MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 2

[Period from 1 to 30 June 2014]

(July 2014)

Verified by: Fredrick Leong

Position: Independent Environmental Checker

Date: 10 July 2014

MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 2

[Period from 1 to 30 June 2014]

(July 2014)

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 10 July 2014

AECOM

MTR Corporation Limited

Consultancy Agreements
No. C11033B

Shatin to Central Link - Hung Hom to Admiralty Section

Monthly EM&A Report No. 2

[Period from 1 to 30 June 2014]

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Version: A	Date: 10 July 2014

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1 INTRODUCTION

1.1 Background

1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

1.1.2 Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH – ADM)] (hereafter referred to as "the Project") is part of the SCL.

1.1.3 The Environmental Impact Assessment (EIA) Report for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/A) was issued by Director of Environmental Protection (DEP) on 30 April 2014.

1.2 Project Programme

1.2.1 Three civil construction works contracts of the Project have been awarded since January 2014. The construction works under Works Contract 1129 commenced in May 2014. The Project will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass, and is expected to be completed in 2020. **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	To be constructed	Kaden Leader JV	Cinotech Consultants Ltd. (Cinotech)
1129	SCL – Advance Works for NSL	May 2014	Hsin Chong Construction Co. Ltd.	AECOM Asia Co. Ltd.
11227	Advance Works for NSL Cross Harbour Tunnels	To be constructed (tentatively in $3^{rd}/4^{th}$ Q)	Concentric-Hong Kong River Joint Venture	Cinotech Consultants Ltd. (Cinotech)

1.3 Purpose of the Report

1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in May 2014. This is the second 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 30 June 2014.

2 ENVIRONMENTAL MONITORING AND AUDIT

2.1 EM&A Results

2.1.1 The EM&A Report for Works Contract 1129 prepared by the Contractor's ET is provided in **Appendices A**. The EM&A Report provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contract.

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
1129	Area W1	• Watermain Diversion; • Covered Walkway Erection; • Pedestrian Diversion; • Removal of Existing Asbestos Pipe; • Open Excavation for Underpinning Works; • Pre-drill; • Testing of Existing H-piles; • Extension of the Existing Piles to G.L.; • Backfilling of Existing Pile Cap; • Hoarding Erection; and • Pre-bored Socket H-piles.
	Area W2	• Construct Additional U-channel along Road; • Modify Drain Pipe and Construct Gullies; • Lifting of Existing Manhole; • Laying of Bitumen Road Base; • Remove Existing Concrete Barriers; • Road Interface Connection (West); • Road Marking; • Sheet Pile Installation; • ELS Installation; and • Excavation.
	Area W3	No construction activity was carried out in the reporting month

2.1.3 During the reporting month, impact monitoring for construction noise was conducted in accordance with the EM&A Manual. No exceedance of the Action/Limit Levels of construction noise due to the Project construction was recorded. The construction noise results are summarised in **Table 2.2**. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Reports as provided in **Appendix A**.

Table 2.2 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected[(1)]		
Works Contract 1129[(2)]						
NM1	Hoi Kung Court	69.4 – 70.6	71	< Baseline	75	No

Note:
(1) The measured noise levels are corrected against the corresponding baseline noise levels.

(2) As the major construction works under Works Contract 1129 are located at more than 300m away from NM2 Causeway Centre, and thus impact monitoring at NM2 was not required during the reporting period.

2.1.4 No environmental complaints, notification of summons and successful prosecutions were received in the reporting period. Cumulative log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.3**.

Table 2.3 Cumulative Log for Environmental Complaints, Notification of Summons and Successful Prosecutions

Works Contract	Environmental Complaints		Notification of Summons		Successful Prosecutions	
	Reporting Month	Cumulative Number	Reporting Month	Cumulative Number	Reporting Month	Cumulative Number
1129	0	0	0	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 April 2014
Condition 2.6	Construction Programme and EP Submission Schedule	19 Dec 2012
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	9 June 2014 (1st Submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	9 June 2014 (1st Submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 July 2012 (1st Submission) 12 Sept 2012 (2nd Submission) 15 Oct 2012 (approved)
Condition 2.12	Sediment Management Plan	6 July 2012 (1st Submission) 12 Sept 2012 (2nd Submission) 15 Oct 2012 (approved)
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1st Submission) 15 Feb 2013 (2nd Submission) 3 Dec 2013 (3rd 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 (1st Submission) 12 Nov 2012 (2nd Submission) CAR: 19 Mar 2013 (1st Submission) 16 April 2013 (2nd Submission) 21 May 2013 (3rd Submission)
Condition 2.31.1	Silt Curtain Deployment Plan for Temporary Marine Works at Shek O Casting Basin	30 Jun 2014
Condition 3.3	Baseline Monitoring Report (for noise and air quality)	4 Dec 2013 (1st Submission) 5 Feb 2014 (2nd Submission)
Condition 3.4	Monthly EM&A Report No.1	13 June 2014

Appendix A

2nd Monthly EM&A Report for Works Contract 1129 – SCL – Advance Works for NSL

AECOM

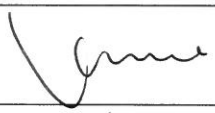
Hsin Chong Construction Co. Ltd.

Shatin to Central Link - Hung Hom to Admiralty Section

Works Contract 1129 - Advance Works for NSL

Monthly EM&A Report for June 2014

July 2014

	Name	Signature
Prepared & Checked:	Lemon Lam	
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EXECUTIVE SUMMARY

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

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

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

This report documents the findings of EM&A works conducted in the period between 1 and 30 June 2014. As informed by the Contractor, major activities in the reporting period were:

Area W1
- Watermain Diversion;
- Covered Walkway Erection;
- Pedestrian Diversion;
- Removal of Existing Asbestos Pipe;
- Open Excavation for Underpinniing Works;
- Pre-drill;
- Testing of Existing H-piles;
- Extension of the Existing Piles to G.L.;
- Backfilling of Existing Pile Cap;
- Hoarding Erection; and
- Pre-bored Socket H-piles.

Area W2
- Construct Additional U-channel along Road;
- Modify Drain Pipe and Construct Gullies;
- Lifting of Existing Manhole;
- Laying of Bitumen Road Base;
- Remove Existing Concrete Barriers;
- Road Interface Connection (West);
- Road Marking;
- Sheet Pile Installation;
- ELS Installation; and
- Excavation.

Area W3
No construction activity was carried out in the reporting month.

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
- Open Excavation for Underpinniing Works;
- Pre-drill;
- Pre-bored Socket H-piles;
- Extraction of Existing Pile; and
- Construction of Pile Cap.

Area W2
- Sheet Pile Installation;
- Install Concrete Blocks at Both Sides;
- Lagging Installation for Existing Drains;
- Install Steel Plates; and
- Excavation.

Area W3
- Erection of View Blockage Panel;
- Tree Felling;
- Instrumentation Installation; and
- Dig Trial Trench to Explore Box Culvert.

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise 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 second monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 30 June 2014.

1.2 Report Structure

1.2.1 This monthly EM&A Report is orgainised 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. 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
- Watermain Diversion;
- Covered Walkway Erection;
- Pedestrian Diversion;
- Removal of Existing Asbestos Pipe;
- Open Excavation for Underpinniing Works;
- Pre-drill;
- Testing of Existing H-piles;
- Extension of the Existing Piles to G.L.;
- Backfilling of Existing Pile Cap;
- Hoarding Erection; and
- Pre-bored Socket H-piles.

Area W2
- Construct Additional U-channel along Road;
- Modify Drain Pipe and Construct Gullies;

- Lifting of Existing Manhole;
- Laying of Bitumen Road Base;
- Remove Existing Concrete Barriers;
- Road Interface Connection (West);
- Road Marking;
- Sheet Pile Installation;
- ELS Installation; and
- Excavation.

Area W3
No construction activity was carried out in the reporting month.

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 1179	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
HC	Contractor	Project Manager	Mr. Alan Sit	2360 0720	2774 9322
		Assistant Environmental Manager	Mr. Andy Leung	9489 0035	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

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

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-436/2012	22 Mar 2012	-	Superseded by EP-436/2012/A on 30 Apr 2014	-
EP-436/2012/A	30 Apr 2014	-	Valid	-
Construction Noise Permit				
GW-RS0465-14	13 May 2014	30 Jun 2014	Valid	Applied for hammer tapping survey at night

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RS0527-14	31 May 2014	27 Jul 2014	Valid	Applied for road marking
GW-RS0540-14	29 May 2014	27 Jul 2014	Valid	Applied for temporary carriageway for W3
GW-RS0617-14	20 Jun 2014	19 Sep 2014	Valid	Applied for plant mobilization
Wastewater Discharge License				
WT00018771-2014	4 Apr 2014	30 Apr 2019	Valid	-
Chemical Waste Producer Registration				
WPN5213-135-H3563-01	26 Feb 2014	End of Contract	Valid	For Hung Hing Flyover & Percival Street (Area W1)
WPN5213-135-H3564-01	26 Feb 2014	End of Contract	Valid	For Canal Road Flyover & Tunnel Approach Rest Garden (Area W2)
WPN5213-134-H3565-01	26 Feb 2014	End of Contract	Valid	For Tunnel Approach Road & Wan Shing Footbridge (Area W3)
Billing Account for Construction Waste Disposal				
7019335	13 Feb 2014	End of Contract	Valid	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
370021	28 Jan 2014	End of Contract	Valid	-

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Noise Monitoring

Monitoring Requirements

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

Table 3.1 Noise Monitoring Parameters, Frequency and Duration

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

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Rion (Model No. NL-31 (S/N: 00320528)) and B&K (Model No. 2238 (S/N: 2285692))
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 June 2014 is provided in **Appendix F**.

3.2 Landscape and Visual

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

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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 May 2014	13 June 2014

5 MONITORING RESULTS

5.1 Construction Noise Monitoring

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

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

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM1 (*)	<Baseline	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, 82m^3 of inert C&D material was generated (63m^3 was disposed as public fills at CWPFBR and 19m^3 was disposed as fill bank at TKO137) in the reporting month. 5m^3 of general refuse was generated in the reporting month. 4,210 kg of 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.**

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

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

5.3 Landscape and Visual

5.3.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 12 and 26 June 2014. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

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

6.1.2 In the reporting month, 4 site inspections were carried out on 5, 12, 19 and 26 June 2014. The one held on 12 June 2014 was a joint inspection with the IEC, ER, the Contractor and the ET. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	12 June 2014	• Exposed surface was observed dry at Area W1 and W2. The Contractor was reminded to provide sufficient watering to the exposed surface on site regularly and timely.	The item was rectified by the Contractor on 17 June 2014.
		• Visible smoke generated from the power pack was observed at Area W2. The Contractor was reminded to keep well maintain of the machinery regularly.	The item was rectified by the Contractor on 24 June 2014.
	19 June 2014	• Dark gray smoke generated from the power pack was observed at Area W2. The Contractor was reminded to repair/ maintain of the machinery as soon as possible.	The item was rectified by the Contractor on 24 June 2014.
Noise	N/A	N/A	N/A
Water Quality	N/A	N/A	N/A
Waste/ Chemical Management	5 June 2014	• Improper disposal of empty lubricant container into the waste skip was observed at Area W2. The Contractor was reminded to disposal of / storage the container as chemical waste properly.	The item was rectified by the Contractor on 9 June 2014.
	19 June 2014	• Air compressor was observed on bare ground without the provision of drip tray at Area W1. The Contractor was reminded to provide drip tray or equivalent measure to retain leakage, if any.	The item was rectified by the Contractor on 24 June 2014.
	26 June 2014	• Soil material accumulated inside the drip tray was observed at Area W2. The Contractor was reminded to remove the soil material properly and disposal of the contaminated soil as chemical waste, if any.	The item was rectified by the Contractor on 2 July 2014.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	12 June 2014	• The Contractor was reminded to post all Environmental Permits at every site entrances at Area W2.	The item was rectified by the Contractor on 17 June 2014.

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 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 July and August 2014 will be:

Area W1
- Open Excavation for Underpinniing Works;
- Pre-drill;
- Pre-bored Socket H-piles;
- Extraction of Existing Pile;
- Construction of Pile Cap; and
- Existing Pile Removal.

Area W2
- Sheet Pile Installation;
- Install Concrete Blocks at Both Sides;
- Lagging Installation for Existing Drains;
- Install Steel Plates;
- Excavation; and
- Excavation for ELS Installation.

Area W3
- Erection of View Blockage Panel;
- Tree Felling;
- Instrumentation Installation;
- Dig Trial Trench to Explore Box Culvert; and
- Sheet Pile Installation.

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 Month

8.3.1 The tentative schedule for environmental monitoring in July 2014 is 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 June 2014. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

9.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

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

Air Quality Impact

- Implement effective measures to avoid dust impact.

Construction Noise Impact

- Implement effective measures to avoid noise impact.

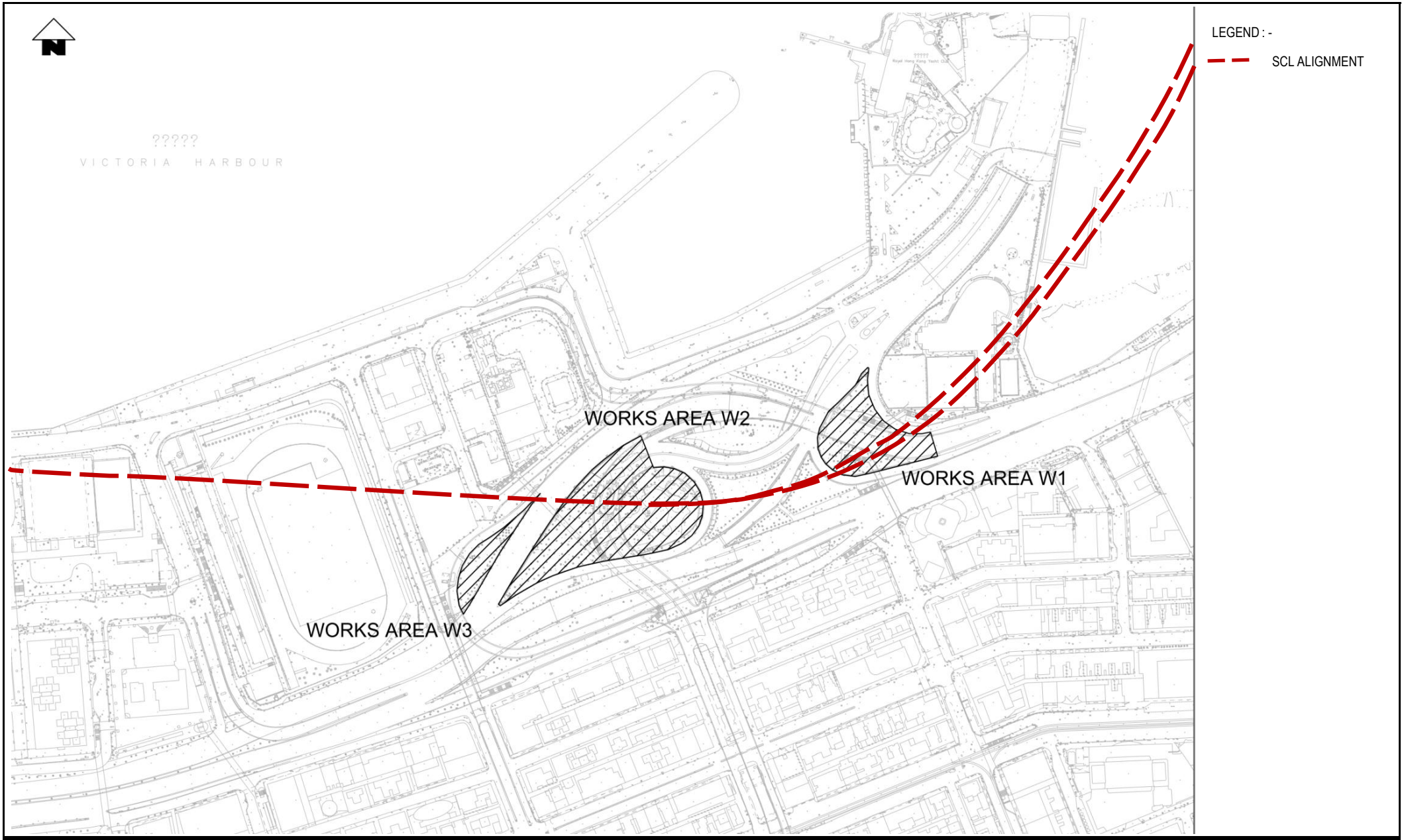
Water Quality Impact

- Implement effective measures to avoid surface runoff into the drainage system.

Chemical and Waste Management

- Provide proper chemical waste management.

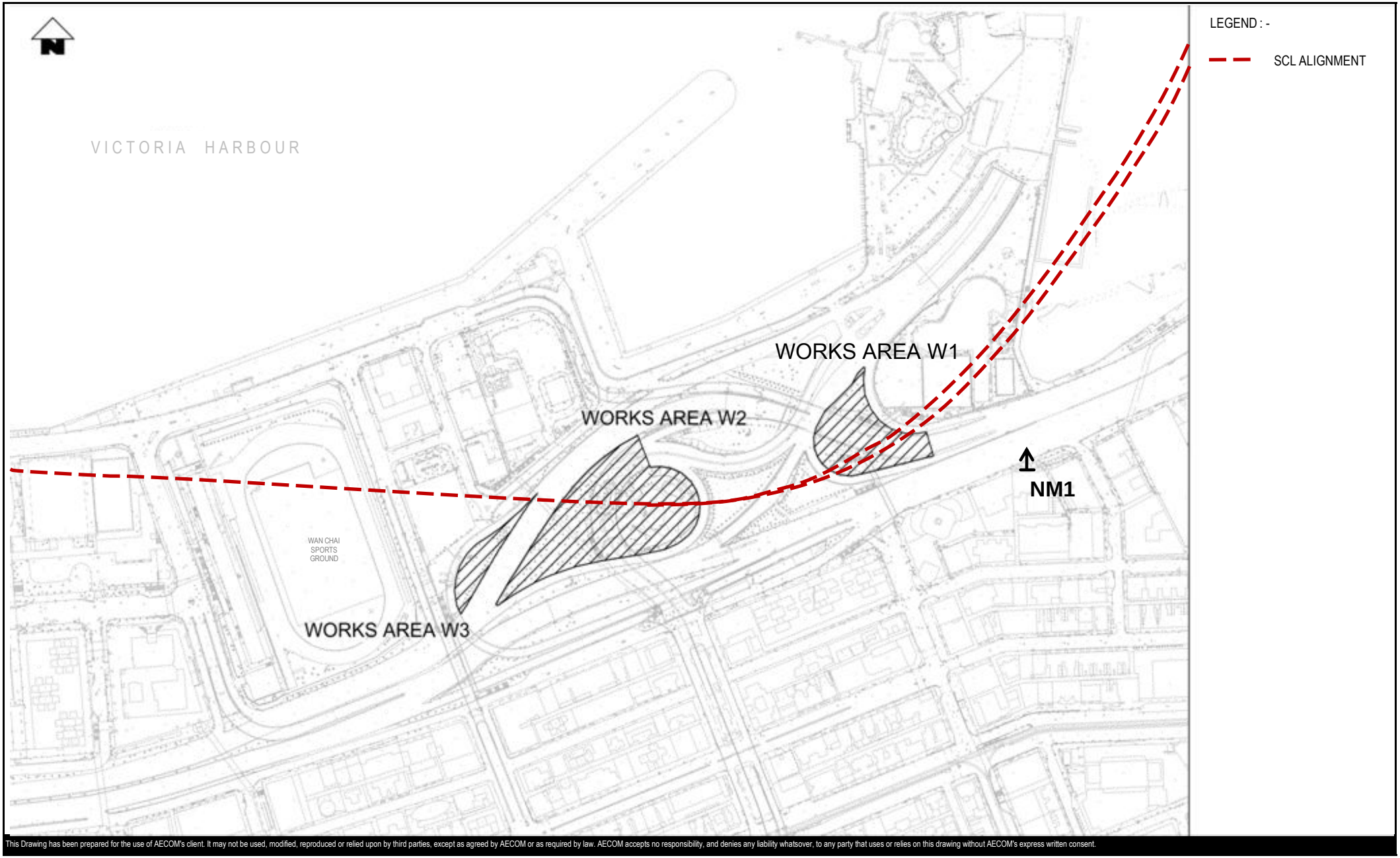
FIGURES



CONTRACT 1129
ADVANCED WORKS FOR NSL

WORKS AREA AND SITE LOCATION OF SCL1129

Project No.: - **Date: June 2014** **Figure 1.1**



CONTRACT 1129
ADVANCED WORKS FOR NSL

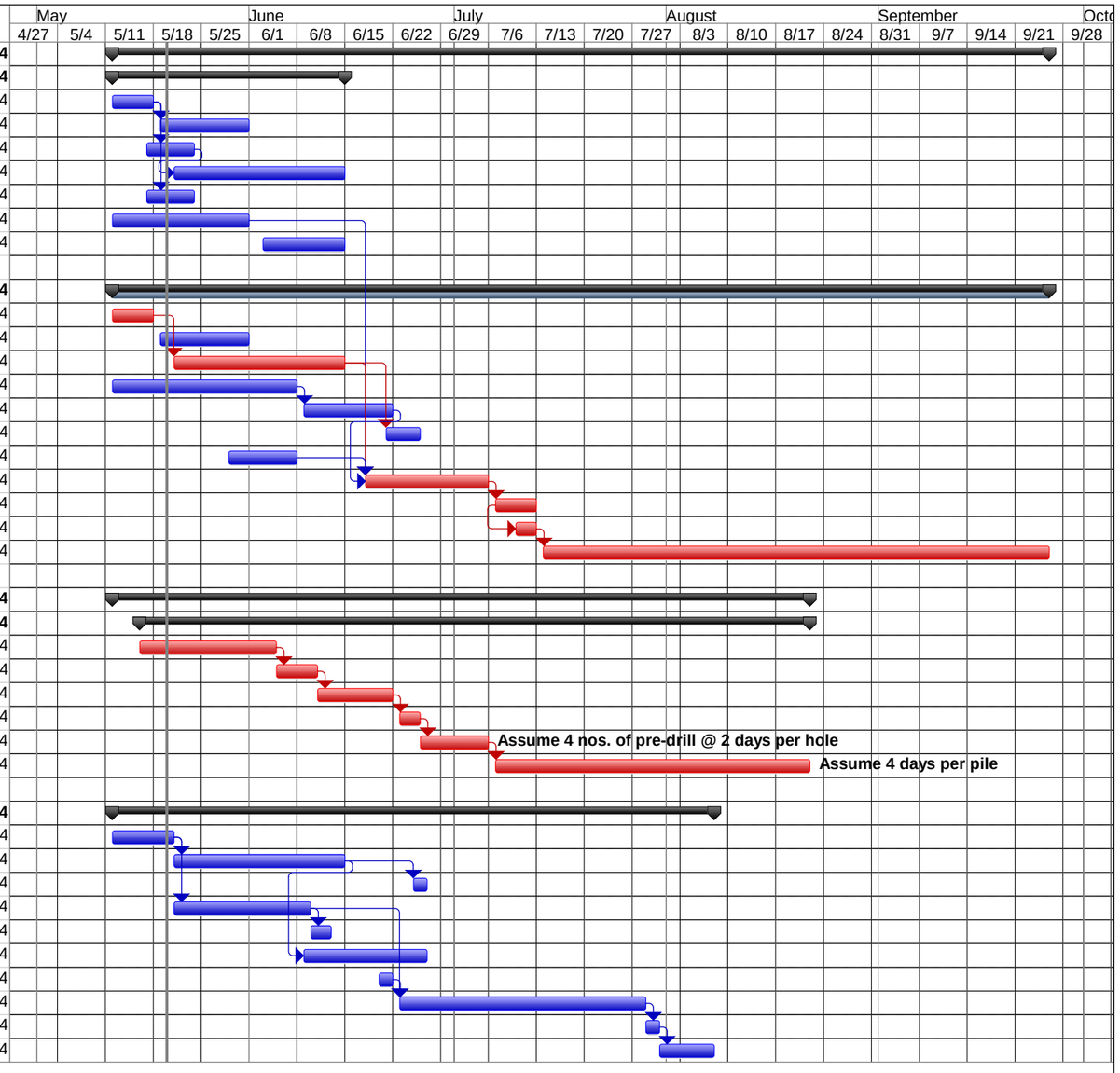
LOCATION OF AIR-BORNE NOISE SENSITIVE RECEIVER NM1

Project No.: - **Date: June 2014** **Figure 3.1**

APPENDIX A

Construction Programme

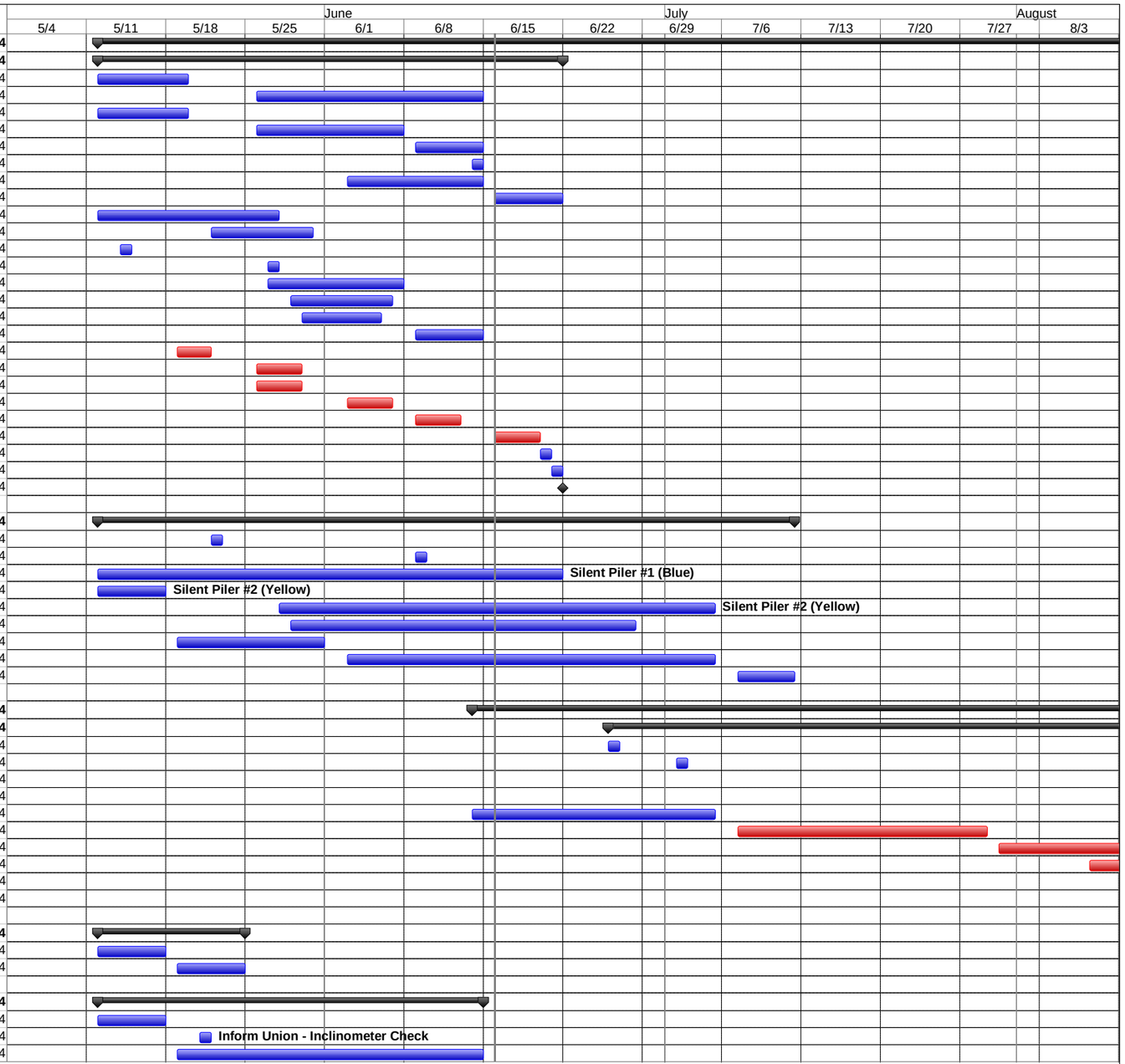
ID	Task Name	Duration	Start	Finish
1	**Contract Work 1 & 2 - H-Pile Removal & Percival Street Footbridge Modification**	**115 days**	**Mon 5/12/14**	**Thu 9/25/14**
2	**Area W1A**	**29 days**	**Mon 5/12/14**	**Sat 6/14/14**
3	Site Formation	6 days	Mon 5/12/14	Sat 5/17/14
4	Hoarding and Entrance Access Erection	12 days	Mon 5/19/14	Sat 5/31/14
5	Watermain Pipe Laying	6 days	Sat 5/17/14	Fri 5/23/14
6	Watermain Diversion	21 days	Wed 5/21/14	Sat 6/14/14
7	TCSS Diversion	6 days	Sat 5/17/14	Fri 5/23/14
8	Instrumentation Instatllation	18 days	Mon 5/12/14	Sat 5/31/14
9	Covered Walkway Erection	11 days	Tue 6/3/14	Sat 6/14/14
10				
11	**Area W1B**	**115 days**	**Mon 5/12/14**	**Thu 9/25/14**
12	Watermain Pipe Laying	6 days	Mon 5/12/14	Sat 5/17/14
13	Hoarding Erection	12 days	Mon 5/19/14	Sat 5/31/14
14	Watermain Diversion	21 days	Wed 5/21/14	Sat 6/14/14
15	HKE and High Mast Power Cable Diversion	23 days	Mon 5/12/14	Sat 6/7/14
16	Pedestrian Diversion and Covered Walkway Erection	12 days	Mon 6/9/14	Sat 6/21/14
17	Removal of Existing Asbestos Pipe	4 days	Sat 6/21/14	Wed 6/25/14
18	TCSS Diversion	8 days	Thu 5/29/14	Sat 6/7/14
19	Open Excavation for Underpinning Works (Pier A5)	15 days	Wed 6/18/14	Sat 7/5/14
20	Pre-drill (2 nos.)	6 days	Mon 7/7/14	Sat 7/12/14
21	Delivery of H-p iles (21 nos.)	3 days	Thu 7/10/14	Sat 7/12/14
22	Pre-bored Socket H-pile (7 nos.)	63 days	Mon 7/14/14	Thu 9/25/14
23				
24	**Area W1C**	**86 days**	**Mon 5/12/14**	**Thu 8/21/14**
25	**Removal of Existing Pile Cap and Piles**	**82 days**	**Fri 5/16/14**	**Thu 8/21/14**
26	Demolition of Existing Pile Cap	16 days	Fri 5/16/14	Wed 6/4/14
27	Testing of Existing H-Piles (Assume 10 nos.)	5 days	Thu 6/5/14	Tue 6/10/14
28	Extension of the Existing Piles to G.L.	10 days	Wed 6/11/14	Sat 6/21/14
29	Backfilling of Existing Pile Cap	3 days	Mon 6/23/14	Wed 6/25/14
30	Pre-drill (Assume 4 nos.)	8 days	Thu 6/26/14	Sat 7/5/14
31	Extraction of Existing Pile (10 nos.)	40 days	Mon 7/7/14	Thu 8/21/14
32				
33	**New Pre-Bored H-Piles and Pile Cap**	**74 days**	**Mon 5/12/14**	**Thu 8/7/14**
34	PCCW 24 Way Cables Exploration	8 days	Mon 5/12/14	Tue 5/20/14
35	Watermain Diversion	21 days	Wed 5/21/14	Sat 6/14/14
36	Removal of Existing Asbestos Pipe	2 days	Wed 6/25/14	Thu 6/26/14
37	Instrumentation Installation (4 nos.)	16 days	Wed 5/21/14	Mon 6/9/14
38	Pre-drill (1 no.)	3 days	Tue 6/10/14	Thu 6/12/14
39	Hoarding Erection	16 days	Mon 6/9/14	Thu 6/26/14
40	Delivery of H-piles (15 nos.)	2 days	Fri 6/20/14	Sat 6/21/14
41	Pre-Bored Socket H-Pile (5 nos.)	30 days	Mon 6/23/14	Mon 7/28/14
42	Post-drill (1 no.)	2 days	Tue 7/29/14	Wed 7/30/14
43	Construction of Pile Cap	7 days	Thu 7/31/14	Thu 8/7/14



Project: With Holiday
Date: Tue 5/20/14

Critical	Summary	External Milestone	Duration-only	Progress
Critical Split	Project Summary	Inactive Task	Manual Summary Rollup	Deadline
Task	Rolled Up Critical	Inactive Milestone	Manual Summary	
Split	Rolled Up Critical	Inactive Summary	Start-only	
Milestone	External Tasks	Manual Task	Finish-only	

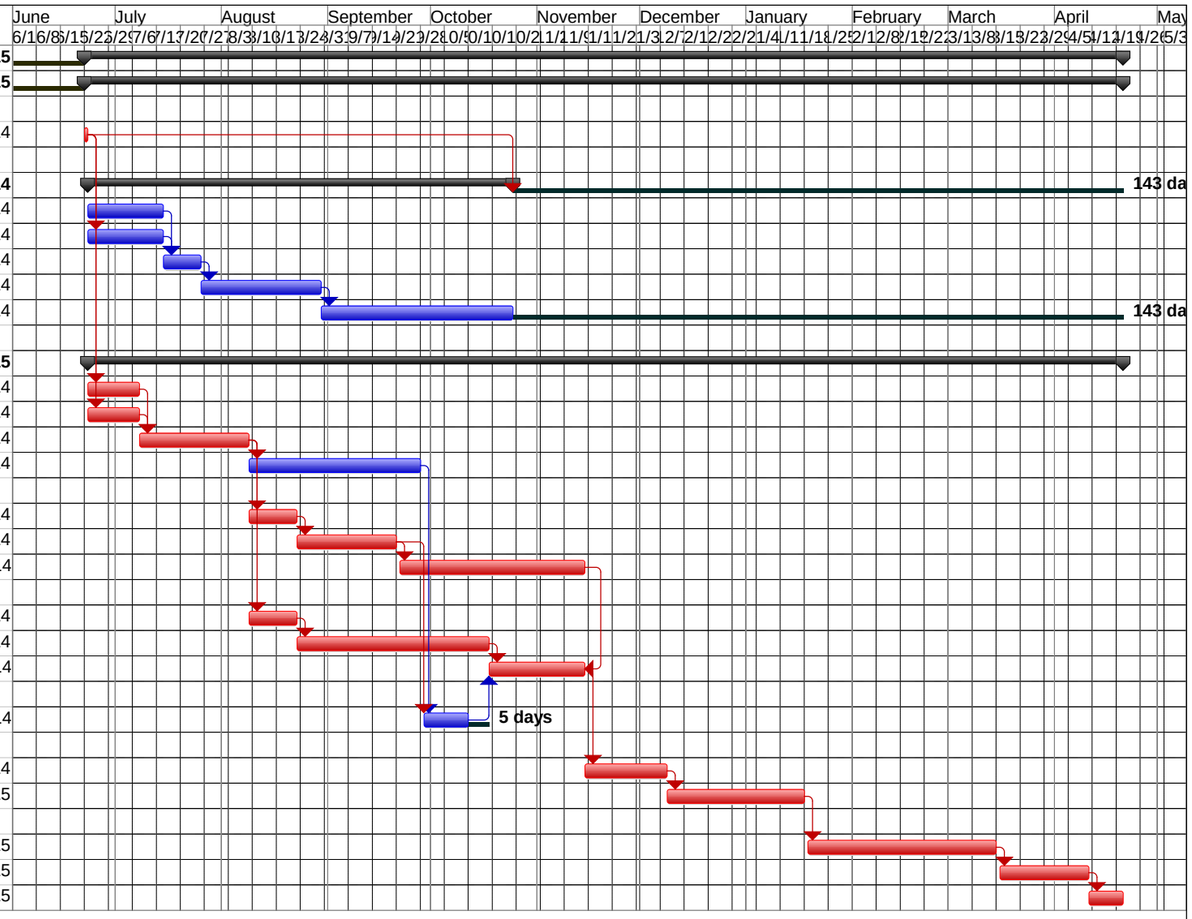
ID	Task Name	Duration	Start	Finish
1	**Contract Works Area 2**	**91.8 days**	**Mon 5/12/14**	**Wed 8/27/14**
2	**Road Diversion**	**35 days**	**Mon 5/12/14**	**Sun 6/22/14**
3	Approval and Endorsement of TTMS GUR/018	7 days	Mon 5/12/14	Mon 5/19/14
4	Application of De-Gazette Note (GN) for Road Speed Limit (50kph)	17 days	Mon 5/26/14	Sat 6/14/14
5	Approval and Endorsement of TTMS for Ops Plan (GUR/.34 to 046)	7 days	Mon 5/12/14	Mon 5/19/14
6	Application of TA for Speed Limit Implementation (50kph)	11 days	Mon 5/26/14	Sat 6/7/14
7	Application for Road Work Advise for Speed Limit (50kph)	6 days	Mon 6/9/14	Sat 6/14/14
8	Apply Road Marking for Speed Limit (50kph)	1 day	Sat 6/14/14	Sat 6/14/14
9	Application of TA for TTMS 018 Implementation	11 days	Tue 6/3/14	Sat 6/14/14
10	Application of Road Work Advise for TTMS 018	6 days	Mon 6/16/14	Sat 6/21/14
11	Road Excavation / Formation	14 days	Mon 5/12/14	Tue 5/27/14
12	Laying of Sub-Base	8 days	Thu 5/22/14	Fri 5/30/14
13	Soil Testing 1	1 day	Wed 5/14/14	Wed 5/14/14
14	Soil Testing 2	1 day	Tue 5/27/14	Tue 5/27/14
15	Construct Additional U-Channel along Road	10 days	Tue 5/27/14	Sat 6/7/14
16	Modify Drain Pipe and Construct Gullies	7 days	Thu 5/29/14	Fri 6/6/14
17	Lifting of Existing Manhole	5 days	Fri 5/30/14	Thu 6/5/14
18	Laying of Bitumen Road Base, Base and Wearing Course	6 days	Mon 6/9/14	Sat 6/14/14
19	Remove Existing Concrete Barriers (East) Stage 1	3 days	Mon 5/19/14	Wed 5/21/14
20	Remove Existing Concrete Barriers (East) Stage 2	4 days	Mon 5/26/14	Thu 5/29/14
21	Road Interface Connection (East)	4 days	Mon 5/26/14	Thu 5/29/14
22	Remove Existing Concrete Barriers (West) Stage 1	4 days	Tue 6/3/14	Fri 6/6/14
23	Remove Existing Concrete Barriers (West) Stage 2	4 days	Mon 6/9/14	Thu 6/12/14
24	Road Interface Connection (West)	4 days	Mon 6/16/14	Thu 6/19/14
25	Place Water Barrier within Site Boundary	1 day	Fri 6/20/14	Fri 6/20/14
26	Road Marking within Site Boundary	1 day	Sat 6/21/14	Sat 6/21/14
27	Implement TTMS 018	0 days	Sun 6/22/14	Sun 6/22/14
28				
29	**Sheet Pile Installation**	**52 days**	**Mon 5/12/14**	**Sat 7/12/14**
30	Material Delivery (170 nos. Sheet Pile)	1 day	Thu 5/22/14	Thu 5/22/14
31	Material Delivery (27 nos. Concrete Blocks)	1 day	Mon 6/9/14	Mon 6/9/14
32	Sheet Pile Installation (Western Line - Remaining 140 nos)	35 days	Mon 5/12/14	Sat 6/21/14
33	Sheet Pile Installation (Eastern Line - Total 160 nos.) - Stage 1	6 days	Mon 5/12/14	Sat 5/17/14
34	Sheet Pile Installation (Eastern Line - Total 160 nos.) Stage 2	32 days	Wed 5/28/14	Sat 7/5/14
35	Pre-Boring at Eastern Line (70m) of size 323 dia.	26 days	Thu 5/29/14	Sat 6/28/14
36	Expose and Investigate Existing Drain Along Middle Line	12 days	Mon 5/19/14	Sat 5/31/14
37	Sheet Pile Installation (Middle Line - Total 62 nos.)	28 days	Tue 6/3/14	Sat 7/5/14
38	Install Concrete Blocks at Both Sides	5 days	Mon 7/7/14	Sat 7/12/14
39				
40	**ELS Installation**	**63.8 days**	**Sat 6/14/14**	**Wed 8/27/14**
41	**Material Delivery**	**53 days**	**Thu 6/26/14**	**Wed 8/27/14**
42	H-Pile Delivery for W1/ MS1/MS2/SS1/TN	1 day	Thu 6/26/14	Thu 6/26/14
43	Steel Plate Delivery	1 day	Wed 7/2/14	Wed 7/2/14
44	Place Concrete Order	1 day	Tue 8/26/14	Tue 8/26/14
45	Deliver Concrete Pump Truck	1 day	Wed 8/27/14	Wed 8/27/14
46	ELS Design & Method Statement Submission for Approval	18 days	Sat 6/14/14	Sat 7/5/14
47	ELS Installation	19 days	Mon 7/7/14	Tue 7/29/14
48	Excavation	17 days	Wed 7/30/14	Tue 8/19/14
49	Lagging Installation for Existing Drains	10 days	Thu 8/7/14	Tue 8/19/14
50	Install Steel Plates	9 days	Fri 8/15/14	Tue 8/26/14
51	Cast Base Slab	0.7 days	Wed 8/27/14	Wed 8/27/14
52				
53	**Hoarding**	**12 days**	**Mon 5/12/14**	**Sat 5/24/14**
54	Site Entrance Hoarding	6 days	Mon 5/12/14	Sat 5/17/14
55	Hoarding Along W2A	6 days	Mon 5/19/14	Sat 5/24/14
56				
57	**Instrumentation**	**29 days**	**Mon 5/12/14**	**Sat 6/14/14**
58	Piezometer Installation (Remaining 1 no.)	6 days	Mon 5/12/14	Sat 5/17/14
59	Material Delivery	1 day	Wed 5/21/14	Wed 5/21/14
60	Inclinometer Installation (Remaining 4 nos.)	23 days	Mon 5/19/14	Sat 6/14/14



Project: With Holiday
Date: Mon 6/16/14

Critical	Milestone	Rolled Up Critical	Inactive Milestone	Manual Summary Rollup	Progress
Critical Split	Summary	External Tasks	Inactive Summary	Manual Summary	Deadline
Task	Project Summary	External Milestone	Manual Task	Start-only	
Split	Rolled Up Critical	Inactive Task	Duration-only	Finish-only	

ID	Task Name	Duration	Start	Finish
1	**Work Area 1129.W3 - Tunnel Approach Road**	**246.8 days?**	**Sun 6/22/14**	**Mon 4/20/15**
2	**Contract Work 3 - Pile Removal at Tunnel Approach Road**	**246.8 days?**	**Sun 6/22/14**	**Mon 4/20/15**
3				
4	Implement TTMS Stage 3 to Set-up Works Area at Tunnel Approach Road (Wk30/14)	0.8 days	Sun 6/22/14	Sun 6/22/14
5				
6	**Area W3a**	**103 days?**	**Mon 6/23/14**	**Fri 10/24/14**
7	Utilities Detection (32 ways HKT, 1 Military Cable, 4xREACH Cables) for tree felling	18 days	Mon 6/23/14	Mon 7/14/14
8	Utilities Detection (DN150 DI Fresh Water Main, DN1800 Sewer) for tree felling	18 days	Mon 6/23/14	Mon 7/14/14
9	Erection of View Blockage Panel & Tree Felling (7 nos.)	10 days	Tue 7/15/14	Fri 7/25/14
10	Instrumentation Installation (1SP, 3UMP, 3GMS) within site	30 days?	Sat 7/26/14	Fri 8/29/14
11	Remove concrete barrier and plant set-up	45 days	Sat 8/30/14	Fri 10/24/14
12				
13	**Area W3b**	**246 days**	**Mon 6/23/14**	**Mon 4/20/15**
14	Utilities Detection (32 ways HKT, 1 Military Cable, 4xREACH Cables) for sheet piling	12 days	Mon 6/23/14	Mon 7/7/14
15	Utilities Detection (DN150 DI Fresh Water Main, DN1800 Sewer) for sheet piling	12 days	Mon 6/23/14	Mon 7/7/14
16	Dig Trial Trench to Explose Box Culvert Northern MJ for Pile Location Indentification	28 days	Tue 7/8/14	Fri 8/8/14
17	Method Statement for concrete Piles Removal Works	42 days	Sat 8/9/14	Sat 9/27/14
18				
19	Dig Trial Trench to Identify Southern Utilities Alignment for sheet piling installation	12 days	Sat 8/9/14	Fri 8/22/14
20	Install southern Sheet Pile	24 days	Sat 8/23/14	Sat 9/20/14
21	Temp Diversion of DN150DI Fresh Water Main to Southern Sheet Pile	45 days	Mon 9/22/14	Fri 11/14/14
22				
23	Dig Trial Trench to Identify Northern Utilities Alignment for sheet piling installation	12 days	Sat 8/9/14	Fri 8/22/14
24	Cable Slewing, Disconnection, Protection Measures for sheet piling installation	45 days	Sat 8/23/14	Fri 10/17/14
25	Install Northern Sheet Pile	24 days	Sat 10/18/14	Fri 11/14/14
26				
27	Pile Removal 4 pre-drilling	10 days	Mon 9/29/14	Sat 10/11/14
28				
29	Breaking-up carriageway, site/ramp formation	20 days	Sat 11/15/14	Mon 12/8/14
30	Strengthen Abandoned Box Culvert	32 days	Tue 12/9/14	Sat 1/17/15
31				
32	Remove 3 Concrete Piles	45 days	Mon 1/19/15	Sat 3/14/15
33	Remove Abandoned Box Culvert	20 days	Mon 3/16/15	Fri 4/10/15
34	Pile Removing 3 Post-drilling	8 days	Sat 4/11/15	Mon 4/20/15



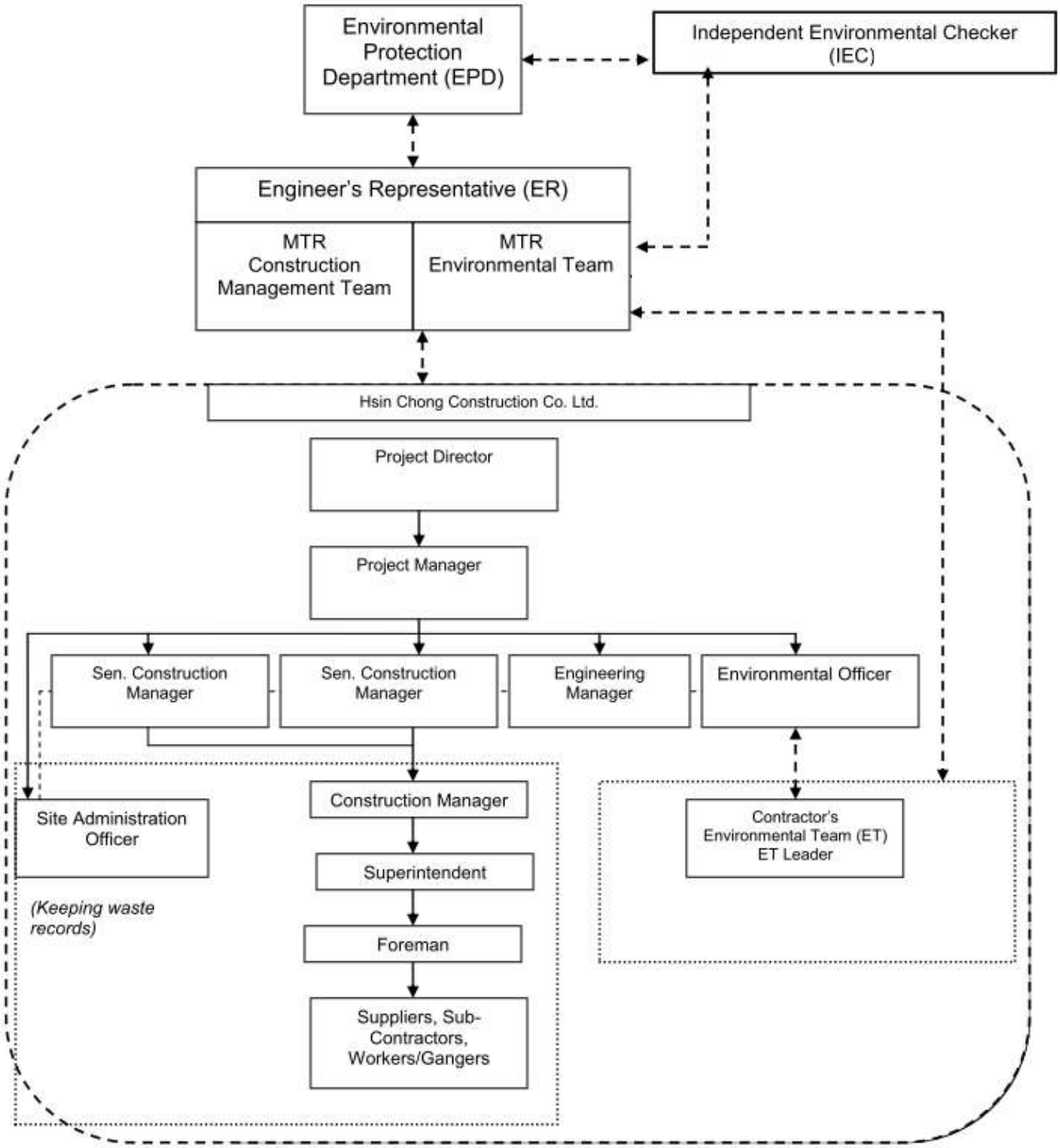
Project: With Holiday
Date: Mon 5/19/14

Critical	Slack	Rolled Up Critical	Inactive Summary	Start-only
Critical Split	Slippage	External Tasks	Manual Task	Finish-only
Task	Summary	External Milestone	Duration-only	Progress
Split	Project Summary	Inactive Task	Manual Summary Rollup	Deadline
Milestone	Rolled Up Critical	Inactive Milestone	Manual Summary

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Environmental Mitigation Measures Implementation Schedule

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	V
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and 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
Air Quality						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	@
Construction Dust Impact						
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	@
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site	To minimize dust impacts	Contractor	Works areas	Construction phase	@

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. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise					
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities	To minimize construction noise impact	Contractor	Works areas	Construction phase	V
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue	Construction phase	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
	• Lorry • Wheel loader • Roller vibratory			to north of ADM • South of ADM to Overrun Tunnel		
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	V
Water Quality Impact						
Construction Phase						
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	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
	seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <u>Boring and Drilling Water</u> • 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. <u>Wheel Washing Water</u> • 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. <u>Bentonite Slurries</u> • 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 d ewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public					

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
	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. <u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u> • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <u>Acid Cleaning, Etching and Pickling Wastewater</u> • 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. <u>Wastewater from Site Facilities</u> • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.					
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 **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
S11.253	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: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
Waste Management Implications						
Construction Phase						
S12.75	***Good Site Practices and Waste Reduction Measures*** • Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; • Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Separation of chemical wastes for special handling and appropriate treatment.	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V

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	***Good Site Practices and Waste Reduction Measures (con't)*** • Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and • Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V
S12.77	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. 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	***Good Site Practices and Waste Reduction Measures (con't)*** C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: • Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations shall be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	V
S12.80	***Storage, Collection and Transportation of Waste (con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal	To minimize potential adverse environmental	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
	outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: • Remove waste in timely manner • Waste collectors shall only collect wastes prescribed by their permits • Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Waste shall be disposed of at licensed waste disposal facilities • Maintain records of quantities of waste generated, recycled and disposed	impacts arising from waste collection and disposal				
S12.81	***Storage, Collection and Transportation of Waste (con't)*** • Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	***Sorting of C&D Materials*** • Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. • Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. • The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. • Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels.	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V
S12.88	***Sediments*** • The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance.	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A
S12.89	***Sediments (con't)*** • The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	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	***Sediments (con't)*** • Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). • In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. • The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. • In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	***Sediments (con't)*** • 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	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.					
/	***Accidental spillage*** To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	@
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	V
S12.98	***Chemical Waste Storage Area*** • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated.	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V
S12.99	***Chemical Waste*** • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	@

Appendix C – Environmental Mitigation Implementation Schedule

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

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

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

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

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

APPENDIX E

Calibration Certificates of Equipments

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. Tel : (852) 2873 6860
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓 Fax : (852) 2555 7533
E-mail: smec@cigismec.com Website: www.cigismec.com
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-01 **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:	07-Nov-2013

Date of test: 08-Nov-2013

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±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 responsess 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:** 11-Nov-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

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

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2285692 N.009.04	,	2250420
Adaptors used:	-	,	-

Item submitted by

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

Date of test: 07-Mar-2014

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±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 responsess of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 12-Mar-2014 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-02 **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

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	07-Nov-2013

Date of test: 08-Nov-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	17-Apr-2014	SCL
Preamplifier	B&K 2673	2239857	16-Apr-2014	CEPREI
Measuring amplifier	B&K 2610	2346941	24-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	15-Apr-2014	CEPREI
Universal counter	53132A	MY40003662	15-Apr-2014	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 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:** 11-Nov-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

APPENDIX F

EM&A Monitoring Schedules

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun
		Noise (NM1)				
8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun
		Noise (NM1)				
15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun
			Noise (NM1)			
22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun
			Noise (NM1)			
29-Jun	30-Jun					
	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 July 2014

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

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

Noise Monitoring Station
NM1 Hoi Kung Court

Monitoring Frequency
Once per week

APPENDIX G

Noise Monitoring Results and their Graphical Presentations

Appendix G - Impact Daytime Construction Noise Monitoring Results

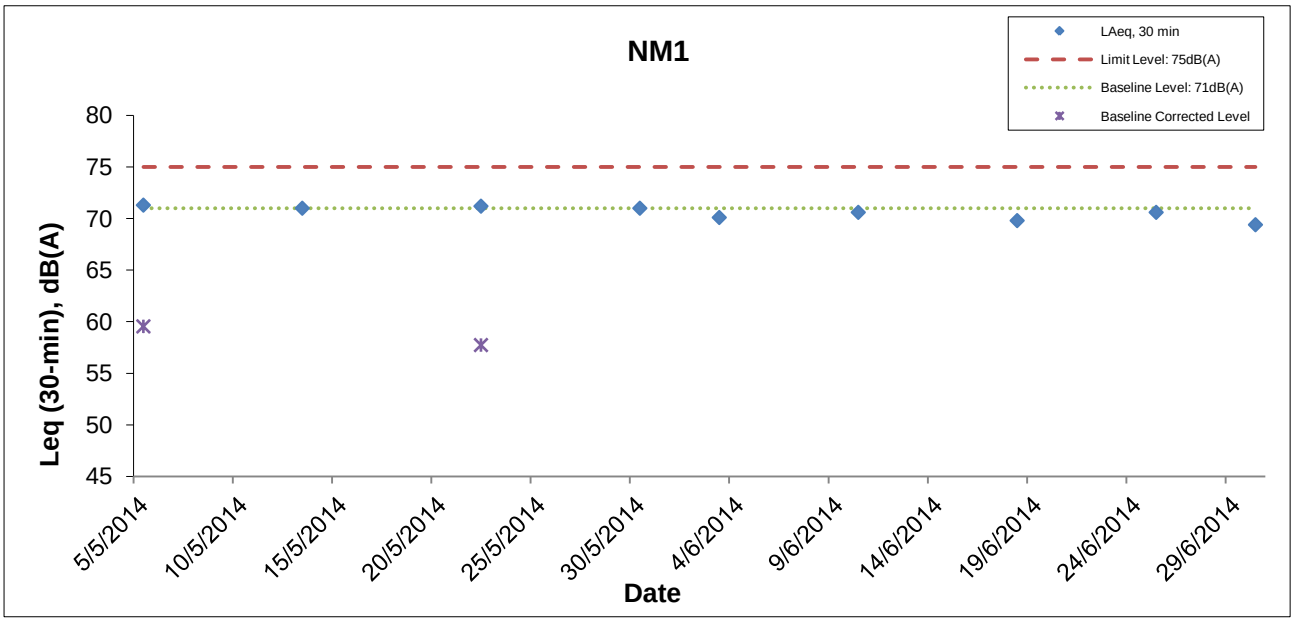
Daytime Noise Monitoring Results at Station NM1 - Hoi Kung Court, Rooftop-20/F

Date	Weather Condition	Noise Level for 30-min, dB(A)*				Baseline Corrected Level, dB(A) #	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
3-Jun-14	Sunny	13:10	68.0	72.6	70.1	<Baseline Level	71	75	N
10-Jun-14	Fine	13:40	68.5	72.3	70.6	<Baseline Level	71	75	N
18-Jun-14	Fine	16:10	67.6	71.3	69.8	<Baseline Level	71	75	N
25-Jun-14	Cloudy	11:30	68.0	72.0	70.6	<Baseline Level	71	75	N
30-Jun-14	Sunny	13:05	68.3	70.7	69.4	<Baseline Level	71	75	N

Remark:

* Façade measurement.

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



APPENDIX H

Event Action Plan

Appendix H Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX I

Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

Appendix I

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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

APPENDIX J

Waste Flow Table

SCL Contract 1129 Advance Works For NSL **Monthly Summary C&D Material Flow Table for 2014**

updated to 30 June 2014

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m^3)					Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m^3)					Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m^3)	Sediment (m^3)
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	^Other Site	**Total (m^3)**	Total	Total		Total	Total	Total
2014/01 (Actual)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
2014/02 (Actual)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
2014/03 (Actual)	*305*	*0*	*0*	*0*	*305*	*0*	*0*	*0*	*0*	*0*	*0*
2014/04 (Actual)	*308*	*75*	*0*	*0*	*382*	*0*	*0*	*0*	*0*	*0*	*0*
2014/05 (Actual)	*1,258*	*7*	*0*	*0*	*1,266*	*0*	*0*	*0*	*0*	*5*	*0*
2014/06 (Actual)	***63***	***19***	***0***	***0***	***82***	***4,210***	***0***	***0***	***0***	***5***	***0***
Sub-total	**1,934**	**101**	**0**	**0**	**2,035**	**4,210**	**0**	**0**	**0**	**10**	**0**
2014/07 (Actual)											
2014/08 (Actual)											
2014/09 (Actual)											
2014/10 (Actual)											
2014/11 (Actual)											
2014/12 (Actual)											
Sub-total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total					**2,035**	**4,210**	**0**	**0**	**0**	**10**	**0**

Remark: ***Assume the density is 2 tonnes per cubic metre**

^Required to be approved by EPD and MTR

1 CWPFBR 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