PTI Area. The Contractor is reminded to store the C&amp;D waste in the designated are and clear it regularly.</li></ul> <b>Part G – Permits/Licenses</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part H – Others</b> <ul style="list-style-type: none"><li>Follow-up on previous audit section (Ref. No.:150218), follow up action is needed to reviewed for item no. 150218-R02 during the next site inspection.</li></ul>	F 4ii

	Name	Signature	Date
Recorded by	Johnny Fung		25 February 2015
Checked by	Dr. Priscilla Choy		25 February 2015



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**APPENDIX I**  
**EVENT AND ACTION PLANS**

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## Appendix I - Event and Action Plan for Construction Noise Monitoring

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

## Appendix I - Event and Action Plan for Construction Noise Monitoring

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

## Appendix I - Event and Action Plan for Construction Dust Monitoring

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

## Appendix I - Event and Action Plan for Construction Dust Monitoring

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

## Appendix I - Event and Action Plan for Construction Dust Monitoring

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

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**APPENDIX J  
UPDATED ENVIRONMENTAL  
MITIGATION IMPLEMENTATION  
SCHEDULE**

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## 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
<b>Ecology (Construction Phase)</b>							
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	^
<b>Landscape &amp; Visual (Construction Phase)</b>							
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

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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 deposition/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"> <li>• Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works.</li> <li>• Existing trees to be retained on site shall be carefully protected during construction.</li> </ul>	Minimize landscape and visual impact	Contractor	All works areas	Construction phase	• EIAO-TM	N/A  ^
<b>Construction Dust Impact</b>							
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%.</p> <p>This suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m<sup>2</sup> for Hong Kong side once every working hour.</p> <p>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/m<sup>2</sup> for Hong Kong side to achieve the removal efficiency.</p> <p>The dust levels would be monitored and managed under an EM&amp;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"> <li>• Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li> <li>• Use of frequent watering for particularly dusty construction areas and areas close to ASRs</li> <li>• 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.</li> <li>• Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li> <li>• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations</li> <li>• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li> <li>• 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</li> </ul>	Minimize dust impact	All works areas	Construction phase	<ul style="list-style-type: none"> <li>• APCO</li> <li>• Air Pollution Control (Construction dust) Regulation</li> </ul>	All works areas	<p>*</p> <p>^</p> <p>^</p> <p>*</p> <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
	<p>dry seasons/ periods.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Imposition of speed controls for vehicles on site haul roads.</li> <li>• Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs.</li> <li>• 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.</li> <li>• 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.</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
<b>Air Quality (Construction Phase)</b>							
/	<p>Emission from Vehicles and Plants</p> <ul style="list-style-type: none"> <li>• All vehicles shall be shut down in intermittent use.</li> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>• All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	<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
<b>Construction Noise (Airborne)</b>							
S9.55	<p>The following good site practices shall be implemented:</p> <ul style="list-style-type: none"> <li>• Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program</li> <li>• Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program</li> <li>• Mobile plant, if any, shall be sited as far from NSRs as possible</li> <li>• 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</li> <li>• 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</li> <li>• Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	Minimize construction noise impact	Contractor	All works areas	Construction phase	• EIAO-TM	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S9.56 & Table 9.16	<p>The following quiet PME shall be used:</p> <ul style="list-style-type: none"> <li>• Crane lorry, mobile</li> <li>• Crane, mobile</li> <li>• Asphalt paver</li> </ul>	To minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	<p>N/A</p> <p>N/A</p> <p>N/A</p>

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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
	<ul style="list-style-type: none"> <li>• Backhoe with hydraulic breaker</li> <li>• Breaker, excavator mounted (hydraulic)</li> <li>• Hydraulic breaker</li> <li>• Concrete lorry mixer</li> <li>• Poker, vibrator, hand-held</li> <li>• Concrete pump</li> <li>• Crawler crane, mobile</li> <li>• Mobile crane</li> <li>• Dump truck</li> <li>• Excavator</li> <li>• Truck</li> <li>• Rock drill</li> <li>• Lorry</li> <li>• Wheel loader</li> <li>• Roller vibratory</li> </ul>						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 N/A N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: <ul style="list-style-type: none"> <li>• Air compressor</li> <li>• Asphalt paver</li> <li>• Backhoe with hydraulic breaker</li> <li>• Bar bender</li> <li>• Bar bender and cutter (electric)</li> </ul>	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	N/A N/A 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"> <li>• Breaker, excavator mounted</li> <li>• Concrete pump</li> <li>• Concrete pump, stationary/lorry</li> <li>• Excavator</li> <li>• Generator</li> <li>• Grout pump</li> <li>• Hand held breaker</li> <li>• Hydraulic breaker</li> <li>• Saw, concrete</li> </ul>						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"> <li>• Drill rig, rotary type</li> <li>• Piling, diaphragm wall, bentonite filtering plant</li> <li>• Piling, diaphragm wall, grab and chisel</li> <li>• Piling, diaphragm wall, hydraulic extractor</li> <li>• Piling, large diameter bored, grab and chisel</li> <li>• Piling, hydraulic extractor</li> <li>• Piling, earth auger, auger</li> <li>• Rock drill, crawler mounted (pneumatic)</li> </ul>	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	<ul style="list-style-type: none"> <li>• EIAO-TM</li> </ul>	N/A N/A N/A N/A N/A N/A N/A N/A
<b>Water Quality (Construction Phase)</b>							
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"> <li>• EIAO-TM</li> <li>• WPCO</li> </ul>	

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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>to the seafront:</p> <ul style="list-style-type: none"> <li>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.</li> <li>Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage.</li> <li>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.</li> </ul>	<p>from construction works at or close to the seafront</p>		to the seafront			<p>^</p> <p>^</p> <p>^</p>
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"> <li>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</li> </ul>	<p>minimize water quality impact from construction site runoff and general construction activities</p>	Contractor	All construction sites where practicable	Construction phase	<ul style="list-style-type: none"> <li>EIAO-TM</li> <li>WPCO</li> <li>TM-DSS</li> <li>WDO</li> <li>ProPECC PN 1/94</li> </ul>	<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
	<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"> <li>• 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.</li> <li>• 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</li> </ul>						<p>^</p> <p>^</p>

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	<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"> <li>• 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.</li> <li>• 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.</li> <li>• Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms.</li> <li>• 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</li> </ul>						<p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

## SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

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	<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"> <li>• 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.</li> </ul> <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>						<p>^</p> <p>N/A</p> <p>^</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"> <li>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.</li> <li>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.</li> </ul> <p><u>Water for Testing &amp; Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>						<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"> <li>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.</li> <li>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.</li> </ul> <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> <li>Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be</li> </ul>						<p>^</p> <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
	<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"> <li>• Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass.</li> <li>• 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.</li> </ul>						<p>^</p> <p>^</p>
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. The Contractor shall also be responsible for	minimize water quality impacts due to sewage generated from construction workforce	Contractor	All works areas	Construction phase	<ul style="list-style-type: none"> <li>• EIAO-TM</li> <li>• WPCO</li> <li>• TM-DSS</li> <li>• WDO</li> </ul>	^

## SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

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	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"> <li>• EIAO-TM</li> <li>• WPCO</li> <li>• TM-DSS</li> </ul>	^
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"> <li>• EIAO-TM</li> <li>• WPCO</li> <li>• TM-DSS</li> </ul>	^

## 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
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"> <li>• EIAO-TM</li> <li>• WPCO</li> <li>• TM-DSS</li> <li>• WDO</li> </ul>	^
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"> <li>• EIAO-TM</li> <li>• WPCO</li> <li>• TM-DSS</li> <li>• WDO</li> </ul>	^
S11.256	<p>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:</p> <ul style="list-style-type: none"> <li>• Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>• Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> <li>• Storage area shall be selected at a safe location on site and</li> </ul>	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	<ul style="list-style-type: none"> <li>• EIAO-TM</li> <li>• WPCO</li> <li>• TM-DSS</li> <li>• WDO</li> </ul>	^   ^   ^



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

## 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"> <li>- 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;</li> <li>- 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;</li> <li>- Proper storage and site practices to minimize the potential for damage or contamination of construction materials;</li> <li>- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and</li> <li>- Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.</li> </ul>					(Miscellaneous Provisions) Ordinance (Cap. 28)	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S12.77	<p><b><i>Good Site Practices and Waste Reduction Measures (Con't)</i></b></p> <ul style="list-style-type: none"> <li>- 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</li> </ul>	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^

## 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
	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	<p><b><i>Storage, Collection and Transportation of Waste</i></b></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"> <li>- Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> <li>- Maintain and clean storage areas routinely;</li> <li>- Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> </ul>	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	^  ^  ^

## 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
	- Different locations shall be designated to stockpile each material to enhance reuse						^
S12.80	<p><b><i>Storage, Collection and Transportation of Waste (Con't)</i></b></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"> <li>- Remove waste in timely manner</li> <li>- Waste collectors shall only collect wastes prescribed by their permits</li> <li>- Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers</li> <li>- 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)</li> <li>- Waste shall be disposed of at licensed waste disposal facilities</li> <li>- Maintain records of quantities of waste generated, recycled and disposed</li> </ul>	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	<p>*</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S12.81	<b><i>Storage, Collection and Transportation of Waste (Con't)</i></b>	minimize potential	Contractor	All works sites	Construction	• DEVB TCW	

## 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"> <li>- 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</li> </ul>	adverse environmental impacts arising from waste collection and disposal			phase	No. 6/2010	^
S12.83 – 12.86	<p><b>Sorting of C&amp;D Materials</b></p> <ul style="list-style-type: none"> <li>- Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.</li> <li>- Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials.</li> <li>- The C&amp;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.</li> <li>- 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</li> </ul>	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"> <li>• DEVB TCW No. 6/2010</li> <li>• ETWB TCW No. 33/2002</li> <li>• ETWB TCW No. 19/2005</li> </ul>	^  *  ^    ^
S12.97	<b>Containers for Storage of Chemical Waste</b>	register with EPD	Contractor	All works sites	Construction	• Code of	

## 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>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"> <li>- Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed;</li> <li>- Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and</li> <li>- Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation</li> </ul>	as a Chemical waste producer and store chemical waste in appropriate containers			phase	Practice on the Packaging, Labelling and Storage of Chemical Wastes	^  ^  ^
S12.98	<p><b>Chemical Waste Storage Area</b></p> <ul style="list-style-type: none"> <li>- Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only;</li> <li>- Be enclosed on at least 3 sides;</li> <li>- 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;</li> <li>- Have adequate ventilation;</li> </ul>	prepare appropriate storage areas for chemical waste at works areas	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> <li>• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</li> </ul>	^  ^  ^  ^

## 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"> <li>- Be covered to prevent rainfall from entering; and</li> <li>- Be properly arranged so that incompatible materials are adequately separated.</li> </ul>						<p>^</p> <p>^</p>
S12.98	<p><b>Chemical Waste</b></p> <ul style="list-style-type: none"> <li>- 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.</li> </ul>	clearly label the chemical waste at works areas	Contractor	All works sites	Construction phase	<ul style="list-style-type: none"> <li>• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</li> </ul>	^
S12.100	<p><b>Collection and Disposal of Chemical Waste</b></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"> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> </ul>	^
S12.101	<p><b>General Refuse</b></p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&amp;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"> <li>- Public Health and Municipal Services Ordinance (Cap.</li> </ul>	^

## 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
	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.	and disposal				132)	
S12.102	<b>General Refuse (Con't)</b> 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.	facilitate recycling of recyclable portions of refuse	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap. 132)	^
S12.102	<b>General Refuse (Con't)</b> 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	- Public Health and Municipal Services Ordinance (Cap. 132)	^

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.

N/A    Not Applicable



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

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

Date of Report: **February, 2015**

### Monthly Summary Waste Flow Table for 2015 at Wan Chai Sports Ground and Public 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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	
Jan	2.100	0.000	0.000	0.000	2.100	0.000	0.000	0.000	0.000	0.000	0.032	
Feb	0.305	0.000	0.000	0.000	0.305	0.000	0.000	0.000	0.000	0.000	0.027	
Mar												
Apr												
May												
Jun												
Sub-total	2.404	0.000	0.000	0.000	2.404	0.000	0.000	0.000	0.000	0.000	0.060	
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
Total	2.404	0.000	0.000	0.000	2.404	0.000	0.000	0.000	0.000	0.000	0.060	

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/m<sup>3</sup>. Assumption the densities of general refuse is 1.0 tonnes/m<sup>3</sup>

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

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## 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
--	--	--	--	--	--

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## **Appendix C**

**Monthly EM&A Report for February 2015 – SCL Works  
Contract 1128 South Ventilation Building to Admiralty Tunnels**

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**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  
February 2015****March 2015**

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

Version: 0

Date: 9 March 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.

## Table of Contents

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1 INTRODUCTION.....</b>	<b>3</b>
1.1 Purpose of the Report .....	3
1.2 Report Structure.....	3
<b>2 PROJECT INFORMATION.....</b>	<b>4</b>
2.1 Background .....	4
2.2 Site Description .....	4
2.3 Construction Programme and Activities .....	5
2.4 Project Organisation.....	5
2.5 Status of Environmental Licences, Notification and Permits .....	6
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS.....</b>	<b>8</b>
3.1 Construction Noise Monitoring .....	8
3.2 Landscape and Visual.....	10
<b>4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....</b>	<b>11</b>
<b>5 MONITORING RESULTS .....</b>	<b>12</b>
5.1 Construction Noise Monitoring .....	12
5.2 Waste Management .....	12
5.3 Landscape and Visual.....	12
<b>6 ENVIRONMENTAL SITE INSPECTION AND AUDIT.....</b>	<b>13</b>
<b>7 ENVIRONMENTAL NON-CONFORMANCE.....</b>	<b>15</b>
7.1 Summary of Monitoring Exceedances .....	15
7.2 Summary of Environmental Non-Compliance.....	15
7.3 Summary of Environmental Complaints.....	15
7.4 Summary of Environmental Summon and Successful Prosecutions.....	15
<b>8 FUTURE KEY ISSUES.....</b>	<b>16</b>
8.1 Construction Programme for the Next Two Month .....	16
8.2 Key Issues for the Coming Month.....	16
8.3 Monitoring Schedule for the Next Month.....	16
<b>9 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>17</b>
9.1 Conclusions.....	17
9.2 Recommendations .....	17

**List of Tables**

Table 2.1	Contact Information of Key Personnel
Table 2.2	Status of Environmental Licenses, Notifications and Permits
Table 3.1	Noise Monitoring Parameters, Frequency and Duration
Table 3.2	Noise Monitoring Equipment for Regular Noise Monitoring
Table 3.3	Noise Monitoring Stations during Construction Phase
Table 4.1	Status of Required Submission under Environmental Permit
Table 5.1	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 6.1	Observations and Recommendations of Site Audit

**List of Figures**

Figure 1.1	Site Layout Plan of SCL1128
Figure 3.1	Air Quality and Noise Monitoring Locations

**List of Appendices**

Appendix A	Construction Programme
Appendix B	Project Organisation Structure
Appendix C	Environmental Mitigation Implementation Schedule
Appendix D	Summary of Action and Limit Levels
Appendix E	Calibration Certificates of Equipment
Appendix F	EM&A Monitoring Schedules
Appendix G	Air Quality Monitoring Results and their Graphical Presentations
Appendix H	Event and Action Plan
Appendix I	Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions
Appendix J	Monthly Summary Waste Flow Table



## 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 28 February 2015. As informed by the Contractor, major activities in the reporting period were:

### Area W1:

- Hoarding erection, pedestrian path concreting, ground treatment;
- Equipment mobilization.

### Area W4a:

- Modification of 1129's box culvert base slab and construction of steel platform;
- Saw cut top slab.

### Area W4b

- Pre-bored H-piles;
- Commence pile for Pier 20 after high mast support.

### Area W6

- Pile removed by drilling rig.

### Area W8

- Tree felling, pruning for transplant, site clearance & installation, pretreatment & GI.

### Area 14a & 14b

- Sheet pile installation and ELS work;
- construction of new road through Area W14.

## 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:-

- Shaft Construction;
- Hoarding Erection;

Dragages Bouygues J.V.

- Culvert Diversion Works;
- Underpinning of Canal Road Flyover;
- Pre-Bored H-Piles;
- Trial Pit for Pile Location;
- Ground Treatment Works;
- Site Clearance;
- Utilities Expose/ Diversion;
- D-Wall;
- H-Pile Removal; and
- Lung King Street Road Diversion.

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 fourth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 28 February 2015.

### **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, pedestrian path concreting, ground treatment;
- Equipment mobilization.

### Area W4a:

- Modification of 1129's box culvert base slab and construction of steel platform;
- Saw cut top slab.

### Area W4b

- Pre-bored H-piles;
- Commence pile for Pier 20 after high mast support.

### Area W6

- Pile removed by drilling rig.

### Area W8

- Tree felling, pruning for transplant, site clearance & installation, pretreatment & GI.

### Area 14a & 14b

- Sheet pile installation and ELS work;
- construction of new road through Area W14.

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)
GW-RS0180-15	22-Feb-15	29-Mar-15	Valid	Former Tunnel Approach Rest Garden
GW-RS0010-15	23-Feb-15	23-Mar-15	Valid	A section near Gloucester Road (Green Zone 2)
GW-RS0186-15	24-Feb-15	23-Aug-15	Valid	Victoria Park Road near Police Officer Club (W1)
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				
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)
5111-151-D2552-02	5-Jan-15	End of the Project	Valid	Victoria Park Road near POC (W1)
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				

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
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:-
- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
  - Two samplers should not be placed less than 2m apart from each others;
  - The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
  - A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
  - A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
  - No furnace or incinerator flues nearby.
  - Airflow around the sampler was unrestricted.
  - The sampler was located more than 20 meters from any dripline.
  - 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  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5$ %. 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 m<sup>3</sup>/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m<sup>3</sup>/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 February 2015 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 <sub>10</sub> and L <sub>90</sub> 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 January 2015	13 February 2015

## 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	142.1	106.5 – 177.5	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, 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, 171m<sup>3</sup> of inert C&D material was generated (171m<sup>3</sup> was disposed of as fill bank at TKO137) in the reporting month. 12.8m<sup>3</sup> 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 Practice 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 2 and 16 February 2015. 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, 4 site inspections were carried out on 2, 9, 16 and 25 February 2015. Joint inspection with the IEC, ER, the Contractor and the ET was conducted on 9 February 2015. 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	2 Feb 2015	<ul style="list-style-type: none"> <li>Improper covered of open stockpiles were observed at W14. The Contractor should fully cover the open stockpiles properly.</li> </ul>	The item was rectified by the Contractor on 6 February 2015.
	9 Feb 2015	<ul style="list-style-type: none"> <li>Site area at W14 was observed dry. The Contractor should water the exposed area timely as dust suppression.</li> </ul>	The item was rectified by the Contractor on 11 February 2015.
		<ul style="list-style-type: none"> <li>Reminder: The top of the cement mixing facility at W4 which is not in operation was not enclosed properly. The Contractor was reminded that the cement mixing facility should be properly covered while in operation.</li> </ul>	Information provided by the Contractor on 11 February 2015 that the facility would be covered once in operation.
	16 Feb 2015	<ul style="list-style-type: none"> <li>The cement mixing facilities at W1 was not enclosed properly. The Contractor should cover the cement mixing facilities properly when it is in operation.</li> </ul>	The item was rectified by the Contractor on 18 February 2015.
Noise	N/A	N/A	N/A
Water Quality	9 Feb 2015	<ul style="list-style-type: none"> <li>Reminder: The seepage of water from box culvert was reduced. The Contractor was reminded to treat the seepage water properly before discharge.</li> </ul>	The item was rectified by the Contractor on 9 February 2015.
	16 Feb 2015	<ul style="list-style-type: none"> <li>The wheel washing process at W8 was observed to be inefficient. The Contractor should improve the wheel washing process to prevent any muddy water enter public road.</li> </ul>	The item was improved by the Contractor on 18 February 2015.
Waste/ Chemical Management	2 Feb 2015	<ul style="list-style-type: none"> <li>No drip tray was provided for the genset at W1. The Contractor should provide drip tray to retain leakage, if any.</li> </ul>	The item was rectified by the Contractor on 6 February 2015.
	9 Feb 2015	<ul style="list-style-type: none"> <li>Oil stain was observed at W8. The Contractor should remove the oil stain and dispose of as chemical waste properly.</li> </ul>	The item was rectified by the Contractor on 11 February 2015.
		<ul style="list-style-type: none"> <li>Reminder: General refuse was observed storing together with construction material. The Contractor was reminded that construction material storage should be separate with waste.</li> </ul>	
	16 Feb 2015	<ul style="list-style-type: none"> <li>Oil stain was observed under a drilling machine at W4. The Contractor should remove the oil stain and dispose of as chemical waste properly.</li> </ul>	The item was rectified by the Contractor on 18 February 2015.
		<ul style="list-style-type: none"> <li>Refuse was observed accumulated and stored in an inappropriate storage tank at W14. The Contractor should remove the refuse frequently.</li> </ul>	
	25 Feb 2015	<ul style="list-style-type: none"> <li>Uncovered drain valve of drip trays were observed W1. The Contractor should cover/seal the drain valve of drip tray to prevent leakage, if any.</li> </ul>	The item was rectified by the Contractor on 27 February 2015.
		<ul style="list-style-type: none"> <li>Improper storage of chemical containers was observed at W4. The Contractor should storage the chemical container properly to avoid leakage, if any.</li> </ul>	

Parameters	Date	Observations and Recommendations	Follow-up
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	9 Feb 2015	<ul style="list-style-type: none"> <li>No copy of EP was displayed at the entrance of W1 and W8. The Contractor should display the copy of EP at every site entrance/exits for public information.</li> </ul>	The item was rectified by the Contractor on 11 February 2015.
	25 Feb 2015	<ul style="list-style-type: none"> <li>Reminder: The copy of EP displayed at the entrance of W8 was not updated. The Contractor was reminded to display the updated EP at every site entrance/exits.</li> </ul>	The item was rectified by the Contractor on 27 February 2015.

- 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 February and April 2015 will be:

- Shaft Construction;
- Hoarding Erection;
- Culvert Diversion Works;
- Underpinning of Canal Road Flyover;
- Pre-Bored H-Piles;
- Trial Pit for Pile Location;
- Ground Treatment Works;
- Site Clearance;
- Utilities Expose/ Diversion;
- D-Wall;
- H-Pile Removal; and
- Lung King Street Road Diversion.

### **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 between March 2015 and May 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 4 nos. of environmental site inspections were carried out in February 2015. 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 sufficient sedimentation facility to ensure the discharged water meet the requirement of discharge license;
- Well maintain of wheel washing facility to avoid runoff from the site.

#### Chemical and Waste Management

- Provide proper chemical and waste management.

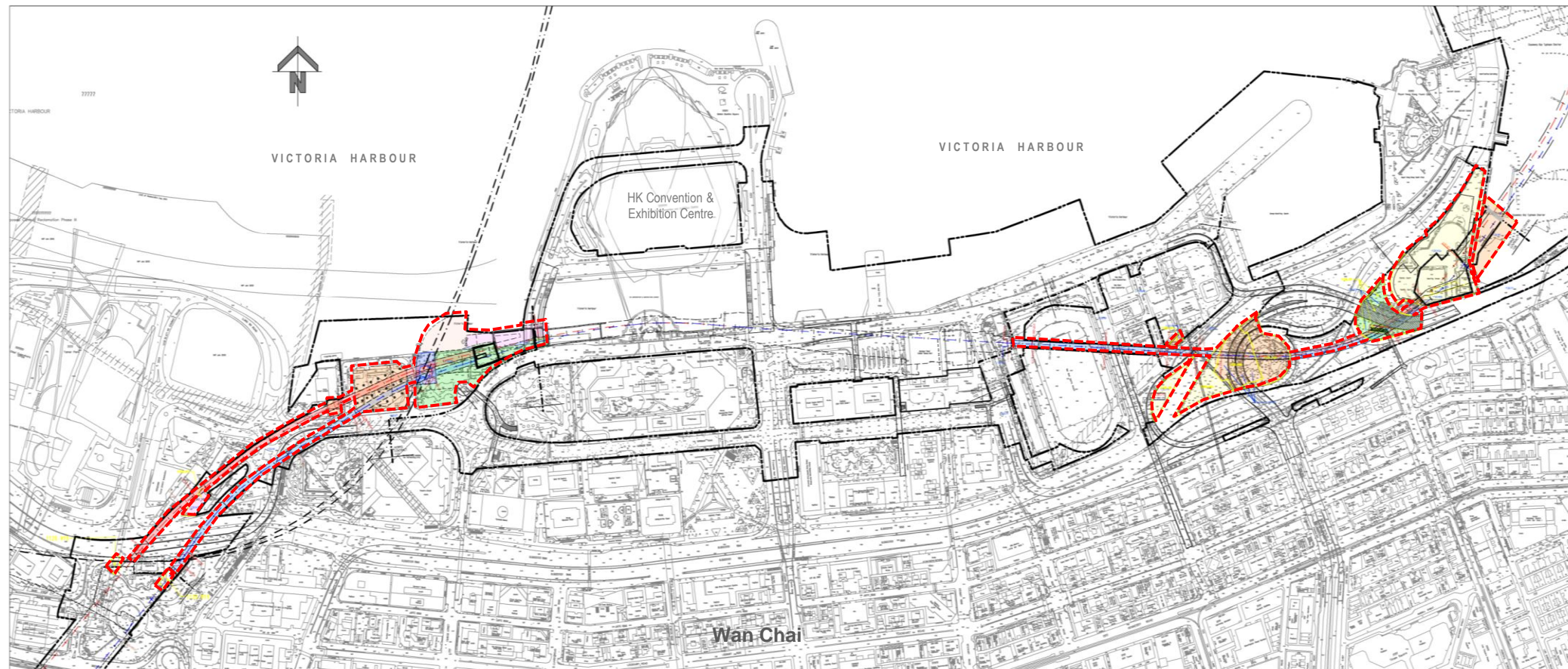
#### Permits/licenses

- Display all relevant/update permit/license(s) at every site entrances/exits.

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## FIGURES

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 Site Alignment

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**SCL Contract 1128**  
**South Ventilation Building to Admiralty Tunnels**

**AECOM**

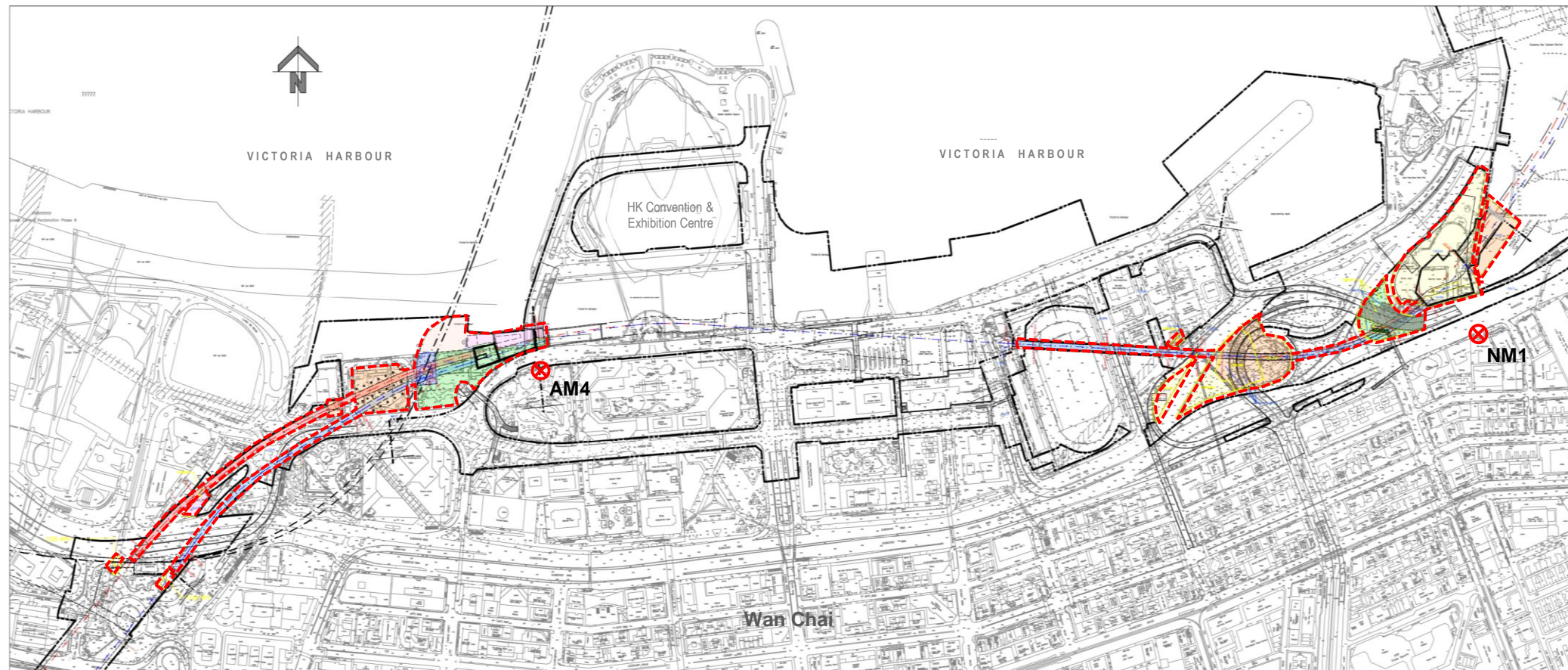
**SITE LAYOUT PLAN of SCL1128**

**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**

**AECOM**

### Air Quality and Noise Monitoring Locations

Project No.: 60331173

Date: December 2014

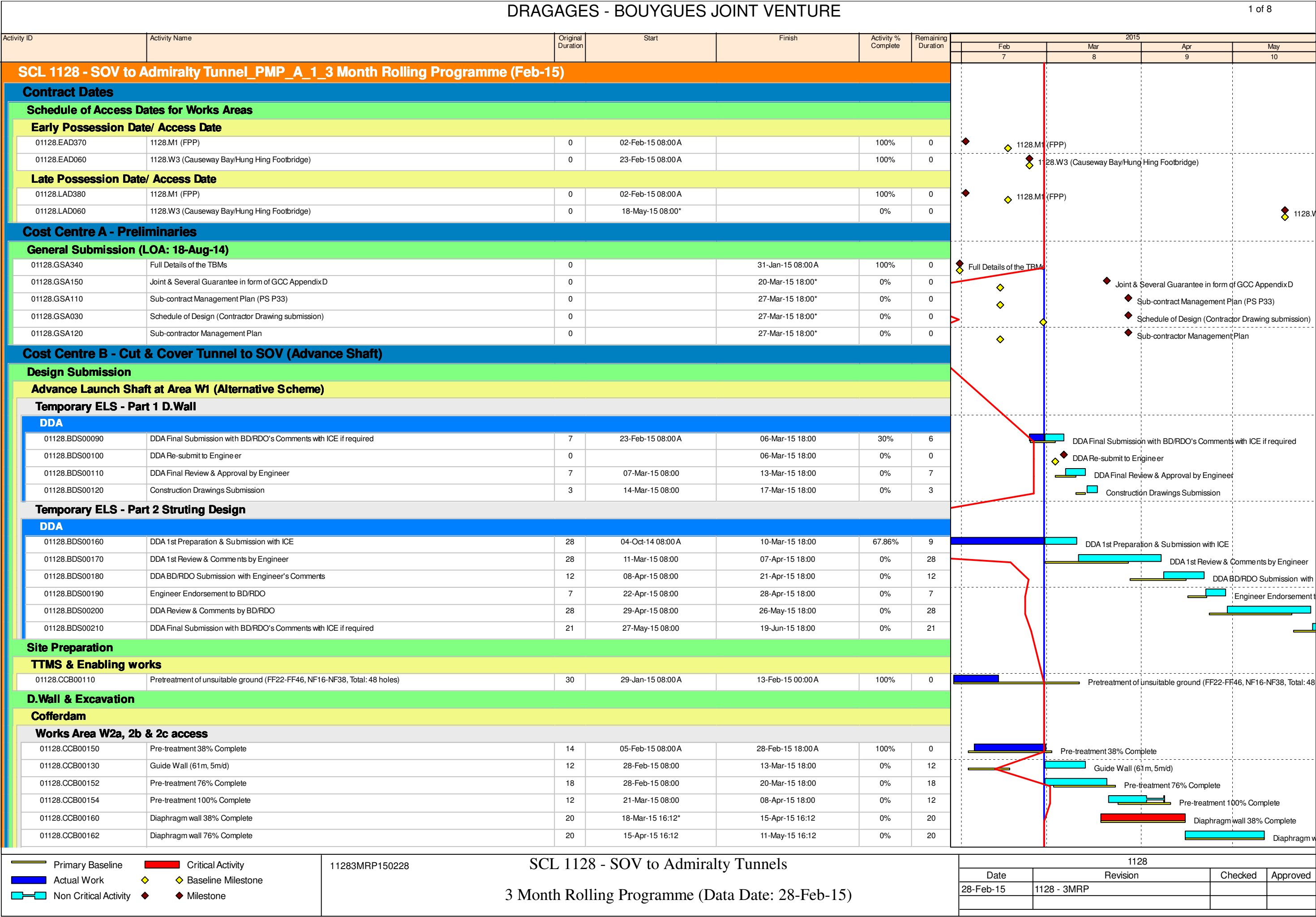
Figure 3.1

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## **APPENDIX A**

### **Construction Programme**

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DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration	2015			
							Feb	Mar	Apr	May
							7	8	9	10
01128.CCB00164	Diaphragm wall 100% Complete	13	11-May-15 16:12	29-May-15 16:12	0%	13				
01128.CCB00170	Shear Pin (10 panels) / Toe Grout, (3 rigs, 1 panel/day)	10	29-May-15 16:12	11-Jun-15 16:12	0%	10				
Cost Centre C - South Ventilation Building (SOV)										
Design Submission										
Temporary ELS - Part 1 D.Wall										
AIP										
01128.CDS00010	AIP Preparation & Submission	28	28-Feb-15 08:00	01-Apr-15 18:00	0%	28				
01128.CDS00020	AIP Review & Comments by Engineer	28	02-Apr-15 08:00	29-Apr-15 18:00	0%	28				
DDA										
01128.CDS00040	DDA 1st Preparation & Submission with ICE	25	30-Apr-15 08:00	30-May-15 18:00	0%	25				
01128.CDS00050	DDA 1st Review & Comments by Engineer	28	31-May-15 08:00	27-Jun-15 18:00	0%	28				
Cost Centre D - SOV to EXH TBM Tunnels										
Design Submission										
Instrumentation and Monitoring										
AIP										
01128.DDS00010	AIP Preparation & Submission	28	02-May-15 08:00	04-Jun-15 18:00	0%	28				
Existing Structure Assesement (ground movements)										
AIP										
01128.DDS00130	AIP Preparation & Submission	28	02-May-15 08:00	04-Jun-15 18:00	0%	28				
Eastern TBM Tunnel Lining Design										
DDA										
01128.DDS00650	DDA 1st Review & Comments by Engineer	28	25-Feb-15 08:00 A	20-Mar-15 18:00	20%	21				
01128.DDS00660	DDA BD/RDO Submission with Engineer's Comments	12	21-Mar-15 08:00	08-Apr-15 18:00	0%	12				
01128.DDS00670	Engineer Endorsement to BD/RDO	7	09-Apr-15 08:00	15-Apr-15 18:00	0%	7				
01128.DDS00680	DDA Review & Comments by BD/RDO	28	16-Apr-15 08:00	13-May-15 18:00	0%	28				
01128.DDS00690	DDA Final Submission with BD/RDO's Comments with ICE if required	21	14-May-15 08:00	08-Jun-15 18:00	0%	21				
Sump Pit (SP5) Submission										
Instrumentation and Monitoring										
AIP										
01128.DDS00850	AIP Preparation & Submission	28	28-Feb-15 08:00	01-Apr-15 18:00	0%	28				
01128.DDS00870	AIP Review & Comments by Engineer	28	02-Apr-15 08:00	29-Apr-15 18:00	0%	28				
DDA										
01128.DDS00880	DDA 1st Preparation & Submission with ICE	28	30-Apr-15 08:00	03-Jun-15 18:00	0%	28				
Existing Structure Assesement (ground movements)										
AIP										
01128.DDS00970	AIP Preparation & Submission	28	28-Feb-15 08:00	01-Apr-15 18:00	0%	28				
01128.DDS00990	AIP Review & Comments by Engineer	28	02-Apr-15 08:00	29-Apr-15 18:00	0%	28				
DDA										
01128.DDS01000	DDA 1st Preparation & Submission with ICE	28	30-Apr-15 08:00	03-Jun-15 18:00	0%	28				
Temporary Support and Strengthening Structures										
AIP										
01128.DDS01090	AIP Preparation & Submission	28	28-Feb-15 08:00	01-Apr-15 18:00	0%	28				
01128.DDS01110	AIP Review & Comments by Engineer	28	02-Apr-15 08:00	29-Apr-15 18:00	0%	28				
DDA										
01128.DDS01120	DDA 1st Preparation & Submission with ICE	28	30-Apr-15 08:00	03-Jun-15 18:00	0%	28				

- Primary Baseline
- Actual Work
- Non Critical Activity
- Critical Activity
- Baseline Milestone
- Milestone

11283MRP150228

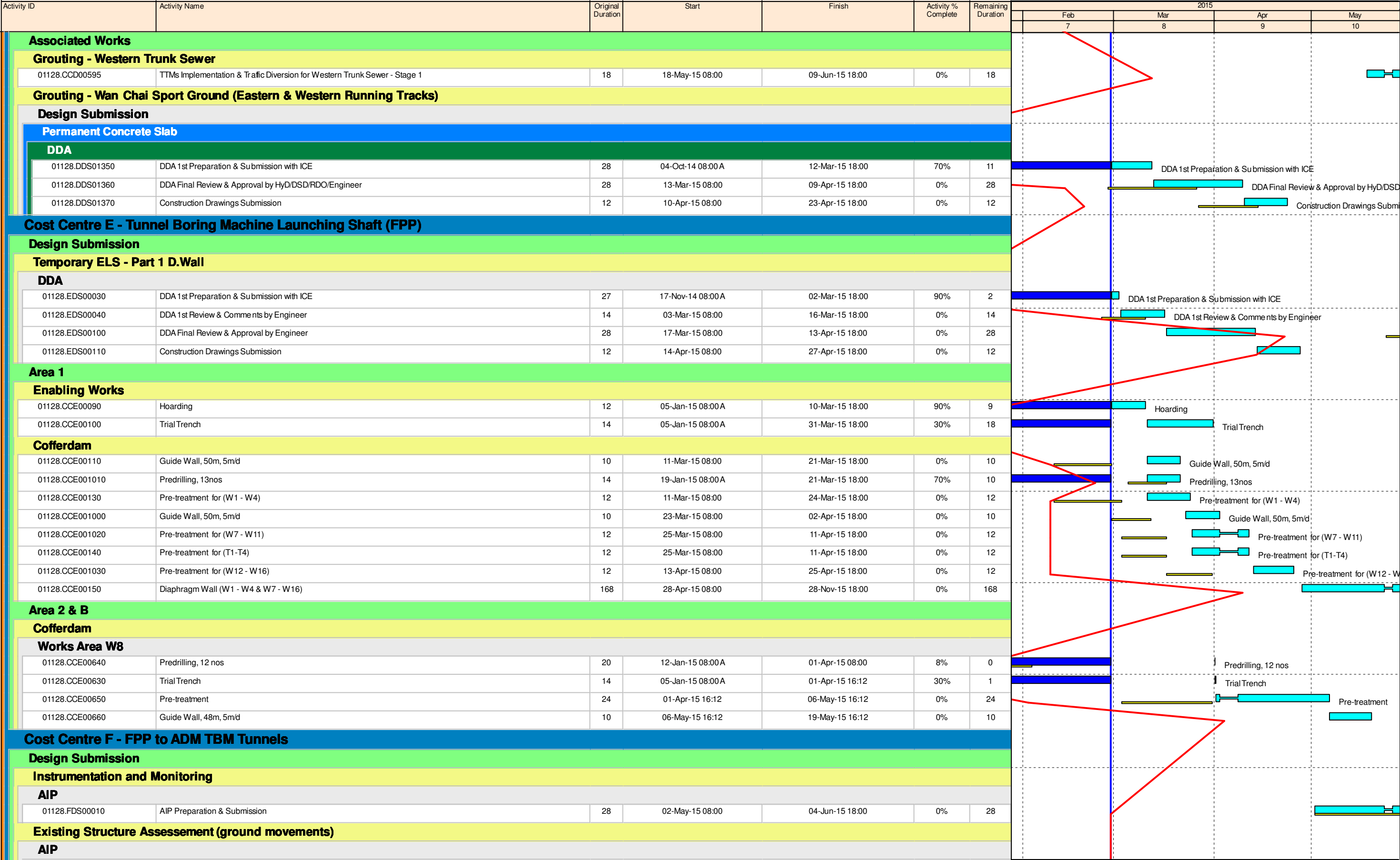
SCL 1128 - SOV to Admiralty Tunnels  
3 Month Rolling Programme (Data Date: 28-Feb-15)

1128			
Date	Revision	Checked	Approved
28-Feb-15	1128 - 3MRP		



DRAGAGES - BOUYGUES JOINT VENTURE

3 of 8



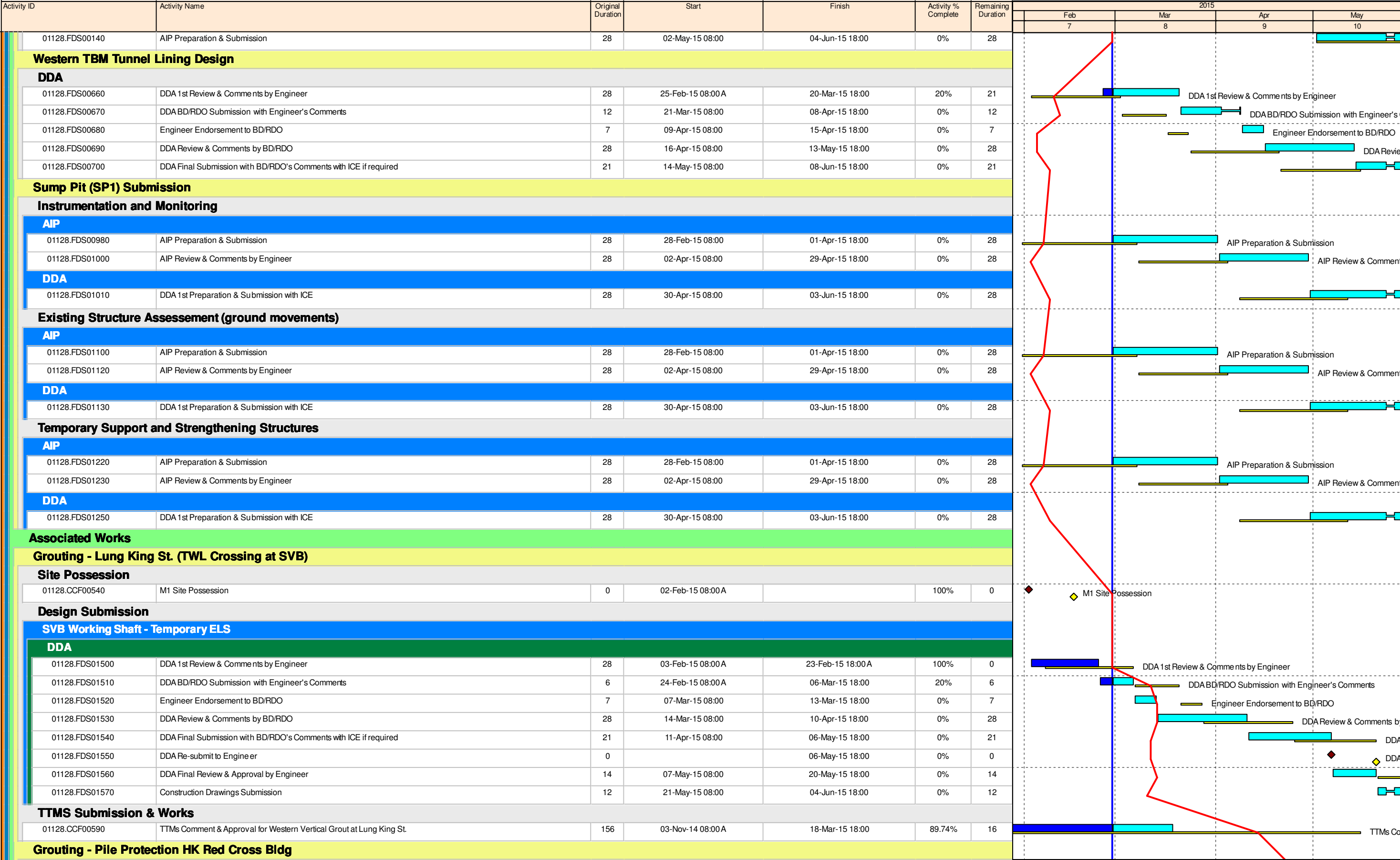
11283MRP150228

SCL 1128 - SOV to Admiralty Tunnels  
3 Month Rolling Programme (Data Date: 28-Feb-15)

1128			
Date	Revision	Checked	Approved
28-Feb-15	1128 - 3MRP		



DRAGAGES - BOUYGUES JOINT VENTURE



11283MRP150228

SCL 1128 - SOV to Admiralty Tunnels

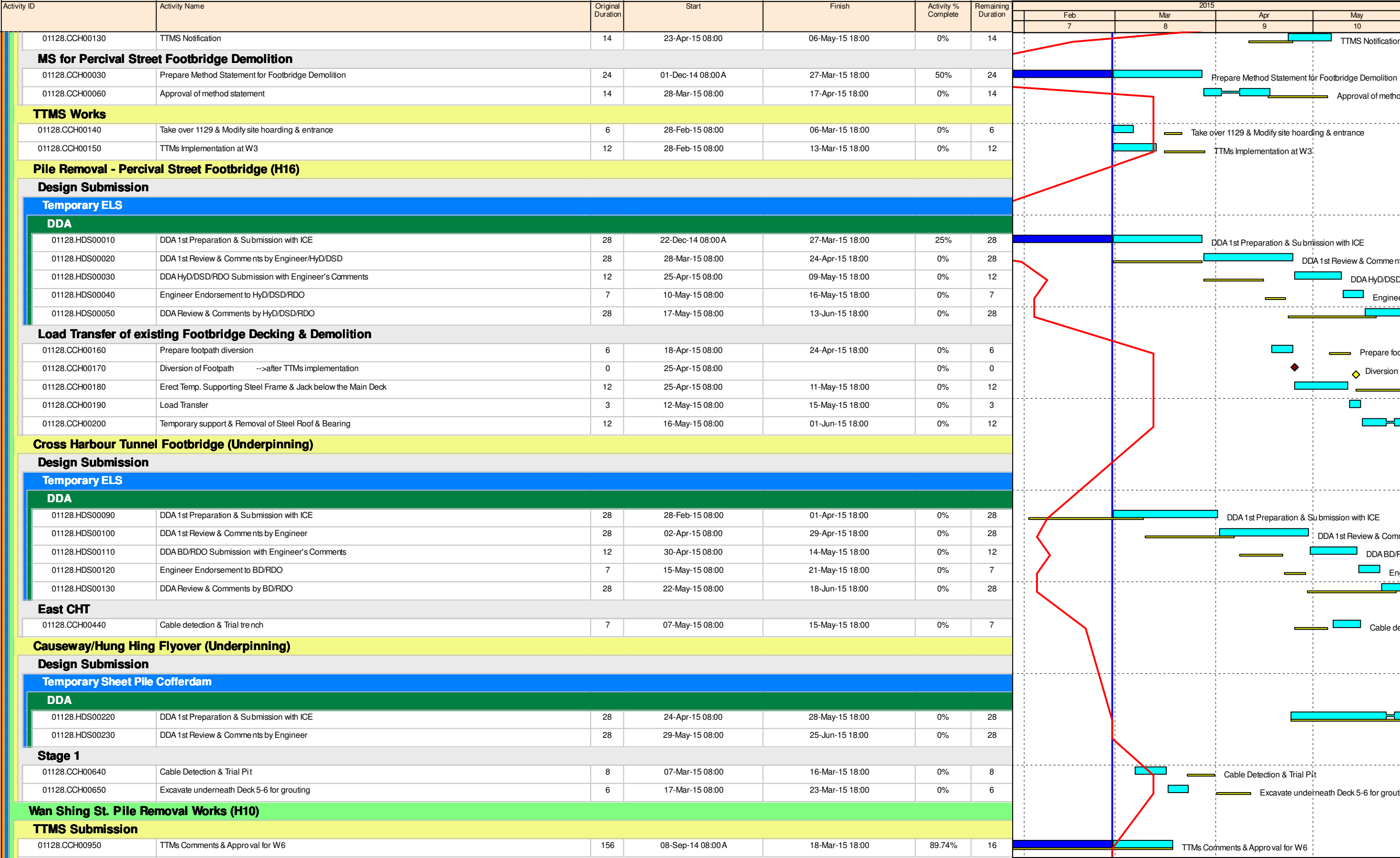
3 Month Rolling Programme (Data Date: 28-Feb-15)

1128			
Date	Revision	Checked	Approved
28-Feb-15	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE							5 of 8			
Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration	2015			
							Feb	Mar	Apr	May
							7	8	9	10
<b>TTMS Submission</b>										
01128.CCF00790	TTMs Comment & Approval for Harcourt Rd.	156	22-Nov-14 08:00 A	18-Mar-15 18:00	89.74%	16				
<b>Grouting - Admiralty Station (UT/DT Entries, TWL near ADM)</b>										
<b>TTMS Submission</b>										
01128.CCF01020	TTMs Comment & Approval for Works at ADM	156	20-Nov-14 08:00 A	18-Mar-15 18:00	89.74%	16				
<b>Grouting - ADM from Surface</b>										
01128.CCF01040	Implement TTMS	12	19-Mar-15 08:00	01-Apr-15 18:00	0%	12	Implement TTMS			
01128.CCF01050	Trial Trench	12	02-Apr-15 08:00	20-Apr-15 18:00	0%	12	Trial Trench			
01128.CCF01060	GI	12	21-Apr-15 08:00	06-May-15 18:00	0%	12	GI			
01128.CCF01070	Mobilization for Pre-grout from Surface - DT Tam	18	07-May-15 08:00	30-May-15 18:00	0%	18				
<b>Cost Centre G - Police Officers' Club (RRIW)</b>										
<b>Site Preparation</b>										
<b>Demolition of POC</b>										
<b>POC - EPD Submission</b>										
01128.CCG00060	SubmitAIR & AAP to EPD	24	07-Jan-15 08:00 A	06-Mar-15 18:00	80%	6	SubmitAIR & AAP to EPD			
01128.CCG00070	EPD Approval	28	07-Mar-15 08:00	03-Apr-15 18:00	0%	28	EPD Approval			
<b>Cost Centre H - Other RRIW Works</b>										
<b>Ground Investigation</b>										
<b>Additional Borehole</b>										
01128.CCH03670	Additional Borehole at Wan Shing street (2 nos.)	14	10-Feb-15 08:00 A	18-Feb-15 18:00 A	100%	0	Additional Borehole at Wan Shing street (2 nos.)			
01128.CCH03680	Additional Borehole at Wan Shing street (1 nos.)	6	19-Feb-15 08:00 A	24-Feb-15 18:00 A	100%	0	Additional Borehole at Wan Shing street (1 nos.)			
01128.CCH03480	Additional Borehole at FPP Shaft (3 nos.)	11	05-Jan-15 08:00 A	06-Mar-15 18:00	20%	6	Additional Borehole at FPP Shaft (3 nos.)			
01128.CCH03040	Additional Borehole atAnne Black Red Cross HQ (1 nos.)	6	28-Feb-15 08:00	06-Mar-15 18:00	0%	6	Additional Borehole atAnne Black Red Cross HQ (1 nos.)			
01128.CCH03430	Additional Borehole at SP1 Sump (1 nos.)	6	28-Feb-15 08:00	06-Mar-15 18:00	0%	6	Additional Borehole at SP1 Sump (1 nos.)			
01128.CCH03470	Additional Borehole at proposed Grout Shaft (2 nos.)	12	28-Feb-15 08:00	13-Mar-15 18:00	0%	12	Additional Borehole at proposed Grout Shaft (2 nos.)			
01128.CCH03490	Additional Borehole inside TWL Tunnel at Ventilation Building (3 nos.)	12	28-Feb-15 08:00	13-Mar-15 18:00	0%	12	Additional Borehole inside TWL Tunnel at Ventilation Building (3 nos.)			
01128.CCH03530	Additional Borehole at Marsh road - East side (3 nos.)	12	28-Feb-15 08:00	13-Mar-15 18:00	0%	12	Additional Borehole at Marsh road - East side (3 nos.)			
01128.CCH03760	Additional Borehole at FPP Shaft (2 nos.)	7	07-Mar-15 08:00	14-Mar-15 18:00	0%	7	Additional Borehole at FPP Shaft (2 nos.)			
01128.CCH03450	Additional Borehole at Fenwick Pier street (2 nos.)	14	28-Feb-15 08:00	16-Mar-15 18:00	0%	14	Additional Borehole at Fenwick Pier street (2 nos.)			
01128.CCH03030	Additional Borehole at Tsuen Wan Line atAdmiralty (4 nos.)	14	28-Feb-15 08:00	16-Mar-15 18:00	0%	14	Additional Borehole at Tsuen Wan Line atAdmiralty (4 nos.)			
01128.CCH03740	Additional Borehole at Marsh road - East side (3 nos.)	12	14-Mar-15 08:00	27-Mar-15 18:00	0%	12	Additional Borehole at Marsh road - East side (3 nos.)			
01128.CCH03750	Additional Borehole at Marsh road - East side (3 nos.)	12	28-Mar-15 08:00	15-Apr-15 18:00	0%	12	Additional Borehole at Marsh road - East side (3 nos.)			
<b>Obstruction Detection</b>										
01128.CCH03070	Obstruction Detection atAnne Black Red Cross HQ (1 nos.)	6	28-Feb-15 08:00	06-Mar-15 18:00	0%	6	Obstruction Detection atAnne Black Red Cross HQ (1 nos.)			
01128.CCH03440	Obstruction Detection at Harcourt Road (1 nos.)	6	28-Feb-15 08:00	06-Mar-15 18:00	0%	6	Obstruction Detection at Harcourt Road (1 nos.)			
01128.CCH03590	Obstruction Detection at Canal Road Flyover (1 nos.)	6	28-Feb-15 08:00	06-Mar-15 18:00	0%	6	Obstruction Detection at Canal Road Flyover (1 nos.)			
01128.CCH03580	Obstruction Detection at Gloucester road (2 nos.)	12	28-Feb-15 08:00	13-Mar-15 18:00	0%	12	Obstruction Detection at Gloucester road (2 nos.)			
01128.CCH03500	Obstruction Detection at Fenwick Pier street (2 nos.)	12	17-Mar-15 08:00	30-Mar-15 18:00	0%	12	Obstruction Detection at Fenwick Pier street (2 nos.)			
01128.CCH03550	Obstruction Detection at Marsh road (1 nos.)	6	27-Mar-15 08:00	02-Apr-15 18:00	0%	6	Obstruction Detection at Marsh road (1 nos.)			
<b>CHT Slip Road Footbridge Diversion</b>										
<b>Site Possession</b>										
01128.CCH00010	W3 Site Possession (Percival St. Footbridge)	0	23-Feb-15 08:00 A		100%	0	W3 Site Possession (Percival St. Footbridge)			
<b>TTMS &amp; MS Submission</b>										
<b>TTMS for CHT Footbridge Underpinning</b>										
01128.CCH00120	TTMS Approval	183	15-Dec-14 08:00 A	22-Apr-15 18:00	70.49%	54				

DRAGAGES - BOUYGUES JOINT VENTURE

6 of 8



Primary Baseline

Actual Work

Non Critical Activity

Critical Activity

Baseline Milestone

Milestone

11283MRP150228

SCL 1128 - SOV to Admiralty Tunnels







3 Month Rolling Programme (Data Date: 28-Feb-15)

1128

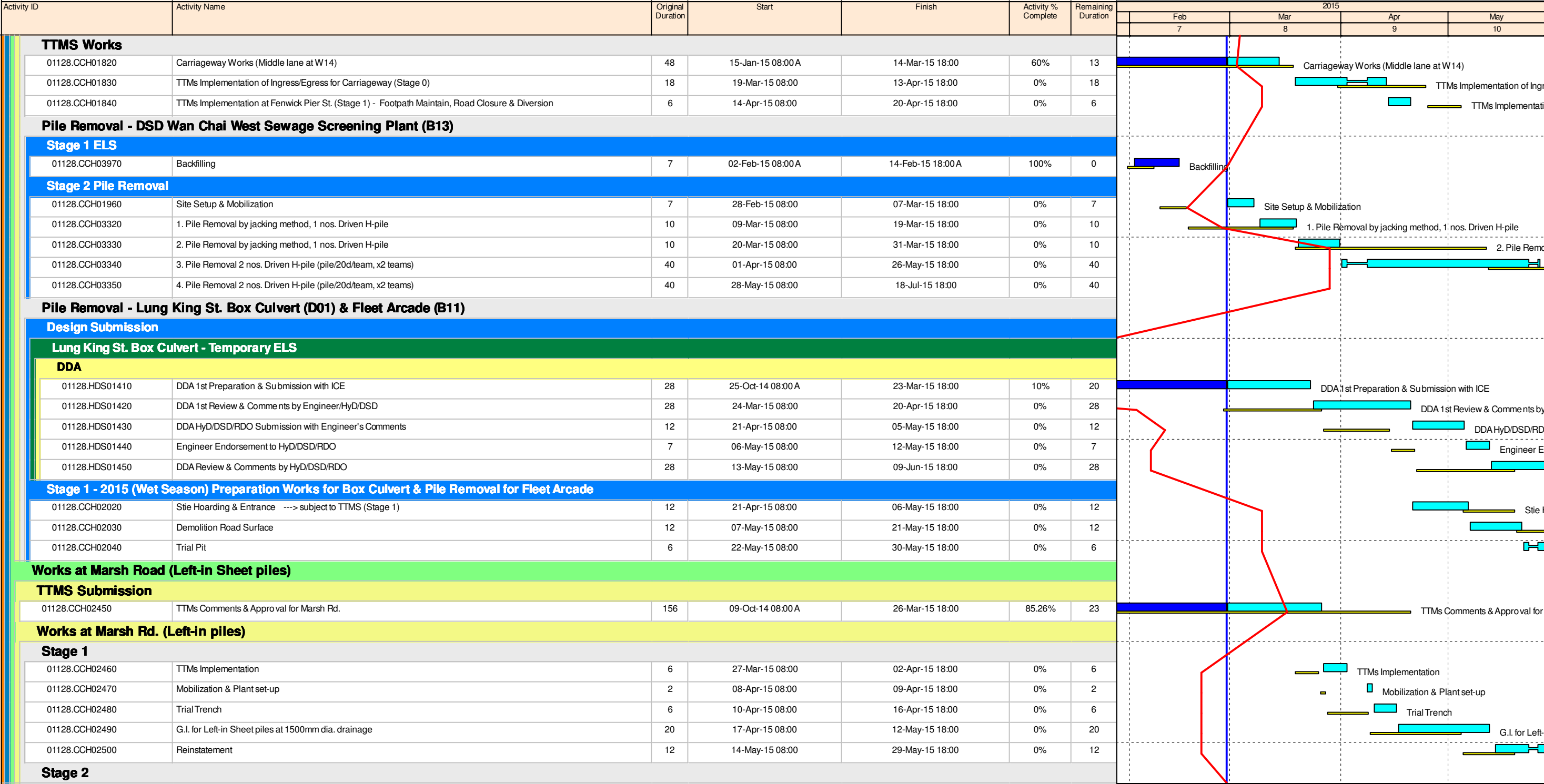
Date	Revision	Checked	Approved
28-Feb-15	1128 - 3MRP		

## 7 of 8

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration	2015				
							Feb	Mar	Apr	May	
							7	8	9	10	
<b>TTMS Works</b>											
01128.CCH00960	TTMs Implementation for Pile Removal (H10)	6	19-Mar-15 08:00	25-Mar-15 18:00	0%	6					
<b>Pile Removal - Wan Shing St. Footbridge (H10)</b>											
01128.CCH00990	Site Hoarding & Entrance	12	26-Mar-15 08:00	13-Apr-15 18:00	0%	12					
01128.CCH01000	Site Setup & Mobilization	12	14-Apr-15 08:00	27-Apr-15 18:00	0%	12					
01128.CCH01020	Pile Removal for 1 no. Dia.600mm Bored Pile (UT Ch 97+473)	14	26-Jan-15 08:00 A	11-May-15 18:00	30%	10					
01128.CCH01030	Post-drilling for Pile Removal & Backfilling (Pile/3d/rig) (UT Ch 97+473)	4	12-May-15 08:00	16-May-15 18:00	0%	4					
01128.CCH01040	Footpath Reinstatement	14	18-May-15 08:00	04-Jun-15 18:00	0%	14					
<b>TARG (Pile Removal: D03, H13, D04 &amp; Trunk Sewers)</b>											
<b>TTMS Submission</b>											
<b>Ingress/Egress</b>											
01128.CCH01120	TTMs Comments & Approval for W4a/ W4b (Stage 2)	156	22-Nov-14 08:00 A	18-Mar-15 18:00	89.74%	16					
<b>TTMS Works</b>											
01128.CCH01150	TTMs Implementation for Pile Removal of H10 & Grouting Works (Stage 2)	6	19-Mar-15 08:00	25-Mar-15 18:00	0%	6					
<b>Canal Rd. Flyover (H13) - Pile Removal &amp; Underpinning (Alternative scheme - 16nos. Pre-bored H-pile )</b>											
<b>Design Submission</b>											
<b>Temporary Steel Frame to Support the Jacks</b>											
<b>AIP</b>											
01128.HDS00710	AIP Preparation & Submission	28	28-Feb-15 08:00	01-Apr-15 18:00	0%	28					
01128.HDS00720	AIP Review & Comments by Engineer/HyD/DSD/RDO	28	02-Apr-15 08:00	29-Apr-15 18:00	0%	28					
<b>DDA</b>											
01128.HDS00730	DDA 1st Preparation & Submission with ICE	28	30-Apr-15 08:00	03-Jun-15 18:00	0%	28					
<b>Stage 1 - ELS</b>											
01128.CCH01210	Excavation to +1.0mPD (1500m3, 150m3/d) (part 1)	10	22-Dec-14 08:00 A	05-Mar-15 18:00	85%	5					
01128.CCH03780	Excavation to +1.0mPD (1026m3, 150m3/d) part 2)	7	06-Mar-15 08:00	13-Mar-15 18:00	0%	7					
<b>Piling Works</b>											
01128.CCH01240	2. Construction of 2 no. of Pre-bored H-piles	13	31-Jan-15 08:00 A	17-Feb-15 18:00 A	100%	0					
01128.CCH03840	3. Construction of 2 no. of Pre-bored H-piles	13	10-Feb-15 08:00 A	06-Mar-15 08:00	80%	0					
01128.CCH03850	4. Construction of 2 no. of Pre-bored H-piles	13	26-Feb-15 08:00 A	11-Mar-15 18:00	30%	5					
01128.CCH03860	5. Construction of 2 no. of Pre-bored H-piles	13	12-Mar-15 08:00	26-Mar-15 18:00	0%	13					
01128.CCH03870	6. Construction of 2 no. of Pre-bored H-piles	13	27-Mar-15 08:00	15-Apr-15 18:00	0%	13					
01128.CCH03880	7. Construction of 2 no. of Pre-bored H-piles	13	16-Apr-15 08:00	02-May-15 18:00	0%	13					
01128.CCH03890	8. Construction of 2 no. of Pre-bored H-piles	13	04-May-15 08:00	19-May-15 18:00	0%	13					
<b>Stage 2</b>											
01128.CCH01241	Install King post, Strut and Wailing	12	20-May-15 08:00	04-Jun-15 18:00	0%	12					
<b>Canal Rd. Box Culvert &amp; Pile Removal (D03) - Twin Channel Scheme</b>											
<b>Stage 1 (1st Dry Season - Jan-15 to Mar-15)</b>											
01128.CCH03930	1. Install steel decking with footing	9	21-Jan-15 08:00 A	05-Mar-15 18:00	90%	5					
01128.CCH03940	2. Install steel decking with footing	9	06-Mar-15 08:00	16-Mar-15 18:00	0%	9					
01128.CCH01440	1. Install Bulkhead wall at Eastern cell of Box culvert	9	17-Mar-15 08:00	26-Mar-15 18:00	0%	9					
01128.CCH03800	2. Install Bulkhead wall at Eastern cell of Box culvert	9	27-Mar-15 08:00	06-Nov-15 18:00	0%	9					
<b>DSD Wan Chai West Sewage Screening Plant (B13), Lung King St. Box Culvert (D01) &amp; Fleet Arcade (B11)</b>											
<b>Fenwick Pier Street</b>											
<b>TTMS Submission</b>											
01128.CCH01800	TTMs Comment & Approval for Fenwick Pier Street	156	10-Sep-14 08:00 A	18-Mar-15 18:00	89.74%	16					

 Primary Baseline  Actual Work  Non Critical Activity	 Critical Activity  Baseline Milestone  Milestone	11283MRP150228 <div>SCL 1128 - SOV to Admiralty Tunnels</div> <div>3 Month Rolling Programme (Data Date: 28-Feb-15)</div>	<table border="1"> <tr> <th colspan="4">1128</th> </tr> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> <tr> <td>28-Feb-15</td> <td>1128 - 3MRP</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1128				Date	Revision	Checked	Approved	28-Feb-15	1128 - 3MRP						
1128																			
Date	Revision	Checked	Approved																
28-Feb-15	1128 - 3MRP																		

DRAGAGES - BOUYGUES JOINT VENTURE



11283MRP150228

SCL 1128 - SOV to Admiralty Tunnels

3 Month Rolling Programme (Data Date: 28-Feb-15)

1128

Date	Revision	Checked	Approved
28-Feb-15	1128 - 3MRP		

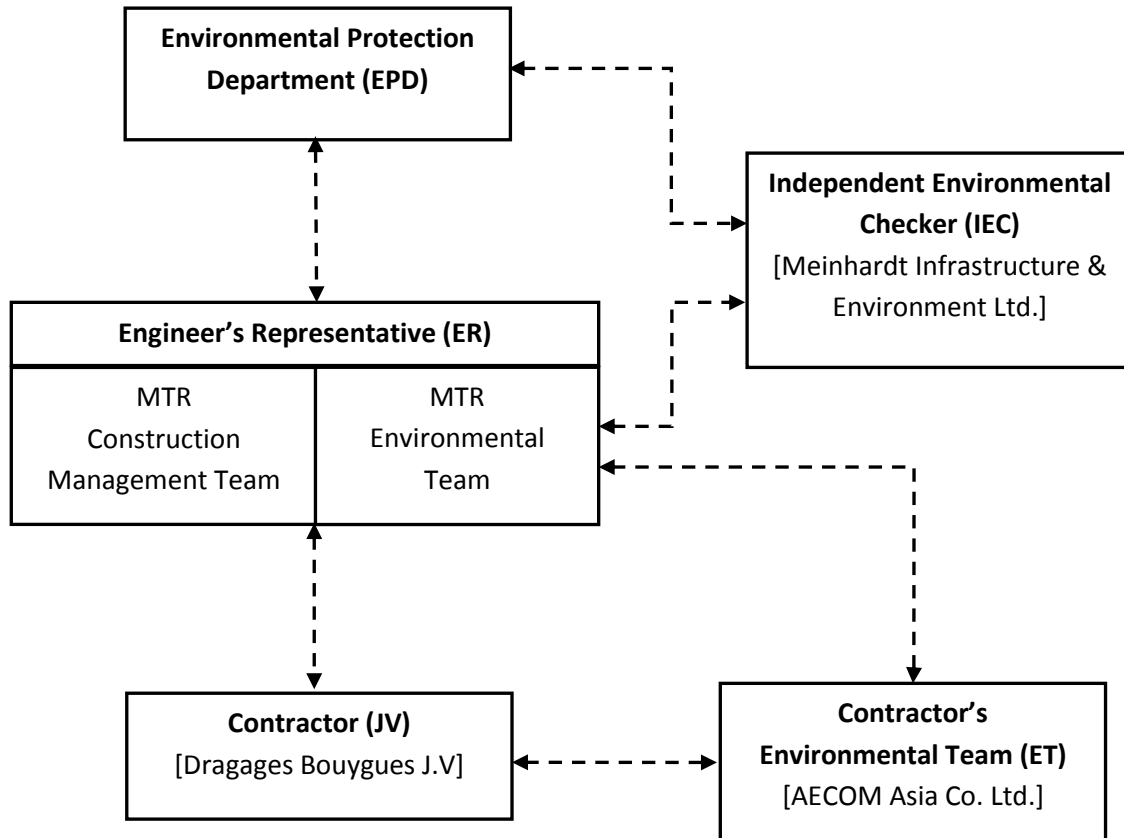
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## **APPENDIX B**

### **Project Organization Structure**

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## Appendix B Project Organisation Structure



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## **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
<b>Cultural Heritage Impact</b>						
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
<b>Ecological Impact</b>						
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
<b>Landscape and Visual Impact</b>						
<b>Construction Phase</b>						
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
<b>Air Quality</b>						
/	Emission from Vehicles and Plants <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	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
<b>Construction Dust Impact</b>						
Table 8.5	<p>Barging facilities:</p> <p>(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/m<sup>2</sup> 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/m<sup>2</sup> to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&amp;A programme as specified in the EM&amp;A Manual.</p> <p>(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.</p> <p>(iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits.</p>	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> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>(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”.</p> <p>(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.</p> <p>(vii) Transportation of materials within the plant – Provide watering twice a day would be provided.</p>	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 <sup>2</sup> for Kowloon side and 1.0 L/m <sup>2</sup> 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 <sup>2</sup> for Kowloon side and 1.0 L/m <sup>2</sup> 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	@

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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
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"><li>• Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li><li>• Use of frequent watering for particularly dusty construction areas and areas close to ASRs.</li><li>• 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.</li><li>• Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li><li>• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li><li>• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li><li>• 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.</li><li>• 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.</li><li>• Imposition of speed controls for vehicles on site haul roads.</li><li>• Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs.</li><li>• 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.</li><li>• 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</li></ul>	To minimize dust impacts	Contractor	Works areas	Construction phase	@  @ @  @ N/A V N/A  V  V V  V V
/	<b>Dust suppression measures (con't)</b> <ul style="list-style-type: none"><li>• De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement</li></ul>					@
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: <ul style="list-style-type: none"><li>• Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program</li><li>• Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program</li><li>• Mobile plant, if any, shall be sited as far from NSRs as possible</li><li>• 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</li><li>• 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</li><li>• Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities</li></ul>	To minimize construction noise impact	Contractor	Works areas	Construction phase	V N/A  V V  V N/A

Dragages Bouygues J.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
S9.56 & Table 9.16	The following quiet PME shall be used: <ul style="list-style-type: none"><li>• Crane lorry, mobile</li><li>• Crane, mobile</li><li>• Asphalt paver</li><li>• Backhoe with hydraulic breaker</li><li>• Breaker, excavator mounted (hydraulic)</li><li>• Hydraulic breaker</li><li>• Concrete lorry mixer</li><li>• Poker, vibrator, hand-held</li><li>• Concrete pump</li><li>• Crawler crane, mobile</li><li>• Mobile crane</li><li>• Dump truck</li><li>• Excavator</li><li>• Truck</li><li>• Rock drill</li><li>• Lorry</li><li>• Wheel loader</li><li>• Roller vibratory</li></ul>	To minimize construction noise impact	Contractor	Works areas at: <ul style="list-style-type: none"><li>• Hung Hom</li><li>• Cross Harbour section up to Breakwater of CBTS</li><li>• Breakwater of CBTS to SOV</li><li>• SOV to EXH</li><li>• EXH</li><li>• EXH to open space at the junction of Expo Drive and Convention Avenue</li><li>• Open space at the junction of Expo Drive and Convention Avenue to north of ADM</li><li>• South of ADM to Overrun Tunnel</li></ul>	Construction phase	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 N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: <ul style="list-style-type: none"><li>• Air compressor</li><li>• Asphalt paver</li><li>• Backhoe with hydraulic breaker</li><li>• Bar bender</li><li>• Bar bender and cutter (electric)</li><li>• Breaker, excavator mounted</li><li>• Concrete pump</li><li>• Concrete pump, stationary/lorry mounted</li><li>• Excavator</li><li>• Generator</li><li>• Grout pump</li><li>• Hand held breaker</li><li>• Hydraulic breaker</li><li>• Saw, concrete</li></ul>	To minimize construction noise impact	Contractor	Works areas at: <ul style="list-style-type: none"><li>• Cross Harbour section up to Breakwater of CBTS</li><li>• Breakwater of CBTS to SOV</li><li>• SOV to EXH</li><li>• EXH</li><li>• EXH to open space at the junction of Expo Drive and Convention Avenue</li><li>• Open space at the junction of Expo Drive and Convention Avenue to north of ADM</li><li>• South of ADM to Overrun Tunnel</li></ul>	Construction phase	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 N/A
S9.60 & Table 9.17	Noise insulating fabric shall be used for <ul style="list-style-type: none"><li>• Drill rig, rotary type</li><li>• Piling, diaphragm wall, bentonite filtering plant</li><li>• Piling, diaphragm wall, grab and chisel</li><li>• Piling, diaphragm wall, hydraulic extractor</li><li>• Piling, large diameter bored, grab and chisel</li><li>• Piling, hydraulic extractor</li><li>• Piling, earth auger, auger</li><li>• Rock drill, crawler mounted (pneumatic)</li></ul>	To minimize construction noise impact	Contractor	Works areas at: <ul style="list-style-type: none"><li>• Cross Harbour section up to Breakwater of CBTS</li><li>• Breakwater of CBTS to SOV</li><li>• SOV to EXH</li><li>• EXH</li><li>• EXH to open space at the junction of Expo Drive and Convention Avenue</li><li>• Open space at the junction of Expo Drive and Convention Avenue to north of ADM</li><li>• South of ADM to Overrun Tunnel</li></ul>	Construction phase	N/A N/A N/A N/A N/A N/A N/A

Dragages Bouygues J.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
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"><li>• 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.</li><li>• Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage.</li><li>• 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.</li></ul>	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	<div>V</div> <div>V</div> <div>N/A</div>
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"><li>• 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.</li><li>• 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.</li><li>• 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.</li><li>• 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.</li><li>• 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.</li><li>• Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms.</li><li>• 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.</li><li>• 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.</li></ul>	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	<div>V</div> <div>V</div> <div>V</div> <div>N/A</div> <div>N/A</div> <div>V</div> <div>V</div> <div>V</div>



Dragages Bouygues J.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"> <li>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.</li> </ul> <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> <p><u>Water for Testing &amp; Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass.</li> <li>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.</li> </ul>					<p>V</p> <p>@</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>
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. 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.	To minimize water quality impacts due to sewage generated from construction workforce	Contractor	Works areas	Construction Phase	N/A
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.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction Phase	N/A

Dragages Bouygues J.V.

Appendix C – Environmental Mitigation Implementation Schedule

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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"> <li>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</li> <li>all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material</li> <li>construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site</li> <li>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</li> </ul>	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	V

Dragages Bouygues J.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
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"><li>Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li><li>Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li><li>Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.</li></ul>	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	<b>Good Site Practices and Waste Reduction Measures</b> <ul style="list-style-type: none"><li>Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites;</li><li>Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures;</li><li>Provision of sufficient waste disposal points and regular collection of waste;</li><li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li><li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and</li><li>Separation of chemical wastes for special handling and appropriate treatment.</li></ul>	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V  V @ N/A N/A N/A
S12.76	<b>Good Site Practices and Waste Reduction Measures (con’t)</b> <ul style="list-style-type: none"><li>Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.);</li><li>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;</li><li>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;</li><li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials;</li><li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and</li><li>Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.</li></ul>	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A  V N/A V V V
S12.77	<b>Good Site Practices and Waste Reduction Measures (con’t)</b> 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



Dragages Bouygues J.V.

Appendix C – Environmental Mitigation Implementation Schedule

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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	<b>Good Site Practices and Waste Reduction Measures (con't)</b> 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	<b>Storage, Collection and Transportation of Waste</b> Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> <li>Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> <li>Maintain and clean storage areas routinely;</li> <li>Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> <li>Different locations shall be designated to stockpile each material to enhance reuse.</li> </ul>	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	N/A N/A N/A N/A
S12.80	<b>Storage, Collection and Transportation of Waste (con't)</b> 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"> <li>Remove waste in timely manner</li> <li>Waste collectors shall only collect wastes prescribed by their permits</li> <li>Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers</li> <li>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)</li> <li>Waste shall be disposed of at licensed waste disposal facilities</li> <li>Maintain records of quantities of waste generated, recycled and disposed</li> </ul>	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	<b>Storage, Collection and Transportation of Waste (con't)</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	<b>Sorting of C&amp;D Materials</b> <ul style="list-style-type: none"> <li>Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.</li> <li>Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials.</li> <li>The C&amp;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.</li> <li>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.</li> </ul>	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	<b>Sediments</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	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

Dragages Bouygues J.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
S12.89	<b>Sediments (con't)</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	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	<b>Sediments (con't)</b> <ul style="list-style-type: none"> <li>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).</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	<b>Sediments (con't)</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
/	<b>Accidental spillage</b> To prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> <li>Proper storage and handling facilities will be provided.</li> <li>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.</li> <li>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.</li> <li>Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	@ @ V N/A

Dragages Bouygues J.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
S12.97	<b>Containers for Storage of Chemical Waste</b> 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: <ul style="list-style-type: none"> <li>Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed;</li> <li>Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and</li> <li>Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	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	<b>Chemical Waste Storage Area</b> <ul style="list-style-type: none"> <li>Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only;</li> <li>Be enclosed on at least 3 sides;</li> <li>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;</li> <li>Have adequate ventilation;</li> <li>Be covered to prevent rainfall from entering; and</li> <li>Be properly arranged so that incompatible materials are adequately separated.</li> </ul>	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 N/A
S12.99	<b>Chemical Waste</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	N/A
S12.100	<b>Collection and Disposal of Chemical Waste</b> <b>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</b> 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	N/A
S12.101	<b>General Refuse</b> 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	<b>General Refuse (con't)</b> 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	N/A
S12.103	<b>General Refuse (con't)</b> 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

Dragages Bouygues J.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
<b>Land Contamination Impact</b>						
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"><li>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.</li><li>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 &amp; 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).</li></ul>	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) (i) Site 2-15 <ul style="list-style-type: none"><li>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</li><li>A supplementary CAP shall then be submitted to EPD for endorsement.</li><li>A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing.</li><li>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.</li><li>No construction work shall be carried out prior to the endorsement of the RR by EPD.</li></ul>	<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"><li>Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li><li>Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils;</li><li>Supply of suitable clean backfill material is needed after excavation;</li><li>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).</li><li>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;</li><li>Speed control for the trucks carrying contaminated materials shall be enforced;</li><li>Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and</li><li>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.</li></ul>	To remediate contaminated soil	Contractor	Identified contaminated sites	Site remediation	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
S13. 40	<p>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:</p> <ul style="list-style-type: none"> <li>• Set up a list of safety measures for site workers;</li> <li>• Provide written information and training on safety for site workers;</li> <li>• Keep a log-book and plan showing the contaminated zones and clean zones;</li> <li>• Maintain a hygienic working environment;</li> <li>• Avoid dust generation;</li> <li>• Provide face and respiratory protection gear to site workers;</li> <li>• Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and</li> <li>• Provide first aid training and materials to site workers.</li> </ul>	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

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## **APPENDIX D**

### **Summary of Action and Limit Levels**

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## 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 <sup>3</sup>	260 µg/m <sup>3</sup>

**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.

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## **APPENDIX E**

### **Calibration Certificates of Equipments**

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# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station: South Ventilation Building to Admiralty Tunnels Operator: Shum Kam Yuen  
 Cal. Date: 23-Jan-15 Next Due Date: 23-Mar-15  
 Equipment No.: A-001-70T Serial No. 10273

Ambient Condition			
Temperature, Ta (K)	292	Pressure, Pa (mmHg)	763.6

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Q_{std} + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	7.3	2.74	1.39	47.0	47.59
13	6.1	2.50	1.27	40.0	40.50
10	4.9	2.24	1.14	35.0	35.44
7	3.5	1.89	0.96	28.0	28.35
5	2.4	1.57	0.80	20.0	20.25

By Linear Regression of Y on X

Slope, mw = 44.7597 Intercept, bw = -15.3875

Correlation Coefficient\* = 0.9956

\*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation	
From the TSP Field Calibration Curve, take Qstd = 1.30m <sup>3</sup> /min	
From the Regression Equation, the "Y" value according to	
$mw \times Q_{std} + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; IC = ( mw x Qstd + bw ) x [ ( 760 / Pa ) x ( Ta / 298 ) ] <sup>1/2</sup> =	<u>42.27</u>

Remarks: \_\_\_\_\_

QC Reviewer: WS CHAN

Signature: [Signature]

Date: 23/01/15

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

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

$$Qstd = Vstd/Time$$

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

$$Qa = Va/Time$$

For subsequent flow rate calculations:

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

$$Qa = 1/m\{[\text{SQRT } H2O(Ta/Pa)] - b\}$$

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## **APPENDIX F**

### **EM&A Monitoring Schedules**

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**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels  
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)

**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

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels  
Tentative Impact Environmental Monitoring Schedule for April 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Apr	2-Apr	3-Apr	4-Apr
				Air Quality (AM4)		
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr
			Air Quality (AM4)			
12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
		Air Quality (AM4)				
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
	Air Quality (AM4)					Air Quality (AM4)
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr		
				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 May 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-May	2-May
3-May	4-May	5-May	6-May	7-May	8-May	9-May
			Air Quality (AM4)			
10-May	11-May	12-May	13-May	14-May	15-May	16-May
		Air Quality (AM4)				
17-May	18-May	19-May	20-May	21-May	22-May	23-May
	Air Quality (AM4)					Air Quality (AM4)
24-May	25-May	26-May	27-May	28-May	29-May	30-May
					Air Quality (AM4)	
31-May						

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

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## **APPENDIX G**

### **Air Quality Monitoring Results and their Graphical Presentations**

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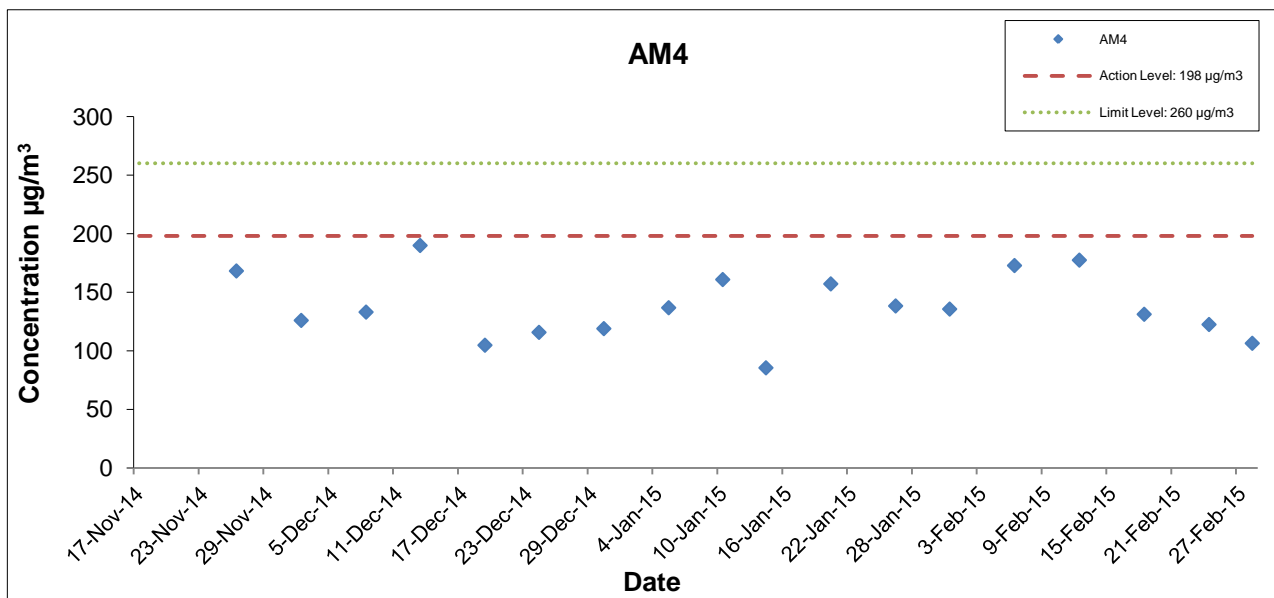


## Appendix G

### Air Quality Monitoring Results

### 24-hour TSP Monitoring Results at Station AM4 (Pedestrian Plaza)

Start		End		Weather	Air	Atmospheric	Flow Rate (m³/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.	
Date	Time	Date	Time				Condition	Temp. (°C)			Pressure (hPa)	Initial		Final	(m³/min)			(m³)
6-Feb-15	0:00	7-Feb-15	0:00	Cloudy	13.4	1024.5	1.27	1.27	1.27	1833.1	2.7678	3.0846	0.3168	17241.00	17265.00	24.00	172.8	
12-Feb-15	0:00	13-Feb-15	0:00	Fine	17.3	1018.2	1.27	1.27	1.27	1833.1	2.7663	3.0916	0.3253	17265.00	17289.00	24.00	177.5	
18-Feb-15	0:00	19-Feb-15	0:00	Cloudy	18.1	1019.1	1.27	1.27	1.27	1833.1	2.7914	3.0320	0.2406	17289.00	17313.00	24.00	131.3	
24-Feb-15	0:00	25-Feb-15	0:00	Cloudy	18.6	1014.8	1.27	1.27	1.27	1833.1	2.7411	2.9657	0.2246	17313.00	17337.00	24.00	122.5	
28-Feb-15	0:00	1-Mar-15	0:00	Cloudy	18.3	1017.3	1.27	1.27	1.27	1833.1	2.7350	2.9302	0.1952	17337.00	17361.00	24.00	106.5	
																	Average	142.1
																	Minimum	106.5
																	Maximum	177.5



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Shatin Central Link Contract No. 1128  
South Ventilation Building to Admiralty Tunnels



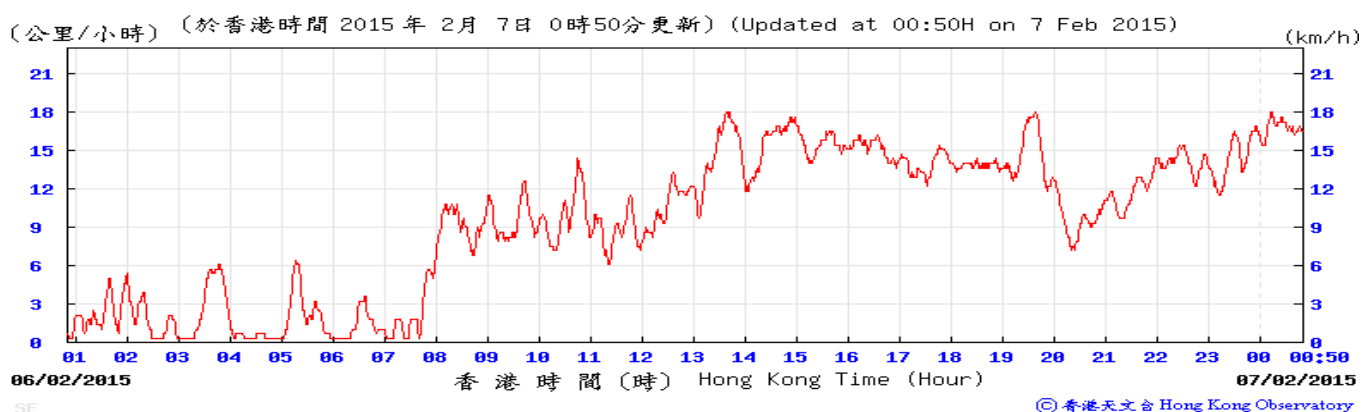
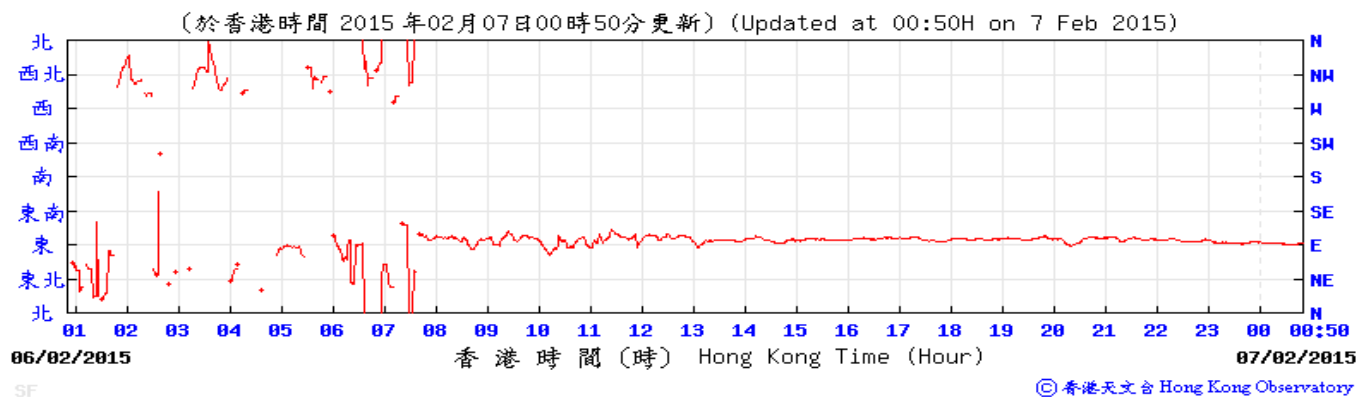
### Graphical Presentation of Impact 24-hr TSP Monitoring Results

Date: February 2015

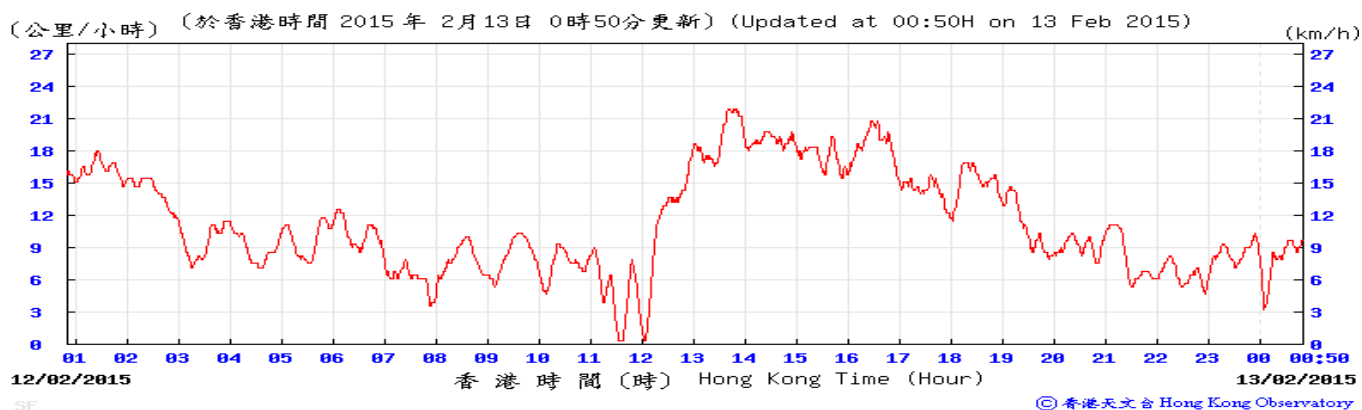
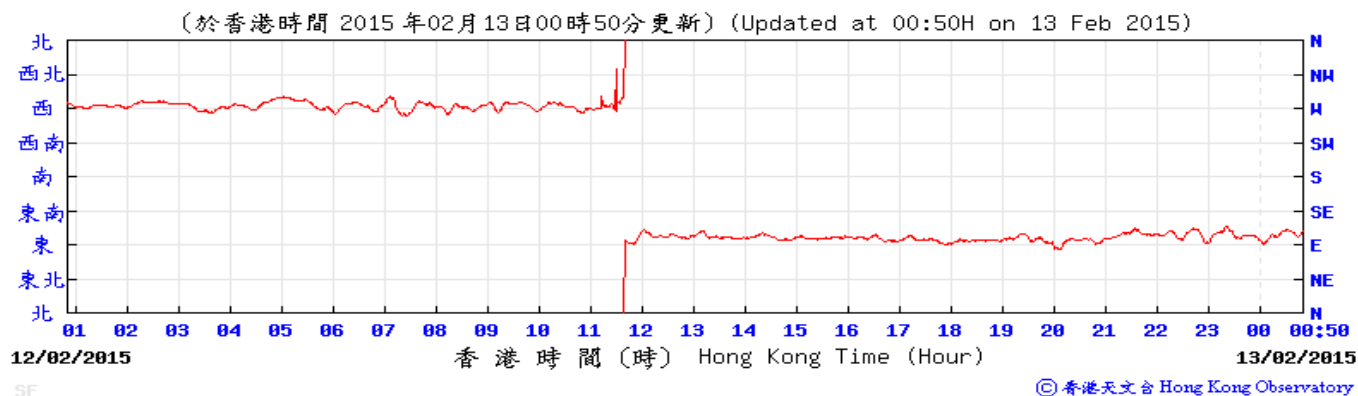
Appendix G

## Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, February 2015

6-Feb-15

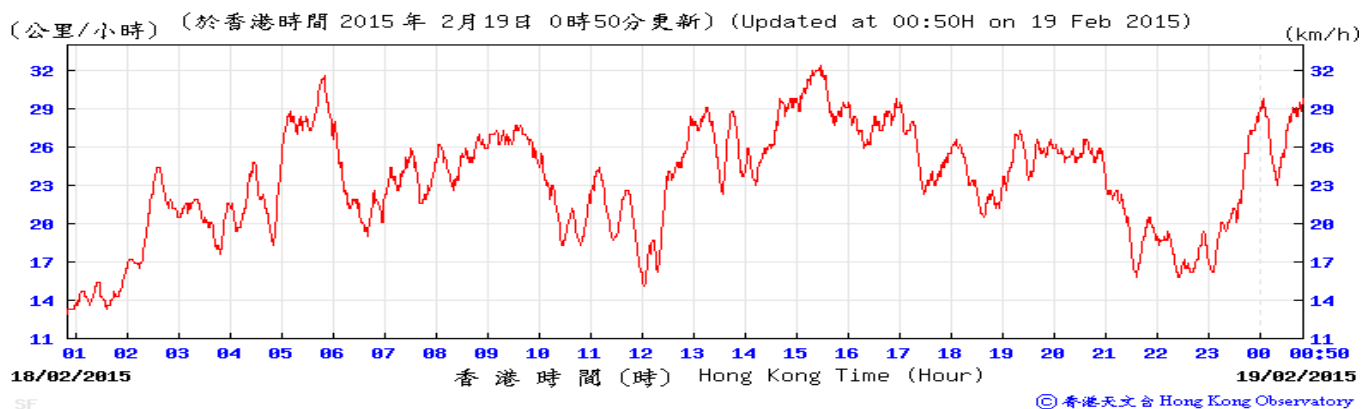
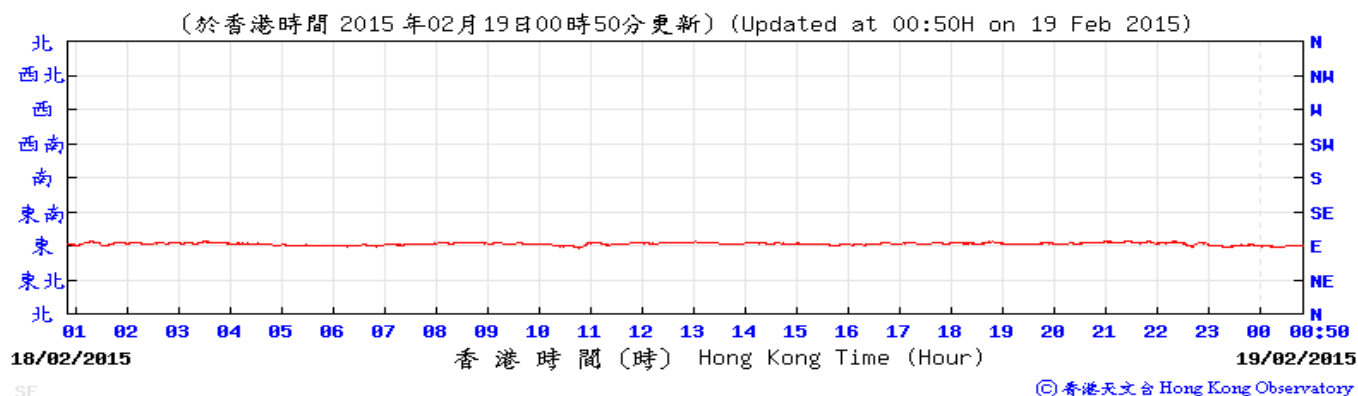


12-Feb-15

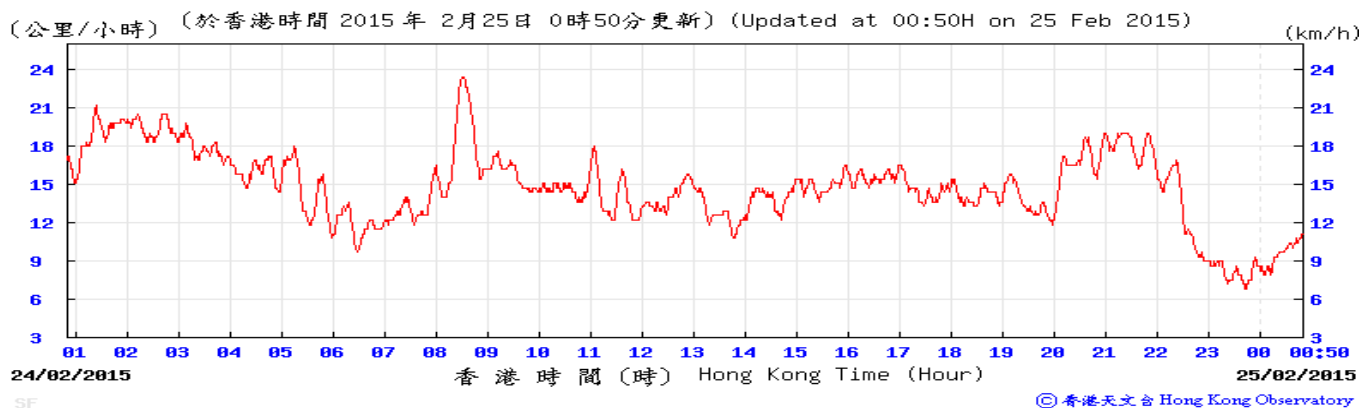
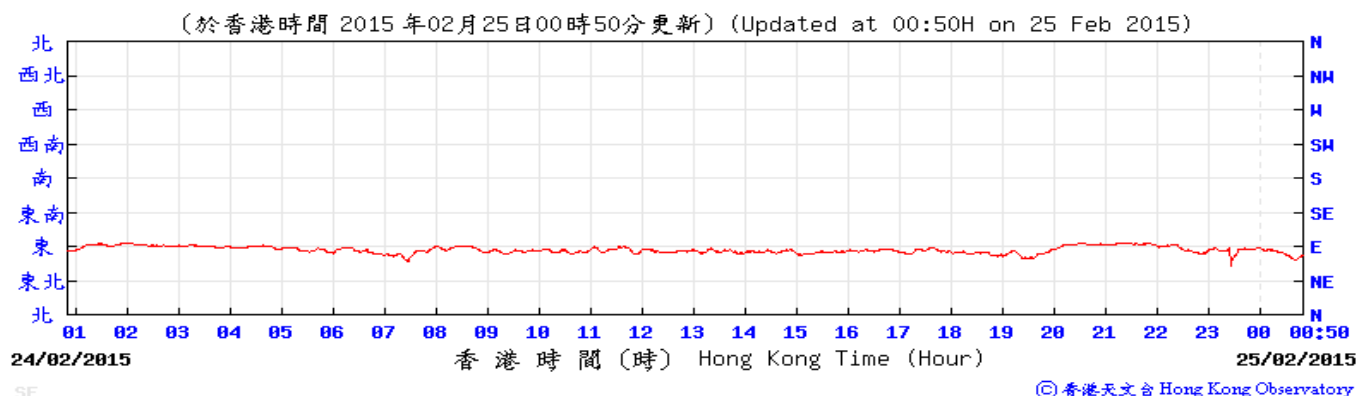


## Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, February 2015

18-Feb-15

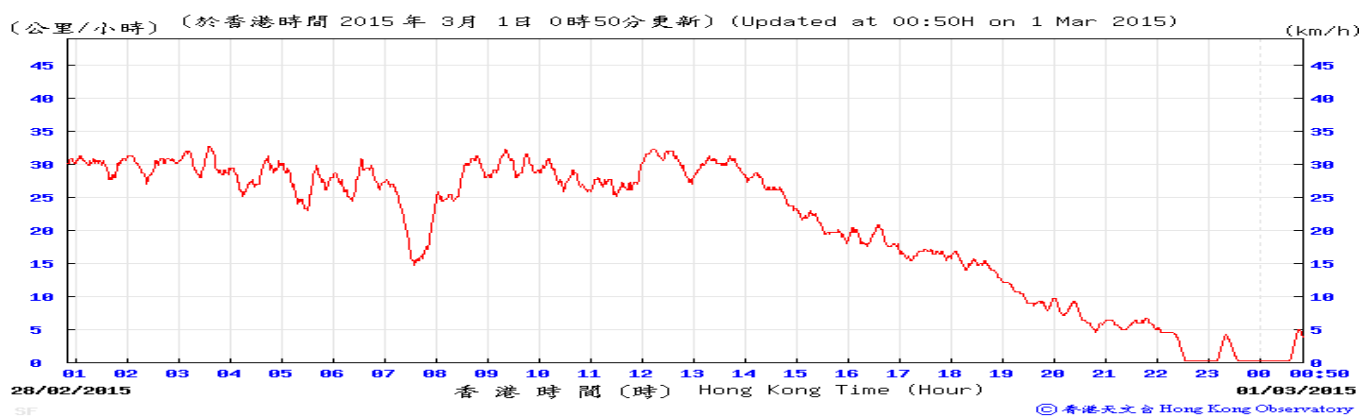
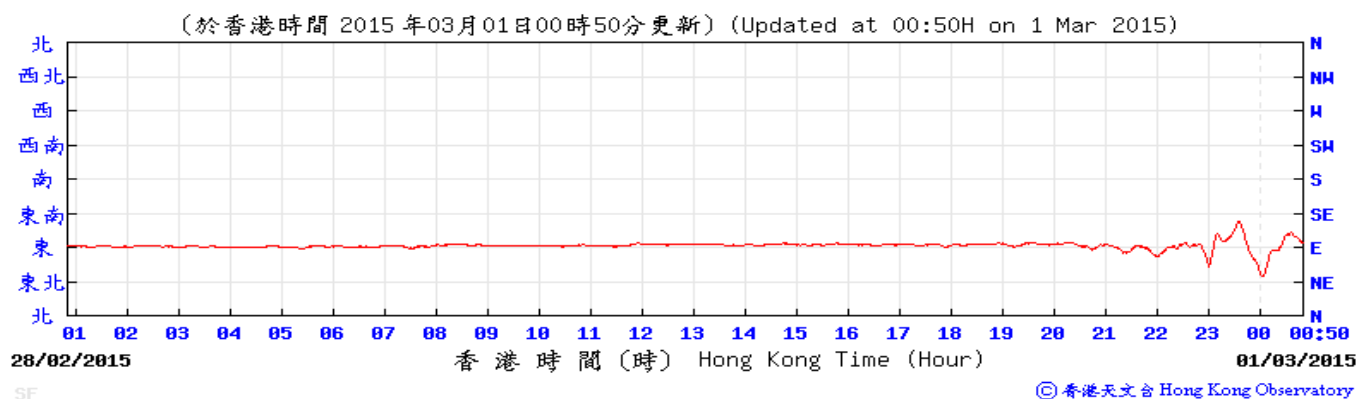


24-Feb-15



## Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, February 2015

28-Feb-15



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## **APPENDIX H**

### **Event Action Plan**

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## Appendix H Event Action Plan

### Event / Action Plan for Construction Dust Monitoring

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

## Appendix H Event Action Plan

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



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

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## **APPENDIX I**

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

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

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

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## APPENDIX J

### Waste Flow Table

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**SCL Contract 1128**
**Appendix J - Monthly Summary C&D Material Flow Table**

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m <sup>3</sup> )						Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m <sup>3</sup> )						Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m <sup>3</sup> )	Sediment (m <sup>3</sup> )
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	TM38FB	^Other Site	Total (m <sup>3</sup> )	Total	Total	Total	Total	Total	Total
<b>2015/01 (Actual)</b>	0	1,499	0	0	0	1,499	0	0	0	0	5.1	0
<b>2015/02 (Actual)</b>	0	171	0	0	0	171	0	0	0	0	12.8	0
2015/03	-	-	-	-	-	-	-	-	-	-	-	-
2015/04	-	-	-	-	-	-	-	-	-	-	-	-
2015/05	-	-	-	-	-	-	-	-	-	-	-	-
2015/06	-	-	-	-	-	-	-	-	-	-	-	-
<b>2015 Sub-total</b>	0	1,670	0	-	0	1,670	0	0	0	0	17.9	0
2015/07	-	-	-	-	-	-	-	-	-	-	-	-
2015/08	-	-	-	-	-	-	-	-	-	-	-	-
2015/09	-	-	-	-	-	-	-	-	-	-	-	-
2015/10	-	-	-	-	-	-	-	-	-	-	-	-
2015/11	-	-	-	-	-	-	-	-	-	-	-	-
2015/12	-	-	-	-	-	-	-	-	-	-	-	-
<b>2015 Total</b>	0	1,670	0	0	0	1,670	0	0	0	0	17.9	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