

MTR Corporation Limited

**Shatin to Central Link –
Tai Wai to Hung Hom Section and
Mong Kok East to Hung Hom Section**

Monthly EM&A Report No. 14

[Period from 1 to 31 October 2013]

(November 2013)

Verified by: Fredrick Leong 

Position: Independent Environmental Checker

Date: 13 November 2013

MTR Corporation Limited

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Certified by: Richard Kwan



Position: Environmental Team Leader

Date: 14 November 2013

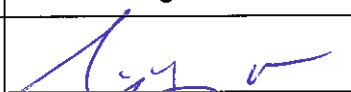

MTR Corporation Limited

Consultancy Agreements
No. C11033 & C11033B

**Shatin to Central Link - Tai Wai to Hung
Hom Section and Mong Kok East
to Hung Hom Section**

Monthly EM&A Report No. 14

[Period from 1 to 31 October 2013]

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Version: A Date: 13 November 2013

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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 – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] and Shatin to Central Link – Mong Kok East to Hung Hom Section [SCL (MKK-HUH) (hereafter referred to as “the Project”) are parts of the SCL. Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] is a proposed stabling sidings option for SCL (TAW – HUH) at the former freight yard in Hung Hom.
- 1.1.3 The Environmental Impact Assessment (EIA) Reports for SCL (TAW-HUH) (Register No.: AEIAR-167/2012), SCL (MKK-HUH) (Register No.: AEIAR-165/2012) and SCL (HHS) (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS)(EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/D) was issued by Director of Environmental Protection (DEP) on 13 September 2013.

1.2 Project Programme

- 1.2.1 Ten civil construction works contracts of the Project have been awarded since July 2012. The construction of the Project commenced in September 2012 and is expected to complete in 2018. **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
1101	Ma On Shan Line Modification Works ⁽¹⁾	December 2012	Sun Fook Kong Joint Venture (SFKJV)	EDMS Consulting Ltd. (EDMS)
1102	Hin Keng Station and Approach Structures	October 2013	Penta-Ocean Construction Co. Ltd.	Cinotech Consultants Ltd. (Cinotech)
1103	Hin Keng to Diamond Hill Tunnels	February 2013	Vinci Construction Grands Projets	Ove Arup & Partners Hong Kong Ltd.
1106	Diamond Hill Station	March 2013	Sembawang – Leader Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1107	Diamond Hill to Kai Tak Tunnels	May 2013	Chun Wo - SELI Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1108	Kai Tak Station and Associated Tunnels	June 2013	Kaden -Chun Wo Joint Venture	Environmental Pioneers & Solutions Ltd.
1108A	Kai Tak Barging Point Facilities	September 2012	Concentric – Hong Kong River Joint Venture (CCL-HKR JV)	Cinotech Consultants Ltd. (Cinotech)

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1109	Stations and Tunnels of Kowloon City Section	September 2012	Samsung-Hsin Chong JV (SSHCV)	ERM-Hong Kong Limited (ERM)
1111	Hung Hom North Approach Tunnels	January 2013	Gammon-Kaden SCL1111 JV	AECOM Asia Co. Ltd.
1112	Hung Hom Station and Stabling Sidings	June 2013	Leighton Contractors (Asia) Limited	SMEC Asia Ltd., HK

Note:

- (1) Only the EM&A works for works areas at Tai Wai Mei Tin Road and the offsite temporary storage areas are included in this Report.

1.3 Purpose of the Report

- 1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in September 2012. This is the fourteenth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ETs during the period from 1 to 31 October 2013.

2 ENVIRONMENTAL MONITORING AND AUDIT

- 2.1.1 The construction of SCL has been divided into different civil construction works contracts which are covered by EP No. EP-437/2012 and/or EP-438/2012/D. As per the EP Conditions, EM&A Reports for the works contracts as shown in the table below have been prepared by the respective Contractor's ETs.

Works Contract	Contract Title	Works Covered in Environmental Permit No.
1101	Ma On Shan Modification Works	EP-438/2012/D
1102	Hin Keng Station and Approach Structures	EP-438/2012/D
1103	Hin Keng to Diamond Hill Tunnels	EP-438/2012/D
1106	Diamond Hill Station	EP-438/2012/D
1107	Diamond Hill to Kai Tak Tunnels	EP-438/2012/D
1108	Kai Tak Station and Associated Tunnels	EP-438/2012/D
1108A	Kai Tak Barging Point Facilities	EP-438/2012/D
1109	Stations and Tunnels of Kowloon City Section	EP-438/2012/D
1111	Hung Hom North Approach Tunnels	EP-437/2012 & EP-438/2012/D
1112	Hung Hom Station and Stabling Sidings	EP-437/2012 & EP-438/2012/D

- 2.1.2 The EM&A Reports for Works Contracts 1108A, 1109, 1101, 1111, 1103, 1106, 1107, 1112, 1108 and 1102 prepared by the respective Contractor's ETs are provided in **Appendices A to J**, respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.

- 2.1.3 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
----------------	------	-------------------------

Works Contract	Site	Construction Activities
1101 ⁽¹⁾	Tai Wai Mei Tin Road	<ul style="list-style-type: none"> • N/A
1102	Hin Keng Station and Approach Structures	<ul style="list-style-type: none"> • Underground utilities detection works; • Site clearance at Hin Tin Playground; • Hoarding erection; and • Tree transplantation.
1103	Diamond Hill Area	<ul style="list-style-type: none"> • Site Excavation and Strutting.
	Hin Keng Area	<ul style="list-style-type: none"> • Pipe Piling; and • Mucking Out.
	Fung Tak Area	<ul style="list-style-type: none"> • Drainage Diversion Works; and • Platform Erection.
	Ma Chai Hang Area	<ul style="list-style-type: none"> • Drainage Diversion Works; and • Diaphragm Wall.
1106	Diamond Hill Station Area	<ul style="list-style-type: none"> • D-wall construction; • Underpinning works and relocation of Old Pillbox; • Pre-drilling works; • Tree protection and transplantation works; and • CCTV inspection works for existing sewerage and drainage system at Lung Cheung Road.
1107	Tunnel section next to Kai Tak Station	<ul style="list-style-type: none"> • Site investigation works; • Investigation and removal of old foundation works; • Hoarding erection; • D-wall construction; • Sheet piling works; • Tree transplantation; and • Preparation works for site access and drainage.
1108	Kai Tak Station	<ul style="list-style-type: none"> • Installation of sheetpile cutoff wall; • Installation of dewatering well; • Installation of ground monitoring instrumentation; • Advance excavation to +3.5mPD; • Breaking of concrete pavement and material stockpile on site; • Area2 & Area 3 Stage 1 pumping test; • Additional boreholes and CPT for ground investigation works; and • Downstream decking to break down.
1108A	Kai Tak Barging Point Facilities	<ul style="list-style-type: none"> • Daily operation and maintenance of the Barging Point Facilities; and • Marine transportation of received spoil to receptor sites.
1109	Ma Tau Wai (MTW) Works Area	<ul style="list-style-type: none"> • TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works; and • Along Ma Tau Wai Road - Construction of D-wall panel, predrilling for D-wall and trial pits for location of utilities.
	To Kwa Wan (TKW) Works Area	<ul style="list-style-type: none"> • Olympic Playground – Pre-bored H pilling; • TKW Station – Archaeological survey, construction of grout curtain, water main

Works Contract	Site	Construction Activities
		diversion, bored pile, and pre-bored H pile; and <ul style="list-style-type: none"> Nam Kok Road – Installation of pipe pile and construction of grout curtain.
1111	Mong Kok Freight Terminal	<ul style="list-style-type: none"> Noise panel installation, Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.
	Hung Hom Area	<ul style="list-style-type: none"> Excavation work, demolition work, site formation, slope work; Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules; Cable trough installation, overhead line portals erection, track rail installation; Geological investigation; Trial pit, sheet piling, pile piling, pipe piling, pre-drilling, pre-grouting; Hoarding erection and tree felling; and ABWF & E&M works.
1112	Hong Hom (HUH and HHS) Works Area	<ul style="list-style-type: none"> Diaphragm wall construction at HUH; and Initial excavation at HUH.

Note:

(1) Construction works were completed

N/A Not applicable

- 2.1.4 Impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual in the reporting period. Under Works Contract 1109, continuous noise monitoring was also conducted according to the Continuous Noise Monitoring Plan (CNMP) in the reporting period. The air quality, construction noise and continuous noise monitoring results for this reporting month are summarised in **Tables 2.2 to 2.4**. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the EM&A Reports as provided in **Appendices A to J**.
- 2.1.5 The monitoring results indicated that no exceedance of the Action/Limit Levels of 24-hr TSP, and construction noise. Exceedance of the Action and Limit Levels of the continuous noise at MTW-16-1 was recorded on 8, 9 and 10 October 2013 during the reporting month. No non-compliance event was recorded during the reporting period. Investigation of the exceedances recorded at MTW-16-1 on 8 and 10 October 2013 had been conducted. Based on the investigation, the exceedances recorded were potentially project related. The exceedance recorded on 9 Oct is still under investigation, it will be reported in next reporting month. Details of the investigation are presented in Appendix B.
- 2.1.6 Water quality monitoring was not carried out during this reporting period since no dredging activity was conducted in the reporting month.
- 2.1.7 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 2.5**.
- 2.1.8 Regular site inspections were conducted by the respective Contractor's ETs 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.

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

Monitoring Station ID	Location	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1101⁽⁵⁾					
Works Contract 1102 and 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	17.1 – 102.3	148.7	260	No
Works Contract 1103					
DMS-2	Price Memorial Catholic Primary School	32.0 – 129.6	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	26.4 – 110.3	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	51.4 – 111.5	160.4	260	No
Works Contract 1108⁽⁵⁾					
Works Contract 1108A⁽⁵⁾					
Works Contract 1109					
DMS-6	Katherine Building ⁽²⁾	78 – 86	156.8	260	No
DMS-7	Parc 22 ⁽³⁾	78 – 85	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	78 – 90	152.2	260	No
DMS-9	No. 26 Kowloon City Road ⁽⁴⁾	77 – 87	160.9	260	No
DMS-10	Chat Ma Mansion	79 – 94	170.4	260	No
Works Contract 1111					
AM1 ⁽⁶⁾	No. 234 – 238 Chatham Road North ⁽⁷⁾	56.8 – 140.8	183.9	260	No
Works Contract 1112					
AM2	Site Boundary of Finger Pier adjacent to Harbourfront Horizon ⁽⁸⁾	68.1 – 119.4	182	260	No

Note:

- (1) Alternative monitoring location to Shek On House
- (2) Alternative monitoring location to Prosperity House
- (3) Alternative monitoring location to Skytower Tower 2
- (4) Alternative monitoring location to Lucky Building
- (5) No TSP monitoring is required under this contract
- (6) AM1 named as HUH-1-3 in SCL(TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Alternative monitoring location to Wing Fung Building
- (8) Alternative monitoring location to Harbourfront Horizon

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

Monitoring Station ID	Location	Noise Level (L _{Aeq,30mins} , dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected ⁽⁷⁾		
Works Contract 1101⁽⁶⁾						
Works Contract 1102 and 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	58.2 – 59.5	57.0	52.0 – 55.9	70 (65 during examination period)	No
Works Contract 1103						
NMS-CA-2	Price Memorial Catholic Primary School	67.2 – 68.7	66.0	61.0 – 65.4	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	67.9 – 69.1	73.0	< baseline	75	No
Works Contract 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	71.5 – 73.8	71.0	61.9 – 70.6	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽²⁾	71.6 – 73.5	74.0	< baseline	70 (65 during examination period)	No
Works Contract 1108⁽⁶⁾						
Works Contract 1108A⁽⁶⁾						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road ⁽³⁾	63.8 – 65.9	76.1	< baseline	75	No
NMS-CA-7	Skytower Tower 2	67.4 – 67.8	70.0	< baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	72.6 – 79.0	75.4	< baseline – 76.5	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring) ⁽⁸⁾	No
NMS-CA-9	Kong Yiu Mansion ⁽⁴⁾	71.9 – 75.5	69.2	68.6 – 74.3	75	No
NMS-CA-10	Chat Ma Mansion	77.0 – 77.2	76.6	66.4 – 68.3	75	No
Works Contract 1111						
NM1	Carmel Secondary School (South Block)	66.1 – 68.6	68.0	< baseline – 67.5	70 (65 during examination period)	No

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 ⁽⁷⁾		
NM2	No. 234 – 238 Chatham Road North ⁽⁵⁾	68.3 – 75.2	79.0	< baseline	75	No
Works Contract 1112⁽⁶⁾						

Note:

- (1) Alternative monitoring location to Shek On House.
- (2) Alternative monitoring location to Canossa Primary School (San Po Kong).
- (3) Alternative monitoring location to Prosperity House.
- (4) Alternative monitoring location to Lucky Building.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) No construction noise monitoring is required under this contract.
- (7) The measured noise levels are corrected against the corresponding baseline noise levels.
- (8) The Limit Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

Table 2.4 Summary of Continuous Noise Monitoring Results in the Reporting Period

NSR ID	NSR Description Continuous Noise Monitoring Location		Noise Level (L _{Aeq,30mins} , dB(A))			Action/Limit Level ⁽³⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽²⁾		
Works Contract 1101⁽¹⁾							
Works Contract 1102⁽¹⁾							
Works Contract 1103							
TAW-6-7	C.U.H.K.A.A. Thomas Cheung School	TAW-6-7 (C.U.H.K.A.A. Thomas Cheung School)	(4)	(4)	(4)	66 ⁽⁷⁾	(4)
Works Contract 1103 & 1106							
DIH-9-1 ⁽¹⁾	Shek On Building	N/A	N/A	N/A	N/A	N/A	N/A
DIH-13-1 ⁽¹⁾	Canossa Primary School	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1106 & 1107							
DIH-14-1 ⁽¹⁾	Rhythm Garden Block 2	N/A	N/A	N/A	N/A	N/A	N/A
DIH-14-5 ⁽¹⁾	Rhythm Garden Block 1	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1103, 1106 & 1107							
DIH-14-4 ⁽¹⁾	Canossa Primary School (San Po Kong)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1108⁽¹⁾							
Works Contract 1108A⁽¹⁾							
Works Contract 1109							
TKW-1-1 ⁽¹⁾	Parc 22	N/A	N/A	N/A	N/A	N/A	N/A
TKW-2-2 ⁽¹⁾	Skytower Tower 2	N/A	N/A	N/A	N/A	N/A	N/A
TKW-3-2	Prosperity House	TKW-3-2(A) (No. 420 Prince Edward Road West)	(4)	(4)	(4)	80	(4)
MTW-12-3	Lucky Mansion	MTW-12-3 (Lucky Mansion)	(4)	(4)	(4)	80	(4)
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	MTW-12-4 (352-354 Ma Tau Wai Rd (East Façade))	(4)	(4)	(4)	80	(4)
MTW-12-4-1	352-354 Ma Tau Wai Rd (North Façade)	MTW-12-4-1(A) (59 Maidstone Road)	(4)	(4)	(4)	82	(4)
MTW-12-10	Lucky Building	MTW-12-10	(4)	(4)	(4)	84	(4)

NSR ID	NSR Description Continuous Noise Monitoring Location		Noise Level (L _{Aeq,30mins} , dB(A))			Action/Limit Level ⁽³⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽²⁾		
	(South Façade)	Lucky Building (South Façade)					
MTW-12-10-1	Lucky Building (East Façade)	MTW-12-10-1 Lucky Building (East Façade)	(4)	(4)	(4)	80	(4)
MTW-12-11	Jing Ming Building	MTW-12-11 Jing Ming Building	(4)	(4)	(4)	81	(4)
MTW-16-1	SKH Good Shepherd Primary School	MTW-16-1 SKH Good Shepherd Primary School	70.0 – 90.9	75.4	59.1 – 90.8	78 (79) ⁽⁹⁾	Yes
MTW-18-2 ⁽⁶⁾	No. 2 Kowloon City Road	MTW-18-2(A) No. 20 Kowloon City Road	N/A	N/A	N/A	N/A	N/A
HOM-2-1--A ⁽¹⁾	Faerie Court (East Façade)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1111							
OM4a	Carmel Secondary School (South Block)	NM1 Carmel Secondary School (South Block)	(4)	(4)	(4)	69 ⁽⁷⁾	(4)
HH2 ⁽⁶⁾	Wing Fung Building	NM2 No. 234-238 Chatham Road North ⁽⁵⁾	(4)	(4)	(4)	77	(4)
Works Contract 1112⁽¹⁾							

Note:

- (1) No continuous noise monitoring is required under this contract.
- (2) Measured noise level (above the baseline noise level) was corrected against the corresponding baseline level.
- (3) Reference to the predicted maximum noise level as contained in the corresponding CNMMP.
- (4) According to the CNMMP and CNMP, continuous noise monitoring is not required during this reporting month.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) HH2 named as HUH-1-3 in SCL (TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Action/Limit level will only be applicable during the examination period.
- (8) The building at MTW-18-2 has been demolished. During the period of residual noise impact exceeding criteria predicted in the corresponding CNMMP, there will be no NSR occupied at this location. It is therefore not necessary carry out continuous noise monitoring at this location.
- (9) The Limit Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

N/A Not applicable

Table 2.5 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
1101	0	0	0	0	0	0
1102	0	0	0	0	0	0
1103	0	0	0	0	0	0
1106	0	0	0	0	0	0
1107	0	0	0	0	0	0
1108	0	0	0	0	0	0
1108A	0	0	0	0	0	0
1109	0	0	0	0	0	0
1111	0	0	0	0	0	0
1112	0	0	0	0	0	0

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 Reports, EM&A Manuals and EP (EP-438/2012/D and EP-437/2012). The status of required submissions under the EPs as of the reporting period are summarised in **Table 3.1** and **3.2**.

Table 3.1 Summary of Status of Required Submissions for EP-438/2012/D

EP Condition (EP-438/2012/D)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	1 Aug 2012
Condition 2.3	Notification of Information of Community Liaison Groups	13 Jul 2012 (1 st submission) 31 Aug 2012 (2 nd submission) 30 Nov 2012 (3 rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1 st submission) 21 Aug 2012 (2 nd submission) 19 Dec 2012 (3 rd submission) 22 Jan 2013 (4 th submission) 30 Apr 2013 (5 th submission) 21 May 2013 (6 th submission)
Condition 2.8	Construction Programme and EP Submission Schedule	27 Jul 2012
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 July 2013 (Approved) 26 July 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sept 2013 (Approved)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 July 2013 (Approved) 26 July 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sept 2013 (Approved)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 5 Oct 2012 (3 rd submission) 10 Oct 2012 (Approved) 4 Mar 2013 (4 th submission) 9 May 2013 (5 th submission) 24 July 2013 (6 th submission) 26 July 2013 (Approved)

EP Condition (EP-438/2012/D)	Submission	Submission date
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1 st submission) 30 Aug 2012 (2 nd submission) 3 Oct 2012 (3 rd submission) 13 Nov 2013 (Approved for Contracts 1101, 1106 and 1109) 14 Nov 2012 (4 th submission) 8 Feb 2013 (5 th submission) 18 Mar 2013 (6 th submission) 18 June 2013 (7 th submission) 12 July 2013 (Approved)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1 st submission) 5 Oct 2012 (2 nd submission) 26 Nov 2012 (3 rd submission) 4 Dec 2012 (Approved)
Condition 2.15	Conservation Plan	31 Jan 2013 (1 st submission) 18 Mar 2013 (2 nd submission) 24 Apr 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1 st submission) 3 Sep 2012 (2 nd submission) 21 Sep 2012 (Approved) 11 Oct 2013 (3 rd submission)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1 st submission) 19 Mar 2013 (2 nd submission) 8 Apr 2013 (Approved)
Condition 2.23	Supplementary Contamination Assessment Report for New Territories South Animal Centre	28 Sep 2012 25 Oct 2012 (Approved)
Condition 3.3	Baseline Monitoring Report (Works Contract 1109 - Stations and Tunnels of Kowloon City Section)	27 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contract 1108A – Kai Tak Barging Point Facilities)	31 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Report No. 1 Monthly EM&A Report No. 2 Monthly EM&A Report No. 3 Monthly EM&A Report No. 4 Monthly EM&A Report No. 5 Monthly EM&A Report No. 6 Monthly EM&A Report No. 7 Monthly EM&A Report No. 8 Monthly EM&A Report No. 9 Monthly EM&A Report No. 10 Monthly EM&A Report No. 11 Monthly EM&A Report No. 12 Monthly EM&A Report No. 13	12 Oct 2012 14 Nov 2012 13 Dec 2012 14 Jan 2013 14 Feb 2013 14 Mar 2013 12 Apr 2013 14 May 2013 14 Jun 2013 12 Jul 2013 15 Aug 2013 13 Sept 2013 15 Oct 2013

Table 3.2 Summary of Status of Required Submissions for EP-437/2012

EP Condition (EP-437/2012)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	30 Nov 2012
Condition 2.3	Notification of Information of Community Liaison Groups	30 Nov 2012
Condition 2.5	Management Organisation of Main Construction Companies	19 Dec 2012 (1 st submission) 30 Apr 2013 (2 nd submission)
Condition 2.6	Construction Programme and EP	19 Dec 2012

EP Condition (EP-437/2012)	Submission	Submission date
	Submission Schedule	
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	30 Nov 2012 (1 st submission) 8 Feb 2013 (Approved for Contract 1111) 26 Apr 2013 (2 nd submission) 11 Jun 2013 (3 rd submission) 27 Aug 2013 (Approved)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1 st submission) 11 Jan 2013 (2 nd submission) 8 Feb 2013 (Approved for Contract 1111)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 15 Oct 2012 (Approved)
Condition 2.10	Sediment Management Plan	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 5 Oct 2012 (3 rd submission) 15 Oct 2012 (Approved)
Condition 2.11	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1 st submission) 8 Feb 2013 (2 nd submission)
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Report No. 5 Monthly EM&A Report No. 6 Monthly EM&A Report No. 7 Monthly EM&A Report No. 8 Monthly EM&A Report No. 9 Monthly EM&A Report No. 10 Monthly EM&A Report No. 11 Monthly EM&A Report No. 12 Monthly EM&A Report No. 13	14 Feb 2013 14 Mar 2013 12 Apr 2013 14 May 2013 14 Jun 2013 12 Jul 2013 15 Aug 2013 13 Sept 2013 15 Oct 2013

Appendix A

**14th EM&A Report for Works Contract 1108A –
Kai Tak Barging Point Facilities**

MTR Corporation Limited


**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No.14

[Period from 1 to 31 October 2013]

Works Contract 1108A – Kai Tak Barging Point
Facilities

(November 2013)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader

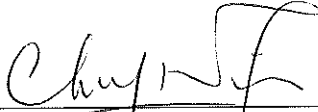
Date: 12th November 2013

Concentric – Hong Kong River Joint Venture

**Shatin to Central Link –
Contract 1108A
Kai Tak Barging Point Facilities**

**Monthly Environmental
Monitoring and Audit Report
for October 2013**

(Version 2.0)

Certified By 
(Contractor's Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 14th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Contract no. 1108A “Shatin to Central Link - Kai Tak Barging Point Facilities”. This report documents the findings of EM&A Works conducted in October 2013.

Summary of Site Activities undertaken during Reporting Month

2. The major site activities undertaken in the reporting month included:
 - Daily operation and maintenance of the Barging Point Facilities; and
 - Marine transportation of received spoil to receptor sites.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:
 - Water Quality Monitoring at each monitoring station.....Nil
 - Environmental Site Inspection.....5 times

Water Quality

4. No water quality monitoring was carried out as no dredging activity was conducted during the reporting month.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. 55 m³ of inert C&D materials and 5 m³ non-inert C&D materials were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials.

Environmental Site Inspection

6. A monthly joint environmental site inspection was carried out by the representatives of the Contractor, the IEC and the ET. Details of the audit findings and implementation status are presented in Section 6.

Ecology/Landscape and Visual

7. Details of the audit findings and implementation status on Ecology/Landscape and Visual are presented in Section 6.

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

8. Summary of the events and action taken and key information in the reporting month is tabulated in **Table I** and **Table II** respectively.

Table I Summary Table for Events Recorded in the Reporting Month

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
Water Quality Monitoring	N/A	N/A	N/A

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Notifications of any summons & prosecutions	0	---	N/A	N/A	---

Future Key Issues

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

- Daily operation and maintenance of the Barging Point Facilities;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and
- Minor civil construction works related to the establishment of an additional floating jetty.

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Concentric – Hong Kong River JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link Works Contract 1108A – Kai Tak Barging Point Facilities (hereafter referred to the Project).

Purpose of the report

- 1.2 This is the 14th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 October to 31 October 2013.

Structure of the report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. In addition to the temporary work site in the vicinity of the tunnel and station structures, there are some off-site temporary works sites/areas to facilitate the construction process. This Works Contract 1108A is one of the off-site temporary works sites covers the construction and operation of barging facilities.

General Site Description

- 2.3 The site layout plan is presented in **Figure 1**.

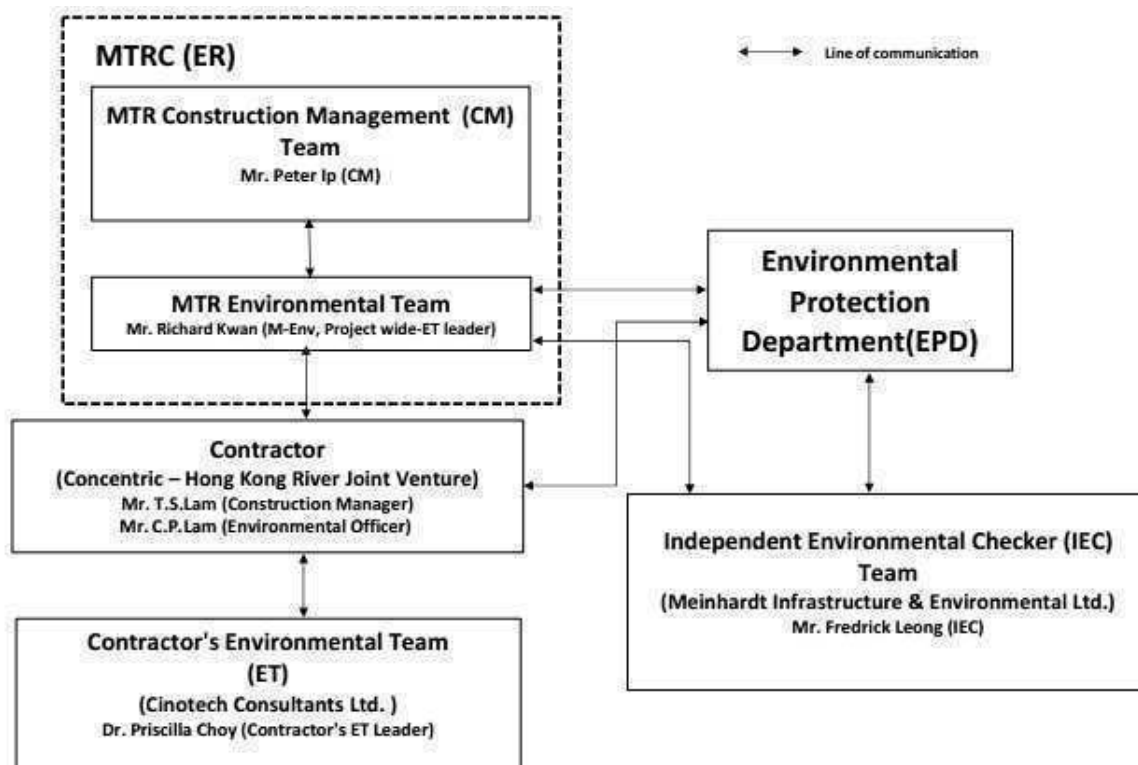
Construction Programme and Activities

- 2.4 A summary of the major site activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix H**.
- Daily operation and maintenance of the Barging Point Facilities; and
 - Marine transportation of received spoil to receptor sites.

Project Organisation

- 2.5 Different parties with different levels of involvement in the project organization include:
- Engineer or Engineer's Representative (ER) – MTR Corporation (MTRC)
 - Contractor's Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)
 - Independent Environmental Checker (IEC) – Meinhardt Infrastructure & Environment Ltd. (Meinhardt)
 - Contractor – Concentric – Hong Kong River Joint Venture (CCL-HKR JV)
- 2.6 The responsibilities of respective parties are detailed in Section 3 of the SCL (TAW-HUH) EM&A Manual.

2.7 The project organisation chart is shown as follows:



2.8 The key contacts of the Project are shown in Table 2.1.

Table 2.1 Key Contacts of the Project

Party	Role	Name	Position	Phone No.	Fax No.
MTRC	ER	Mr. Peter IP	Construction Manager	3507 6889	2334 0323
	Environmental Team	Mr. Richard KWAN	SCL Project Environmental Team Leader	2688 1283	2993 7577
Cinotech	Contractor's Environmental Team	Dr. Priscilla CHOY	Contractor's ET Leader	2151 2089	3107 1388
		Ms. Ivy TAM	Project Coordinator and Audit Team Leader	2151 2090	
Meinhardt	Independent Environmental Checker	Mr. Fredrick LEONG	Independent Environmental Checker	2858 0738	2540 1580
CCL-HKR JV	Contractor	Mr. T.S. LAM	Construction Manager	9655 5486	2398 8301
		Mr. C.P. LAM	Environmental Officer	9212 9417	
		Ms. Jane ZHU	Quality Engineer	6207 3974	

Status of Environmental Licences, Notification and Permits

- 2.9 Application for Variation of Environmental Permit (Application No. VEP-382/2012) was submitted by the Permit Holder on 17 October 2012 for amending Conditions 2.21 and 2.22 in Part C of Environmental Permit No. EP-438/2012/A. Environmental Permit No. EP-438/2012/B was issued by EPD on 26 October 2012 based on this application. The EP was superseded by EP-438/2012/C from 30th April 2013.
- 2.10 An updated Environmental Permit (EP) (EP No. EP-438/2012/D) was granted on 13th September 2013. A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.2**.

Table 2.2 Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/B	26/10/2012	29/04/2013	Superseded by EP-438/2012/C
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	N/A	Valid
Construction Noise Permit (CNP)			
GW-RE0754-12	24/09/2012	23/03/2013	Expired
GW-RE0272-13	26/03/2013	23/09/2013	Expired
GW-RE0969-13	24/09/2013	23/03/2014	Valid
Marine Dumping Permits			
EP/MD/13-075	10/10/2012	09/11/2012	Expired
EP/MD/13-074	26/10/2012	25/11/2012	Expired
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
EPD reference no. 348913	22/08/2012	N/A	Receipt acknowledged by EPD
Billing Account for Construction Waste Disposal			
A/C# 7015860	29/08/2012	N/A	Valid
Registration of Chemical Waste Producer			
WPN5213-286-C3752-01	17/09/2012	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014328-2012	07/11/2012	30/11/2017	Valid

Summary of EM&A Requirements

- 2.11 The EM&A programme under 1108A require construction phase water quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.13 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely water quality as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Water Quality Monitoring

Monitoring Location

- 3.1 In accordance with the EM&A Manual, marine water quality monitoring should be carried out while dredging activities are conducting. The water quality monitoring stations and control stations of Project are shown in **Figure 2**. The co-ordinates of the proposed monitoring stations (construction phase – dredging activities) are listed in **Table 3.1**. As shown in **Figure 2**, the proposed locations are classified as Impact Station and Control Station according to their functions.

Table 3.1 Water Quality Monitoring Stations

Station	Description	East	North	Parameters to be measured
IS-1 ⁽¹⁾	Impact Station for Dredging Activities	838499	819333	DO, Turbidity, SS
CS-1	Control Station for IS-1	838170	818903	DO, Turbidity, SS
CS-2	Control Station for IS-1	838912	818997	DO, Turbidity, SS

Note: (1) As per Baseline Monitoring Report under consultancy agreement No. NEX/2213, there was a slight adjustment for the monitoring station IS-1 due to the site constraint as the original monitoring location (Easting: 838450, Northing: 819399) has been occupied by barges/dredgers of other projects.

Monitoring Parameters, Frequency and Programme

- 3.2 Water quality monitoring was conducted in accordance with the requirements stipulated in the approved SCL(TAW-HUH) EM&A Manual. **Table 3.2** summarized the monitoring frequency and water quality parameters for the impact monitoring.

Table 3.2 Water Quality Impact Monitoring Programme

	Impact Monitoring
Monitoring Period	During dredging period
Monitoring Frequency	3 Days in a Week, at mid-flood and mid-ebb tides
Monitoring Locations	IS-1, CS-1, CS-2
Monitoring Parameters	DO, temperature, turbidity, pH, salinity and SS
Intervals between 2 Sets of Monitoring	Not less than 36 hours
Tide Range	Individual flood and ebb tides not less than 0.5m

Monitoring Equipment and Methodology

Dissolved Oxygen and Temperature Measuring Equipment

- 3.3 The instrument should be portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring:
- DO level in the range of 0 - 20 mg/ L and 0 - 200% saturation; and
 - Temperature of 0 - 45 degree Celsius.
- 3.4 The equipment should have a membrane electrode with automatic temperature compensation complete with a cable.

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

Turbidity Measurement Instrument

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

Water Sampler

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

Water Depth Detector

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

Salinity Measuring Equipment

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

pH Measuring Equipment

- 3.10 A portable pH meter capable of measuring a range between 0.0 and 14.0 shall be provided to measure pH under the specified conditions (e.g., Orion Model 250A or an approved similar instrument).

Sample Containers and Storage

- 3.11 Water samples for SS determinations should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen) and shipment to the testing laboratory. The samples shall be delivered to the laboratory within 24 hours of collection and be analysed as soon as possible after collection.

Position Equipment

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

Calibration of In-Situ Instruments

- 3.13 The pH meter, DO meter and turbidimeter shall be checked and calibrated before use. DO meter and turbidimeter shall be certified by a laboratory accredited under HOKLAS

or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

Back-up Equipment and Vessels

- 3.14 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, malfunction, etc.
- 3.15 The water quality monitoring will involve three monitoring stations and measurements should be conducted within the prescribed tidal conditions in order to ensure the measurement/samples are representative. A multi-probe monitoring equipment set integrated with water sampler(s) is highly recommended to improve the monitoring efficiency. Depending on the actually operation, more than one field survey vessels might be required simultaneously to ensure the monitoring are conducted within the acceptable monitoring period. The ET shall also consider the use of unattended automatic sampling/monitoring devices at fixed stations where monitoring are required throughout the construction period. The use of such unattended automatic devices, however, shall be subject to the approval of the ER, IEC and EPD.

Laboratory Measurement / Analysis

- 3.16 At least 3 replicate samples from each independent sampling event are required for the suspended solids measurement which shall be carried in a HOKLAS or international accredited laboratory. Sufficient water samples shall be collected at the monitoring stations for carrying out the laboratory measurement and analysis. The laboratory determination work shall start within 24 hours after collection of the water samples. The analysis for SS is summarized in **Table 3.3**.

Table 3.3 Laboratory analysis for SS

Parameters	Analytical Method	Reporting Limit
Suspended Solid (SS)	APHA 2540-D	0.1 mg/L

Action and Limit Levels

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

Event and Action Plan

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

Cultural Heritage

- 3.19 According to the location of the Project and EIA report, there are no terrestrial archaeological resources and built heritage resources in vicinity of the Project. Archaeological monitoring works and the implementation of mitigation measures during the construction and operation phases of the Project is, therefore, not required.
- 3.20 However, the Contractor shall allow a 25m separation distance between the proposed dredging area and the Kowloon Rock as specified in the approved SCL(TAW-HUH) EIA Report.

Landscape and Visual

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

Ecology

- 3.22 In accordance with the EM&A Manual, weekly site audits should be conducted by the ET during construction phase of the Project to check the recommended mitigation measures should be properly implemented.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Status of submissions under EP	1	Monthly EM&A Report (September 2013)	Submitted to EPD on 15 th October 2013 (EP Condition 3.4)	N/A	---

5 MONITORING RESULTS

Water Quality

- 5.1 No water quality monitoring was carried out at the monitoring stations during this reporting period as the dredging activity was completed on 11 November 2012.
- 5.2 Action and Limit Levels for water quality monitoring were established in the baseline water quality monitoring conducted by MTR between 16 June 2012 and 14 July 2012 under consultancy agreement no. NEX/2213. Action and Limit Levels for water quality is summarised in **Appendix A**.

Waste Management

- 5.3 Waste potentially generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and dredging materials. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.1**. No paper/cardboard packaging, plastics and steel material were generated during the reporting period.
- 5.4 Detail of waste management data is presented in **Appendix F**.

Table 5.1 Quantities of Waste Generated from the Project

Reporting Month	Quantity						
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Dredging Quantity (in bulk volume)	Chemical Waste	Recycled materials		
					Paper/cardboard	Plastics	Metals
October 2013	55 m ³	5 m ³	0 m ³	0 kg	0 kg	0 kg	0 kg

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.

(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

Landscape and Visual

- 5.5 No observations and recommendations were made during the audit sessions.

Ecology

- 5.6 No observations and recommendations were made during the audit sessions.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix C**.
- 6.2 Site audits were conducted on 2, 11, 16, 22 and 30 October 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 11 October 2013. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	2 October 2013	<u>Reminder:</u> Properly clear the muddy materials in the U-channel.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	2 October 2013	<u>Reminder:</u> Properly clear the stagnant water in the open pit.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	2 October 2013	<u>Reminder:</u> Silty water was observed in the wheel washing bay. The contractor was reminded to ensure good water quality for truck to desilt.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	22 October 2013	<u>Reminder:</u> Clear the sand and rocks at the U-channel near the site boundary.	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 October 2013.
<i>Noise</i>	N/A	N/A	N/A
<i>Ecology/ Landscape and Visual</i>	N/A	N/A	N/A
<i>Air Quality</i>	18 September 2013	<u>Reminder:</u> Clear the sand deposited in the site area and near the floating jetty to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	24 September 2013	<u>Reminder:</u> Remove the sand and mud leaked from the stockpile to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.

Parameters	Date	Observations and Recommendations	Follow-up
	24 September 2013	<u>Reminder:</u> The automatic water spray was found to spray in wrong direction. The contractor was reminded to properly provide water spray to stockpile.	The observation was observed to be improved/rectified by the Contractor during the audit session on 2 October 2013.
	2 October 2013	<u>Reminder:</u> The paved road should be sprayed with water to prevent the dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	2 October 2013	<u>Reminder:</u> Properly remove the sand and mud leaked from the stockpile.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	2 October 2013	<u>Reminder:</u> The black smoke emission from the equipment of the ship was observed. The contractor was reminded to keep the equipment in a good condition.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	11 October 2013	<u>Observation:</u> Water spray should be provided at the tipping hall to prevent sand and mud from entering the sea. Dust curtain should be provided at the tipping hall.	The observation was observed to be improved/rectified by the Contractor during the audit session on 16 October 2013.
	11 October 2013	<u>Observation:</u> Water spray should be provided at the barging platform to prevent dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 16 October 2013.
	16 October 2013	<u>Reminder:</u> Repair the dust curtain on the tipping hall of the floating jetty before next operation.	Follow up action will be reported in next reporting period.
	16 October 2013	<u>Reminder:</u> Properly provide a water spray for the rock breaking works near the site entrance and adjust the water spray constantly to ensure proper functioning of the spray.	The observation was observed to be improved/rectified by the Contractor during the audit session on 22 October 2013.
	22 October 2013	<u>Observation:</u> Repair the dust curtain at the tipping hall of the floating jetty.	Follow up action will be reported in next reporting period.
	22 October 2013	<u>Reminder:</u> Properly cover the construction materials with tarpaulin sheet near tipping hall no. 1.	Follow up action will be reported in next reporting period.
	22 October 2013	<u>Observation:</u> Provide water spray at the tipping hall of the floating jetty.	Follow up action will be reported in next reporting period.
	30 October 2013	<u>Observation:</u> Repair the dust curtain in the tipping hall of the floating jetty.	Follow up action will be reported in next reporting period.
	30 October 2013	<u>Observation:</u> Repair the water spray in the floating jetty.	Follow up action will be reported in next reporting period.
	30 October 2013	<u>Reminder:</u>	Follow up action will be

Parameters	Date	Observations and Recommendations	Follow-up
		The tarpaulin sheet provided on the construction material in tipping hall no. 1 should be modified to properly cover all the construction materials.	reported in next reporting period.
Waste / Chemical Management	30 October 2013	<u>Reminder:</u> Provide a chemical label for the chemical waste container next to conveyor belt no. 1 and cover it with tarpaulin sheet.	Follow up action will be reported in next reporting period.
Permits / Licenses	24 September 2013	<u>Reminder:</u> Properly display the EP at the site entrance.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.
	2 October 2013	<u>Reminder:</u> Although the Environmental Permit was placed at the site entrance, the folder of EP should be improved for easily taking out and checking.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2013.

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No impact monitoring was conducted in the reporting month. The summary of exceedance is provided in **Appendix B**.

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

- 7.3 No environmental related complaint, prosecution or notification of summons was received in the reporting month. The Complaint Log is presented in **Appendix G**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no environmental complaint, prosecution or notification of summons received since the Project commencement.

8 FUTURE KEY ISSUES

Key Issues in the Coming Month

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

- Potential dust and noise impacts arising from unloading and temporary stockpiling of C&D material during full operation of the Barging Point Facilities.
- Potential water pollution problem due to the discharge of site runoff during rainfall events.
- Potential environmental impacts arising from unloading and handling of C&D material to the barge.
- Potential splashing of spoils into the surrounding seawater arising from handling/unloading of the spoil at the discharge points.
- Potential dust and noise impacts arising from civil construction works for an additional floating jetty.

Site Activities for the Next Month

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

- Daily operation and maintenance of the Barging Point Facilities;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and
- Minor civil construction works related to the establishment of an additional floating jetty.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 October 2013 to 31 October 2013 in accordance with EM&A Manual and the requirement under EP-438/2012/D.
- 9.2 No impact monitoring was conducted in the reporting month.
- 9.3 There was no environmental complaint, prosecution or notification of summons received.
- 9.4 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

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

Water Quality

- Provide adequate measures to avoid any splashing of spoils into the surrounding seawater when handling/unloading the spoil at the discharge points.
- Clear the sand and rocks in the U-channel near the site boundary regularly to avoid blocking the channel.

Air Quality

- Flexible dust curtains should be properly installed at the discharge point for dust suppression when in operation.
- Dust enclosures for the loading ramp should be properly installed and maintained in good condition to prevent fugitive dust emissions at barging point.
- Provide water spray on the floating jetty regularly to avoid the generation of dust from vehicles.
- Stockpiles or dusty materials in the site area should be covered properly with imperious sheeting.

Waste / Chemical Management

- Chemical wastes should be placed and labeled properly at designated area.

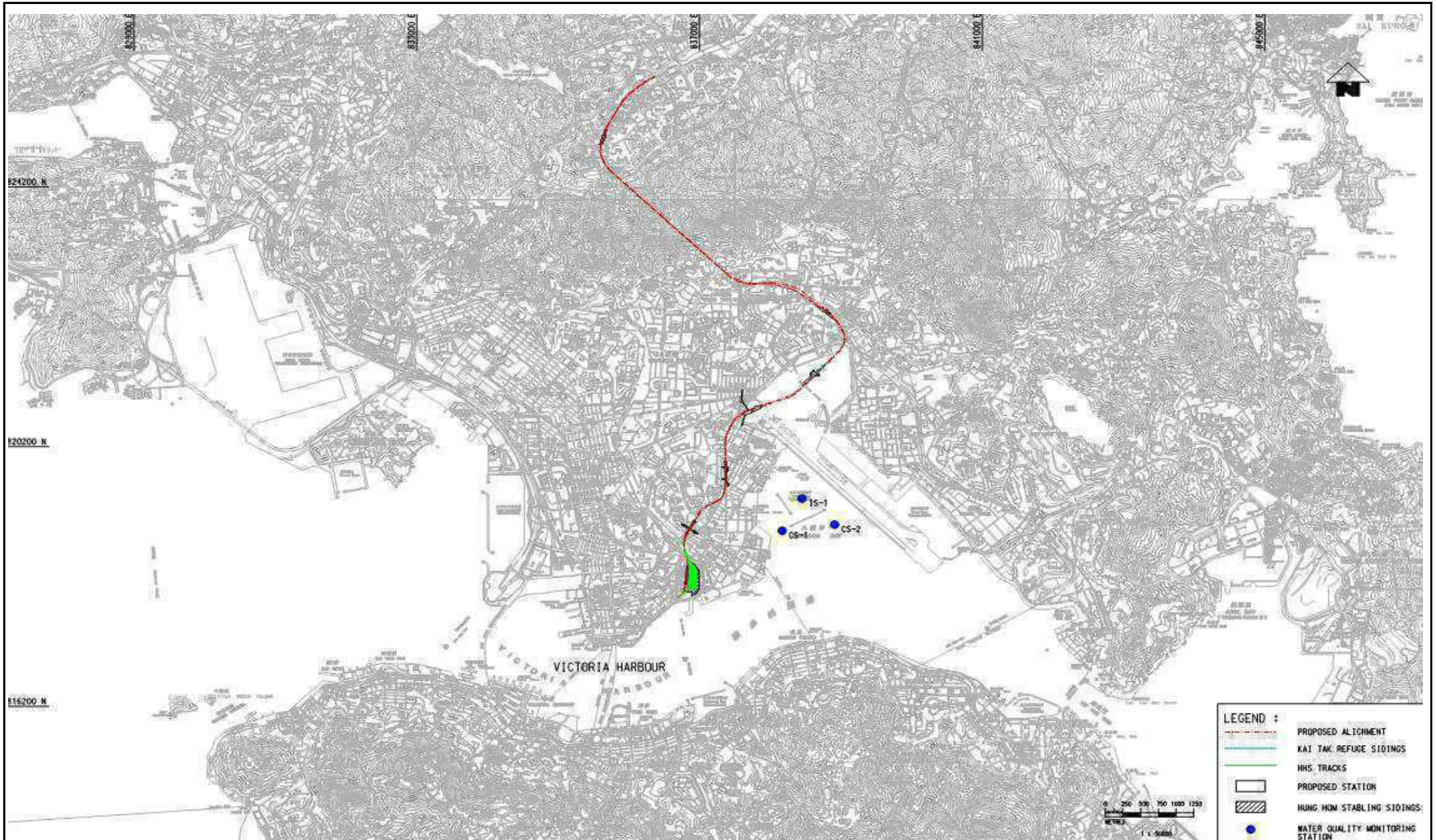
Permits / Licenses

- Environmental Permit should be displayed conspicuously at the site entrance and make available for checking.

FIGURES



Title	SCL Contract 1108A The Shatin to Central Link - Kai Tak Barging Point Facilities Site Layout Plan	Scale	N.T.S	Propose No.	MA12028	CINOTECH
		Date	Oct-12	Figure	1	



Title

SCL Contract 1108A
The Shatin to Central Link -
Kai Tak Barging Point Facilities

Location of Water Monitoring Station and Control Stations

Scale	N.T.S	Propose No.	MA12028
Date	Oct-12	Figure	2

CINOTECH

**APPENDIX A
ACTION AND LIMIT LEVELS**

APPENDIX A – Action and Limit Levels**Action and Limit Levels for Water Quality**

Parameter	Action	Limit
DO in mg/L	<u>Surface & Middle:</u> 4.6 (5 percentile of baseline data) <u>Bottom:</u> 3.9 (5 percentile of baseline data)	<u>Surface & Middle:</u> 4 <u>Bottom:</u> 2
SS in mg/L	6.1 (95 percentile of baseline data) or 120% of upstream control station's SS at the same tide of the same day	6.3 (99 percentile of baseline data) or 130% of upstream control station's SS at the same tide of the same day
Turbidity in NTU	4.8 (95 percentile of baseline data) or 120% of upstream control station's Turbidity at the same tide of the same day	5.0 (99 percentile of baseline data) or 130% of upstream control station's Turbidity at the same tide of the same day

APPENDIX B
SUMMARY OF EXCEEDANCE

APPENDIX B – SUMMARY OF EXCEEDANCE

Reporting Month: October 2013

a) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX C
SITE AUDIT SUMMARY

Shatin to Central Link -

Contract 1108A Kai Tak Barging Point Facilities

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131002
Date	2 October 2013 (Wednesday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
131002-R01 131002-R02 131002-R03	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Properly clear the muddy materials in the U-channel. Properly clear the stagnant water in the open pit. Silty water was observed in the wheel washing bay. The contractor was reminded to ensure good water quality for truck to desilt. <p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	B 6iii B 12 B 14iii
131002-R04 131002-R05 131002-R06	<p>Part D - Air Quality</p> <ul style="list-style-type: none"> The paved road should be sprayed with water to prevent the dust generation. Properly remove the sand and mud leaked from the stockpile. The black smoke emission from the equipment of the ship was observed. The contractor was reminded to keep the equipment in a good condition. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 13 D 6 D 17
131002-R07	<p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> Although the Environmental Permit was placed at the site entrance, the folder of EP should be improved for easily taking out and checking. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130924), item 130924-R01 and 130924-R03 were found outstanding and remarked as 131002-R05 and 131002-R07 respectively. Reviews will be needed in the next site inspection. 	G 5

	Name	Signature	Date
Recorded by	Janet Wai		2 October 2013
Checked by	Dr. Priscilla Choy		2 October 2013

Shatin to Central Link -

Contract 1108A Kai Tak Barging Point Facilities

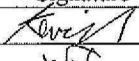

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131011
Date	11 October 2013 (Friday)
Time	15:00-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
131011-002	<p>Part B - Water Quality</p> <ul style="list-style-type: none">Water spray should be provided at the barging platform to prevent dust generation.	B 26
131011-001	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none">Water spray should be provided at the tipping hall to prevent sand and mud from entering the sea. Dust curtain should be provided at the tipping hall. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.:131002), all environmental deficiencies were observed to be improved/rectified by the Contractor.	D 19

	Name	Signature	Date
Recorded by	Kevin Lam		11 October 2013
Checked by	Dr. Priscilla Choy		11 October 2013

*Shatin to Central Link -
Contract 1108A Kai Tak Barging Point Facilities*

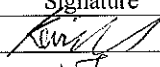

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131016
Date	16 October 2013 (Wednesday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
131016-R02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Repair the dust curtain on the tipping hall of the floating jetty before next operation. 	B 29
131016-R01	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> Properly provide a water spray for the rock breaking works near the site entrance and adjust the water spray constantly to ensure proper functioning of the spray. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131011), all environmental deficiencies were observed to be improved/rectified by the Contractor. 	D 13

	Name	Signature	Date
Recorded by	Kevin Lam		16 October 2013
Checked by	Dr. Priscilla Choy		16 October 2013

*Shatin to Central Link -
Contract 1108A Kai Tak Barging Point Facilities*

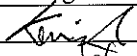

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131022
Date	22 October 2013 (Tuesday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
131022-R02 131022-O04	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> • Clear the sand and rocks at the U-channel near the site boundary. • Repair the dusk curtain at the tipping hall of the floating jetty. 	B 7 B 29
131022-R01 131022-O03	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> • Properly cover the construction materials with tarpaulin sheet near tipping hall no. 1. • Provide water spray at the tipping hall of the floating jetty. 	D 7 D 19
	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<p>Others</p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:131016), outstanding item 131016-R02 has been remarked as 131022-O04. 	

	Name	Signature	Date
Recorded by	Kevin Lam		22 October 2013
Checked by	Dr. Priscilla Choy		22 October 2013

*Shatin to Central Link -
Contract 1108A Kai Tak Barging Point Facilities*

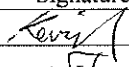

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131030
Date	30 October 2013 (Wednesday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
131030-004	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Repair the dust curtain at the tipping hall of the floating jetty. 	B 29
131022-R01	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 7
131022-003	<p>Part D - Air Quality</p> <ul style="list-style-type: none"> The tarpaulin sheet provided on the construction material in tipping hall no. 1 should be modified to properly cover all the construction materials. Repair the water spray at the floating jetty. 	D 19
131030-R02	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> Provide a chemical label for the chemical waste container next to conveyor belt no. 1 and cover it with tarpaulin sheet. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131022), outstanding item has been remarked and should be reviewed during next site inspection. 	F 2i

	Name	Signature	Date
Recorded by	Kevin Lam		30 October 2013
Checked by	Dr. Priscilla Choy		30 October 2013

APPENDIX D
EVENT AND ACTION PLANS

Event and Action Plan for Water Quality

Event	ET	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Inform IEC, contractor and ER; 2. Check monitoring data, all plant, equipment and Contractor's working methods; and 3. Discuss remedial measures with IEC and Contractor and ER 	<ol style="list-style-type: none"> 1. Discuss with ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; and 2. Make agreement on the remedial measures to be implemented. 3. Supervise the implementation of agreed remedial measures 	<ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with ER, ET and IEC and propose remedial measures to IEC and ER; and 7. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in-situ measurement on next day of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss remedial measures with IEC, contractor and ER 5. Ensure remedial measures are implemented 	<ol style="list-style-type: none"> 1. Discuss with ET Contractor and ER on the implemented mitigation measures; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with ET, IEC and Contractor on the proposed mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Discuss with ET IEC and Contractor on the effectiveness of the implemented remedial measures. 	<ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of remedial measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed mitigation measures.
Limit level being	<ol style="list-style-type: none"> 1. Repeat measurement on next day 	<ol style="list-style-type: none"> 1. Discuss with ET , Contractor and 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and 	<ol style="list-style-type: none"> 1. Identify source(s) of impact;

Event	ET	IEC	ER	Contractor
<p>exceeded by one sampling day</p>	<p>of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Consider changes of working methods 6. Discuss mitigation measures with IEC, ER and Contractor; and 7. Ensure the agreed remedial measures are implemented;</p>	<p>ER on possible remedial actions; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</p>	<p>Contractor on the implemented remedial measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures.</p>	<p>2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER within 3 working days of notification; and 6. Implement the agreed remedial measures.</p>
<p>Limit level being exceeded by more than one consecutive sampling days</p>	<p>1. Inform IEC, contractor, ER and EPD 2. Check monitoring data, all plant, equipment and Contractor's working methods; 3. Discuss mitigation measures with IEC, ER and Contractor; and 4. Ensure mitigation measures are implemented; and 5. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.</p>	<p>1. Discuss with ET, ER and Contractor on possible remedial actions; 2. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</p>	<p>1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; 4. Discuss with ET and IEC on the effectiveness of the implemented mitigation measures; and 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the dredging activities until no exceedance of Limit level.</p>	<p>1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; 6. Implement the agreed mitigation measures. 7. As directed by the ER, to slow down or to stop all or part of the dredging activities until no exceedance of Limit level.</p>

Event and Action Plan for Landscape and Visual during Construction Stage

Event	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity implement remedial measures 2. Amend working methods agreed with the ER as appropriate 3. Rectify damage and undertake any necessary replacement. 4. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer’s Representative

**APPENDIX E
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Pre-Construction Phase)								
S5.7	E3	<p><u>Tree felling and vegetation removal</u></p> <p>Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.</p>	Minimize ecological impacts to breeding bird species of conservation interest	Contractor	Works sites Kai Tak Barging Point	Prior to site clearance	• AFCD's requirements	^
Ecology (Construction Phase)								
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; 	Minimise ecological impacts	Contractor	All construction sites	During Construction	• ProPECC PN 1/94	^

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		<ul style="list-style-type: none"> Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value. No on-site burning of waste; Waste and refuse in appropriate receptacles. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S5.7	E6	<p><u>Sediment Removal</u></p> <ul style="list-style-type: none"> Use closed grab in dredging works. Install silt curtain during the dredging. 	<ul style="list-style-type: none"> Reduce indirect impacts of suspended solids on sessile benthic and intertidal fauna Minimize marine water quality impacts 	Contractor	Dredging Area	During Dredging	•TM-Water	<p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p>
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A ⁽²⁾

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</p> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<ul style="list-style-type: none"> The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 						^
S6.12	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. 	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006 	<p>^</p> <p>N/A⁽¹⁾</p>
Air Quality (Construction Phase)								
/	A1	<p><u>Emission from Vehicles and Plants</u></p> <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD). 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> APCO To control the air quality to meet HKAQO and TM-EIA criteria 	*

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/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the air quality to meet HKAQO and TM-EIA criteria 	^
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 L/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	*

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S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	<p style="text-align: center;">*</p> <p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p>

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		<p>should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</p> <ul style="list-style-type: none"> • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						<p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p>

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S7.6.5	D4	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> All road surface within the barging facilities will be paved; Dust enclosures will be provided for the loading ramp; Vehicles will be required to pass through designated wheels wash facilities; and Continuous water spray at the loading points 	Control construction dust	Contractor	Kai Tak Barging Point	Construction stage	<ul style="list-style-type: none"> Air Pollution Control (Construction Dust) Regulation 	<p>^</p> <p>^</p> <p>^</p> <p>*</p>
S7.6.5	D5	<ul style="list-style-type: none"> For the unloading of spoil from trucks at barging point, installation of 3-sided screen with top tipping hall and operating water spraying and flexible dust curtains at the discharge point for dust suppression 	Minimize dust impact at the nearby sensitive receivers	Contractor	Barging Points	Construction stage	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA criteria EP Condition 2.18 (c) 	*
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> TM-EIA 	N/A ⁽¹⁾

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Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^ ^ ^ N/A ⁽²⁾ ^ N/A ⁽²⁾
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

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S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	N/A ⁽¹⁾
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A ⁽¹⁾
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	N/A ⁽¹⁾

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Water Quality (Construction Phase)								
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	<p>^</p> <p>^</p>

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		<p>in the permanent drainage channels to enhance deposition rates.</p> <p>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<p>weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage 						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<p>system and storm runoff being directed into foul sewers</p> <ul style="list-style-type: none"> • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors 						<p>^</p> <p>*</p> <p>^</p>

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		<p>should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">*</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-water 	^

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S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> • No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-water • TM-EIAO 	<p style="text-align: center;">N/A⁽¹⁾</p> <p style="text-align: center;">N/A⁽¹⁾</p>

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		<p>plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers</p> <ul style="list-style-type: none"> If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. 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 substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 						N/A ⁽¹⁾

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S10.7.1	W5	<p><u>Dredging Works</u></p> <p>The following good practice shall apply for the dredging works:</p> <ul style="list-style-type: none"> • Install efficient silt curtains at the point of seawall dredging to control the dispersion of SS; • Implement water quality monitoring to ensure effective control of water pollution and recommend additional mitigation measures required; • The decent speed of grabs should be controlled to minimize the seabed impact and to reduce the volume of over-dredging; and • All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. 	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during dredging works	Dredging period	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-EIAO 	<p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p>
S10.7.1	W6	<p><u>Operation of Barging Facilities</u></p> <p>The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> • All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; • Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-EIA 	<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>transportation;</p> <ul style="list-style-type: none"> All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water; and Mitigation measures as outlined in W1 should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate. 						<p>^</p> <p>^</p> <p>*</p>
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	<p>^</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W8	Implement a marine water quality monitoring programme	Monitor marine water quality prior to and during dredging period	Contractor	At identified monitoring location	Prior to and during dredging period	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-water • EIA-TM 	^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	N/A ⁽²⁾

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</p>						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005 	<p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 						^
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	<p>^</p> <p>N/A⁽²⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ ^
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited 	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	• ETWB TCW No. 34/2002	N/A ⁽¹⁾

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>in the locations other than designated location;</p> <ul style="list-style-type: none"> • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with 						<p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>tight fittings seals to their bottom openings to prevent leakage of material;</p> <ul style="list-style-type: none"> • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m³ capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, 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 at the disposal site, thereby fulfilling the requirements for fully confined mud disposal. 						<p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	<p>*</p> <p>^</p> <p>^</p>

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

Concentric – Hong Kong River Joint Venture

MTR SCL Contract 1108A Kai Tak Barging Point Facilities

Monthly Summary Waste Flow Table for 2013 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	0.005	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.005
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
Sub-total	0.005	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.020
July	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.010	0.005
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
Sept	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct	0.055	0.000	0.000	0.000	0.055	0.000	0.000	0.000	0.000	0.000	0.005
Nov	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
G.Total	0.070	0.000	0.000	0.000	0.070	0.000	0.000	0.000	0.000	0.010	0.045

**APPENDIX G
COMPLAINT LOG**

Appendix G - Complaint Log

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

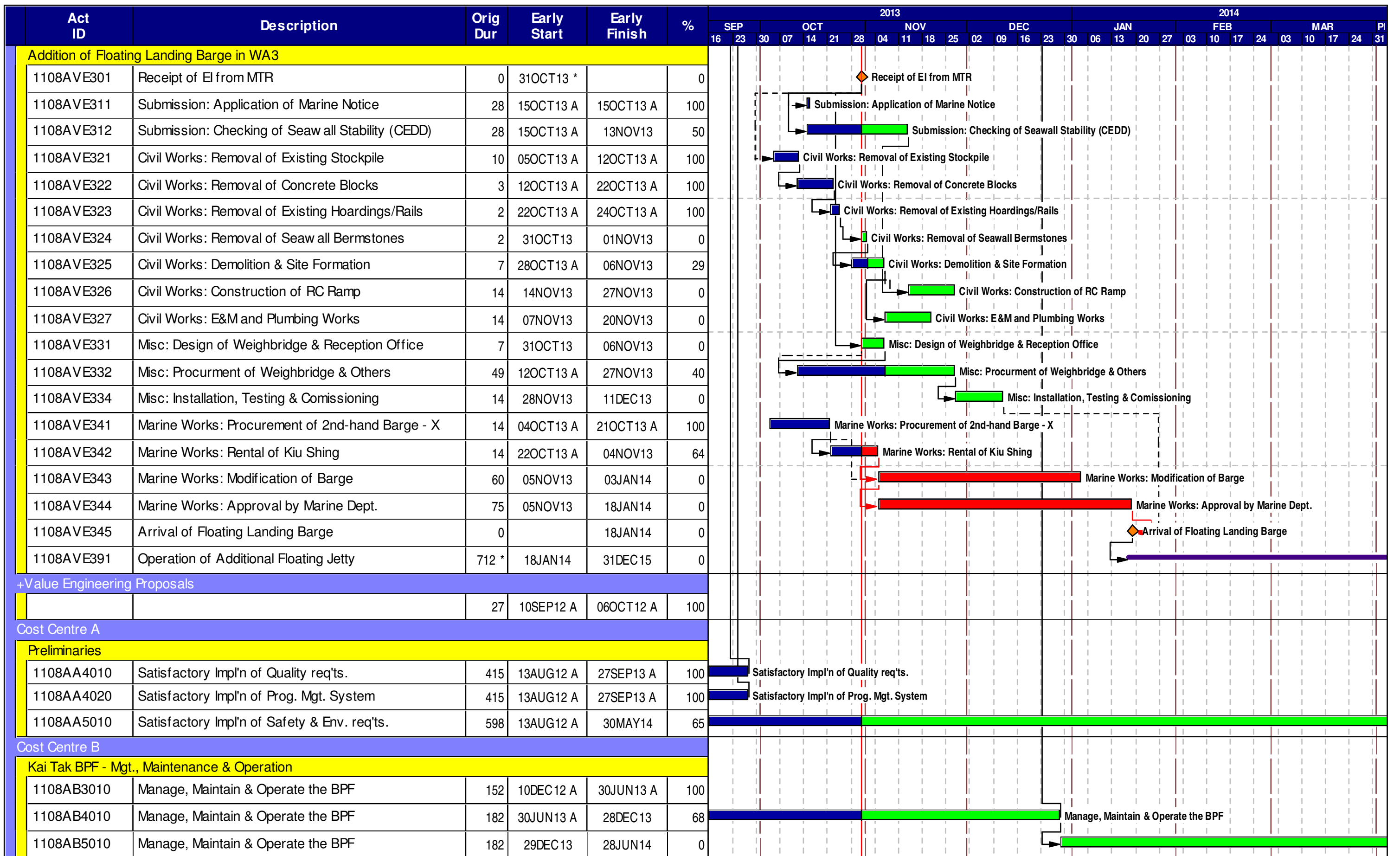
**APPENDIX H
TENTATIVE CONSTRUCTION
PROGRAMME**



Act ID	Description	Orig Dur	Early Start	Early Finish	%	2013												2014						PI					
						SEP			OCT			NOV			DEC			JAN		FEB		MAR							
						16	23	30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13		20	27	03	10	17
COMMENCEMENT & COMPLETION																													
Completion of the Works																													
1108ACD01	Letter of Acceptance	0	10AUG12 A		100																								
1108ACD02	Commencement of Contract	0	13AUG12 A		100																								
1108ACD03A	Completion of Specified Parts of the Works	0		10FEB13 A	100																								
1108ACD03C	Completion of Contract	0		28AUG16	0																								
1108ACD04B	Completion of 1st BPF for Operation	0		10DEC12 A	100																								
Time for Completion																													
1108ACD04A	Completion of Specified Parts of the Works	187	13AUG12 A	15FEB13 A	100																								
1108ADC04B	Completion of 1st BPF for Operation	122	13AUG12 A	10DEC12 A	100																								
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16	30																								
+Time for Possession of Works Area																													
		52	13AUG12 A	03OCT12 A	100																								
Vacation of Works Area																													
1108ACD11V	Vacation of Portion 1108A.W1	0		28AUG16 *	0																								
1108ACD12V	Vacation of Portion 1108A.W2	0		28AUG16 *	0																								
1108ACD13V	Vacation of Portion 1108A.W3	0		31DEC15 *	0																								
1108ACD14V	Vacation of Portion 1108A.W4 (Access Only)	0		28AUG16 *	0																								
1108ACD15V	Vacation of Portion 1108A.W5	0		31DEC13 *	0																								
MILESTONES SCHEDULE																													
Milestones for Cost Centre A																													
1108AMSA41	Satisfactory Impl'n of Quality req'ts.	0		29SEP13 A	100																								
1108AMSA42	Satisfactory Impl'n of Prog. Mgt. System	0		29SEP13 A	100																								
1108AMSA50	Satisfactory Impl'n of Safety & Env. req'ts.	0		30MAY14	0																								
Milestones for Cost Centre B																													
1108AMSB40	Mgt., Maint., & Operation of BPF	0		28DEC13	0																								
EXECUTION OF OPTIONS																													
Option 01 - Lighting to All Access Roads																													
1108AOP101	Time for Execution of Option 1	15	13AUG12 A	27AUG12 A	100																								
Option 02 - Use of Floating Landing Barge in WA3																													
1108AOP200	Time for Execution of Option 2	30	13AUG12 A	11SEP12 A	100																								
1108AOP201	Extension of Time For Execution of Option 2	30	12SEP12 A	10OCT12 A	100																								
1108AOP210	Review of MTIA Report	14	13AUG12 A	26AUG12 A	100																								
1108APD220	Seek Advice / No-objection from Marine Dept.	14	27AUG12 A	09SEP12 A	100																								
1108APD221	Seek No-objection from CEDD	21	27AUG12 A	11SEP12 A	100																								
Engineer's Instruction																													

Satisfactory Impl'n of Quality req'ts.
 Satisfactory Impl'n of Prog. Mgt. System

Vacation of Portion 1108A.W5
 Mgt., Maint., & Operation of BPF



Start date 10AUG12
 Finish date 28AUG16
 Data date 31OCT13
 Run date 29OCT13
 Page number 2A
 c Primavera Systems, Inc.



MTR SCL 1108A

KAI TAK BARGING POINT FACILITIES

Concentric - Hong Kong River Joint Venture

- █ Early bar
- █ Progress bar
- █ Critical bar
- █ Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point

Appendix B

**14th EM&A Report for Works Contract 1109 –
Stations and Tunnels of Kowloon City Section**

MTR Corporation Limited

**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 14

[Period from 1 to 31 October 2013]

Works Contract 1109 - Stations and Tunnels of
Kowloon City Section

(November 2013)

Certified by:  Winnie Ko

Position: Environmental Team Leader

Date: 13 November 2013

Samsung-Hsin Chong JV

Shatin to Central Link (SCL) - Tai
Wai to Hung Hom Section:
Works Contract 1109 – Stations and
Tunnels of Kowloon City Section
Monthly EM&A Report No.14

November 2013

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Works Contract 1109 – Stations and
Tunnels of Kowloon City Section
Monthly EM&A Report No.14

November 2013

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Date: 13 November 2013

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EXECUTIVE SUMMARY

The construction works of **MTR Shatin to Central Link Works Contract 1109 – Stations and Tunnels of Kowloon City Section** commenced on 1 September 2012. This is the fourteenth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 October to 31 October 2013 in accordance with the EM&A Manual.

Summary of the Construction Works undertaken during the Reporting Month

The major construction works undertaken during the reporting month include:

Construction Activities undertaken

Works in Ma Tau Wai (MTW)

- TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works;
 - Along Ma Tau Wai Road - Construction of D-wall panel, predrilling for D-wall and trial pits for location of utilities.
-

Works in To Kwa Wan (TKW)

- Olympic Playground – Pre-bored H piling;
 - TKW Station – Archaeological survey, construction of grout curtain, water main diversion, bored pile, and pre-bored H pile;
 - Nam Kok Road – Installation of pipe pile and construction of grout curtain.
-

Regular Construction Noise and Construction Dust Monitoring

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

- Regular construction noise monitoring during normal working hours
 - NMS-CA-6 *4 times*
 - NMS-CA-7 *4 times*
 - NMS-CA-8 *4 times*
 - NMS-CA-9 *4 times*
 - NMS-CA-10 *4 times*
- Construction dust (24-hour TSP) monitoring
 - DMS-6 *5 times*
 - DMS-7 *5 times*
 - DMS-8 *5 times*
 - DMS-9 *5 times*
 - DMS-10 *5 times*

Continuous Noise Monitoring

During the reporting period, continuous noise monitoring is only required at MTW-16-1 according to the schedule presented in CNMP.

Cultural Heritage

A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-

excavation at the Sacred Hill (North) commenced on 1 November 2012 and is being conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approved on 11 Oct 2013.

Vibration monitoring was conducted at Hong Kong Aviation Club during the reporting period, no non-compliance was recorded.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 9,708 m³ of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 348 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 86 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No chemical waste or metal was generated during this reporting month. 36 kg of paper/cardboard packaging was generated and sent to recyclers for recycling during the reporting period.

Landscape and Visual

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 21 October 2013. No audit findings were observed during the reporting month. The implementation status is presented in *Section 5*.

Environmental Site Inspection

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 7, 15, 21 and 28 October 2013. The representative of the IEC joined the site inspection on 7 October 2013. Details of the audit findings and implementation status are presented in *Section 6*.

Environmental Exceedance/Non-conformance/Compliant/Summons and Prosecution

No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.

Exceedance of the Action and Limit Levels of the continuous noise at MTW-16-1 was recorded on 8, 9 and 10 October 2013 during the reporting month. No non-compliance event was recorded during the reporting period. Investigation of the exceedances recorded at MTW-16-1 on 8 and 10 October 2013 had been conducted. Based on the investigation, the exceedances recorded were potentially project related. The exceedance recorded on 9 Oct is still under investigation, it will be reported in next reporting month.

No environmental complaint and summons/prosecutions was received in this reporting period.

Future Key Issues

The major construction works to be undertaken in the next reporting month include:

Construction Activities to be undertaken

Work in Ma Tau Wai (MTW)

- Along Ma Tau Wai Road - Construction of D-wall panel, pre-drilling for D Wall and trial pits for location of utilities;
 - TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works.
-

Work in To Kwa Wan (TKW)

- Olympic Playground – Pre-bored H piling;
 - Olympic Garden- Pre-bored H piling;
 - Nam Kok Road –Installation of pipe pile and grout curtain;
 - TKW Station – Archaeological survey, erection of box culvert, construction of ground curtain, water main diversion and pre-bored H piling.
-

ERM-Hong Kong, Limited (ERM) was appointed by Samsung-Hsin Chong JV (SSHCJV) as the Environmental Team (Contractor's ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during the construction phase of the **MTR Shatin to Central Link (SCL) Works Contract 1109 – Stations and Tunnels of Kowloon City Section** (the Project).

1.1 PURPOSE OF THE REPORT

This is the fourteenth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 October to 31 October 2013.

1.2 STRUCTURE OF THE REPORT

Section 1 : Introduction

It details the purpose and structure of the report.

Section 2 : Project Information

It summarises the background and scope of the project, site description, project organization and contact details, construction programme, construction works undertaken and status of the Environmental Permits/Licenses during the reporting period.

Section 3 : Environmental Monitoring Requirement

It summarises the monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event / Action Plans.

Section 4 : Implementation Status of Environmental Mitigation Measures

It summarises the implementation of environmental protection measures during the reporting period.

Section 5 : Monitoring Results

It summarises the monitoring results obtained in the reporting period.

Section 6 : Environmental Site Inspection

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7 : Environmental Non-conformance

It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.

Section 8 : Future Key Issues

It summarises the forecast of environmental impact and monitoring schedule for the next three months.

Section 9 : **Conclusions**

2 PROJECT INFORMATION

2.1 BACKGROUND

The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an extension of the Ma On Shan Line and is approximately 11 km long. It links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the *Environmental Impact Assessment Ordinance* (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1109 covers the construction of stations in To Kwa Wan (TKW) and Ma Tau Wai (MTW), and the tunnels between the TKW station and Ho Man Tin station (HOM).

2.2 GENERAL SITE DESCRIPTION

For the Works Contract 1109, the alignment runs from TKW station below Ma Tau Chung Road/Ma Tau Wai Road towards the west, reaching the MTW station. After leaving MTW station, the alignment passes Ko Shan Road and joins the HOM station at the intersection of Fat Kwong Street and Shun Yung Street. The underground sections of the alignment between TKW and HOM stations will be constructed by bored tunneling. Both the TKW and MTW stations will be constructed by cut-and-cover method.

The alignment and works area for the Works Contract 1109 are shown in *Annex A*.

2.3 CONSTRUCTION PROGRAMME AND ACTIVITIES

A summary of the major construction activities undertaken in this reporting period is shown in *Table 2.1*. The construction programme is presented in *Annex B*.

Table 2.1 *Summary of the Construction Activities Undertaken during the Reporting Month*

Construction Activities undertaken	
<u>Works in Ma Tau Wai (MTW)</u>	
●	TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works;
●	Along Ma Tau Wai Road - Construction of D-wall panel, predrilling for D-wall and trial pits for location of utilities.
<u>Works in To Kwa Wan (TKW)</u>	
●	Olympic Playground – Pre-bored H pilling;
●	TKW Station – Archaeological survey, construction of grout curtain, water main diversion, bored pile, and pre-bored H pile;
●	Nam Kok Road – Installation of pipe pile and construction of grout curtain.

2.4 PROJECT ORGANISATION

The project organizational chart and contact details are shown in *Annex C*.

2.5 STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in September 2012 is presented in *Table 2.2*.

Table 2.2 Summary of the Status of Environmental Licence, Notification, Permit and Documentations

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-438/2012	-	Superseded by EP-438/2012/A on 12 July 2012
	EP-438/2012/A	-	Superseded by EP-438/2012/B on 26 October 2012
	EP-438/2012/B	-	Superseded by EP-438/2012/C on 30 April 2013
	EP-438/2012/C	-	Superseded by EP-438/2012/D on 13 September 2013
	EP-438/2012/D	Throughout the Contract	Permit granted on 13 September 2013
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	348516	13 Aug 2012 – 30 Apr 2017	-
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation (Form NB)	351125	16 Oct 2012 – 30 Apr 2017	-
Wastewater Discharge Licence			
Site at TKW	WT00014390-2012	30-Sep-2017	-
Site at MTW	WT00016348-2013	30-Sep-2017	-
Chemical Waste Producer Registration			
Site at TKW	5213-286-53682-01	Throughout the Contract	-
Site at MTW	5213-242-53682-02	Throughout the Contract	-
Construction Noise Permit			
- Grout Pump and Generator at TKW/ MTW Garden	GW-RE0855-13	21 Aug 2013 - 20 Feb 2014	-
- Powered Mechanical Equipment at TKW	GW-RE0614-13	19 Jun 2013 - 12 Dec 2013	-
- Powered Mechanical Equipment at MTW	GW-RE1057-13	20 Oct 2013 - 3 Nov 2013	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
- <i>Powered Mechanical Equipment at MTW</i>	GW-RE1125-13	11 Nov 2013 – 11 Dec 2013	-
- <i>Powered Mechanical Equipment at TKW</i>	GW-RE1126-13	18 Oct 2013 – 16 Nov 2013	-
- <i>Powered Mechanical Equipment at MTW</i>	GW-RE1136-13	23 Oct 2013 – 21 April 2014	-
- <i>Powered Mechanical Equipment at MTW</i>	GW-RE1167-13	4 Nov 2013 – 3 Dec 2013	-
- <i>Powered Mechanical Equipment at MTW</i>	GW-RE1170-13	30 Oct 2013 – 23 April 2014	-
- <i>Powered Mechanical Equipment at MTW Works Area</i>	GW-RE1017-13	6 Oct 2013 - 13 Oct 2013	-
Licence to Excavate and Search for Antiquities	342	Till 29 Oct 2013	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

3.1 REGULAR CONSTRUCTION NOISE MONITORING

3.1.1 Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected or not available; alternative locations were proposed and agreed by the ER (Engineer's Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in *Table 3.1* and shown in *Annex D*. The noise sensitive receivers (NSRs) related to this Works Contract are also shown in *Annex D*.

Table 3.1 Regular Construction Noise Monitoring Location

Proposed Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-6 (a)	No.16-23 Nam Kok Road	Façade
NMS-CA-7	Skytower Tower 2	Façade
NMS-CA-8	SKH Good Shepherd Primary School	Façade
NMS-CA-9 (b)	Kong Yiu Mansion	Façade
NMS-CA-10	Chat Ma Mansion	Façade

Notes:

(a) Access to the monitoring location at Prosperity House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. Furthermore, the alternative location, No. 420 Prince Edward Road West, used in the baseline monitoring was also not available as access permission was rejected by the owner of the building. An alternative location (No.16-23 Nam Kok Road) was proposed and approved by the ER and agreed by the IEC and EPD.

(b) As the Incorporated Owners Association of the monitoring location at Lucky Building (originally proposed in the approved EM&A Manual) did not reply to our request for access to their premise, an alternative location, Kong Yiu Mansion, was proposed and approved by the ER and agreed by the IEC and EPD.

3.1.2 Monitoring Parameter and Frequency

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period is shown in *Annex E*.

The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). $L_{Aeq(30min)}$ was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays. The measured noise levels were logged every 5 minutes throughout the monitoring period.

3.1.3 *Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO)* (Cap 400).

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

Table 3.2 *Noise Monitoring Equipment*

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
NMS-CA-6, NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator: NC 73 (Serial No. 10997142) Sound Level Meter: NL 18 (Serial No. 00360030)
NMS-CA-8	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00983400)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted when the calibration level from before and after the noise measurement agreed to be within 1.0 dB(A).

3.1.4 *Action and Limit Levels*

The Action and Limit Levels are presented in *Table 3.3* and the Event / Action Plan (EAP) for noise monitoring is presented in *Annex G*.

Table 3.3 Action and Limit Levels for Noise Monitoring

Time Period	Regular Noise Monitoring Location	Action Level	Limit Level
0700 - 1900 hours on normal weekdays	NMS- CA-6	When one documented valid complaint is received	75 dB(A)
	NMS- CA-7	When one documented valid complaint is received	75 dB(A)
	NMS- CA-8	When one documented valid complaint is received	70 dB(A) 65 dB(A) during examination periods 79 dB(A) ^(b) during the period of conducting the continuous noise monitoring
	NMS- CA-9	When one documented valid complaint is received	75 dB(A)
	NMS- CA-10	When one documented valid complaint is received	75 dB(A)

Note:

(a) If works are to be carried out during restricted hours (ie, outside 0700 – 1900 on Monday to Saturday), the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

(b) The Limit Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

3.2 CONTINUOUS NOISE MONITORING

3.2.1 Monitoring Location

With reference to the Continuous Noise Monitoring Plan (CNMP) and EP Condition 2.10, continuous noise monitoring should be conducted during the construction of the SCL (TAW-HUH) under Works Contract 1109 at eight noise sensitive receivers (NSRs), where the predicted residual air-borne construction noise impacts exceed the relevant noise criteria. The proposed continuous noise monitoring locations are presented in *Table 3.4* and shown in *Annex D*.

Table 3.4 Proposed Continuous Noise Monitoring Locations

Continuous Noise Monitoring Location ^(a)	Description
TKW-3-2(A)	No. 420 Prince Edward Road West
MTW-12-3	Lucky Mansion
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)
MTW-12-4-1(A)	59 Maidstone Road
MTW-12-10	Lucky Building (South Façade)
MTW-12-10-1	Lucky Building (East Façade)
MTW-12-11	Jing Ming Building
MTW-16-1	SKH Good Shepherd Primary School

Note:

(a) The final monitoring locations will be subject to the latest Continuous Noise Monitoring

3.2.2 *Monitoring Parameter and Frequency*

Continuous monitoring of $L_{Aeq(30min)}$ noise levels are required to be carried out at the eight proposed continuous noise monitoring locations identified in **Table 3.4** during the normal construction working hours (0700 – 1900 Monday to Saturday) in the period that presented in the CNMP. The recommended measurement period for the continuous noise monitoring programme in the CNMP are presented in **Table 3.6**. If works are to be carried out during restricted hours (ie, outside 0700 – 1900 on Monday to Saturday), the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

3.2.3 *Monitoring Equipment and Methodology*

In accordance to the Technical Memorandum (TM) issued under the *Noise Control Ordinance* (NCO), sound level meters in compliance with the *International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1)* specifications will be used for carrying out the noise monitoring.

Table 3.5 *Noise Monitoring Equipment*

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
MTW-16-1	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00983400)
Note:	
(a) During the reporting period, continuous noise monitoring is only required at MTW-16-1 according to the schedule presented in CNMP.	

Immediately prior to the noise measurement, the accuracy of the sound level meter will be checked using an acoustic calibrator, which generated a known sound pressure level at a known frequency. The accuracy of the sound level meter will also be checked on an annual-basis. Measurements will be accepted as valid only if the calibration level before and after the noise measurement agrees to be within 1.0 dB(A). Noise measurements will be made in accordance with standard acoustical principles and practices in relation to weather conditions.

3.2.4 *Action and Limit Levels*

The Action/Limit Levels for the continuous noise monitoring programme recommended in the latest CNMP are presented in **Table 3.6**.

Table 3.6 *Action/Limit Levels for Continuous Noise Monitoring* ^(a)

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level ^(a)	Measurement Period ^(a)
TKW-3-2(A)	No. 420 Prince Edward Road West	80	Sept 2014 – Dec 2014

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level (a)	Measurement Period (a)
MTW-12-3	Lucky Mansion	80	Aug 2014 – Jan 2015, Mar 2015 – Jun 2015
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	80	Aug 2014 – Jun 2015
MTW-12-4-1(A)	59 Maidstone Road	82	Oct 2014, Dec 2014 – Jun 2015
MTW-12-10	Lucky Building (South Façade)	84	Mar 2015 – Apr 2015, Sept 2015 – Jan 2016
MTW-12-10-1	Lucky Building (East Façade)	80	Dec 2014 – May 2015, Sept 2015 – Jan 2016
MTW-12-11	Jing Ming Building	81	Sept 2014 – Jun 2015
MTW-16-1	SKH Good Shepherd Primary School	78 79 (b)	Apr 2013 – 21 Aug 2013, 22 Aug 2013 – Dec 2013 May 2014, Aug 2014 – Mar 2016

Notes:

(a) The A/L Levels and Measurement Periods will be subject to the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP).

(b) The A/L Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

The Event/Action Plan (EAP) of the latest CNMP for continuous noise monitoring is presented in *Annex G*.

3.3 CONSTRUCTION DUST MONITORING

3.3.1 Monitoring Location

The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in *Table 3.7* and shown in *Annex D*. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.7 Construction Dust Monitoring Location

Proposed Construction Dust Monitoring Location	Description
DMS-6 (a)	Katherine Building
DMS-7	Parc 22
DMS-8	SKH Good Shepherd Primary School
DMS-9 (b)	No. 26 Kowloon City Road
DMS-10	Chat Ma Mansion

Proposed Construction Dust Monitoring Location	Description
Notes:	
(a)	Access to the monitoring location at Prosperity House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. Furthermore, the alternative location at No. 420 Prince Edward Road West, which was used in the baseline monitoring, was also not available as access permission was not granted by the owner of the building. An alternative location, Katherine Building, was proposed and had been approved by the ER and agreed by the IEC and EPD.
(b)	As the Incorporated Owners Association of the originally proposed monitoring location at Lucky Building did not reply to our request for access to their premise, an alternative location, No. 26 Kowloon City Road, was proposed and had been approved by the ER and agreed by the IEC and EPD.

3.3.2 *Monitoring Parameter and Frequency*

The construction dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in *Table 3.8*. The TSP monitoring was conducted as per the schedule presented in *Annex E*.

Table 3.8 Construction Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Dust Monitoring	Throughout the construction period of the Project	24-hour TSP	Once per 6 days

3.3.3 *Monitoring Equipment*

24-hour averaged TSP monitoring was performed at the designated monitoring stations using High Volume Samplers (HVS) with the appropriate sampling inlets installed. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 3.9* summarises the equipment that was deployed for the 24-hour averaged monitoring.

Table 3.9 Construction Dust Monitoring Equipment

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
DMS-6	TE-5170 (Serial No. 0107), CM-AIR-43 (Orifice ID 2323)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2323)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2323)
DMS-9	TE-5170 (Serial No. 0814), CM-AIR-43 (Orifice ID 2323)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Orifice ID 2323)

3.3.4 *Monitoring Methodology*

All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind needed to be provided at the monitoring stations;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission could be obtained to set up the samplers and gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not varied by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes on the filters.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and area surrounding the filter were cleaned;
- the filter holder was removed by loosening the fowl bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with an aluminium strip;
- the HVS was warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flow rate record sheet was inserted into the flow recorder;

- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m³min⁻¹, which was within the range specified in the EM&A Manual (i.e. 0.6 – 1.7 m³min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- the filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in a good working condition. For example, motor brushes were replaced routinely and electrical wiring was checked to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated every six-month. The calibration records for the HVSs are given in *Annex F*.

Wind Data Monitoring

- Average wind data (wind speed and direction) at the Kai Tak meteorological station during the monitoring period were obtained from the Hong Kong Observatory (HKO) and presented in *Annex J*.

3.3.5 Action and Limit Levels

The Action and Limit levels have been established and are presented in *Table 3.10*.

Table 3.10 Action and Limit Levels for Dust Monitoring

Parameters	Dust Monitoring Station	Action Level (µg m ⁻³) ^(a)	Limit Level (µg m ⁻³) ^(a)
24-hour TSP	DMS-6	156.8	260
	DMS-7	166.7	260
	DMS-8	152.2	260
	DMS-9	160.9	260
	DMS-10	170.4	260

Parameters	Dust Monitoring Station	Action Level ($\mu\text{g m}^{-3}$) (a)	Limit Level ($\mu\text{g m}^{-3}$) (a)
1-hour TSP (b)	DMS-6	288.8	500
	DMS-7	289.7	500
	DMS-8	300.0	500
	DMS-9	303.0	500
	DMS-10	294.7	500

Notes:

(a) Reference to the Baseline Monitoring Report submitted in July 2012.

(b) Action and Limit Levels for 1-hour TSP will only be used when 1-hour TSP is required to be monitored when a valid complaint is received.

The Event/Action Plan (EAP) for dust monitoring is presented in *Annex G*.

3.4

CULTURAL HERITAGE

The Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance was obtained from the Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and has been conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approved on 11 Oct 2013.

In accordance with the EM&A Manual, appropriate vibration monitoring on the identified built heritage will be agreed with the Building Department (BD)/Geotechnical Engineering Office (GEO) under the requirement of Buildings Ordinance and/or Blasting Permit as appropriate. Vibration levels will be controlled to appropriate levels. Vibration monitoring will be carried out by the Contractor. The structures requiring vibration monitoring during the relevant tunneling work for this Works Contract include S.K.H. Holy Trinity Church and Old Fast East Flying Training School.

3.5

LANDSCAPE AND VISUAL MITIGATION MEASURES

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

IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented all the environmental mitigation measures and requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures for this Works Contract during the reporting period is summarized in *Annex H*. The status of the required submissions under the EP for this Works Contract during this reporting month is presented in *Table 4.1*.

Table 4.1 *Status of Required Submission under Works Contract 1109*

EP Condition	Submission	Submission Date
Condition 2.16	Updated Archaeological Action Plan for Sacred Hill (North)	11 October 2013
Condition 3.4	Thirteenth Monthly EM&A Report	15 October 2013

5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 20 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period. No exceedance of the limit level was recorded on 9, 15 and 21 October at NMS-CA-9 and during the whole reporting period at NMS-CA-6, NMS-CA-7 and NMS-CA-8.

The noise monitoring results of the measurements carried out at NMS-CA-9 on 3 October, at NMS-CA-10 on 3, 9, 15 and 21 October are higher than the daytime construction noise criterion. However, the results are not considered as exceedance because they are below the limit level after deducting the baseline noise level.

The monitoring results together with their graphical presentations are presented in *Annex I-1*.

5.2 CONTINUOUS NOISE MONITORING

According to the prediction in the CNMP, continuous noise monitoring was only conducted at MTW-16-1 during the reporting month. Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 8, 9 and 10 October 2013. The monitoring results are presented in *Annex I-2*.

5.3 CONSTRUCTION DUST MONITORING

A total of 25 sets of 24-hr TSP monitorings were carried out at the designated monitoring stations during normal weekdays of the reporting period. The monitoring results together with their graphical presentations are presented in *Annex J* and a summary of the dust monitoring results in this reporting month is given in *Table 5.1*.

Table 5.1 *Summary of the Dust Monitoring Results in this Reporting Month*

Monitoring Station	24-hour TSP Monitoring Results measured, $\mu\text{g}\text{m}^{-3}$ (a)		Action Level, $\mu\text{g}\text{m}^{-3}$	Limit Level, $\mu\text{g}\text{m}^{-3}$
	Average	Range		
DMS-6	82	78 - 86	156.8	260
DMS-7	82	78 - 85	166.7	260
DMS-8	84	78 - 90	152.2	260
DMS-9	83	77 - 87	160.9	260
DMS-10	85	79 - 94	170.4	260

No exceedance of the Action and Limit Levels of the 24-hr TSP was recorded during the reporting period.

5.4 CULTURAL HERITAGE

A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance was obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation at the Sacred Hill (North) commenced on 1 November 2012 and is being conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approved on 11 Oct 2013.

Vibration monitoring was conducted at Hong Kong Aviation Club during the reporting period, no non-compliance was recorded.

5.5 WASTE MANAGEMENT

The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.2*. Details of waste management data are presented in *Annex K*.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	Inert C&D Materials (a) (b)	Chemical Waste	Non-inert C&D Materials			
			General Refuse/Vegetative Waste	Paper/cardboard	Plastics	Metals
October 2013	9,708 m ³	0 kg	86 m ³	36 kg	348 kg	0 kg

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil.

(b) About 9,708 m³ of inert C&D materials were generated from the Project, and sent to 1108A Kai Tai Barging Facilities during the reporting month.

(c) Chemical waste includes waste oil. It is assumed density of waste oil to be 0.8 kg/L.

5.6 LANDSCAPE AND VISUAL MITIGATION MEASURES

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 21 October 2013. Most of the

mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

7 October 2013

- No observation was reported during the site inspection.

21 October 2013

- No observation was reported during the site inspection.

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 7, 15, 21 and 28 October 2013. The representative of the IEC joined the site inspection on 7 October 2013. No non-compliance was recorded during the site inspections.

Follow up actions for the observations on 30 September 2013 had been taken. Chemical containers in TKW works area had been removed as observed during the site audit on 7 October 2013. The muddy site vehicles had been cleaned and were no longer in the works area as observed during the site audit on 7 October 2013.

Findings and recommendations for the site inspection in this reporting month are summarized as follows:

7 October 2013

- The Contractor was reminder to remove the oil stains observed in Area E1 of MTW works area and TKW works area. Oil stains had been removed in Area E1 of MTW works area and TKW works area as observed during the site inspection on 15 October 2013.
- Wastes were observed accumulating in the waste skip in MTW works area. The contractor was reminded to remove wastes on a regular basis and to maintain a good housekeeping practice. The contractor has always been removing wastes in the waste skip on a regularly basis as observed during the site inspection on 15 October 2013.

15 October 2013

- Oil stains had been found in Areas E1, E2 and E6. The Contractor was reminded to remove the oil stains and dispose of them as chemical wastes properly. Oil stains had been removed in MTW works area as observed during the site inspection on 21 October 2013.
- Chemical containers were observed stored in a wooden container. The Contractor was reminded to store the chemical containers properly with drip trays in order to prevent leakage. The wooden box containing chemical containers had been removed from Olympic Garden of TKW works area as observed during the site inspection on 21 October 2013.
- The Contractor was reminded to spray sufficient water on the works area when the earth is showing signs of drying up for the purpose of dust suppression. Site workers were observed spraying water in various locations in both MTW and TKW works areas for dust suppression as observed during the site inspection on 21 October 2013.

21 October 2013

- Small patches of oil stain were observed near Area E1 of MTW works area. Rectification of the previously identified areas was completed. The Contractor has been paying continuous effort to remove the oil stains. Continuous effort had been paid by the Contractor to remove oil stains in Area E1 of MTW works area as observed during the site inspection on 28 October 2013.

28 October 2013

- Oil stains were observed near Area E1 of MTW works area. Rectification of the previously identified areas had been completed. The Contractor has also been paying on-going effort to remove the oil stains. The follow-up action will be reported in the next reporting period.
- Dust flared up when a site vehicle traversed within Area E1 of MTW works area. The Contractor was reminded to implement mitigation measures such as water spraying for dust suppression. The follow-up action will be reported in the next reporting period.

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 in the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 SUMMARY OF MONITORING EXCEEDANCE

No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded during the reporting month.

Exceedance of the Action and Limit Levels of the continuous noise monitoring at MTW-16-1 was recorded on 8, 9 and 10 October 2013 during the reporting month. Investigation of the exceedances recorded at MTW-16-1 on 8 and 10 October 2013 had been conducted. Based on the investigation, the exceedances recorded were potentially project related. The exceedance recorded on 9 Oct is still under investigation, it will be reported in next reporting month. Investigation reports are attached in *Annex L*.

7.2 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

No non-compliance event was recorded during the reporting month.

7.3 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was reported during the reporting month. The cumulative environmental complaint log is shown in *Annex M*.

7.4 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summon was received during the reporting month. The cumulative summons/prosecution log is shown in *Annex M*.

8.1 *KEY ISSUES FOR THE COMING MONTH*

Works to be undertaken in the next reporting month are summarized in *Table 8.1*.

Table 8.1 Construction Works to be undertaken in the Next Reporting Month

Construction Activities to be undertaken	
<i>Work in Ma Tau Wai (MTW)</i>	
•	Along Ma Tau Wai Road - Construction of D-wall panel, pre-drilling for D Wall and trial pits for location of utilities;
•	TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works.
<i>Work in To Kwa Wan (TKW)</i>	
•	Olympic Playground – Pre-bored H piling;
•	Olympic Garden- Pre-bored H piling;
•	Nam Kok Road –Installation of pipe pile and grout curtain;
•	TKW Station – Archaeological survey, erection of box culvert, construction of ground curtain, water main diversion and pre-bored H pilling.

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

8.2 *MONITORING SCHEDULE FOR THE NEXT MONTH*

The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring in the next reporting period is presented in *Annex E*. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period. According to the schedule presented in the CNMP, continuous noise monitoring will be conducted in the next reporting period.

8.3 *CONSTRUCTION PROGRAMME FOR THE NEXT MONTH*

The construction programme for the Project for the next reporting month is presented in *Annex B*.

This 14th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 October 2013 to 31 October 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/D.

No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting period.

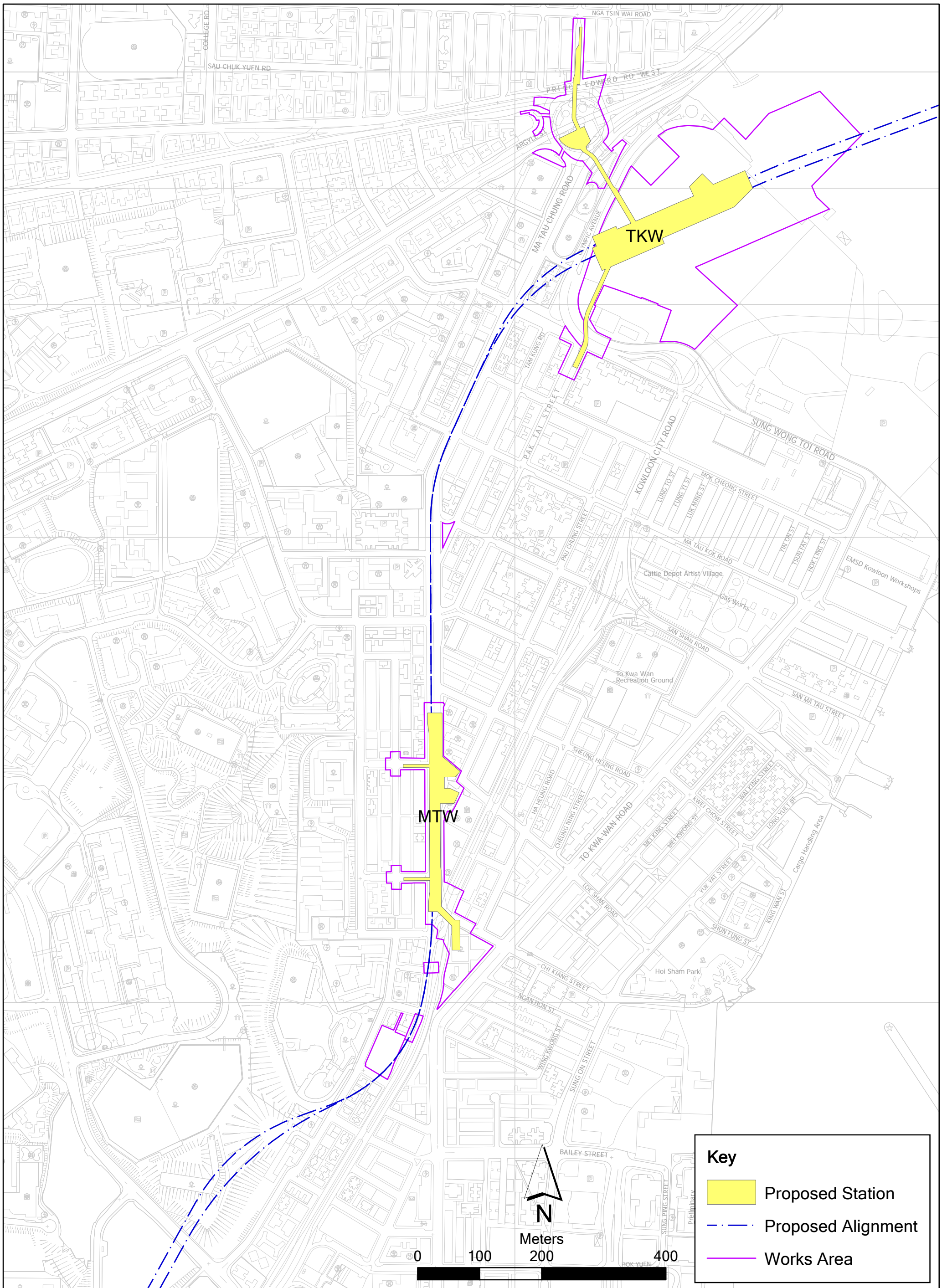
Exceedance of the Action and Limit Levels of the continuous noise at MTW-16-1 was recorded on 8, 9 and 10 October 2013 during the reporting month. Investigation of the exceedances recorded at MTW-16-1 on 8 and 10 October 2013 had been conducted. Based on the investigation, the exceedances recorded were potentially project related. The exceedance recorded on 9 Oct is still under investigation, it will be reported in next reporting month.

No complaint and summons/prosecution was received during the reporting period.

The Contractor has implemented possible and feasible mitigation measures to mitigate the potential environmental impacts during construction. The Contractor's ET will continue to keep track of the EM&A programme to ensure compliance of environmental requirements and the effectiveness and efficiency of the mitigation measures implemented. If necessary, the Contractor will provide more mitigation measures to further alleviate the impacts.

Annex A

The Alignment and Works Area for Works Contract



Key

- Proposed Station
- Proposed Alignment
- Works Area

Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

Name: 0171181_Works_Area_Annex.mxd
Date: 10-Oct-12

**Environmental
Resources
Management**



Annex B

Construction Programme for the Reporting Month and the Coming Month ⁽¹⁾

(1) Sung Wong Toi and To Kwa Wan Stations in the programme mean To Kwa Wan and Ma Tau Wai Stations in the Monthly EM&A Report respectively.

THREE MONTH ROLLING PROGRAMME - OCTOBER 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			2014
					Oct	Nov	Dec	Jan
1109 - SUW & TKW Stations and Tunnels OCT13 (UWP R5) for update								
PROJECT DATES								
Works Areas								
Access Dates								
01109.ACW9b	Access date to Works Area 1109.W9b (Wk1/14; 6Jan 14)	0%	06-Jan-14*					◆
Specified Milestone Dates								
CC-A Milestones								
01109.MSA3ii	A6(ii) Engr's confirmation of satisfac implementation of quality reqmts as per approved spec. Plans (1).(Wk50/13;15Dec13)	0%	15-Dec-13*					◆
CC-B Milestones								
01109.MSB04iv	B4(iv)-All Perm Works Material Control Schedules (as per GS Cl G4.16.1) approved by the Eng.(Wk41/13;13Oct13)	0%	26-Oct-13*	◆				
01109.MSB04ii	B4(ii) - 60% of total numbers of pre-bored H piles complete.(Wk41/13;13Oct13)	0%	28-Nov-13*		◆			
01109.MSB04iii	B4(iii)-Temp bored pile wall,grout curtain,pump test complete& ready for excavation@TBM launch shaft.(Wk41/13;13Oct13)	0%	16-Dec-13		◆			
01109.MSB05ii	B5(ii)-Des. data approved for manufact of all support framing for louvers,glazed walls&susp. ceilings .(Wk03/14;19Jan14)	0%	19-Jan-14*					◆
CC-C Milestones								
01109.MSC02	C2-30% by plan length of permanent diaphragm wall complete.(25 Jun 13)	0%	05-Nov-13		◆			
01109.MSC05ii	C5(ii)-All Permanent Works Material Control Schs (as per GS Clause G4.16.1)approved by the Engineer.(Wk50/13;15Dec 13)	0%	15-Dec-13*					◆
CC-D Milestones								
01109.MSD04iii	D4(iii)-4 pre-bored H-Piles for underpinning at EKW Pier 15 complete.(Wk07/14;16Feb14)	100%	18-Oct-13 A	◆				
01109.MSD02ii	D2(ii)- Investig.to confirm no exist. piles/obstructions to proposed TBM tunnels comp.&accepted by Eng.(Wk15/13;14Apr13)	0%	30-Oct-13		◆			
01109.MSD03	D3-Submission of des.&manufact.data comp; obtain Engr Notice of no objection" for segments (Wk41/13;13Oct13)	0%	15-Nov-13		◆			
CC-E Milestones								
01109.MSE01i	E1(i) - Contractor's drawing sub, schedules App for hard & soft landscaping wkr, ext drain, svc & E&M (50/13;15Dec13)	0%	15-Dec-13*					◆
01109.MSE01ii	E1(ii) - All Perm Wks Mtrl Ctrl Schedules (GS Cl G4.16.1) (50/13;15Dec13)	0%	02-Jan-14					◆
CC-F Milestones								
01109.MSF01	F1 - Contr dwg submission sch. & perm works mat. Control Sch (as per GS G4.16.1)approved by Eng.(Wk50/13;15Dec13)	0%	15-Dec-13*					◆
CC-A - PRELIMINARIES AND GENERAL REQUIREMENTS								
Design and Approvals								
Temporary Traffic Arrangements								
TKW Station, Entrances and Adits								
TTMS Design & Approval								
01109.PDA1170	TKW - Stage 2A - TTM Design & Approval by SLG	0%	01-Nov-13	30-Nov-13				
TTMS Gazette Notice								
01109.PDA1240	TKW - Stage 2A - Gazette Notice	0%	15-Dec-13	25-Jan-14				



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013				2014
					Oct	Nov	Dec	Jan	
TTMS Signal Modification by EMSD									
01109.PDA1300	TKW - Stage 2A - EMSD Signal Preparation	0%	01-Dec-13	25-Jan-14					
SUW Station, Entrances and Adits									
TTMS Design & Approval									
01109.PDA1340	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 1 - Design & Approval by SLG	0%	04-Dec-13	01-Feb-14					
01109.PDA1350	SUW - Nam Kok Rd - TTM Stage 1 Phase 2 - Design & Approval by SLG	0%	04-Jan-14	01-Feb-14*					
Design									
Permanent Works Design & Approval									
TBM Tunnel Lining (incl Sump Pit)									
01109.PDA2840	Clarification of Tunnel Lining Design	70%	02-Oct-13 A	08-Nov-13					
Management Systems									
Existing Buildings and Structures (EBS) - Submission									
01109.PDA3120	EBS Condition Survey - Investigation to confirm no exist piles/obstructions to proposed TBM tunnels	95%	15-May-13 A	30-Oct-13					
Procurement									
Initial Subcontracts									
01109.PDA35100	Procure and mobilize observation wells plant & equipment	90%	17-Oct-12 A	28-Dec-13					
Concrete Construction Materials									
Precast supplies									
01109.PDA4000	Precast concrete segment manufacture (1st batch) 5%	0%	16-Nov-13	14-Jan-14					
01109.PDA4010	Precast concrete segment delivery & arrival on site (1st batch)	0%	15-Jan-14	15-Mar-14					
01109.PDA4020	Precast concrete segment manufacture (2nd and subsequent batches)	0%	15-Jan-14	02-Nov-15					
Method Statements									
SUW - Method statements Submission									
01109.PDA34900	SUW - Prepare and submit Observation Wells & Pumping Test method statement	50%	25-Sep-13 A	23-Nov-13					
SUW - Method Statements Approval									
01109.PDA35000	Review & Approval of Observation Wells & Pumping Test method statement	0%	25-Nov-13	28-Dec-13					
CC-B - SUW STATION, ENTRANCES AND ADITS									
SUW Station Construction Works									
Site Preparation									
Install Monitoring Instruments/Take Initial Readings									
01109.PDB14710	SUW - Install monitoring instruments/take initial readings; Part 3- GL 12 to 19	0%	16-Nov-13	18-Dec-13					
01109.PDB14720	SUW - Install monitoring instruments/take initial readings; Part 4- GL 19 to 24	0%	16-Nov-13	18-Dec-13					
Archaeological Survey									
01109.PDB14220	Archaeological Survey-cum-Excavation (Stages 2 and 3 Excavation)	99%	13-Nov-12 A	15-Nov-13					
01109.PDB1590	Prepare ASE Report	99%	01-Mar-13 A	15-Nov-13					
01109.PDB14210	Additional Investigation (in "Green Areas")	65%	26-Aug-13 A	15-Nov-13					
01109.PDB14230	Archaeological Physical Survey Complete - Site Handover	0%		15-Nov-13					
01109.PDB1600	Submit Draft ASE report to MTRC	0%		15-Nov-13					
01109.PDB14240	MTRC Comment on Draft ASE report	0%	16-Nov-13	29-Nov-13					
01109.PDB14250	Revise the Draft ASE Report (following MTR comments)	0%	30-Nov-13	06-Dec-13					
01109.PDB14260	Submit Draft ASE Report to AMO	0%		06-Dec-13					



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			2014
					Oct	Nov	Dec	Jan
01109.PDB14270	Review Draft ASE Report by AMO	0%	07-Dec-13	07-Jan-14				
01109.PDB14280	Revise Draft ASE Report (following AMO comments)	0%	08-Jan-14	21-Jan-14				
01109.PDB14290	Submission of Revised ASE Report	0%		21-Jan-14				
01109.PDB14300	Comment on the Revised ASE Report	0%	22-Jan-14	21-Feb-14				
Utilities and Services Diversion								
Utility Diversion Works								
DSD Box Culvert Stormwater drain diversion								
01109.PDB1660A	Prebored H Pile (20nr) work for Box Culvert Diversion	100%	20-Jun-13 A	11-Oct-13 A				
01109.PDB1720A	Casting of Base Slab for Box Culvert Diversion	10%	19-Oct-13 A	10-Jan-14				
01109.PDB1730A	Casting of Wall and Roof Slab for Box Culvert Diversion	0%	08-Nov-13	26-Jan-14				
Fresh water main diversion								
01109.PDB1730	Fresh water mains diversions (Part 3- GL 12 to 19)	0%	16-Nov-13	10-Dec-13				
Station - Excavation and Foundation								
Pre-drilling Works								
Part 3								
01109.PDB2030	Pre-drilling for station foundation piles (Part 3- GL 12 to 19)	75%	07-Jun-13 A	29-Nov-13				
01109.PDB14350	SI Report & Confirmation of Founding Levels (Part 3 - GI 12 to 19)	0%	30-Nov-13	06-Dec-13				
Part 4								
01109.PDB2060	Pre-drilling for station foundation piles (Part 4- GL 19 to 24)	75%	07-Jun-13 A	29-Nov-13				
01109.PDB14360	SI Report & Confirmation of Founding Levels (Part 4 - GI 19 to 24)	0%	30-Nov-13	06-Dec-13				
Pre-bored H- Piling for Permanent Works								
Part 1 (GL 1 to 4)								
01109.PDB2230A	Rig 2 - H- Piling - 75 Nr - (BD approved drawings 07 Mar 13)	88%	22-Jan-13 A	30-Nov-13				
01109.PDB2390	H- Piling; (GL 1 to 4) - Complete	0%		30-Nov-13				
Part 2A (GL 4 - 7.5)								
01109.PDB2260A	Rig 3 - H-Piling - 55 Nr - (BD approved drawings 07 Mar 13)	85%	10-Jan-13 A	30-Nov-13				
01109.PDB2100A	Rig 4 - H-Piling - 65 Nr - (BD approved drawings 07 Mar 13)	100%	30-Jan-13 A	21-Oct-13 A				
01109.PDB2101A	H-Piling; (GL 4 - 7.5) - Complete	0%		30-Nov-13				
Part 2B (GL 7.5 - 12)								
01109.PDB2370A10	Rig 6 - H- Piling - 37Nr - (BD approved drawings 07 Mar 13)	100%	09-Apr-13 A	21-Oct-13 A				
01109.PDB2350	Rig 7 - H- Piling - 71Nr - (BD approved drawings 07 Mar 13)	80%	19-Apr-13 A	31-Dec-13				
01109.PDB2130A	H- Piling; (GL 7.5 - 12) - Complete	0%		31-Dec-13				
Other Areas (GL 23 - 24+)								
01109.PDB2250	Rig 5 - H- Piling - 37Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	75%	13-May-13 A	31-Dec-13				
01109.PDB2101A10	H-Piling (GL23 - 24+) - Complete	0%		31-Dec-13				
Part 3 (GL 12 - 18)								
01109.PDB2180	Rig 6 - H- Piling - 60Nr - (BD approved drawings 07 Mar 13)	10%	14-Oct-13 A	09-Apr-14				
01109.PDB2210	Rig 1 - H- Piling - 60Nr - (BD approved drawings 07 Mar 13)	0%	16-Nov-13	23-May-14				
01109.PDB2270	Rig 3 - H-Piling - 65 Nr - (BD approved drawings 07 Mar 13)	0%	02-Dec-13	13-Jun-14				
Part 4 (GL 18 - 23)								



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			2014
					Oct	Nov	Dec	Jan
01109.PDB2370A	Rig 5 - H- Piling - 35Nr - (BD approved drawings 07 Mar 13)	40%	27-Sep-13 A	31-Dec-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB2330	Rig 4 - H-Piling - 32 Nr - (BD approved drawings 07 Mar 13)	10%	22-Oct-13 A	18-Jan-14	[Gantt bars for Oct, Nov, Dec, Jan]			
01109.PDB2360	Rig 2 - H- Piling - 32Nr - (BD approved drawings 07 Mar 13)	0%	02-Dec-13	11-Mar-14	[Gantt bars for Oct, Nov, Dec, Jan]			
Pile Load Tests								
Part 1								
01109.PDB2400	Pile Load tests; Part 1 - GL 1 to GL 4	0%	02-Dec-13	31-Dec-13	[Gantt bars for Oct, Nov, Dec]			
Other Areas								
01109.PDB14390	Pile Load tests; Beyond GL 23	0%	02-Jan-14	29-Jan-14	[Gantt bars for Jan 2014]			
Part 2								
01109.PDB2440	Pile Load Tests; Part 2 - GL 4 to 12	0%	02-Jan-14	29-Jan-14	[Gantt bars for Jan 2014]			
TBM Launch Shaft Works								
Bored Piling for TBM Shaft								
01109.PDB19010	Bored Piling Works Complete	0%		30-Oct-13	[Milestone diamond]			
Bored Pile P1 - P23								
01109.PDB18970B	TBM Launch shaft - Bored Piling P1-P23 (13nr) - Rig 6A	98%	22-Feb-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB18870B	TBM Launch shaft - Bored Piling P1-P23 (10nr) - Rig 7A	98%	08-Mar-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
Bored Pile P50 - P100								
01109.PDB18930B	TBM Launch shaft - Bored Piling P50-P100 (11nr) - Rig 4A	98%	01-Mar-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB18940B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 5A	98%	01-Mar-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB18890B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 1A	98%	08-Mar-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB18910B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 2A	98%	08-Mar-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB18920B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 3A	98%	01-Apr-13 A	30-Oct-13	[Gantt bars for Oct, Nov, Dec]			
Pipe piling for TBM Shaft Area								
01109.PDB19040	TBM Launch shaft - Gang A - Pipe Piles Zone C - P48 to 70 (23nr) 2d/pile	100%	05-Aug-13 A	11-Oct-13 A	[Gantt bars for Oct, Nov, Dec]			
01109.PDB19030	TBM Launch shaft - Gang A - Pipe Piles Zone C - P25 to 47 (23nr) 2d/pile	100%	02-Sep-13 A	18-Oct-13 A	[Gantt bars for Oct, Nov, Dec]			
01109.PDB19070	TBM Launch shaft - Gang B - Pipe Piles Zone D - P118 to 140 (23nr) 2d/pile	65%	16-Sep-13 A	23-Nov-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB19020	TBM Launch shaft - Gang A - Pipe Piles Zone B1 - P1 to 24 (24nr) 2d/pile	0%	12-Oct-13 A	23-Nov-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB19050	TBM Launch shaft - Gang B - Pipe Piles Zone C - P71 to 93 (23nr) 2d/pile	100%	12-Oct-13 A	06-Nov-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB19060	TBM Launch shaft - Gang B - Pipe Piles Zone C - P94 to 117 (24nr) 2d/pile	0%	26-Oct-13 A	23-Nov-13	[Gantt bars for Oct, Nov, Dec]			
Excavation TBM Shaft Area								
Install observation Wells- TBM Shaft								
01109.PDB3010	TBM Launch shaft - Install observation wells	0%	30-Oct-13	23-Nov-13	[Gantt bars for Oct, Nov, Dec]			
Curtain Grouting- TBM Shaft								
01109.PDB3050	SUW GL 1-7 - Station shaft zone A & B - Grout curtain	40%	30-Sep-13 A	29-Nov-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB3030	SUW GL 1-7 - Station shaft zone B1 & D - Grout curtain	40%	07-Oct-13 A	29-Nov-13	[Gantt bars for Oct, Nov, Dec]			
01109.PDB3020	SUW GL 1-7 - Station shaft zone C - Grout curtain	0%	26-Oct-13	25-Nov-13	[Gantt bars for Oct, Nov, Dec]			
Pumping Tests - TBM Shaft								
01109.PDB3060	TBM Launch shaft - Pumping test	0%	03-Dec-13	16-Dec-13	[Gantt bars for Dec 2013]			
Excavation and lateral Support - TBM Shaft								



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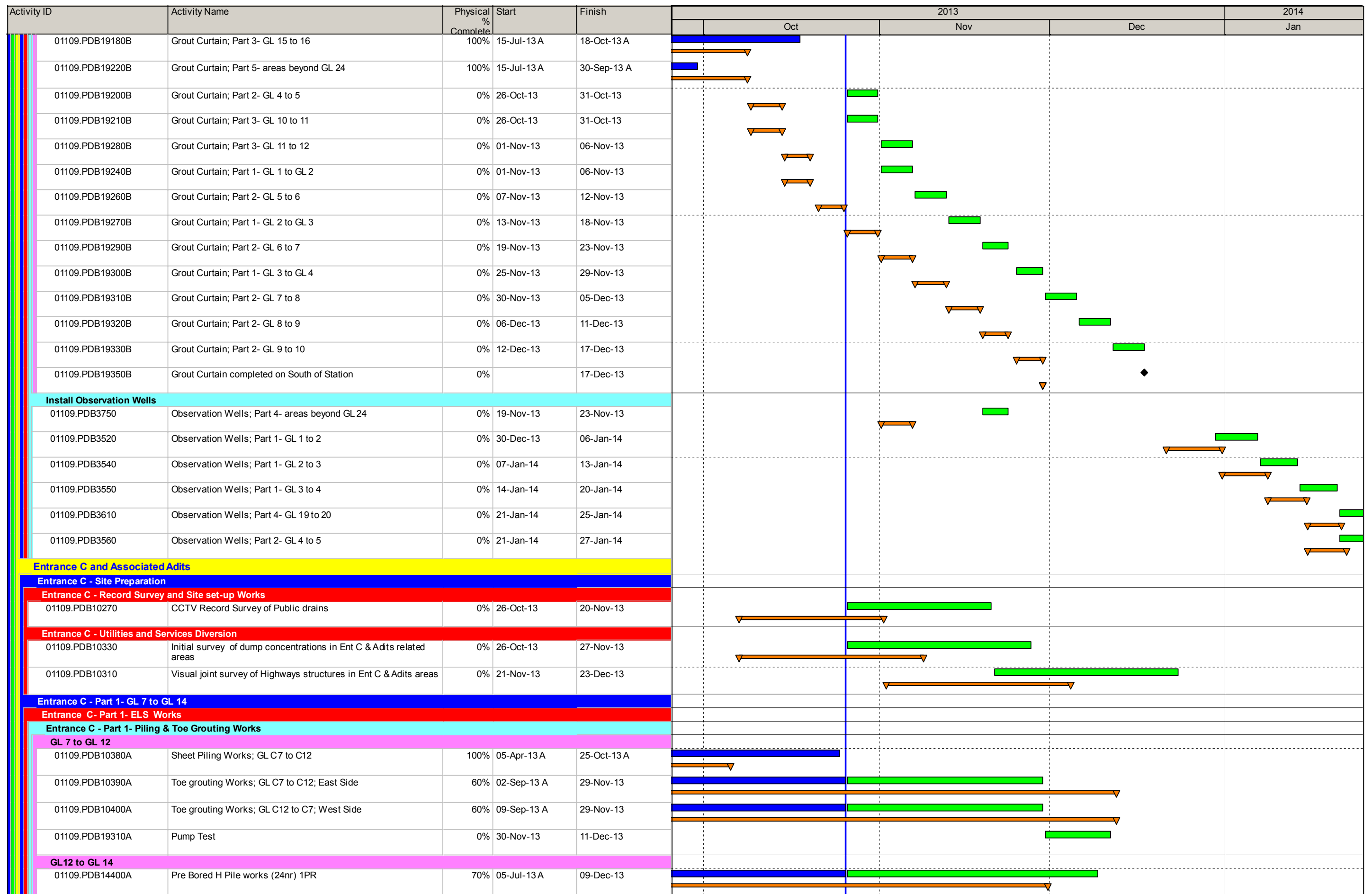
Activity ID	Activity Name	Physical % Complete	Start	Finish	2013				2014
					Oct	Nov	Dec	Jan	
01109.PDB3070	TBM Launch shaft - Pile testing	0%	30-Oct-13	29-Nov-13					
01109.PDB3080	TBM Launch shaft - Install capping beam	0%	29-Nov-13	20-Dec-13					
01109.PDB3210B	TBM Launch shaft - Excavate EGL to +5mPD	0%	20-Dec-13	09-Jan-14					
01109.PDB3100	TBM Launch shaft - Install Temporary Shoring - EGL to +5.0mPD	0%	09-Jan-14	23-Jan-14					
01109.PDB3090	TBM Launch shaft - Excavate +5mPD to 0.0mPD	0%	23-Jan-14	19-Feb-14					
Earthworks									
Curtain Grout Works									
01109.PDB3480	Grout Curtain complete	0%		13-Jan-14					
North of SUW									
01109.PDB3360A	Grout Curtain; Part 4- GL 21 to 22	100%	19-Jul-13 A	11-Oct-13 A					
01109.PDB3280A	Grout Curtain; Part 4- GL 19 to 20	100%	04-Aug-13 A	11-Oct-13 A					
01109.PDB3390A	Grout Curtain; Part 4- GL 22 to 23	100%	27-Sep-13 A	25-Oct-13 A					
01109.PDB3420A	Grout Curtain; Part 4- GL 23 to 24	100%	30-Sep-13 A	21-Oct-13 A					
01109.PDB3210A	Grout Curtain; Part 2- GL 4 to 5	0%	26-Oct-13	06-Nov-13					
01109.PDB3240A	Grout Curtain; Part 3- GL 10 to 11	0%	26-Oct-13	06-Nov-13					
01109.PDB3450A	Grout Curtain; Part 5- areas beyond GL 24	0%	07-Nov-13	18-Nov-13					
01109.PDB3300A	Grout Curtain; Part 3- GL 11 to 12	0%	19-Nov-13	23-Nov-13					
01109.PDB3250A	Grout Curtain; Part 1- GL 1 to GL 2	0%	19-Nov-13	29-Nov-13					
01109.PDB3340A	Grout Curtain; Part 3- GL 12 to 13	0%	25-Nov-13	29-Nov-13					
01109.PDB3380A	Grout Curtain; Part 3- GL 13 to 14	0%	25-Nov-13	29-Nov-13					
01109.PDB3290A	Grout Curtain; Part 2- GL 5 to 6	0%	30-Nov-13	05-Dec-13					
01109.PDB3410A	Grout Curtain; Part 3- GL 14 to 15	0%	30-Nov-13	05-Dec-13					
01109.PDB3310A	Grout Curtain; Part 1- GL 2 to GL 3	0%	06-Dec-13	11-Dec-13					
01109.PDB3440A	Grout Curtain; Part 3- GL 15 to 16	0%	06-Dec-13	11-Dec-13					
01109.PDB3330A	Grout Curtain; Part 2- GL 6 to 7	0%	12-Dec-13	17-Dec-13					
01109.PDB3460A	Grout Curtain; Part 3- GL 16 to 17	0%	12-Dec-13	17-Dec-13					
01109.PDB3350A	Grout Curtain; Part 1- GL 3 to GL 4	0%	18-Dec-13	23-Dec-13					
01109.PDB3470A	Grout Curtain; Part 3- GL 17 to 18	0%	18-Dec-13	23-Dec-13					
01109.PDB3370A	Grout Curtain; Part 2- GL 7 to 8	0%	24-Dec-13	31-Dec-13					
01109.PDB3400A	Grout Curtain; Part 2- GL 8 to 9	0%	02-Jan-14	07-Jan-14					
01109.PDB3430A	Grout Curtain; Part 2- GL 9 to 10	0%	08-Jan-14	13-Jan-14					
01109.PDB19360B	Grout Curtain completed on North of Station	0%		13-Jan-14					
South of SUW									
01109.PDB19340B	Grout Curtain; Part 3- GL 12 to 13	100%	15-Jul-13 A	27-Sep-13 A					
01109.PDB19170B	Grout Curtain; Part 3- GL 14 to 15	100%	15-Jul-13 A	07-Oct-13 A					



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013				2014
					Oct	Nov	Dec	Jan	
01109.PDB14410A	Pre Bored H pile testing	0%	09-Dec-13	23-Dec-13					
01109.PDB19280A	Sheet Piling Works; GL C12 to C14	0%	09-Dec-13	09-Jan-14					
01109.PDB19290C	Toe grouting Works; GL C12 to C14; East Side	0%	23-Dec-13	23-Jan-14					
01109.PDB19300C	Toe grouting Works; GL C14 to C12; West Side	0%	23-Dec-13	23-Jan-14					
01109.PDB10410A	All Piling Works for Ent C & Adits complete	0%		23-Dec-13					
01109.PDB14420A	Pump Test	0%	23-Jan-14	07-Feb-14					
Entrance C - Part 1-Excavation Works									
01109.PDB10440	Excavation & Lateral Support Works; GL C12 to C9	0%	12-Dec-13	08-Jan-14					
01109.PDB10450	Excavation & Lateral Support Works; GL C9 to C7	0%	24-Dec-13	20-Jan-14					
Entrance B and Associated Adits									
Entrance B - Site Preparation									
Entrance B - Record Survey and Site set-up Works									
01109.PDB2040	Pre-drilling for Adit B works (GL11 to 20)	100%	15-Mar-13 A	21-Oct-13 A					
01109.PDB2070	SI Report & Confirmation of Founding Levels	100%	22-Oct-13 A	25-Oct-13 A					
01109.PDB11690	Initial survey of Structures to be retained in Adit B areas	0%	01-Nov-13	16-Nov-13					
01109.PDB11700	Initial survey of dump concentrations in Adit B related areas	0%	05-Dec-13	20-Dec-13					
Entrance B - Utilities and Services Diversion									
01109.PDB11710	Traffic Diversion for site clearance, utility relocation/diversion in Adit B Area	100%	21-Jan-13 A	18-Oct-13 A					
Entrance B - Olympic Avenue and SUW playground Works									
Stage 1									
01109.PDB11770	Divert / protect Temporary utilities	80%	26-Mar-13 A	23-Nov-13					
01109.PDB11780	Pre-Bored H-Piles foundation works (16nr 1PR) (4d/pile)	60%	11-Sep-13 A	06-Dec-13					
01109.PDB11790	Load test according to drawing number 1109/T/302/OAP/C19/201	0%	06-Dec-13	23-Dec-13					
01109.PDB11800	Sheet piling & Toe grouting Works;GL B1 to B5 (2x24m sheetpiles)	0%	23-Dec-13	13-Jan-14					
01109.PDB11810	Sheet piling & Toe grouting Works;GL B5 to B7 (South bound lane areas)(2x18m sheetpiles)	0%	03-Jan-14	28-Jan-14					
Stage 2									
01109.PDB11950	Sheet piling & Toe grouting Works; GL B9 to B11(2x36m sheetpiles)	70%	12-Jul-13 A	15-Nov-13					
01109.PDB11960	Sheet piling & Toe grouting Works; GL B7 to B9 (North bound lane areas)(2x18m sheetpiles)	0%	16-Nov-13	11-Dec-13					
01109.PDB11970	Pumping test	0%	12-Dec-13	28-Dec-13					
01109.PDB11980	Excavate and Install struts & waling	0%	30-Dec-13	03-Mar-14					
Entrance B - Nam Kok Road Works - (Detailed Programme)									
Entrance B - Nam Kok Road Works (Portion 3)									
Nam Kok Road - TTMS - Stage 1 and 2									
TTMS - Stage 1 (Phase 1)									
01109.PDB14650A	Install 410mm dia pipe pile wall. 90nr (assume 3 piles/2 days). 1PR	35%	02-Aug-13 A	13-Jan-14					
01109.PDB19200A	Install grout curtain	0%	01-Nov-13	24-Jan-14					
01109.PDB14690A	Install 6 nr King Posts - (Dwg no. 1109//T/SUW/SHJ/C06/805)	0%	14-Jan-14	29-Jan-14					
Entrance B - Kowloon City Interchange									
Entrance B - Underpinning of KNEC Piers									
Pier P75									



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					Oct	Nov	Dec	Jan
01109.PDB14380A	Additional Trial Pit Excavation for Uncharted Ground Condition	100%	05-Aug-13 A	15-Oct-13 A				
01109.PDB14390A	WSD to procure and connect existing watermain	50%	16-Oct-13 A	14-Nov-13				
01109.PDB12980	P75 - Pre-bored socket H- Piles 609 Dia;4Nos 40m depth;1 PR of low headroom	0%	15-Nov-13*	19-Dec-13				
01109.PDB12990	Install sheet pile cofferdam wall	0%	20-Dec-13	27-Dec-13				
01109.PDB13000	Excavation to waling beam level	0%	28-Dec-13	30-Dec-13				
01109.PDB13010	Install waling beam	0%	31-Dec-13	31-Dec-13				
01109.PDB13020	Excavation to final formation level	0%	02-Jan-14	03-Jan-14				
01109.PDB13030	Construct pile cap	0%	14-Jan-14	06-Feb-14				
Pier P76								
01109.PDB13140	P76 - Pre-bored socket H- Piles 609 Dia;4Nos 40m depth;1 PR of low headroom	0%	20-Dec-13	27-Jan-14				
Pier P46								
01109.PDB12640	General Clearance	100%	14-May-13 A	07-Oct-13 A				
01109.PDB12650	Site investigation Trial Trench & predrilling	100%	08-Oct-13 A	23-Oct-13 A				
CC-C - TKW STATION, ENTRANCES AND ADITS								
Engineers Instructions (EI)								
EI 29 - Provision of Watermain along Kowloon City Road and Sheung Heung Road								
01109.PDC21600A	Install Watermain at Zone 1	76%	29-Jan-13 A	11-Nov-13				
01109.PDC21630A	Install Watermain at Zone 4	92%	29-Jan-13 A	31-Oct-13				
01109.PDC21610A	Install Watermain at Zone 2	88%	10-May-13 A	07-Nov-13				
01109.PDC21640A	Carry out Swabbing and pressure test (zone 3 and 4)	100%	08-Oct-13 A	09-Oct-13 A				
01109.PDC21660A	Connection with existing watermain B	0%		05-Nov-13*				
01109.PDC21640B	Carry out Swabbing and pressure test (zone 1 and 2)	0%	08-Nov-13	12-Nov-13				
01109.PDC21660B	Connection with existing watermain A	0%		12-Nov-13				
Implementation of TTA at TKW								
Revised TTMS Schemes								
01109.PDC28940	Stage 1 - Phase 3 - Wks Area in East; Bus Stop at E3	100%	06-Oct-13 A	08-Oct-13 A				
TKW Station								
Existing Utility Diversion Works								
Water Supply								
01109.PDC1720	TKW-SW101/101P - P89 - Relocate exist 200dia Salt Watermain	100%	25-Jul-13 A	28-Sep-13 A				
Gas Supply								
01109.PDC1940	TKW-GAS602 - Proposed MP315PE Gas Main - Subject to discussion (MTR & Town Gas)	100%	18-Oct-13 A					
Diaphragm Wall EAST side STAGE 1 PHASE 2 TTMS								
Area E1 (MTW Road)								
Area E1 (MTW Rd) - Founding Level Predrill								
01109.PDC2180	E1 (MTW Rd) - Batch 2 - P:11,12,13A,128,134,159 - SI Report & Confirmation of Founding Levels	100%	19-Feb-13 A	30-Sep-13 A				
Area E1 (MTW Rd) - BC Cutter Nr 1								
01109.PDC23440	E1 (MTW Rd) - Crosswall D4-1	100%	26-Sep-13 A	04-Oct-13 A				
01109.PDC28900A	E4 - Crosswall E1-1	100%	07-Oct-13 A	22-Oct-13 A				



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013				2014
					Oct	Nov	Dec	Jan	
01109.PDC24995a10	Modify Cutter 1.2 to 0.8	57%	22-Oct-13 A	29-Oct-13					
01109.PDC23530	E1 (MTW Rd) - Crosswall D3-2	0%	30-Oct-13	01-Nov-13					
01109.PDC23520	E1 (MTW Rd) - Crosswall D4-2	0%	01-Nov-13	04-Nov-13					
Area E1 (MTW Rd) - BC Cutter Nr 2 (Low Headroom cutter)									
01109.PDC23380	E1 (MTW Rd) - Dwall works P132 (under TKW Flyover)	70%	27-Sep-13 A	07-Nov-13					
01109.PDC23390a	E1 (MTW Rd) - Dwall works P13a	100%	04-Oct-13 A	19-Oct-13 A					
01109.PDC23370	E1 (MTW Rd) - Dwall works P12 (under TKW Flyover)	0%	31-Oct-13*	25-Nov-13					
01109.PDC23350a	E1 (MTW Rd) - Dwall works P159a (under TKW Flyover)	0%	11-Nov-13	29-Nov-13					
01109.PDC23330	E1 (MTW Rd) - Dwall works P133 (under TKW Flyover)	0%	30-Nov-13	19-Dec-13					
Area E1 (MTW Rd) - Post Concrete Works									
01109.PDC3210	E1 (MTW Rd) - Dwall testing	19%	03-Jun-13 A	23-Dec-13					
01109.PDC3180	E1 (MTW Rd) - Dwall Toe grouting	1%	23-Sep-13 A	27-Dec-13					
Area E1 (Ent D)									
Area E1 (Ent D) - Founding Level Pedrill									
01109.PDC3380	E1 (Ent D) - Batch 2 - P:5,6,10,9,7,8 - GI Report & Confirmation of Founding Levels	60%	10-Apr-13 A	17-Nov-13					
01109.PDC3270A	E1 (Ent D) - Batch 2 - P9 Trial pit and Founding Level Pedrill	60%	17-Oct-13 A	02-Nov-13					
Area E1 (Ent D) - BC Cutter Nr 2 (Low Headroom cutter)									
01109.PDC23860	E1 (Ent D) - Dwall works P142 (cutter excav)	100%	09-Sep-13 A	25-Sep-13 A					
01109.PDC23860A	E1 (Ent D) - Dwall works P142 (cutter excav, rebar, conc)	10%	17-Oct-13 A	04-Nov-13					
Area E2/E4/E5									
Area E2/E4/E5 - Founding Level Pedrill									
01109.PDC4100	E2 - Founding level Pedrill for Mini Piling (6nr)	33%	05-Sep-13 A	23-Nov-13					
01109.PDC8420	E5 - Founding level Pedrill for Mini Piling (3nr)	0%	15-Nov-13	20-Nov-13					
01109.PDC23060	E4 - Founding level Pedrill for Mini Piling (1nr)	0%	23-Nov-13	27-Nov-13					
Area E2/E4/E5 - BC Cutter Nr 2									
01109.PDC23600	E2 - Crosswall F6-2	0%	10-Dec-13	13-Dec-13					
01109.PDC23840	E2 - Crosswall F5-2	0%	13-Dec-13	19-Dec-13					
01109.PDC23600a	E2 - Crosswall F6-3	0%	19-Dec-13	23-Dec-13					
01109.PDC23800	E2 - Crosswall F1-2	0%	23-Dec-13	31-Dec-13					
01109.PDC23740	E2 - Crosswall F2-1	0%	31-Dec-13	07-Jan-14					
01109.PDC23830	E2 - Crosswall F3-2	0%	07-Jan-14	13-Jan-14					
Area E2/E4/E5 - BC Cutter Nr 1									
01109.PDC23630A	E2 - Dwall works P122	100%	31-Aug-13 A	30-Sep-13 A					
01109.PDC23680B10	E2 - Dwall works P119B (part 2)	100%	09-Oct-13 A	16-Oct-13 A					
01109.PDC23730	E2 - Crosswall F7-1	0%	04-Nov-13	07-Nov-13					
01109.PDC23750	E2 - Crosswall F6-1	0%	07-Nov-13	13-Nov-13					
01109.PDC23710	E2 - Crosswall F8-1	0%	13-Nov-13	19-Nov-13					



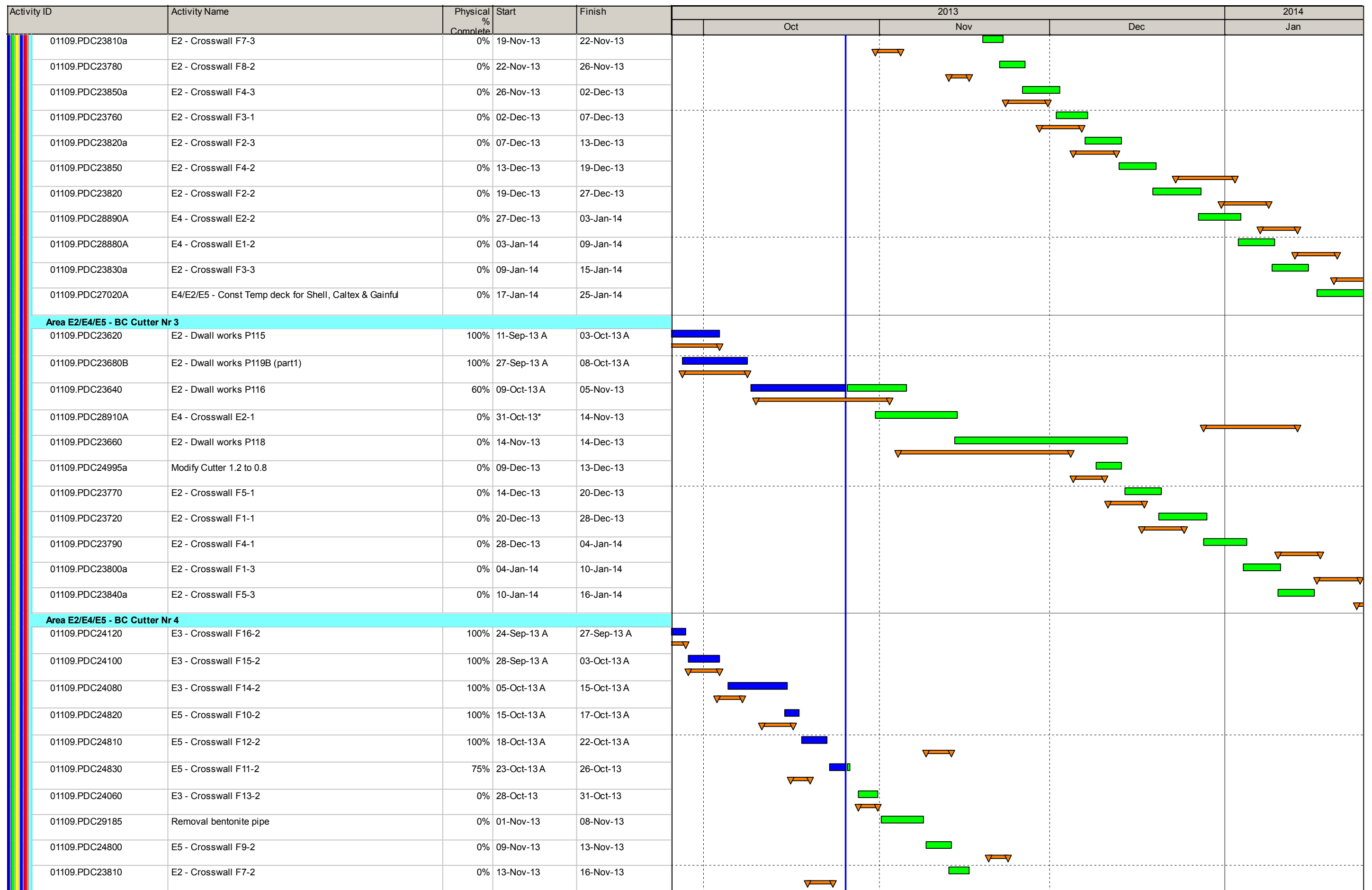
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013				2014
					Oct	Nov	Dec	Jan	
Area E2/E4/E5 - Post Concrete Works									
01109.PDC8860	E5 - Dwall testing	38%	07-Aug-13 A	10-Nov-13					
01109.PDC23120	E5 - Dwall Toe grouting	8%	20-Aug-13 A	16-Nov-13					
01109.PDC23090	E4 - Dwall testing	0%	26-Oct-13	18-Nov-13					
01109.PDC23100	E4 - Dwall Toe grouting	0%	19-Nov-13	25-Nov-13					
01109.PDC5110	E2 - Dwall testing	0%	28-Nov-13	21-Dec-13					
01109.PDC5080	E2 - Dwall Toe grouting	0%	04-Dec-13	24-Dec-13					
Area E3									
Area E3 - Advance Works									
01109.PDC6760A	E3-3 - Trial Pits (Batch 2)	75%	23-Mar-13 A	28-Oct-13					
01109.PDC6750A	E3-3 - Excavation and Construction of Guide Walls (P88a,88b,89,90,91,92,93)	29%	27-Mar-13 A	08-Nov-13					
Area E3 - Founding Level Predrill									
01109.PDC6770	E3-3 - Batch 2 - Founding Level Predrill P88a,88b(89),92,90,93,91(8nr) 2.5PR	75%	05-Apr-13 A	28-Oct-13					
01109.PDC6830	E3-3 - Batch 2 - P: 88a,88b(89),92,90,93,91 - GI Report & Confirmation of Founding Levels	57%	26-Apr-13 A	28-Oct-13					
01109.PDC6800A	E3-3 - Founding Level for Mini Piling (5nr) 3PR	0%	28-Oct-13	04-Nov-13					
01109.PDC6060	E3-2 - Founding Level for Mini Piling (3nr) 2PR	0%	04-Nov-13	09-Nov-13					
01109.PDC6040	E3-1 - Founding Level for Mini Piling (4nr) 2PR	0%	09-Nov-13	15-Nov-13					
Area E3 - BC Cutter Nr 5									
01109.PDC24570	E3 - Dwall works P91	100%	26-Sep-13 A	04-Oct-13 A					
01109.PDC24500	E3 - Crosswall G11-1	0%	16-Nov-13	23-Nov-13					
Area E3 - Post Concrete Works									
01109.PDC5940	E3-1 - Dwall testing	58%	23-Jul-13 A	05-Nov-13					
01109.PDC8990	E3-3 - Dwall Toe grouting	13%	24-Jul-13 A	23-Nov-13					
01109.PDC6650	E3-2 - Dwall Toe grouting	20%	06-Aug-13 A	12-Nov-13					
01109.PDC29175	Trench excavation and lay bentonite pipes	100%	02-Sep-13 A	04-Oct-13 A					
01109.PDC29165	Trench excavation and installation of sheet piles before TTA Stage 1 Phase 3 (36 lm)	100%	02-Sep-13 A	28-Sep-13 A					
01109.PDC28950A	E3-2 & E3-3 - Construct Bus Stop in Area E3 (on Temp Decking)	100%	11-Sep-13 A	05-Oct-13 A					
01109.PDC28960A	E3-2 & E3-3 - Relocate Bus Stop from E6 to E3-2 & E3-3	100%		05-Oct-13 A					
01109.PDC28975A	E3-2 & E3-3 - Bus Stop relocated - Ready for TTMS Stage 1 Phase 3	100%	06-Oct-13 A						
01109.PDC6820	E3-1 - Dwall Toe grouting	0%	26-Oct-13	15-Nov-13					
Area E6									
Area E6 - Advance Works									
01109.PDC8960	E6 - Batch 2 - Excavation and construction of Guide walls	75%	20-Apr-13 A	29-Oct-13					
01109.PDC8980	E6 - Batch 1 - Excavation and construction of Guide walls	67%	01-Jun-13 A	30-Oct-13					
Area E6 - Founding Level Predrill									
01109.PDC9130	E6 - Batch 1 - Founding Level Predrill - P74a,75,76,77,78,79 (8nr) 2PR	63%	19-Jun-13 A	29-Oct-13					
01109.PDC9070	E6 - Batch 2 - E6 - P: 83,87,84,82,86,81,85,80 - GI Report & Confirmation of Founding Levels	63%	09-Jul-13 A	28-Oct-13					



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					Oct	Nov	Dec	Jan
01109.PDC9140	E6 - Batch 1 - P: 75,79,76,78,77,74a - GI Report & Confirmation of Founding Levels	50%	30-Jul-13 A	29-Oct-13				
01109.PDC9080	E6 - Batch 1 - Founding Level Predrill for Mini Piling (6nr)	50%	27-Aug-13 A	04-Nov-13				
01109.PDC9090	E6 - Batch 2 - Founding Level Predrill for Mini Piling (2nr)	25%	22-Oct-13 A	02-Nov-13				
Diaphragm Wall EAST side STAGE 1 PHASE 3 - E3 Bus Stop Move								
Area E3								
01109.PDC29165A	Trench excavation and installation of sheet piles (101 lm)	58%	14-Sep-13 A	13-Nov-13				
Area E3 - Roof Slab Structure								
01109.PDC29205A	Pumping Test & Result Approval	0%	25-Nov-13*	07-Dec-13				
01109.PDC29225A	Excavation to 250mm below strut S1	0%	25-Nov-13*	30-Nov-13				
01109.PDC29235A	Install strut and waler	0%	02-Dec-13	14-Dec-13				
01109.PDC29245A	Bay A - Excavation	0%	09-Dec-13	21-Dec-13				
01109.PDC29215A	Bay B - Excavation	0%	16-Dec-13	31-Dec-13				
01109.PDC29275A	Bay A - Lean concrete, coupler hacking, formwork against to sheetpile	0%	23-Dec-13	27-Dec-13				
01109.PDC29295A	Bay A - Rebar cage, formwork and roof slab concrete	0%	28-Dec-13	14-Jan-14				
01109.PDC29305A	Bay B - Lean concrete, coupler hacking, formwork against to sheetpile	0%	02-Jan-14	04-Jan-14				
01109.PDC29315A	Bay B - Rebar cage, formwork and roof slab concrete	0%	06-Jan-14	21-Jan-14				
01109.PDC29285A	Bay A - Waterproofing, retaining wall construction, backfilling and reinstate pavement	0%	15-Jan-14	21-Jan-14				
01109.PDC29325A10	Bus stop preparation for Stage 2A	0%	15-Jan-14	25-Jan-14				
01109.PDC29325A	Bay B - Waterproofing, retaining wall construction, backfilling and reinstate pavement	0%	22-Jan-14	25-Jan-14				
Area E6								
Area E6 - BC Cutter Nr 5								
01109.PDC24880	E6 - Dwall works P86	82%	15-Oct-13 A	29-Oct-13				
01109.PDC24550	E3 - Dwall works P90	0%	23-Oct-13 A	02-Nov-13				
01109.PDC24860	E6 - Dwall works P84	0%	31-Oct-13	19-Nov-13				
01109.PDC24850	E6 - Dwall works P87	0%	22-Nov-13	05-Dec-13				
01109.PDC24900	E6 - Dwall works P85	0%	06-Dec-13	27-Dec-13				
01109.PDC24350	E6 - Dwall works P88A	0%	28-Dec-13	08-Jan-14				
01109.PDC28930	E6 - Dwall works P88B	0%	09-Jan-14	18-Jan-14				
01109.PDC24840	E6 - Dwall works P83	0%	20-Jan-14	11-Feb-14				
Area E6 - BC Cutter Nr 4								
01109.PDC24950	E6 - Dwall works P78	0%	18-Nov-13	06-Dec-13				
01109.PDC24960	E6 - Dwall works P77	0%	07-Dec-13	28-Dec-13				
01109.PDC24930	E6 - Dwall works P79	0%	30-Dec-13	18-Jan-14				
01109.PDC24940	E6 - Dwall works P76	0%	20-Jan-14	08-Feb-14				
Transition Works from D Wall Stg 1 Phase 2/3 to Stage 2A								
01109.PDC11050	E5 - Remove concrete canopy at BMW Garage	0%	29-Dec-13	16-Jan-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5D, Page 12 of 14
 THREE MONTH ROLLING PROGRAMME - OCT 13 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:04-Nov-13

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (Sep 2013)
- Milestone
- MP Rev.1 Milestone
- Sep 2013 Milestone

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			2014
					Oct	Nov	Dec	Jan
Entrance B								
01109.PDC29195A	Ent B - Installation of sheet piles	0%	14-Nov-13*	07-Dec-13				
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION								
Procurement of Specialised Construction Machinery								
Off-site								
01109.PDD1040	TBM Down track SUW to HOM - TBM Manufacture	86%	09-Jan-13 A	23-Jan-14				
01109.PDD1030	STP (Manufacture)	83%	17-Jan-13 A	13-Dec-13				
01109.PDD1050	TBM Up track SUW to HOM - TBM Manufacture	20%	30-Aug-13 A	21-Aug-14				
01109.PDD1060	STP (Deliver)	0%	14-Dec-13	13-Mar-14				
Specialised Construction Machinery Site Assembly and Related Establishment								
Specialised Construction Machinery Site Assembly and Related Establishment								
01109.PDD1140	SUW - Grout behind Bored Pile Wall	0%	30-Dec-13	04-Feb-14				
Underpinning of EKW Pier 15 and Foundation Removal								
Site Preparation (in exist central reservation)								
01109.PDD2268A	Pre-Bored H-Pile Work (5nr - P3,P4,P7,P8,AP1)	82%	13-Aug-13 A	16-Nov-13				
01109.PDD2300	Pre-Bored H-Pile Work (4nr - P1,P2,P5,P6)	64%	18-Sep-13 A	16-Nov-13				
01109.PDD3950	Storm Drain Diversion including Manholes	70%	19-Sep-13 A	27-Nov-13				
01109.PDD2350	Fresh Water Diversion	100%	25-Sep-13 A	16-Oct-13 A				
01109.PDD2310	Salt Water Diversion	60%	14-Oct-13 A	23-Nov-13				
01109.PDD2330	Pile testing (incl. point load test)	0%	18-Nov-13	28-Nov-13				
TTA Stage 1: Phase 3								
Preparation Works								
01109.PDD2300A	Stage 1 - Phase 3 - Pier 15	0%	03-Nov-13*					
01109.PDD2400	Trench Excavation for sheet pile works	0%	04-Nov-13	19-Nov-13				
01109.PDD2340	Install eastern part of sheet pile cofferdam wall (stage 2)	0%	20-Nov-13	16-Dec-13				
01109.PDD2390	Abandon existing 15" Salt Water Main TKW-SW504	0%	23-Nov-13	27-Nov-13				
01109.PDD2410	Toe grouting to cofferdam wall	0%	29-Nov-13	19-Dec-13				
Underpinning Works								
01109.PDD2430	Excavate to 1st ringbeam level	0%	20-Dec-13	24-Dec-13				
01109.PDD2440	Install 1st ringbeam	0%	27-Dec-13	31-Dec-13				
01109.PDD2450	Excavate to 2nd ringbeam level	0%	02-Jan-14	06-Jan-14				
01109.PDD2460	Install 2nd ringbeam	0%	07-Jan-14	10-Jan-14				
01109.PDD2470	Excavate to final formation level	0%	11-Jan-14	15-Jan-14				
01109.PDD2480	Apply mass concrete fill to underside of the pile cap	0%	16-Jan-14	21-Jan-14				
01109.PDD2490A	Install temporary strut between pier and sheet pile	0%	22-Jan-14	28-Jan-14				
Bored Pile Removal								
01109.PDD2580A	Grouting for Pile Removal	0%	29-Nov-13*	06-Jan-14				
01109.PDD2581A	Mobilization and Set up	0%	15-Jan-14*	16-Jan-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5D, Page 13 of 14
THREE MONTH ROLLING PROGRAMME - OCT 13 TASK filters: 3MRP
Dates, MTRC 1109 - 3MRP.
Printed:04-Nov-13

- Actual Work
- Remaining Work
- Master Programme Rev.1
- ▶ Last Month Update (Sep 2013)
- ◆ Milestone
- MP Rev.1 Milestone
- ▼ Sep 2013 Milestone

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			2014
					Oct	Nov	Dec	Jan
01109.PDD2580	Existing Bored Pile B17 - 1.0m dia - Remove bored pile in way of tunnel	0%	17-Jan-14	12-Feb-14				
Ground Treatment between TKW and Shansi Street								
01109.PDD2810	Investigate & confirm clearance of existing piles and other obstructions	95%	08-Jul-13 A	30-Oct-13				
01109.PDD2820	Engineer's Approval of pile investigation result	0%	31-Oct-13	13-Nov-13				
01109.PDD2830	Preparation Works	0%	14-Nov-13	27-Nov-13				
01109.PDD2840	Trial trench and utility detection	0%	28-Nov-13	11-Dec-13				
01109.PDD3960A	Site investigation works	0%	12-Dec-13	31-Dec-13				
01109.PDD2860	Jet Grouting columns RIG 2	0%	02-Jan-14	31-Mar-14				
01109.PDD2850	Jet grouting columns RIG 1	0%	02-Jan-14	31-Mar-14				
To Kwa Wan Ancillary Building								
Site Preparation								
Demolition & Site Clearance								
01109.PDD2880A	TKA - Trench Excavation, Sheet Pile & Walling	100%	19-Jun-13 A	09-Oct-13 A				
01109.PDD2920	TKA - Install & commission new IPB 600 Gas Main - TKA-GAS101	86%	02-Oct-13 A	31-Oct-13				
01109.PDD2910	TKA - Install new Fresh Water main - TKA-FW101P	17%	22-Oct-13 A	25-Nov-13				
01109.PDD2890	TKA - Install new Salt Water main - TKA-SW101P	0%	11-Nov-13	30-Nov-13				
01109.PDD2900	TKA - CLP Power supply line Permanent diversion (TKA-CLP101,102,103)	0%	02-Dec-13	31-Dec-13				
01109.PDD2870A	TKA - Hoarding & site survey (1109.W9b)	0%	06-Jan-14	11-Jan-14*				
01109.PDD2880B	TKA - Demolition and site clearance (1109.W9b)	0%	13-Jan-14	12-Feb-14				



Samsung - Hsin Chong Joint Venture

MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5D, Page 14 of 14

THREE MONTH ROLLING PROGRAMME - OCT 13 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

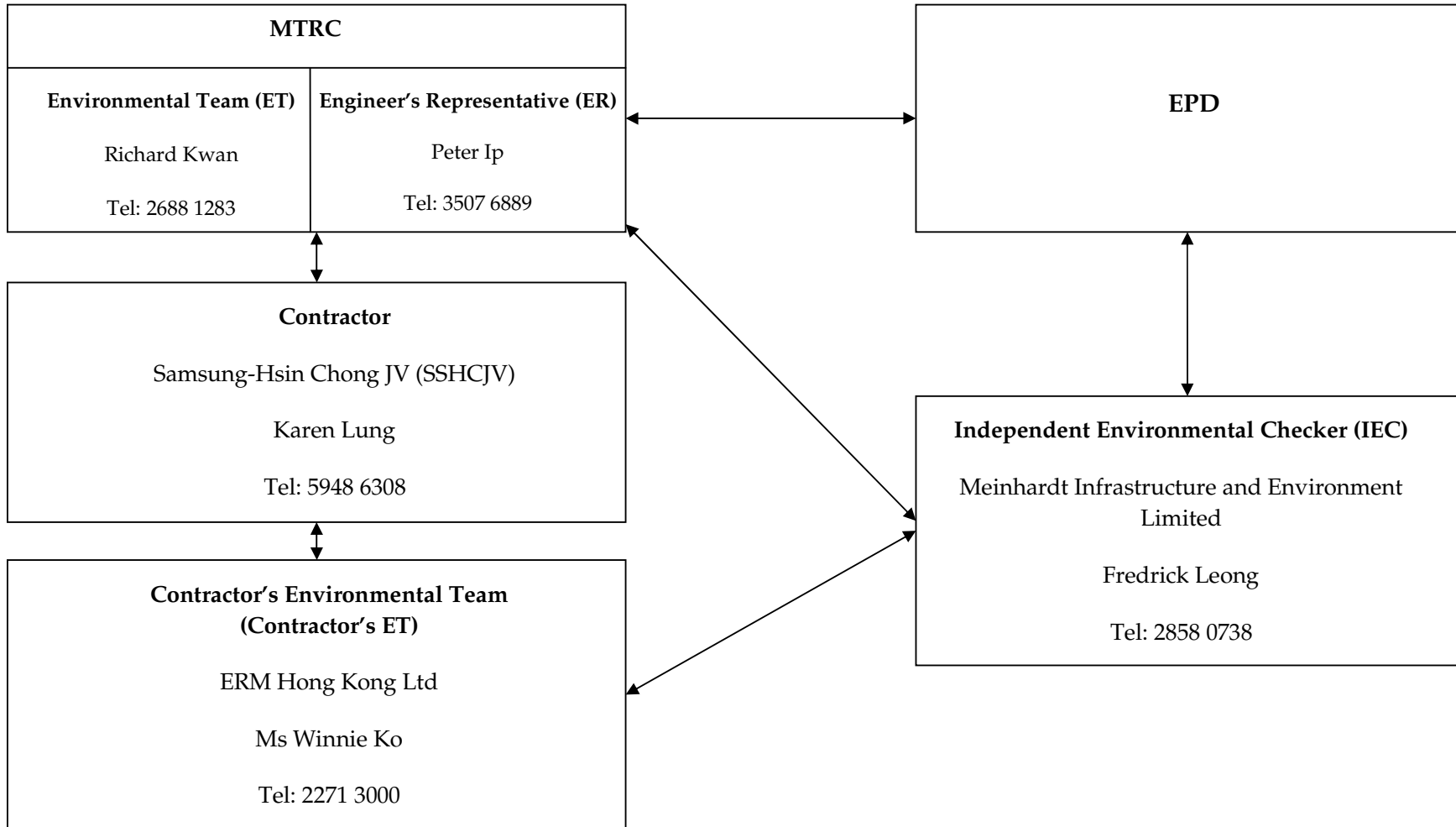
Printed:04-Nov-13

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (Sep 2013)
- Milestone
- MP Rev.1 Milestone
- Sep 2013 Milestone

Annex C

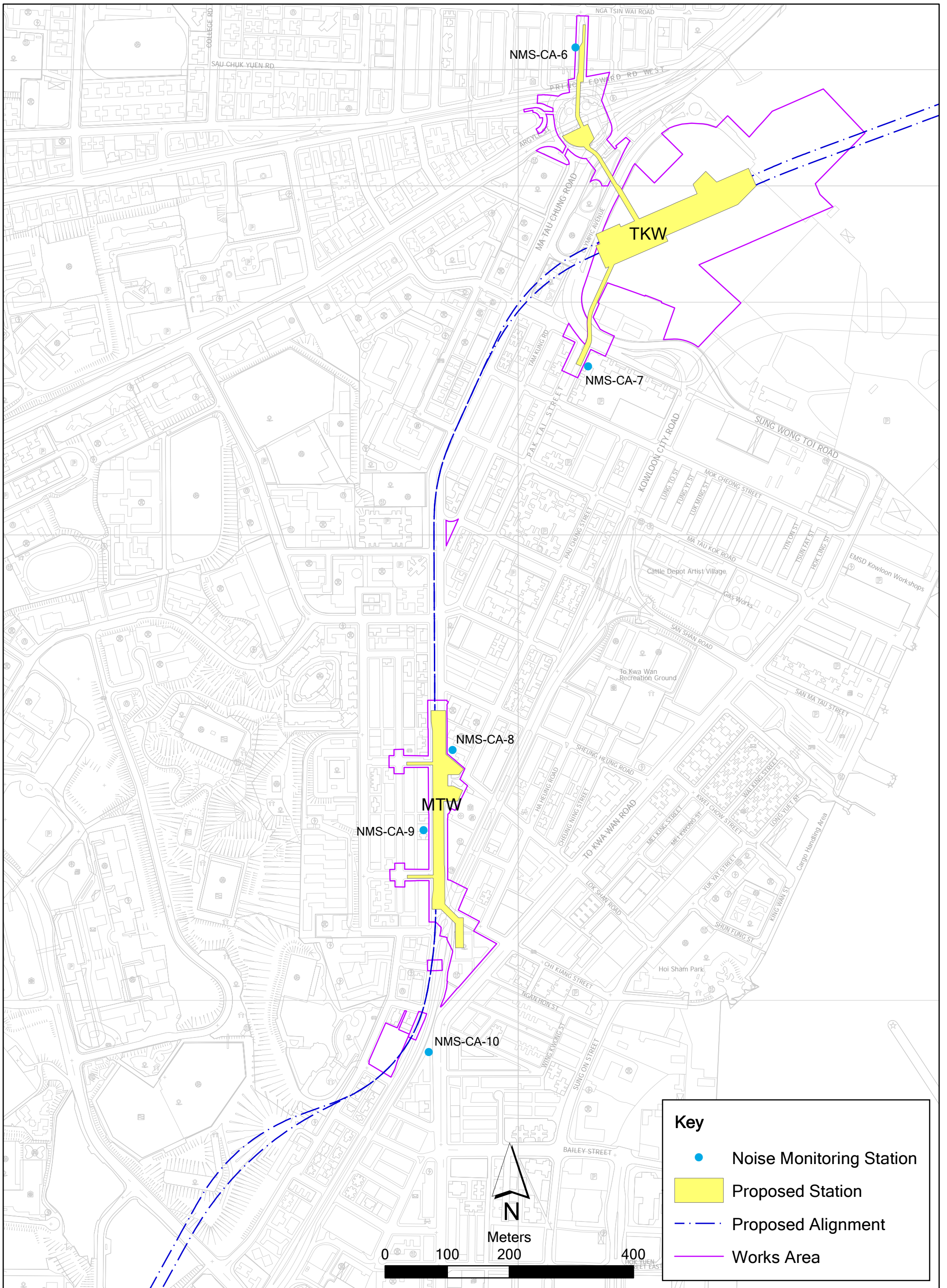
Project Organization Chart and Contact Detail

Annex C Project Organization of SCL Works Contract 1109



Annex D

Locations of Noise and Dust Monitoring Stations

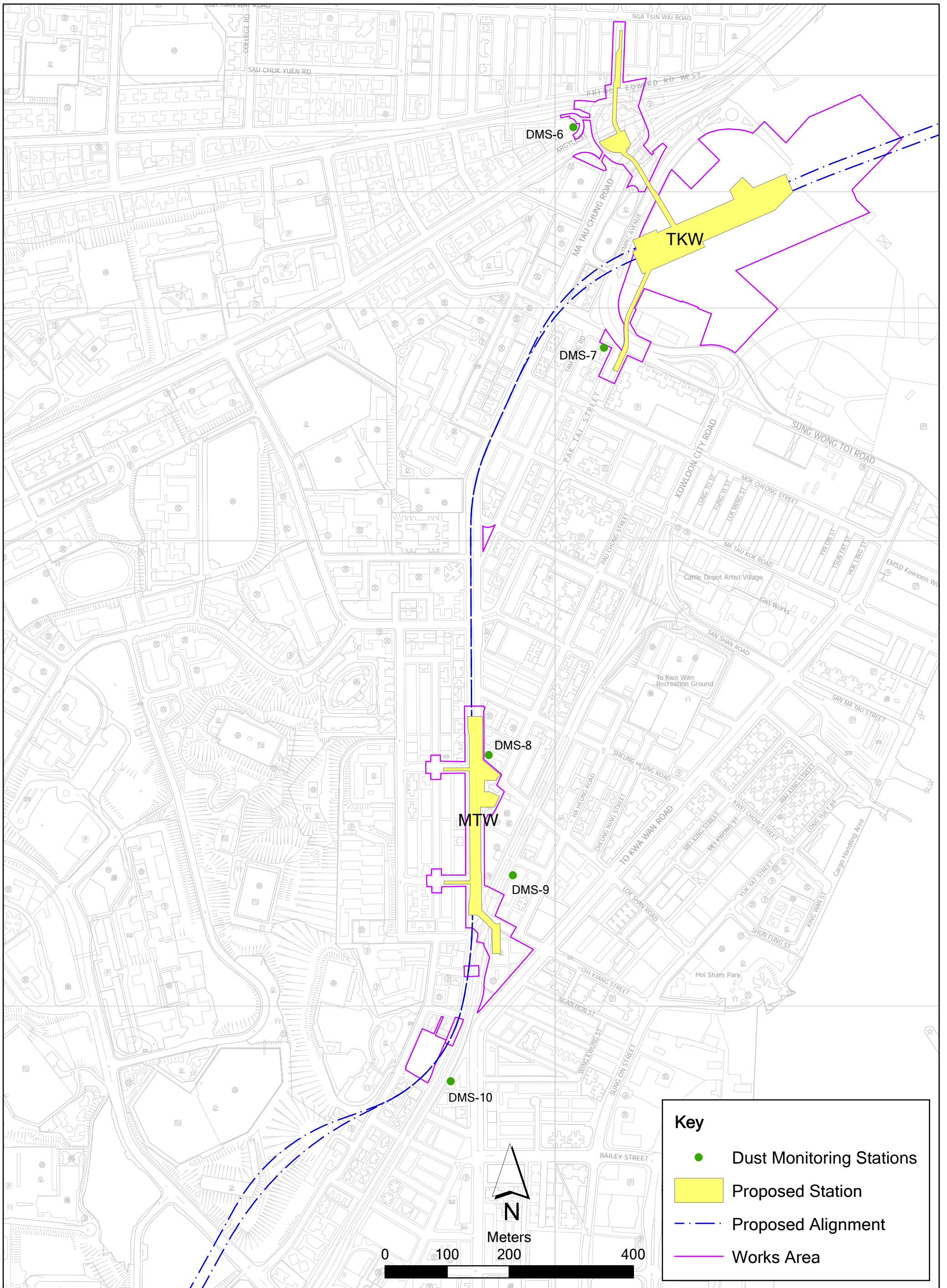


Annex D1

Location of Regular Construction Noise Monitoring Stations

Environmental
 Resources
 Management



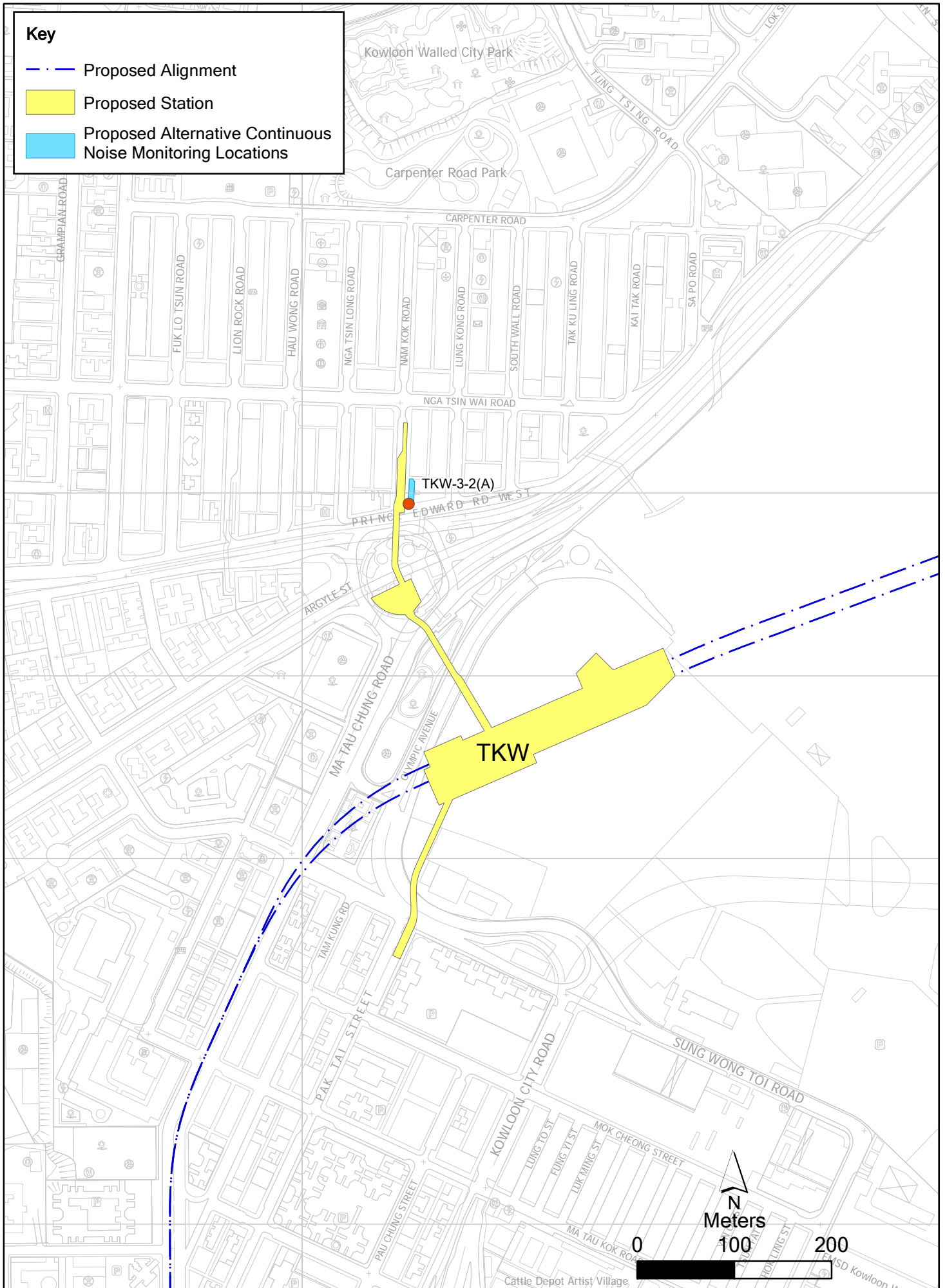


Key

— · — Proposed Alignment

■ Proposed Station

■ Proposed Alternative Continuous Noise Monitoring Locations



Annex D3

Proposed Continuous Noise Monitoring Locations

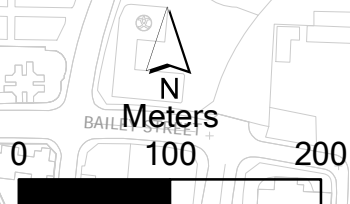
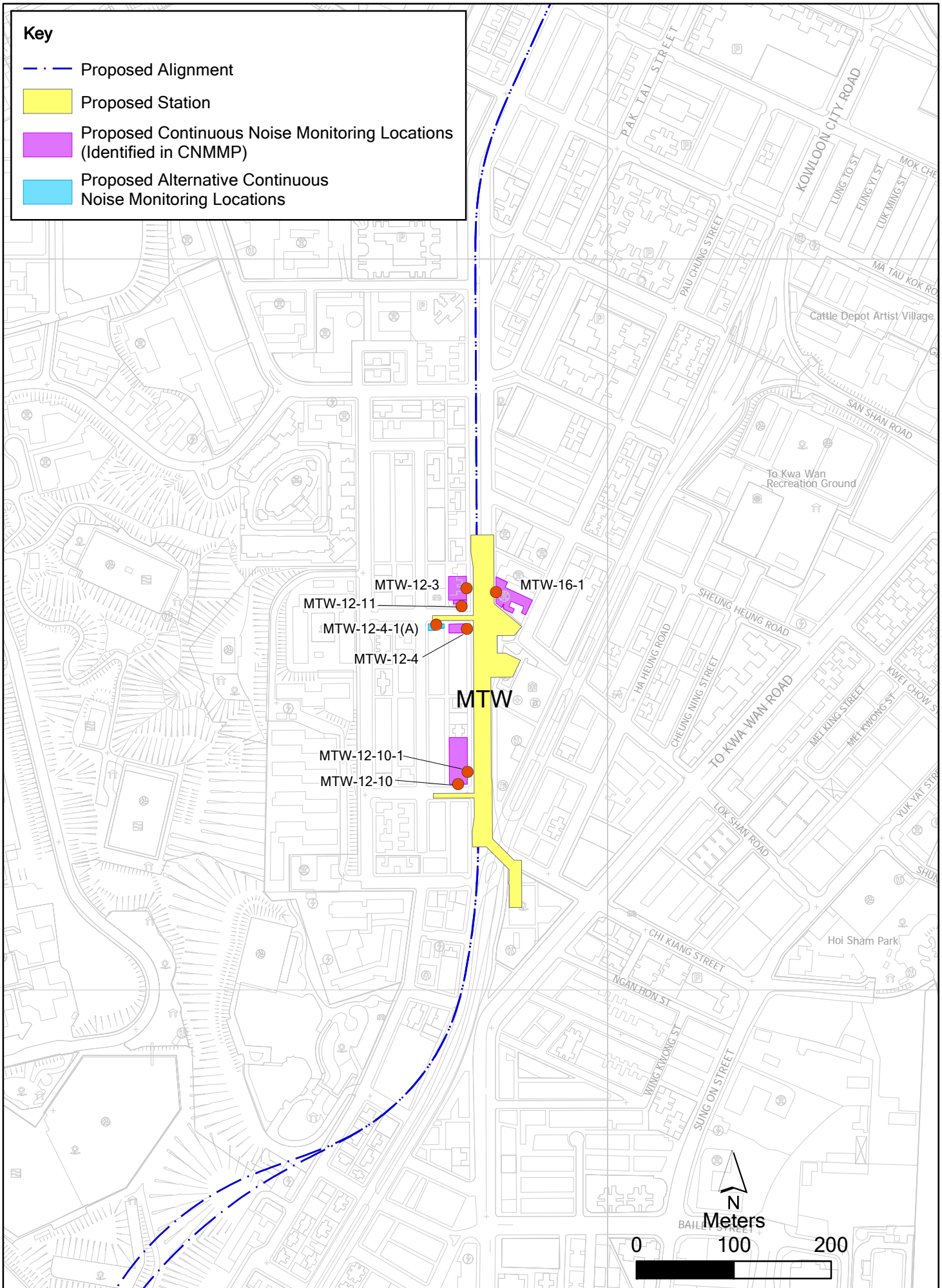
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Noise_Monitoring_Locations_TKW.mxd
Date: 10-Oct-12

**Environmental
Resources
Management**



Key

- Proposed Alignment
- Proposed Station
- Proposed Continuous Noise Monitoring Locations (Identified in CNMMP)
- Proposed Alternative Continuous Noise Monitoring Locations



Annex E

Monitoring Schedule of the Reporting Period and the Next Month

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-6 & NMS-CA-6
Monitoring Month : October 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-7 & NMS-CA-7
Monitoring Month : October 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-8 & NMS-CA-8
Monitoring Month : October 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-9 & NMS-CA-9
Monitoring Month : October 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-10 & NMS-CA-10
Monitoring Month : October 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-6 & NMS-CA-6
Monitoring Month : November 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-7 & NMS-CA-7
Monitoring Month : November 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-8 & NMS-CA-8
Monitoring Month : November 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-9 & NMS-CA-9
Monitoring Month : November 2013**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Construction Air Quality and Regular Noise Monitoring Schedule**

**DMS-10 & NMS-CA-10
Monitoring Month : November 2013**

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment	Calibrator	Last Calibration Date	Next Calibration Date
<i>24-hr TSP</i>		HVS			
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-9	No. 26 Kowloon City Road	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014

Noise Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NMS-CA-6, NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	12 July 2013	12 July 2014
	Sound Level Meter	Rion NL-18 (S/N 00360030)	12 July 2013	12 July 2014
NMS-CA-8, MTW-16-1	Calibrator	Rion NC-73 (S/N 10997142)	12 July 2013	12 July 2014
	Sound Level Meter	Rion NL-31 (S/N 00983400)	30 January 2013	30 January 2014

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-6(Katherine Building)
Calibrated by : K.T.Ho
Date : 08/03/2013

Sampler

Model : TE-5170
Serial Number : S/N 0107

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
Ta(K) : 298

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.7	3.599	1.735	54	54.5
2 13 holes	9.7	3.146	1.518	47	47.5
3 10 holes	7.5	2.766	1.336	40	40.4
4 7 holes	4.6	2.166	1.050	30	30.3
5 5 holes	2.9	1.720	0.836	22	22.2

Sampler Calibration Relationship

Slope(m): 36.090 Intercept(b): -7.760 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-7(Parc 22)
 Calibrated by : P.F.Yeung
 Date : 08/03/2013

Sampler

Model : TE-5170
 Serial Number : S/N 3574

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1023
 Ta(K) : 295

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.5	3.571	1.721	62	62.6
2 13 holes	9.7	3.146	1.518	55	55.6
3 10 holes	7.7	2.803	1.354	48	48.5
4 7 holes	4.8	2.213	1.072	38	38.4
5 5 holes	3.0	1.749	0.850	28	28.3

Sampler Calibration Relationship

Slope(m): 39.220 Intercept(b): -4.449 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan

Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-8(SHK Good Shepherd Primary School)
 Calibrated by : P.F.Yeung
 Date : 08/03/2013

Sampler

Model : TE-5170
 Serial Number : S/N 3572

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1023
 Ta(K) : 295

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.4	3.557	1.714	62	62.6
2 13 holes	9.7	3.146	1.518	55	55.6
3 10 holes	7.6	2.784	1.345	48	48.5
4 7 holes	5.0	2.258	1.094	38	38.4
5 5 holes	3.0	1.749	0.850	28	28.3

Sampler Calibration Relationship

Slope(m): 39.920 Intercept(b): -5.411 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-9(No. 26 Kowloon City Road)
Calibrated by : P.F.Yeung
Date : 08/03/2013

Sampler

Model : TE-5170
Serial Number : S/N 0814

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1023
Ta(K) : 295

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.7	3.599	1.735	66	66.7
2 13 holes	9.9	3.178	1.533	59	59.6
3 10 holes	7.7	2.803	1.354	52	52.5
4 7 holes	4.8	2.213	1.072	40	40.4
5 5 holes	2.7	1.660	0.807	30	30.3

Sampler Calibration Relationship

Slope(m): 39.740 Intercept(b): -1.784 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan

Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-10(Chat Ma Mansion)
 Calibrated by : P.F.Yeung
 Date : 08/03/2013

Sampler

Model : TE-5170
 Serial Number : S/N 3573

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1023
 Ta(K) : 295

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.8	3.470	1.673	61	61.6
2 13 holes	9.6	3.129	1.510	54	54.5
3 10 holes	7.5	2.766	1.336	48	48.5
4 7 holes	4.9	2.236	1.083	37	37.4
5 5 holes	2.1	1.464	0.714	21	21.2

Sampler Calibration Relationship

Slope(m):41.960 Intercept(b):8.359 Correlation Coefficient(r):0.9995

Checked by: Magnum Fan

Date: 10/03/2013

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-6(Katherine Building)
Calibrated by : K.T.Ho
Date : 06/09/2013

Sampler

Model : TE-5170
Serial Number : S/N 0107

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1013
Ta(K) : 299

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.6	3.554	1.713	53	53.1
2 13 holes	9.6	3.102	1.497	46	46.1
3 10 holes	7.3	2.705	1.307	39	39.0
4 7 holes	4.5	2.124	1.029	30	30.0
5 5 holes	3.0	1.734	0.843	24	24.0

Sampler Calibration Relationship

Slope(m): 33.432 Intercept(b): -4.393 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-7(Parc 22)
 Calibrated by : P.F.Yeung
 Date : 06/09/2013

Sampler

Model : TE-5170
 Serial Number : S/N 3574

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1013
 Ta(K) : 299

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.0	3.458	1.667	62	61.9
2 13 holes	9.2	3.028	1.462	54	53.9
3 10 holes	6.9	2.622	1.268	48	47.9
4 7 holes	4.2	2.046	0.992	39	38.9
5 5 holes	2.1	1.447	0.705	30	29.9

Sampler Calibration Relationship

Slope(m):32.873 Intercept(b):6.455 Correlation Coefficient(r):0.9993

Checked by: Magnum Fan

Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-8(SHK Good Shepherd Primary School)
 Calibrated by : P.F.Yeung
 Date : 06/09/2013

Sampler

Model : TE-5170
 Serial Number : S/N 3572

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1013
 Ta(K) : 299

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.8	3.429	1.654	60	59.9
2 13 holes	9.4	3.061	1.477	53	52.9
3 10 holes	7.1	2.660	1.2887	46	45.9
4 7 holes	4.5	2.118	1.026	37	36.9
5 5 holes	2.8	1.671	0.812	28	27.9

Sampler Calibration Relationship

Slope(m):37.412 Intercept(b): -2.079 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-9(No. 26 Kowloon City Road)
 Calibrated by : P.F.Yeung
 Date : 06/09/2013

Sampler

Model : TE-5170
 Serial Number : S/N 0814

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1013
 Ta(K) : 299

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.3	3.501	1.688	66	65.9
2 13 holes	9.5	3.077	1.485	56	55.9
3 10 holes	7.0	2.641	1.277	47	46.9
4 7 holes	4.2	2.046	0.992	36	35.9
5 5 holes	2.7	1.640	0.798	27	26.9

Sampler Calibration Relationship

Slope(m):42.945 Intercept(b): -7.271 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan

Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-10(Chat Ma Mansion)
 Calibrated by : P.F.Yeung
 Date : 06/09/2013

Sampler

Model : TE-5170
 Serial Number : S/N 3573

Calibration Office and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1013
 Ta(K) : 299

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.2	3.341	1.611	58	57.9
2 13 holes	9.0	2.995	1.446	52	51.9
3 10 holes	7.0	2.641	1.277	46	45.9
4 7 holes	4.5	2.118	1.026	37	36.9
5 5 holes	2.8	1.671	0.812	28	27.9

Sampler Calibration Relationship

Slope(m):37.167 Intercept(b):-1.759 Correlation Coefficient(r):0.9994

Checked by: Magnum Fan

Date: 09/09/2013



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149	0.9957	0.6896	0.8851
0.9925	0.9693	2.0010	0.9915	0.9683	1.2517
0.9903	1.0858	2.2372	0.9893	1.0847	1.3995
0.9893	1.1345	2.3464	0.9883	1.1334	1.4678
0.9840	1.3666	2.8299	0.9830	1.3652	1.7702
Qstd slope (m) = 2.09107			Qa slope (m) = 1.30939		
intercept (b) = -0.02838			intercept (b) = -0.01775		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			x axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

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

Certificate of Calibration

校正證書

Certificate No. : C134307
證書編號**ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1709)**

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10997142
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 12 July 2013**TEST RESULTS / 測試結果**

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : K C LeeCertified By : 
核證 : K M WuDate of Issue : 15 July 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134307
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.
- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.7	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.988	1 kHz ± 2 %	± 1

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

Note :

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4 F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

Certificate of Calibration 校正證書

Certificate No. : C134309
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1709)

Description / 儀器名稱 : Precision Integrating Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-18
Serial No. / 編號 : 00360030
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 12 July 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : K C Lee

Certified By : 
核證 : K M Wu

Date of Issue : 15 July 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134309
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the internal standard (After Adjustment) was performed before the test from 6.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	* 93.1	± 0.7

* Out of Mfr's Spec.

- 6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	94.1	± 0.7

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
60 - 120	LA	A	Fast	94.00	1	94.2 (Ref.)
				104.00		104.2
				114.00		114.2

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134309
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	94.1	Ref.
			Slow			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
50 - 110	LA	A	Fast	106.00	Continuous	106.0	Ref.
	LAmx				200 ms	105.1	-1.0 ± 1.0
	LA	Slow	Continuous		106.0	Ref.	
	LAmx		500 ms		102.4	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LA	A	Fast	94.00	31.5 Hz	54.4	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	$+1.2 \pm 1.0$
					4 kHz	95.1	$+1.0 \pm 1.0$
					8 kHz	93.0	$-1.1 (+1.5 ; -3.0)$
					12.5 kHz	89.8	$-4.3 (+3.0 ; -6.0)$

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134309

證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LC	C	Fast	94.00	31.5 Hz	91.0	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	100.0	± 0.5
								90	90.0	± 0.5
								80	79.5	± 1.0
								70	69.7	± 1.0
								1/10 ²		
1/10 ³										
1/10 ⁴										

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 307435

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz : ± 0.35 dB
 250 Hz - 500 Hz : ± 0.30 dB
 1 kHz : ± 0.20 dB
 2 kHz - 4 kHz : ± 0.35 dB
 8 kHz : ± 0.45 dB
 12.5 kHz : ± 0.70 dB
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

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

Note :

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C130686
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0285)

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00983400
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 30 January 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : K C Lee

Certified By : 
核證 : C C Cheung

Date of Issue : 30 January 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C130686
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.8	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L _A	A	Fast	94.00	1	93.8 (Ref.)
				104.00		103.8
				114.00		113.9

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.8	Ref.
			Slow			93.7	± 0.3

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Certificate of Calibration

校正證書

Certificate No. : C130686
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	63 Hz	67.5	-26.2 ± 1.5
					125 Hz	77.5	-16.1 ± 1.5
					250 Hz	85.1	-8.6 ± 1.4
					500 Hz	90.5	-3.2 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	63 Hz	92.9	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.5
					250 Hz	93.8	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.1	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 315241

- Mfr's Spec. : IEC 61672 Class 1

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

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

Note :

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

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Annex G

Summary of Event/ Action Plans

Annex G1 Event and Action Plan for Regular Construction Noise Monitoring

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

Annex G2 *Event and Action Plan for Continuous Noise Monitoring*

Event	Action			
	Works Contract 1109 ET	IEC	ER	Contractor
Exceeding Action/Limit Level	<ol style="list-style-type: none"> 1. Identify source 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed 3. If exceedance is confirmed, notify IEC, ER and Contractor 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the Works Contract 1109 ET 2. Check the Contractor's working method 3. Discuss with the ER, Works Contract 1109 ET and Contractor on the potential remedial measures 4. Review and advise the Works Contract 1109 ET and ER on the effectiveness of the remedial measures proposed by the Contractor 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor and IEC 3. In consultation with the Works Contract 1109 ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Ensure the proper implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source with Works Contract 1109 ET 2. If exceedance is confirmed, investigate the cause of exceedance and take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification 4. Implement the agreed proposals 5. Liaise with ER to optimize the effectiveness of the agreed mitigation 6. Revise and resubmit proposals if problem still not under control 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Annex G3 Event and Action Plan for Construction Dust Monitoring

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	Independent Environmental Checker (IEC)	Engineer Representative (ER)	The Contractor
Action Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase the monitoring frequency 	<ol style="list-style-type: none"> 1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notifications of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify reason(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods and agree them with the ER as appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase the monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, the monitoring frequency will resume normal. 	<ol style="list-style-type: none"> 1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify reasons and investigate the causes of exceedance; 2. Submit proposals of remedial measures to the ER with a copy to the ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend the proposal as appropriate.

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

Annex G4 Event and Action Plan for Landscape and Visual Impacts during the Construction Phase

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	Independent Environmental Checker (IEC)	Engineer Representative (ER)	The Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER. 2. Discuss remedial actions with the IEC, ER and Contractor. 3. Monitor remedial actions until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check the inspection report. 2. Check the Contractor's working method. 3. Discuss with the ET, ER and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notifications of nonconformity in writing. 2. Review and agree on the remedial measures proposed by the Contractor. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify reasons and investigate the non-conformity. 2. Implement remedial measures 3. Amend working methods and agree them with the ER as appropriate. 4. Rectify the damage and undertake any necessary replacement.
Repeated Nonconformity	<ol style="list-style-type: none"> 1. Identify Reasons. 2. Inform the Contractor, IEC and ER. 3. Increase the inspection frequency. 4. Discuss remedial actions with the IEC, ER and Contractor. 5. Monitor remedial actions until rectification has been completed. 6. If non-conformity stops, the inspection frequency return to normal (ie., Once every two weeks) 	<ol style="list-style-type: none"> 1. Check the inspection report. 2. Check the Contractor's working method. 3. Discuss with the ET and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor. 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. 	<ol style="list-style-type: none"> 1. Identify Reasons and investigate the non-conformity. 2. Implement remedial measures. 3. Amend working methods and agree them with the ER as appropriate. 4. Rectify the damage and undertake any necessary replacement. 5. Stop relevant works as determined by the ER until the non-conformity is abated.

Annex H

Summary of Implementation Status

Annex H Environmental Mitigation Implementation Status – SCL Works Contract 1109 (Stations and Tunnels of Kowloon City Section)

Note:

- * Reference has been made to the approved SCL (TAW-HUH) EM&A Manual.
- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Samsung-Hsin Chong JV
- Δ Deficiency of Mitigation Measures but rectified by Samsung-Hsin Chong JV
- N/A Not Applicable in Reporting Period

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
Cultural Heritage Impact							
S4.9	CH3	<u>Submit an Archaeological Action Plan</u> Conduct survey-cum-excavation and additional boreholes/trenches investigation at the Sacred Hill (North) Study Area prior to construction.	Salvage cultural remains at the Sacred Hill (North) Study Area	Contractor	Sacred Hill (North) Area	Prior to the Construction Phase of TKW and associated tunnels	✓
Ecology (Construction Phase)							
S5.7	E5	<u>Good Site Practices</u> Impact on any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.	Minimise ecological impacts	Contractor	All construction sites	Construction Stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around earth-moving works to trap sediments and prevent them from entering watercourses; • Avoidance of soil storage against trees or close to water bodies; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Store waste and refuse in appropriate receptacles. 					
Landscape & Visual (Construction Phase)							
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		ground may be set up on-site as necessary.					
		<p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and associated understorey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. 					
		<p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees including trees in contractor's works sites should be recorded and photographed at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifies the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S6.12	LV2	<p>trees in Contractor's works sites.</p> <p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen in visual and landscape sensitive areas during the construction stage to screen off undesirable views of the construction site. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the on-site facilities, control the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent Visual Sensitive Receivers (VSRs). <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of high to medium survival rates that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including the final locations for the transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
Construction Dust							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul roads in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 l/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by an impervious sheeting or sprayed with water to maintain an entirely wet surface and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile has been removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty materials should not be extended beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by an impervious 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>sheeting to ensure that the dusty materials do not leak from the vehicle;</p> <ul style="list-style-type: none"> • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road which leads only to construction site and is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operations take place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface</p> <ul style="list-style-type: none"> • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building upward, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by an impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by an impervious sheeting or placed in an area sheltered on the top and 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		and <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 					
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	✓
EP Condition 2.18(a)	D7	Watering once every working hour for active works areas, exposed areas and paved haul roads shall be provided in Kowloon area to keep these active works areas, exposed areas and paved haul roads wet.	Minimize construction dust impact	Contractor	All construction sites	Construction stage	<>
EP Condition 2.19	D8	All diesel fuelled construction plant, including marine vessels if possible, used by the contractors within the works areas of the Project shall be powered by ultra low sulphur diesel fuel.	Minimize aerial emissions of sulphur dioxide from construction plant	Contractor	All construction sites	Construction stage	✓
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work 	Control construction airborne noise	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>periods or should be throttled down to a minimum;</p> <ul style="list-style-type: none"> • plant known to emit noise strongly in one direction, where possible, should be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the period of construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 					
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants	Operate sequentially within	Contractor	Contractor All	Construction stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		where practicable.	the same work site to reduce the construction airborne noise		construction sites where practicable		
S8.3.6	N6	Implement noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	√
Water Quality							
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoffs and Site Drainage</u> <ul style="list-style-type: none"> At the start of the site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to 	To minimize water quality impact from construction site runoffs and general construction activities	Contractor	All construction sites where practicable	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p> <ul style="list-style-type: none"> • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s, a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction. • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, and definitely, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>coarse stone ballast. An additional advantage from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operations at all times and particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading them evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, trenches should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p> <ul style="list-style-type: none"> • Precautions should be taken at any time of year when rainstorms are likely. Actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoffs during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure that no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>silty water to public roads and drains.</p> <ul style="list-style-type: none"> Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas should be provided with locks and sited in sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching nearby water sensitive receivers. All the earth works should be conducted sequentially to limit the amount of construction runoffs generated from exposed areas during the wet season (April to September) as far as practicable. Adopt best management practices 					
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge. The wastewater with a high concentration 	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>of suspended solids should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove oil, lubricants and grease from the wastewater.</p> <ul style="list-style-type: none"> Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. The slurry should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities have been completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 					
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <p>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for their appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area in case contamination is found:</u></p> <ul style="list-style-type: none"> No direct discharge of groundwater from 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>contaminated areas is allowed. Prior to the excavation works within potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in the EIA report for compliance and the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water). The existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination if the review results indicate that the groundwater to be generated from the excavation works would be contaminated. The contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground.</p> <ul style="list-style-type: none"> If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. total petroleum hydrocarbon (TPH)) to undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM Water and should be discharged into the foul sewers. 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells. It is necessary to 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 the pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the Water Pollution Control Ordinance (WPCO) through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 					
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended:	To minimize water quality impact from accidental	Contractor	All construction sites where practicable	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	spillage				
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<u>On-site sorting of C&D (Construction and Demolition) material</u> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored in the designated stockpile areas avoiding delivering them to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from 	Separation of unsuitable rock from ending up at Concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		being ended up at concrete batching plants and turned into concrete for structural use. Details regarding control measures at source sites and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated. The traceability of delivery will be ensured via the implementation of Trip Ticket System and enforcement by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.					
S11.5.1	WM2	<p><u>Construction and Demolition (C&D) Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; 	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; Implement an enhanced Waste management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and minimize waste generation during the course of construction. Disposal of the C&D materials to any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get his approval before implementation 					
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used. Metal hoarding should be used to enhance the possibility of recycling. The purchase of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. 	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S11.5.1	WM4	<p>Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</p> <p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme 	Minimize the production of general refuse and minimise odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S11.5.1	WM7	<p>should be considered by the Contractor.</p> <p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, that is produced should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed. They should have a capacity of less than 450 litres unless the specification has been approved by the EPD. A label in English and Chinese should be displayed in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. It should also have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest. It should have adequate ventilation and be covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector; to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre (which also offers a chemical waste collection service and can supply the necessary storage containers); or to a reuser of the waste, under the approval from the EPD. 					

Annex I - 1

Regular Noise Monitoring Results

Annex I-1 Regular Noise Monitoring Results

Station NMS-CA-6 No. 16-23 Nam Kok Road

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Oct-13	11:00	11:30	Sunny	63.8	76.1	-(b)	-	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
09-Oct-13	11:30	12:00	Sunny	64.7	76.1	-(b)	-	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
15-Oct-13	11:00	11:30	Fine	64.8	76.1	-(b)	-	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
21-Oct-13	10:50	11:20	Sunny	65.9	76.1	-(b)	-	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Oct-13	10:00	10:30	Sunny	67.4	70.0	-(b)	-	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
09-Oct-13	10:38	11:08	Sunny	67.6	70.0	-(b)	-	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
15-Oct-13	10:00	10:30	Fine	67.8	70.0	-(b)	-	Traffic noise	27.0	1.8	NL-18 00360030	NC-73 10997142
21-Oct-13	9:55	10:25	Sunny	67.4	70.0	-(b)	-	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Oct-13	13:04	13:34	Sunny	73.9	75.4	-(b)	Crane operation,	Traffic noise	27.0	0.5	NL-31 00983400	NC-73 10997142
09-Oct-13	9:14	9:44	Sunny	79.0	75.4	76.5	Crane operation, Backhole, crane	Traffic noise	27.0	0.5	NL-31 00983400	NC-73 10997142
15-Oct-13	8:25	8:55	Fine	76.4	75.4	69.5	operation, hand held Backhole, crane	Traffic noise	27.0	0.5	NL-31 00983400	NC-73 10997142
21-Oct-13	11:39	12:09	Sunny	72.6	75.4	-(b)	operation, hand held	Traffic noise	24.0	0.5	NL-31 00983400	NC-73 10997142

Station NMS-CA-9 Kong Yiu Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Oct-13	8:00	8:30	Sunny	75.5	69.2	74.3	Crane operation and breaker	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
09-Oct-13	8:00	8:30	Fine	73.0	69.2	70.7	Crane operation, breaker and backhole	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
15-Oct-13	8:00	8:30	Fine	72.9	69.2	70.5	Crane operation	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
21-Oct-13	8:00	8:30	Fine	71.9	69.2	68.6	Crane operation	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142

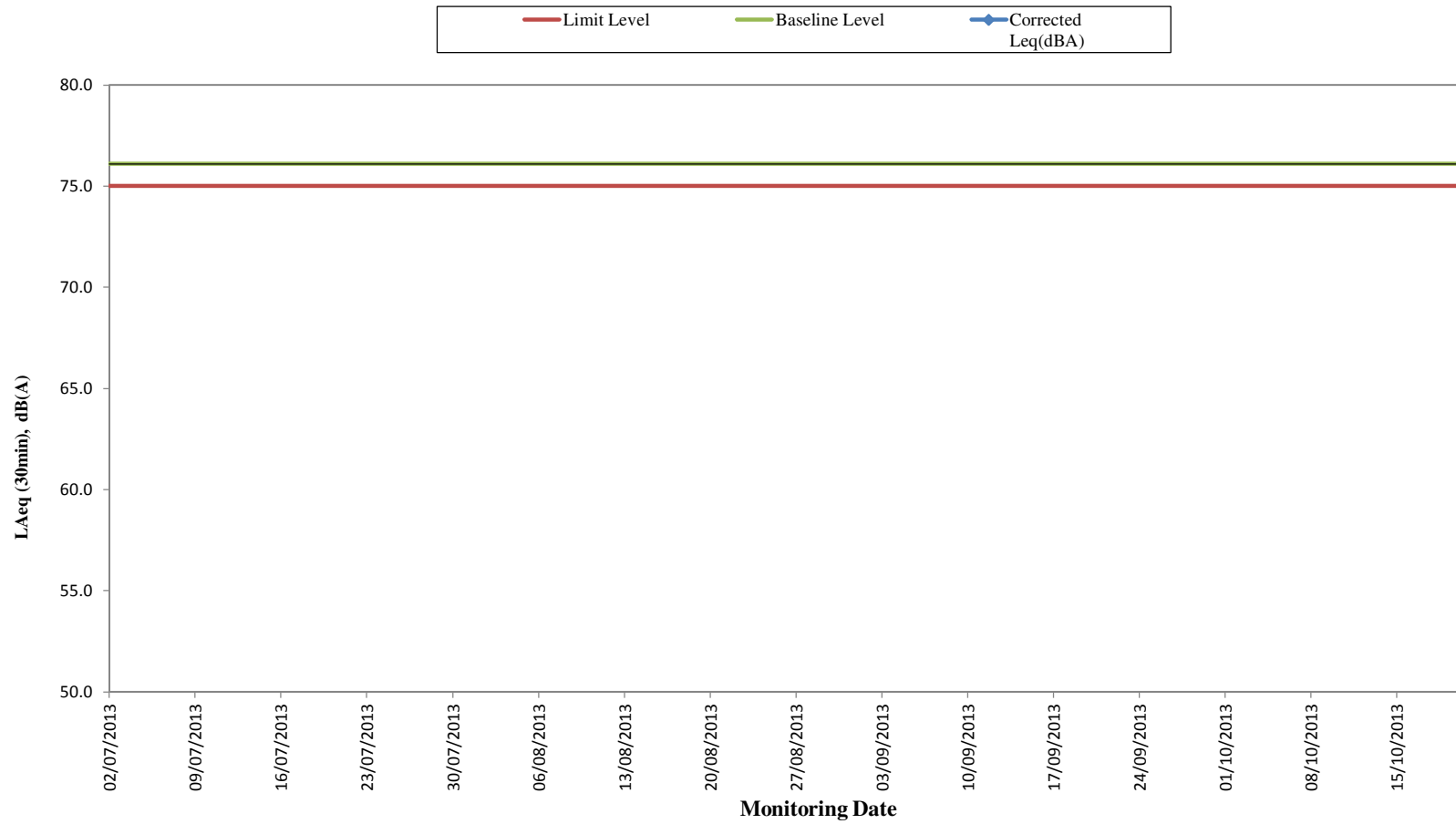
Station NMS-CA-10 Chat Ma Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min) ^(c)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Oct-13	13:30	14:00	Sunny	77.1	76.6	67.5	Backhole	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
09-Oct-13	8:45	9:15	Sunny	77.2	76.6	68.3	Backhole and breaker	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
15-Oct-13	8:42	9:12	Fine	77.0	76.6	66.4	Backhole	Traffic noise	27.0	0.5	NL-18 00360030	NC-73 10997142
21-Oct-13	8:42	9:12	Sunny	77.2	76.6	68.3	Backhole and breaker	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142

Remarks:

- (a) The Measured LAeq is corrected against the corresponding Baseline Level.
- (b) No correction was made as the measured noise levels were equal to or below the baseline noise levels.
- (c) The noise monitoring results of the measurements carried out at NMS-CA-9 on 3 October, at NMS-CA-10 on 3, 9, 15 and 21 October are higher than the daytime construction noise criterion. However, the results are not considered as exceedance as they are below the limit level after deducting the baseline noise level.

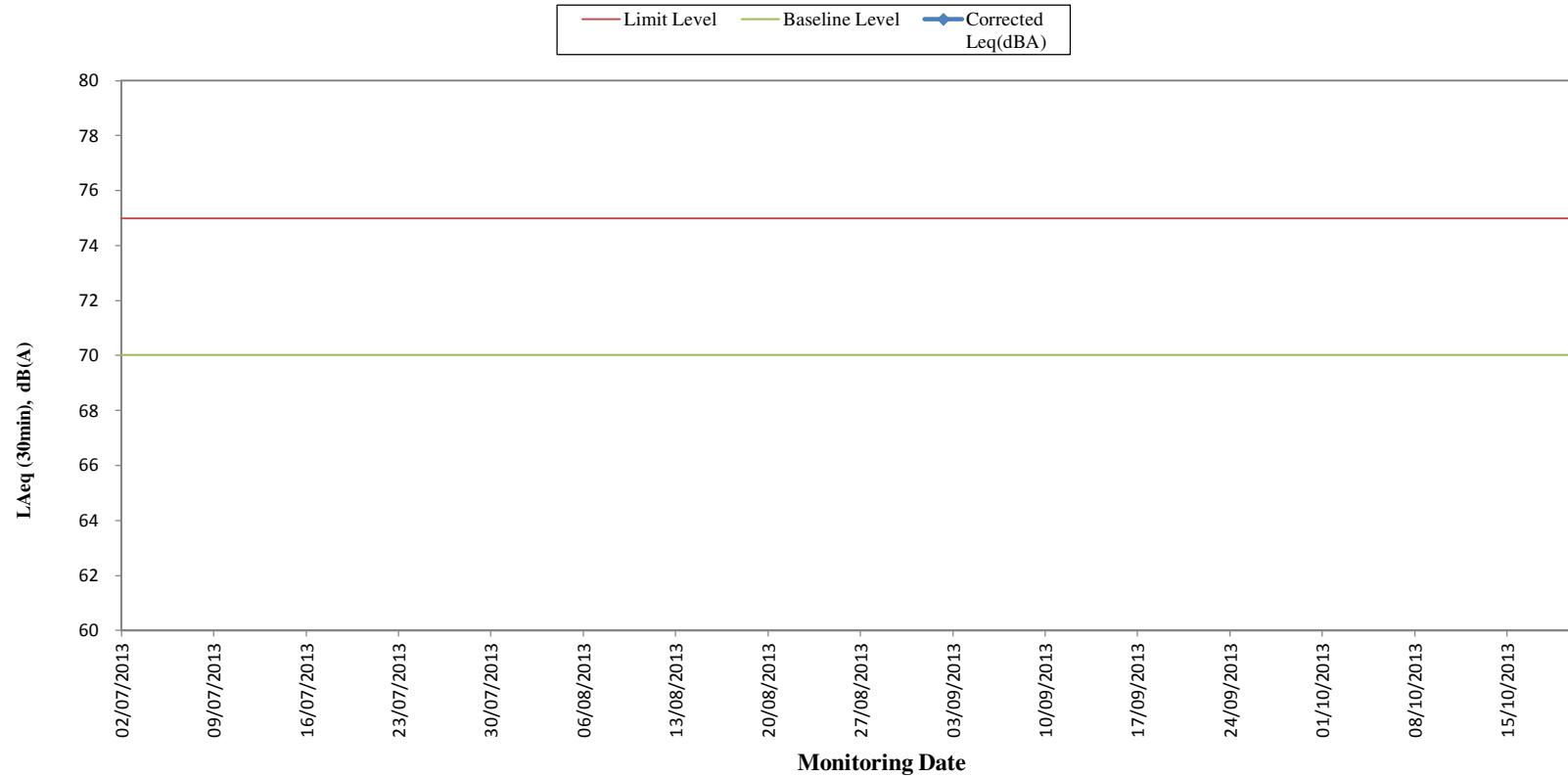
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

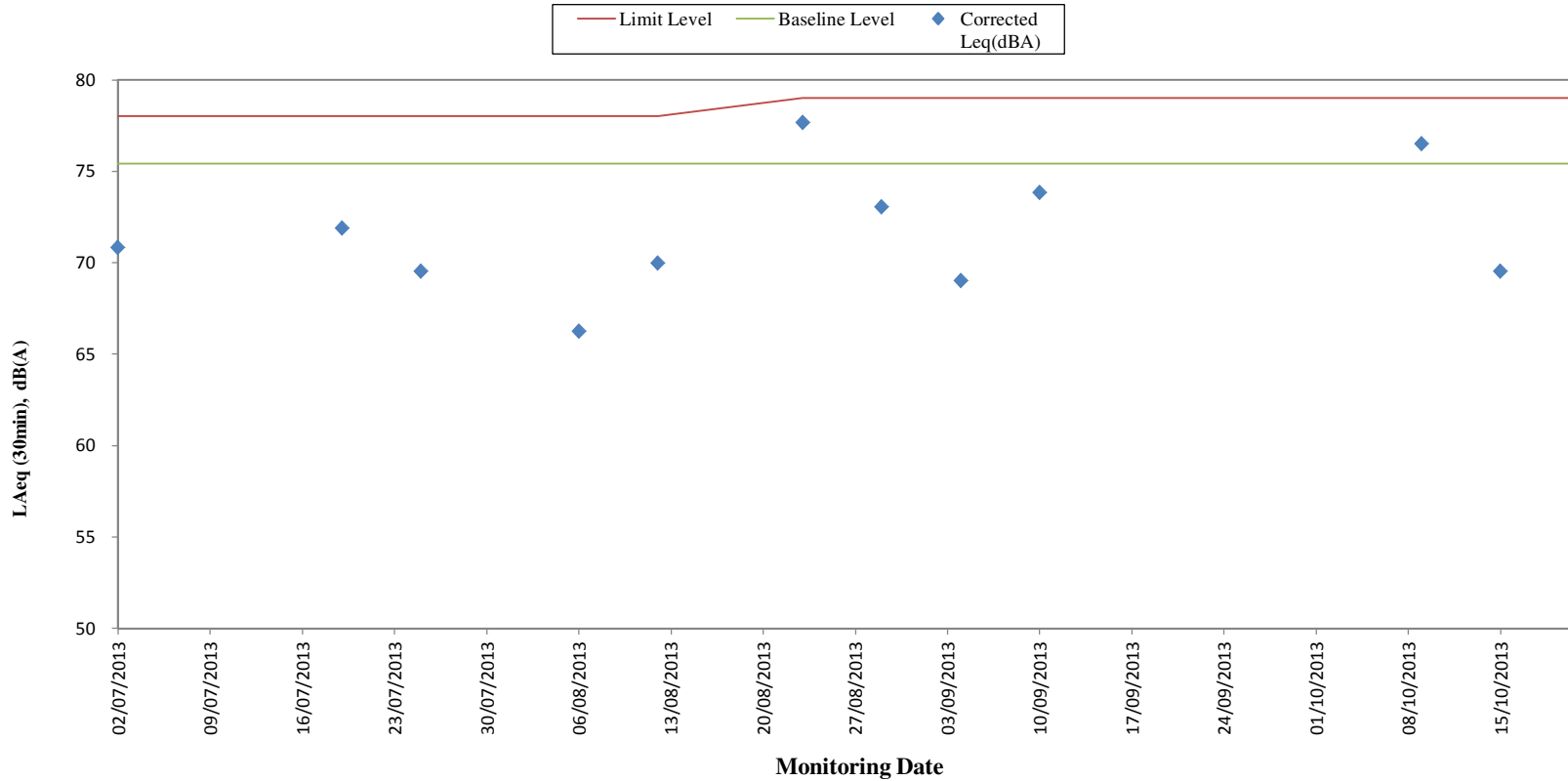
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

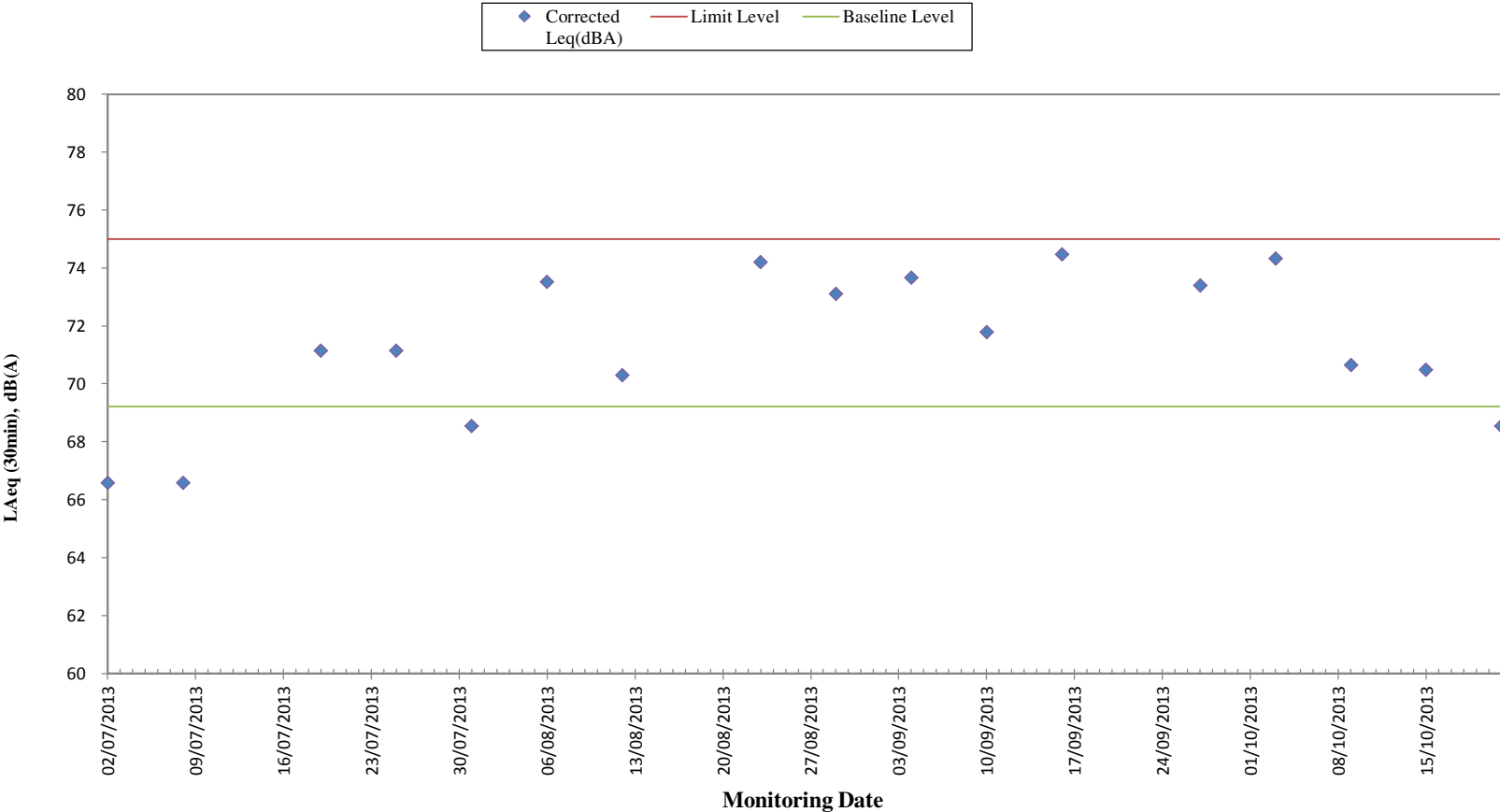
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.
- The limit level was updated from 78dB(A) to 79 dB(A) on 22 Aug 2013 as per the latest CNMP and CNMMP.

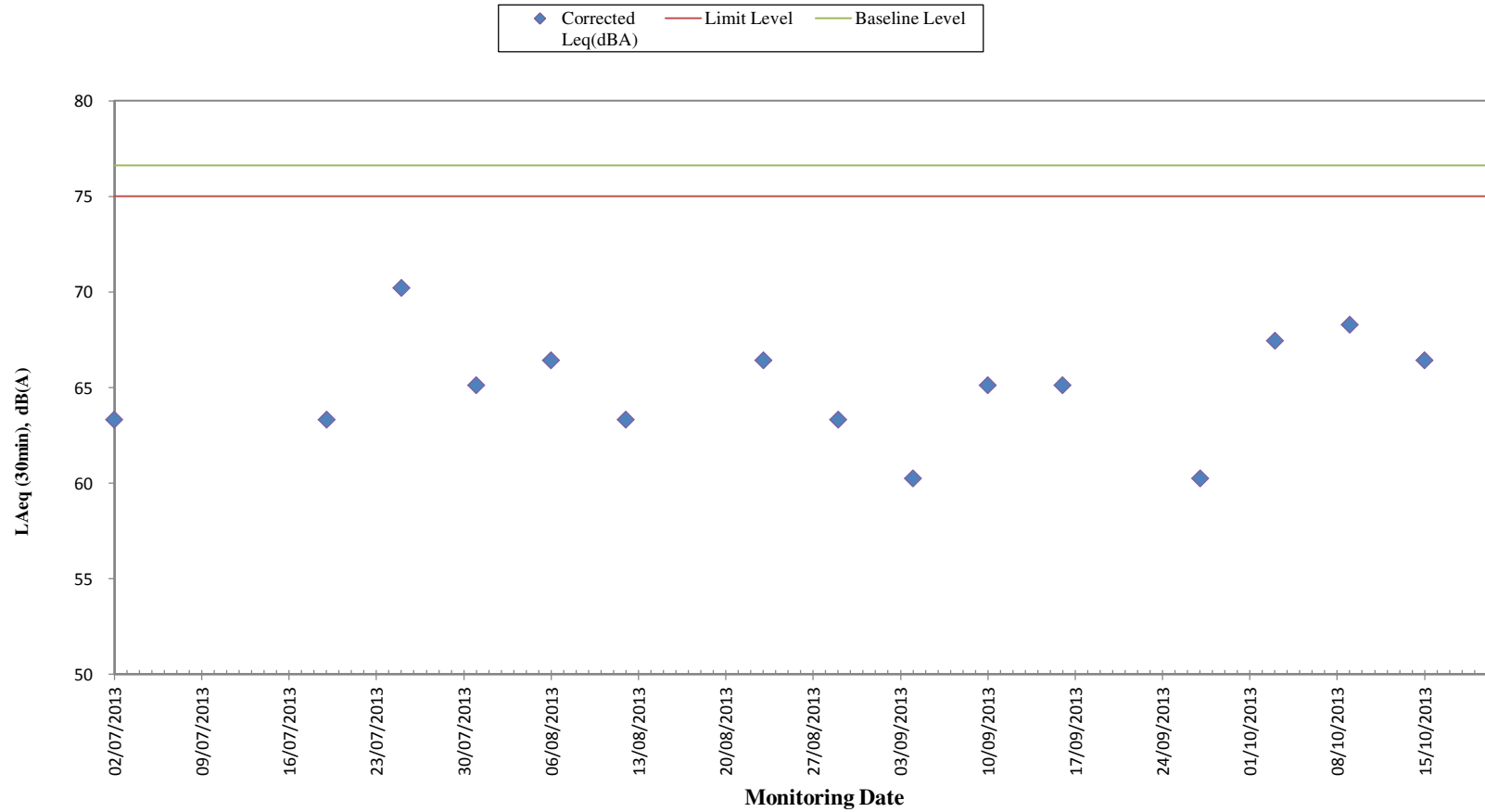
**Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion)
(LAeq, 30min)) for the Past 4 Months**



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise level s are below baseline level.

Regular Noise Monitoring Results at NMS-CA-10 (Chat Ma Mansion) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

Annex I - 2

Continuous Noise Monitoring Results

Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	8	34	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	9	4	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	9	34	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	10	4	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	10	34	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	11	4	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	11	34	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	12	4	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	12	34	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	13	4	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	13	34	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	14	4	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	14	34	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	15	4	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	15	34	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	16	4	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	16	34	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	17	4	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	17	34	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	18	4	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	18	34	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	5	19	4	70.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	6	34	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	7	4	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	7	34	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	8	4	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	8	34	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	9	4	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	9	34	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	10	4	76	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	10	34	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	11	4	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	11	34	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	12	4	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	12	34	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	13	4	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	13	34	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	14	4	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	14	34	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	15	0	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	15	30	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	16	0	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	16	30	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	17	0	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	17	30	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	18	0	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	7	18	30	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	7	0	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	7	30	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	8	0	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	8	30	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	9	0	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	9	30	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	10	0	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	10	30	76	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	11	0	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	11	30	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	12	0	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	12	30	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	13	0	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	13	30	90.2	75.4	90.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	14	0	89.4	75.4	89.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	14	30	90.3	75.4	90.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	15	0	90.9	75.4	90.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	15	30	89.6	75.4	89.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	16	0	90.6	75.4	90.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	16	30	82.6	75.4	81.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	17	0	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	17	30	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	18	0	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	8	18	30	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	7	0	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	7	30	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	8	0	81.1	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	8	30	87	75.4	86.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	9	0	85.8	75.4	85.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	9	30	86.6	75.4	86.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	10	0	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	10	30	87.4	75.4	87.1	79	Y

Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq,30mins)	Corrected Results (dB(A)) (LAeq,30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	11	0	87.5	75.4	87.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	11	30	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	12	0	71.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	12	30	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	13	0	79	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	13	30	84.2	75.4	83.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	14	0	83	75.4	82.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	14	30	80.9	75.4	79.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	15	0	87	75.4	86.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	15	30	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	16	0	85.6	75.4	85.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	16	30	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	17	0	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	17	30	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	18	0	72.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	9	18	30	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	7	0	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	7	30	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	8	0	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	8	30	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	9	0	84.3	75.4	83.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	9	30	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	10	0	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	10	30	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	11	0	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	11	30	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	12	9	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	12	39	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	13	9	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	13	39	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	14	9	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	14	39	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	15	9	82.9	75.4	82.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	15	39	84.6	75.4	84.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	16	9	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	16	39	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	17	9	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	17	39	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	18	9	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	10	18	39	71.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	7	9	72	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	7	39	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	8	9	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	8	39	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	9	9	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	9	39	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	10	9	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	10	39	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	11	9	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	11	39	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	12	9	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	12	39	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	13	9	76.3	75.4	69.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	13	39	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	14	9	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	14	39	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	15	9	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	15	39	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	16	9	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	16	39	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	17	9	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	17	39	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	18	9	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	11	18	39	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	7	9	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	7	39	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	8	9	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	8	39	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	9	9	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	9	39	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	10	9	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	10	39	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	11	9	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	11	39	71.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	12	9	71.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	12	39	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	13	9	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	13	39	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	14	9	77.6	75.4	73.6	79	N

Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq,30mins)	Corrected Results (dB(A)) (LAeq,30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	14	39	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	15	9	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	15	39	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	16	9	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	16	39	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	17	9	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	17	39	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	18	9	71.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	12	18	39	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	6	57	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	7	27	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	7	57	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	8	27	76.3	75.4	69.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	8	57	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	9	27	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	9	57	76.3	75.4	69.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	10	27	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	10	57	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	11	27	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	11	57	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	12	27	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	12	57	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	13	27	76.4	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	13	57	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	14	27	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	14	57	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	15	27	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	15	57	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	16	27	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	16	57	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	17	27	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	17	57	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	18	27	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	15	18	57	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	6	57	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	7	27	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	7	57	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	8	27	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	8	57	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	9	27	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	9	57	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	10	27	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	10	57	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	11	27	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	11	57	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	12	27	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	12	57	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	13	27	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	13	57	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	14	27	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	14	57	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	15	27	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	15	57	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	16	27	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	16	57	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	17	27	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	17	57	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	18	27	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	16	18	57	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	6	57	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	7	27	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	7	57	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	8	27	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	8	57	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	9	45	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	10	15	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	10	45	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	11	15	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	11	45	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	12	15	71.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	12	45	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	13	15	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	13	45	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	14	15	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	14	45	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	15	15	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	15	45	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	16	15	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	16	45	77.3	75.4	72.8	79	N

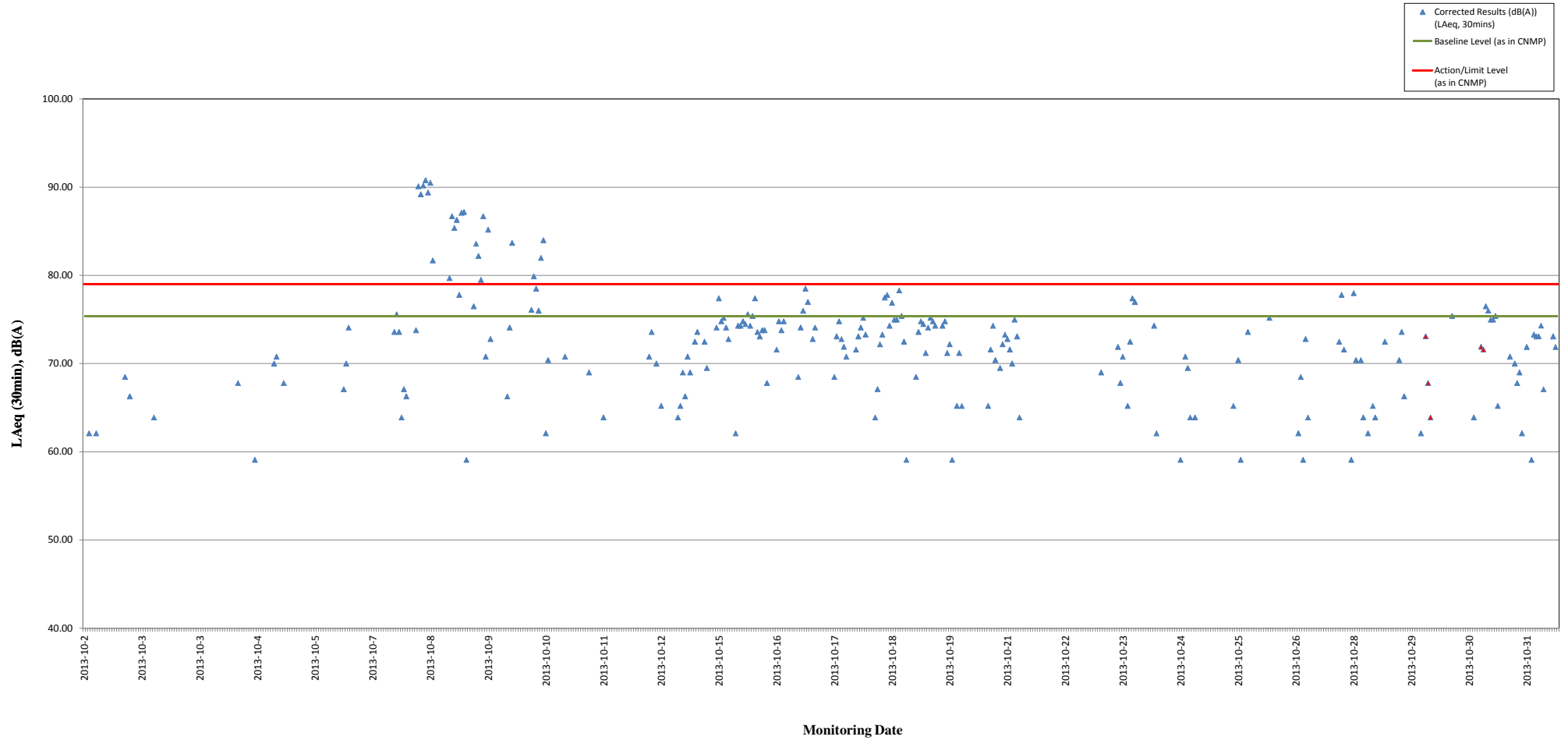
Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq,30mins)	Corrected Results (dB(A)) (LAeq,30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	17	15	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	17	45	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	18	15	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	17	18	45	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	6	45	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	7	15	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	7	45	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	8	15	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	8	45	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	9	15	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	9	45	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	10	15	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	10	45	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	11	15	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	11	45	76	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	12	15	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	12	45	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	13	15	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	13	45	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	14	15	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	14	45	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	15	15	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	15	45	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	16	15	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	16	45	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	17	15	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	17	45	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	18	15	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	18	18	45	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	6	45	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	7	15	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	7	45	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	8	15	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	8	45	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	9	15	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	9	45	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	10	15	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	10	45	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	11	15	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	11	45	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	12	15	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	12	45	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	13	15	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	13	45	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	14	15	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	14	45	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	15	15	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	15	45	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	16	15	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	16	45	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	17	15	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	17	45	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	18	15	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	19	18	45	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	6	45	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	7	15	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	7	45	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	8	15	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	8	45	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	9	15	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	9	45	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	10	15	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	10	45	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	11	15	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	11	45	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	12	38	76.4	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	13	8	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	13	38	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	14	8	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	14	38	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	15	8	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	15	38	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	16	8	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	16	38	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	17	8	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	17	38	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	18	8	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	21	18	38	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	7	8	73.5	75.4	<Baseline Level	79	N

Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dBA) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	7	38	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	8	8	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	8	38	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	9	8	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	9	38	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	10	8	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	10	38	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	11	8	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	11	38	71.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	12	8	71.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	12	38	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	13	8	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	13	38	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	14	8	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	14	38	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	15	8	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	15	38	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	16	8	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	16	38	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	17	8	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	17	38	72.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	18	8	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	22	18	38	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	7	8	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	7	38	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	8	8	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	8	38	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	9	8	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	9	38	76.3	75.4	69.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	10	8	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	10	38	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	11	8	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	11	38	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	12	8	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	12	38	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	13	8	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	13	38	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	14	8	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	14	38	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	15	8	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	15	38	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	16	8	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	16	38	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	17	8	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	17	38	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	18	8	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	23	18	38	72	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	24	7	8	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	24	7	38	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	24	8	8	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	24	8	38	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	24	9	8	75.6	75.4	62.1	79	N

Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	12	11	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	12	41	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	13	11	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	13	41	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	14	11	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	14	41	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	15	11	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	15	41	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	16	11	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	16	41	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	17	11	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	17	41	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	18	11	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	28	18	41	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	6	41	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	7	11	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	7	41	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	8	11	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	8	41	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	9	11	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	9	41	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	10	11	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	10	41	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	11	11	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	11	41	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	12	11	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	12	41	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	13	11	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	13	41	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	14	11	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	14	41	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	15	11	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	15	41	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	16	11	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	16	41	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	17	11	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	17	41	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	18	11	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	29	18	41	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	6	41	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	7	11	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	7	41	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	8	11	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	8	41	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	9	11	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	9	41	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	10	11	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	10	41	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	11	11	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	11	41	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	12	11	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	12	41	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	13	11	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	13	41	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	14	11	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	14	41	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	15	11	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	15	41	79	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	16	11	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	16	41	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	17	11	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	17	41	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	18	11	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	30	18	41	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	6	41	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	7	11	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	7	41	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	8	11	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	8	41	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	9	11	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	9	41	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	10	11	76.3	75.4	69	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	10	41	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	11	11	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	11	41	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	12	11	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	13	8	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	13	38	77.5	75.4	73.3	79	N

Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	14	8	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	14	38	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	15	8	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	15	38	76	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	16	8	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	16	38	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	17	8	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	17	38	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	18	8	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	10	31	18	38	73.7	75.4	<Baseline Level	79	N

Continuous Noise Monitoring at MTW-16-1 (SKH Good Shepherd Primary School) in October 2013- (LAeq, 30min)



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

Annex J

Construction Dust
Monitoring Results and
Wind Data Monitoring
Results

Annex J Construction Dust Monitoring Results

Station DMS-6 Katherine Building

Start Date	Time	Finish Date	Time	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
					Initial	Final	Initial	Final		Initial	Final							
03-Oct-13	10:45	04-Oct-13	10:45	Sunny	2.7919	2.9341	11720.30	11744.30	24.00	1.26	1.26	1.26	78	156.8	260	Construction work in progress	0107	8248
09-Oct-13	11:20	10-Oct-13	11:20	Sunny	2.8094	2.9611	11744.30	11768.30	24.00	1.26	1.26	1.26	84	156.8	260	Construction work in progress	0107	8323
15-Oct-13	10:42	16-Oct-13	10:42	Fine	2.8240	2.9797	11768.30	11792.30	24.00	1.26	1.26	1.26	86	156.8	260	Construction work in progress	0107	8446
21-Oct-13	10:40	22-Oct-13	10:40	Sunny	2.8067	2.9513	11672.30	11696.30	24.00	1.26	1.26	1.26	80	156.8	260	Construction work in progress	0107	8469
26-Oct-13	8:50	27-Oct-13	8:50	Sunny	2.8009	2.9516	11816.30	11840.30	24.00	1.26	1.26	1.26	83	156.8	260	Construction work in progress	0107	8492
													Minimum	78				
													Average	82				
													Maximum	86				

Station DMS-7 Parc 22

Start Date	Time	Finish Date	Time	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
					Initial	Final	Initial	Final		Initial	Final							
03-Oct-13	9:50	04-Oct-13	9:50	Sunny	2.7906	2.9369	01897.17	01921.17	24.00	1.20	1.20	1.20	85	166.7	260	Construction work in progress	3574	8247
09-Oct-13	10:25	10-Oct-13	10:25	Sunny	2.8144	2.9591	01921.17	01945.17	24.00	1.20	1.20	1.20	84	166.7	260	Construction work in progress	3574	8322
15-Oct-13	9:47	16-Oct-13	9:47	Fine	2.8119	2.9561	01945.17	01969.17	24.00	1.20	1.20	1.20	83	166.7	260	Construction work in progress	3574	8445
21-Oct-13	9:47	22-Oct-13	9:47	Sunny	2.8249	2.9595	01969.17	01993.17	24.00	1.20	1.20	1.20	78	166.7	260	Construction work in progress	3574	8468
26-Oct-13	8:35	27-Oct-13	8:35	Sunny	2.8315	2.9666	01993.17	02017.17	24.00	1.20	1.20	1.20	78	166.7	260	Construction work in progress	3574	8491
													Minimum	78				
													Average	82				
													Maximum	85				

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Oct-13	9:35	04-Oct-13	9:35	Sunny	2.7897	2.9378	01867.11	01891.11	24.00	1.23	1.23	1.23	84	152.2	260	Construction work in progress	3572	8246
09-Oct-13	10:10	10-Oct-13	10:10	Sunny	2.8175	2.9764	01891.11	01915.11	24.00	1.23	1.23	1.23	90	152.2	260	Construction work in progress	3572	8321
15-Oct-13	9:32	16-Oct-13	9:32	Fine	2.8069	2.9622	01915.11	01939.11	24.00	1.23	1.23	1.23	88	152.2	260	Construction work in progress	3572	8444
21-Oct-13	9:32	22-Oct-13	9:32	Sunny	2.8118	2.9501	01939.11	01963.11	24.00	1.23	1.23	1.23	78	152.2	260	Construction work in progress	3572	8467
26-Oct-13	8:20	27-Oct-13	8:20	Sunny	2.8241	2.9700	01963.11	01987.11	24.00	1.23	1.23	1.23	82	152.2	260	Construction work in progress	3572	8490
													Minimum	78				
													Average	84				
													Maximum	90				

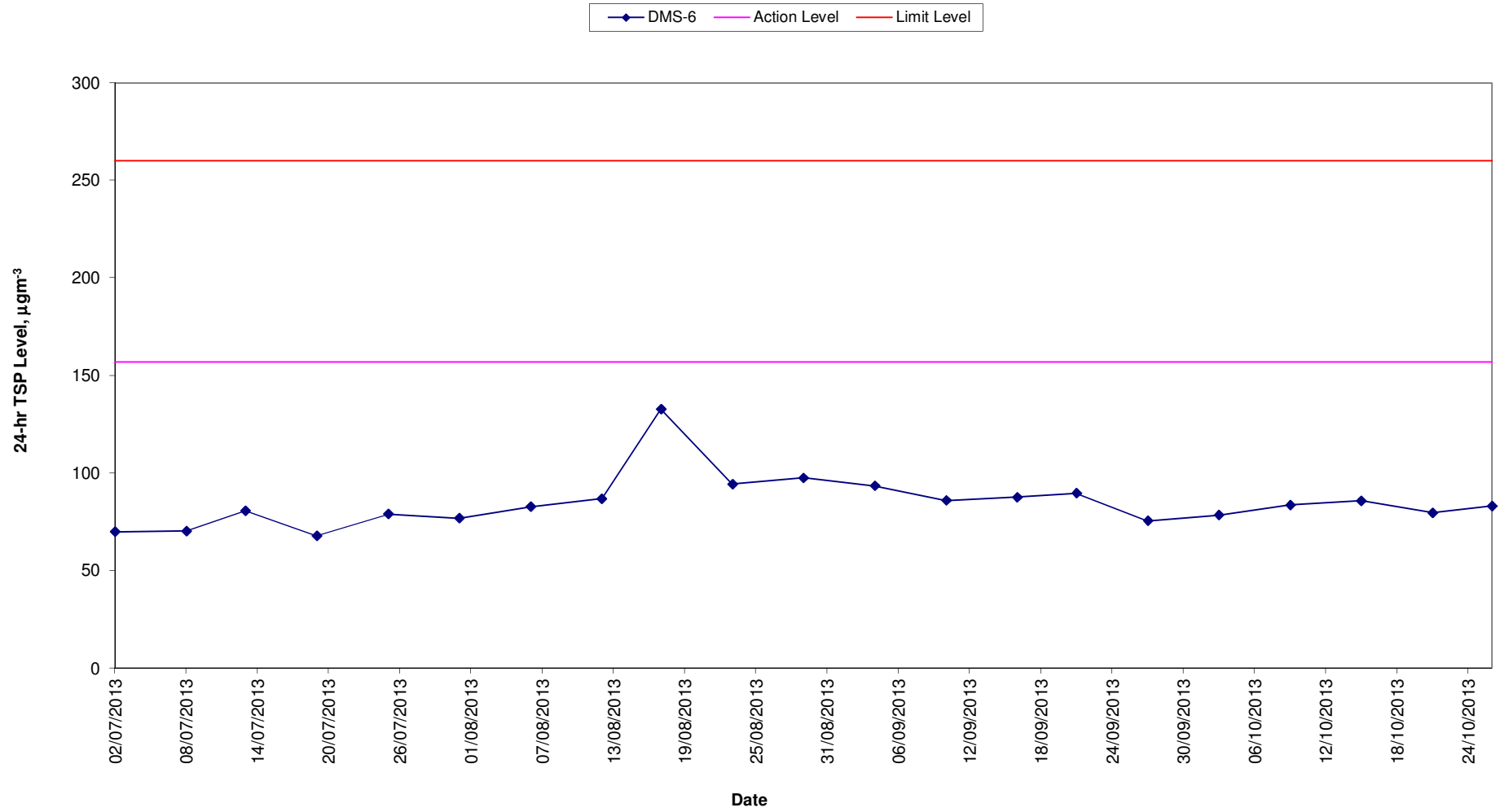
Station DMS-9 No. 26 Kowloon City Road

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Oct-13	9:27	04-Oct-13	9:27	Sunny	2.7817	2.9191	12585.40	12609.40	24.00	1.24	1.24	1.24	77	160.9	260	Construction work in progress	0814	8245
09-Oct-13	10:00	10-Oct-13	10:00	Sunny	2.8210	2.9756	12609.40	12633.40	24.00	1.24	1.24	1.24	87	160.9	260	Construction work in progress	0814	8320
15-Oct-13	9:24	16-Oct-13	9:24	Fine	2.8211	2.9761	12633.40	12657.40	24.00	1.24	1.24	1.24	87	160.9	260	Construction work in progress	0814	8443
21-Oct-13	9:24	22-Oct-13	9:24	Sunny	2.8095	2.9559	12657.40	12681.40	24.00	1.24	1.24	1.24	82	160.9	260	Construction work in progress	0814	8466
26-Oct-13	8:10	27-Oct-13	8:10	Sunny	2.8229	2.9671	12681.40	12705.40	24.00	1.24	1.24	1.24	81	160.9	260	Construction work in progress	0814	8489
													Minimum	77				
													Average	83				
													Maximum	87				

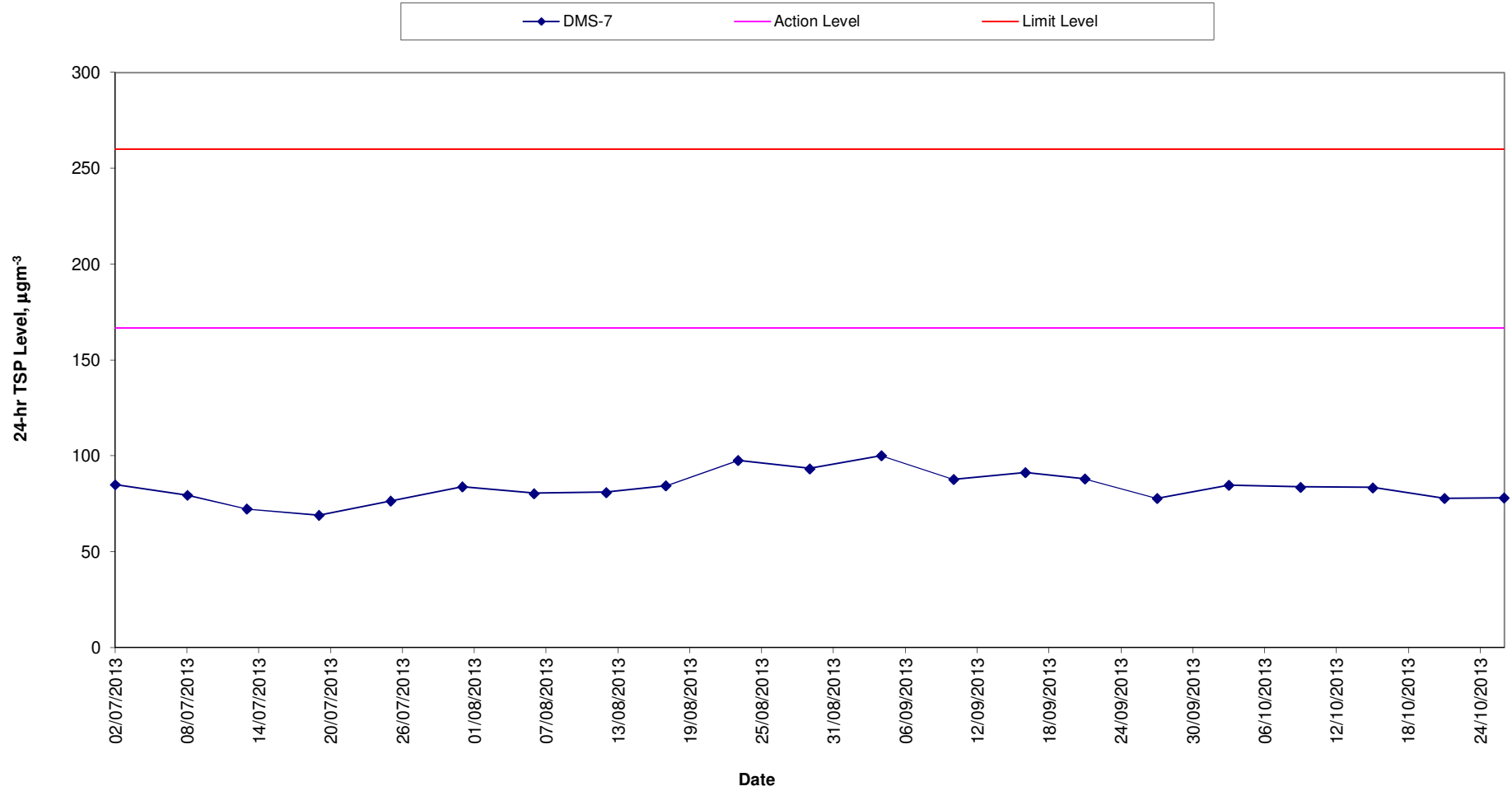
Station DMS-10 Chat Ma Mansion

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Oct-13	8:45	04-Oct-13	8:45	Sunny	2.7843	2.9310	01885.20	01909.20	24.00	1.23	1.23	1.23	83	170.4	260	Construction work in progress	3573	8244
09-Oct-13	8:48	10-Oct-13	8:48	Sunny	2.8030	2.9619	01909.20	01933.20	24.00	1.23	1.23	1.23	90	170.4	260	Construction work in progress	3573	8327
15-Oct-13	8:45	16-Oct-13	8:45	Fine	2.8256	2.9918	01933.20	01957.20	24.00	1.23	1.23	1.23	94	170.4	260	Construction work in progress	3573	8442
21-Oct-13	8:45	22-Oct-13	8:45	Sunny	2.8067	2.9467	01957.20	01981.20	24.00	1.23	1.23	1.23	79	170.4	260	Construction work in progress	3573	8465
26-Oct-13	8:00	27-Oct-13	8:00	Sunny	2.8175	2.9615	01981.20	02005.20	24.00	1.23	1.23	1.23	81	170.4	260	Construction work in progress	3573	8488
													Minimum	79				
													Average	85				
													Maximum	94				

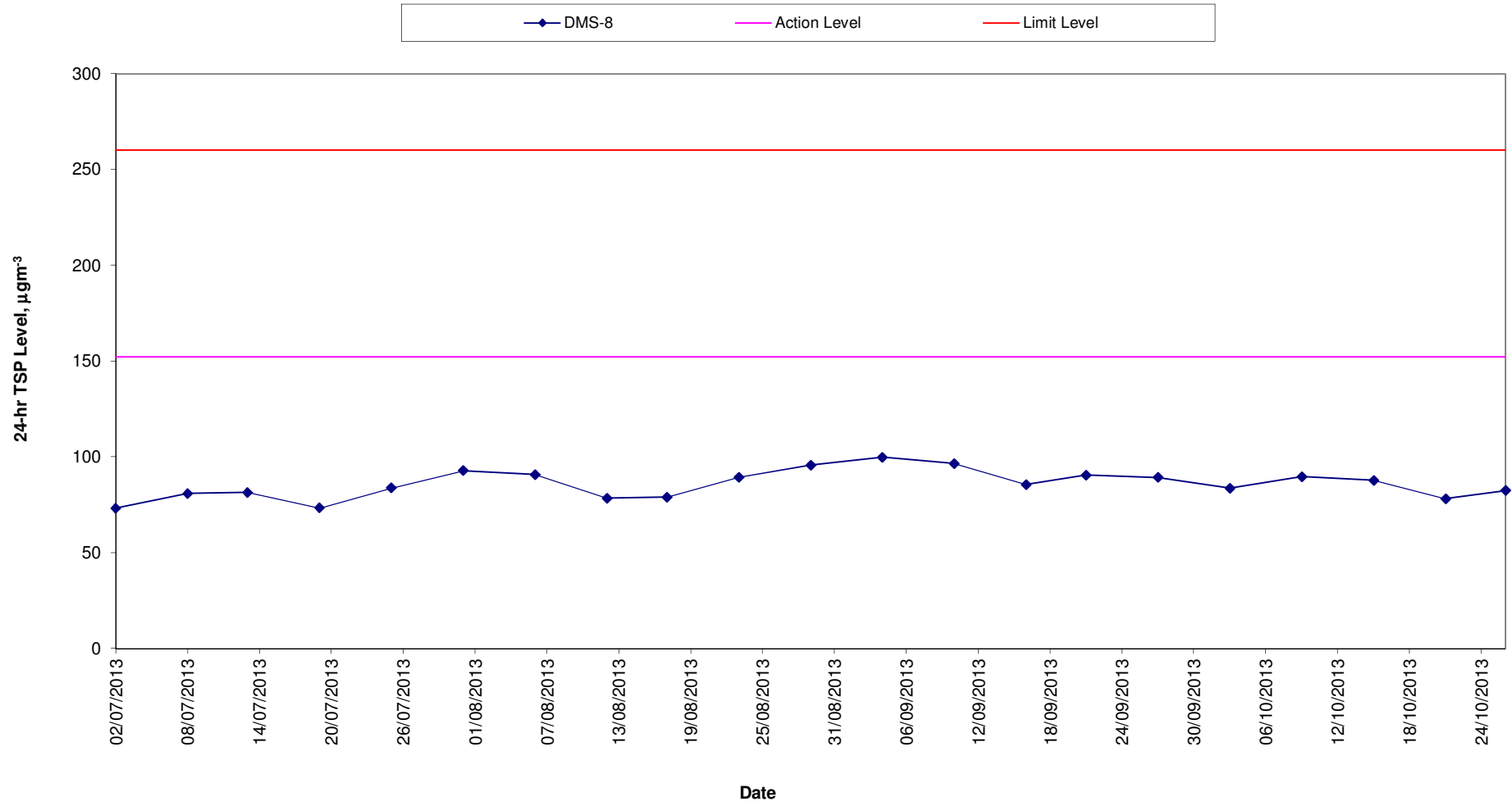
Construction Dust Monitoring Results for the Past 4 Months DMS-6 (Katherine Building)



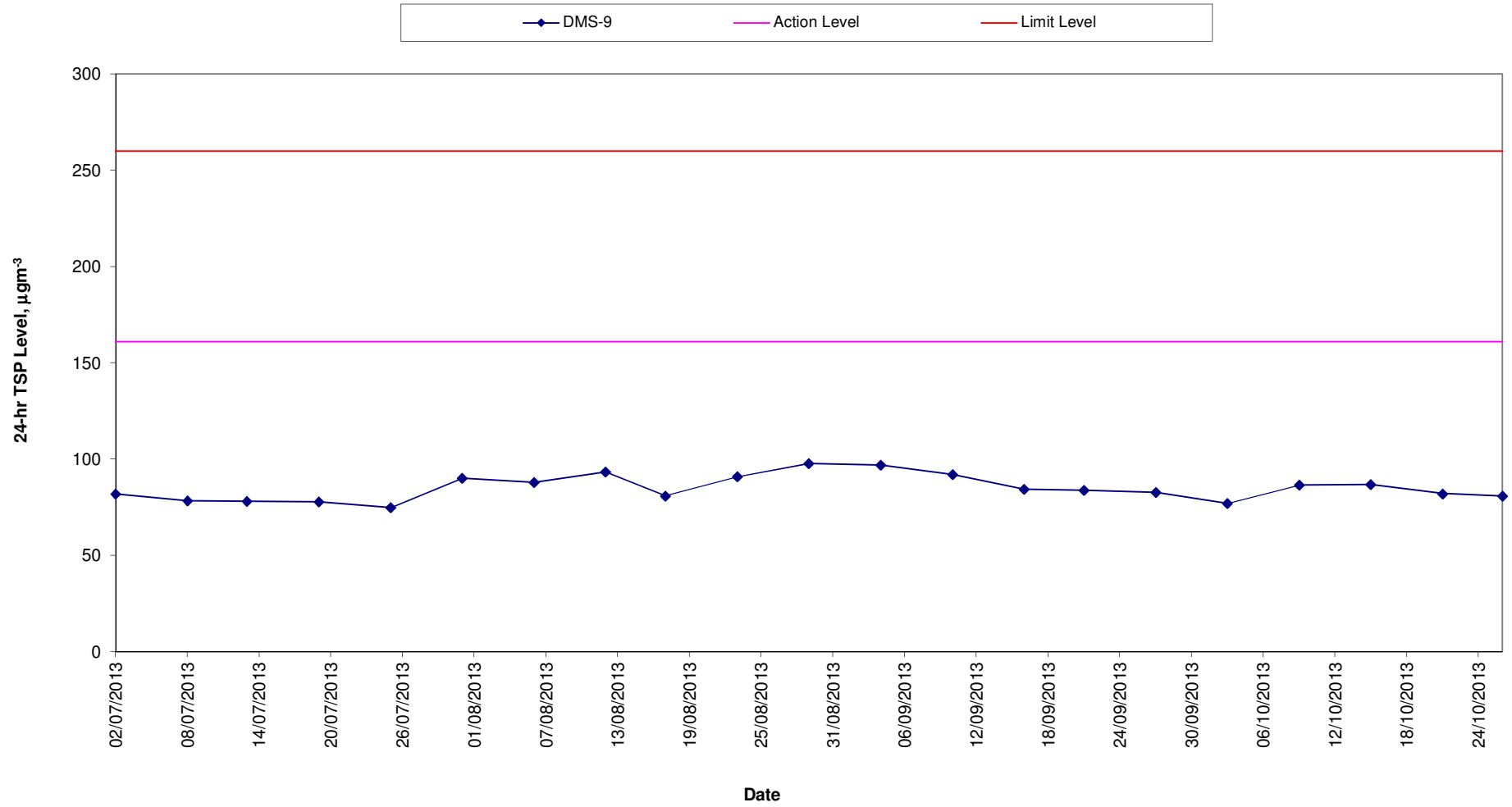
Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)



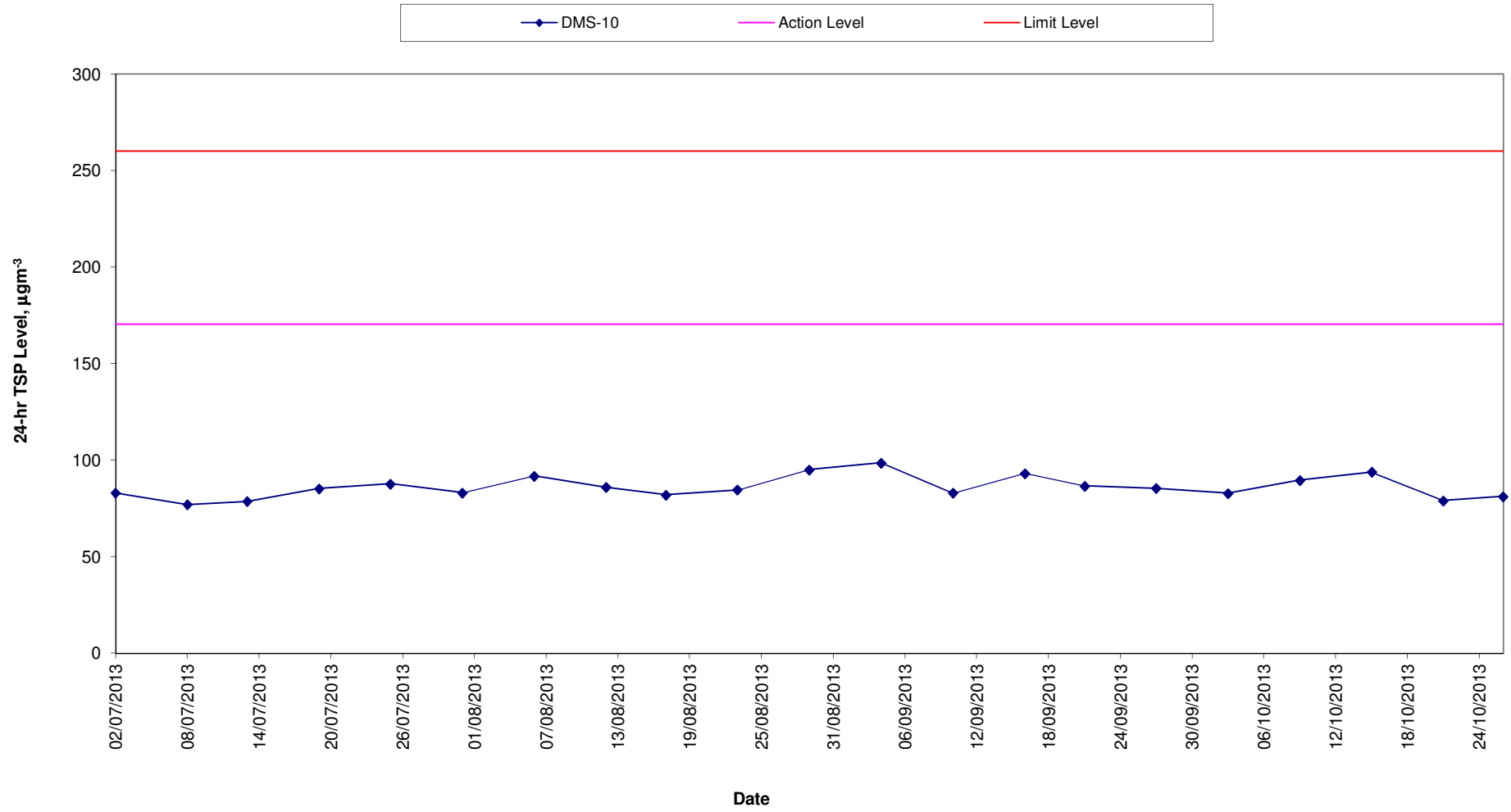
**Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)**



**Construction Dust Monitoring Results for the Past 4 Months
DMS-9 (No. 26 Kowloon City Road)**

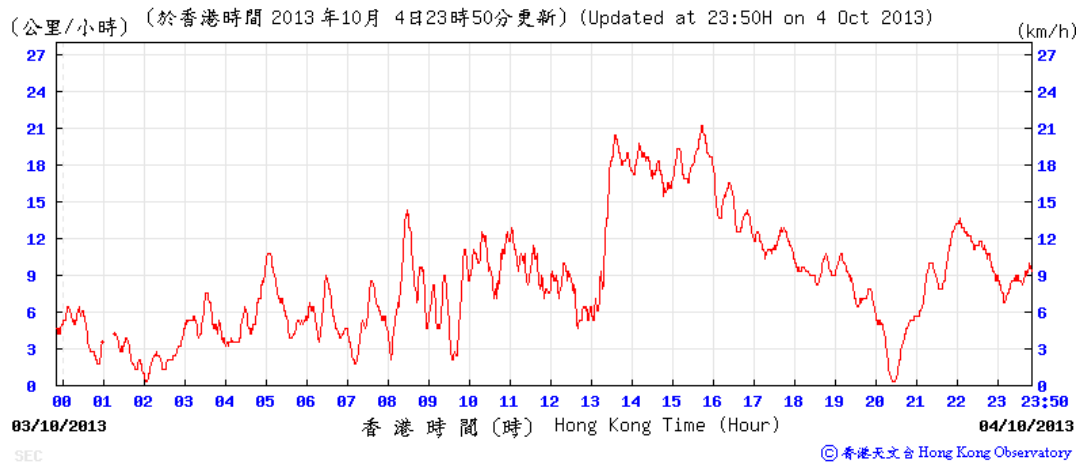
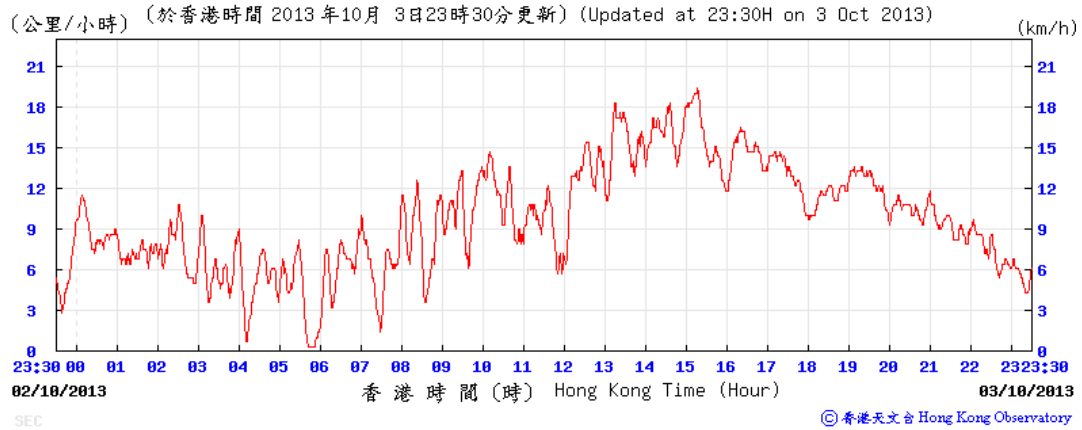


Construction Dust Monitoring Results for the Past 4 Months DMS-10 (Chat Ma Mansion)

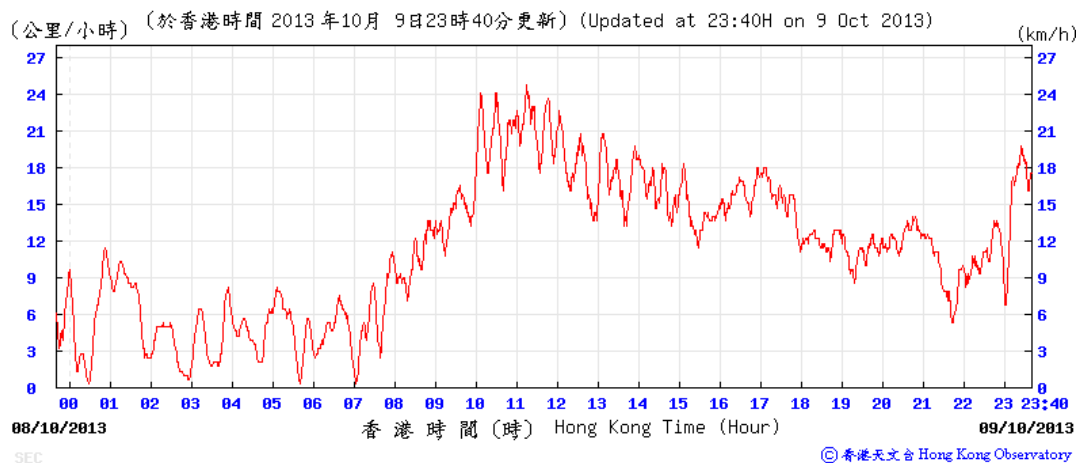


Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

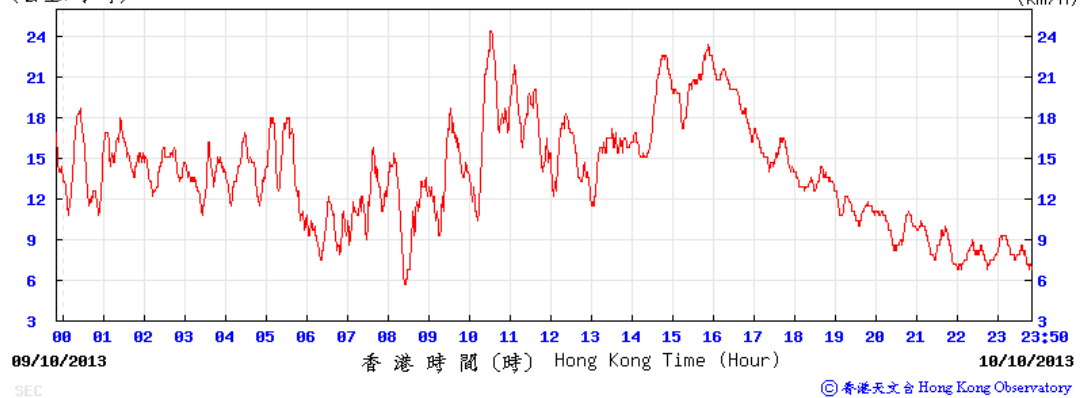
3 – 4 October 2013



9 – 10 October 2013

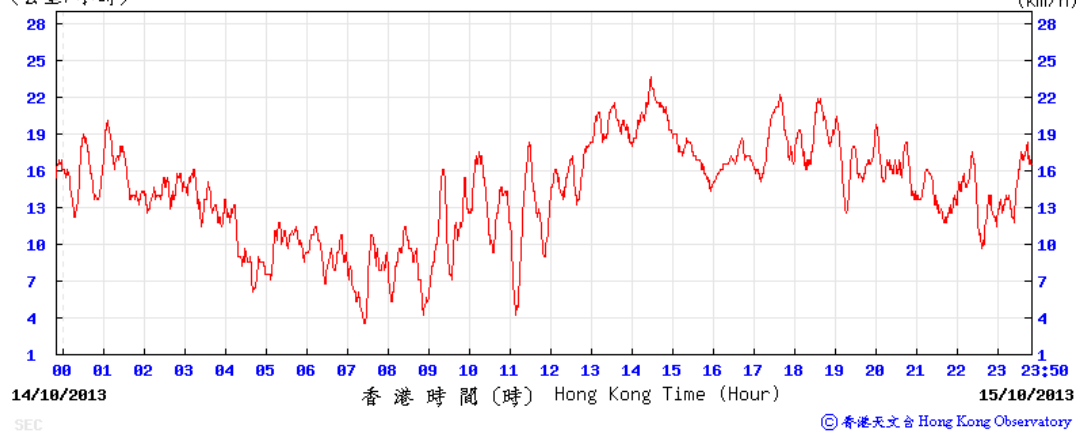


(公里/小時) (於香港時間 2013 年10月10日23時50分更新) (Updated at 23:50H on 10 Oct 2013) (km/h)

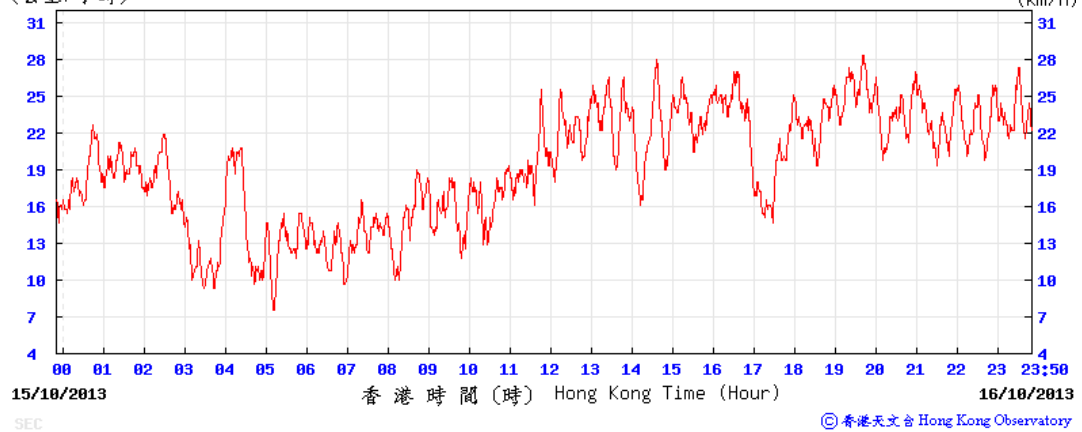


15 – 16 October 2013

(公里/小時) (於香港時間 2013 年10月15日23時50分更新) (Updated at 23:50H on 15 Oct 2013) (km/h)

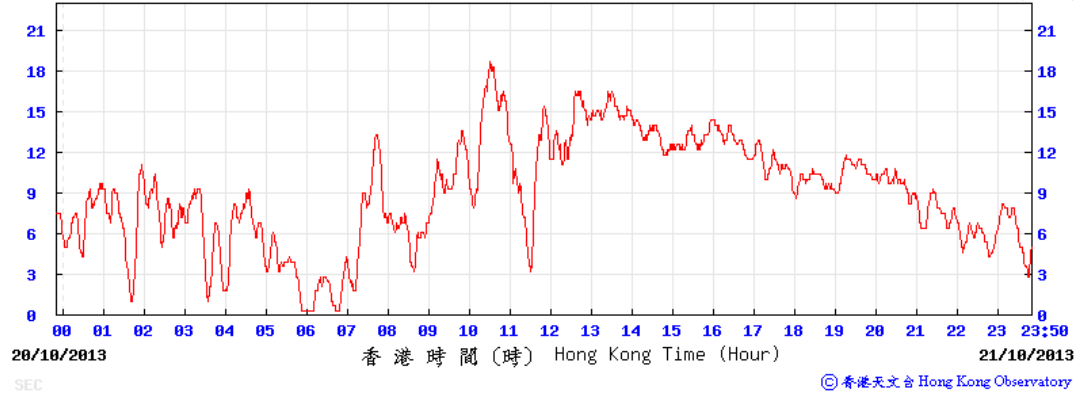


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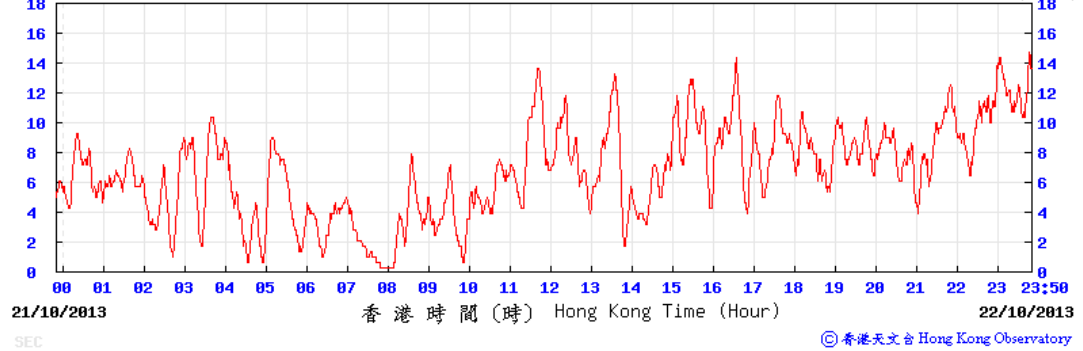


21 – 22 October 2013

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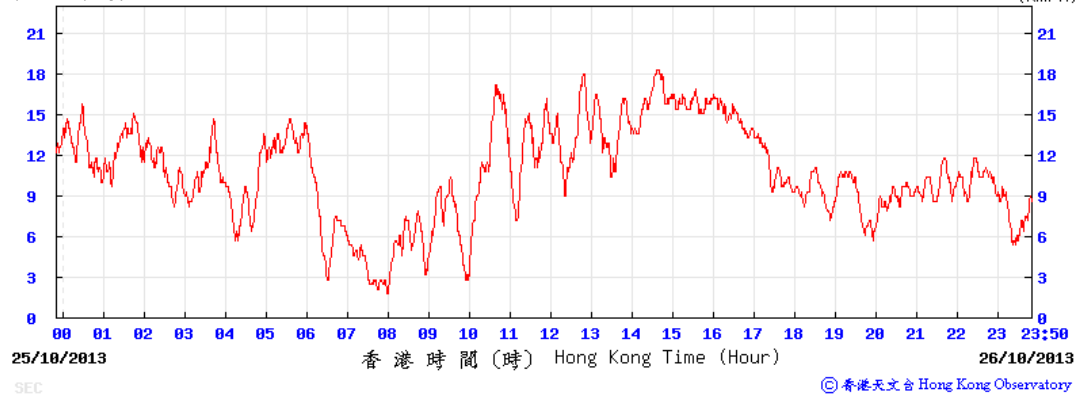


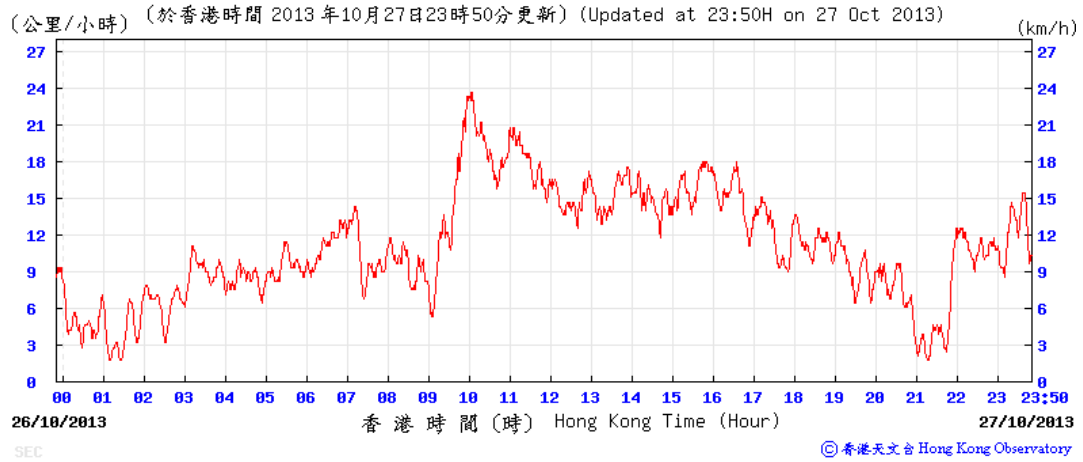
(公里/小時) (於香港時間 2013 年10月22日23時50分更新) (Updated at 23:50H on 22 Oct 2013)



26 – 27 October 2013

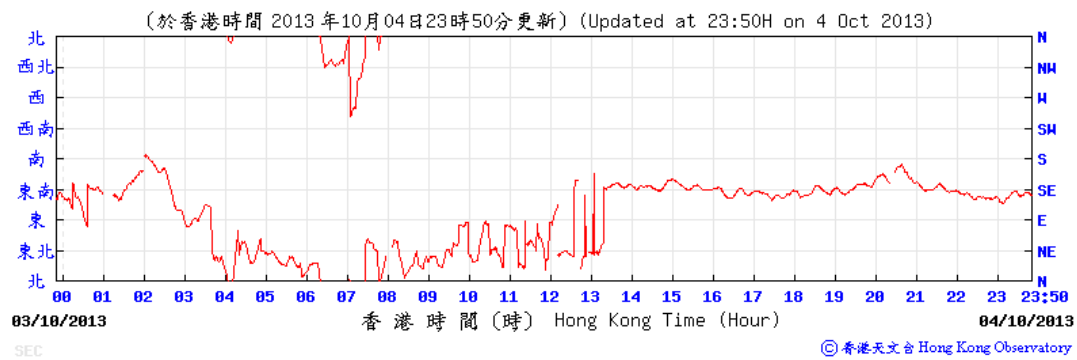
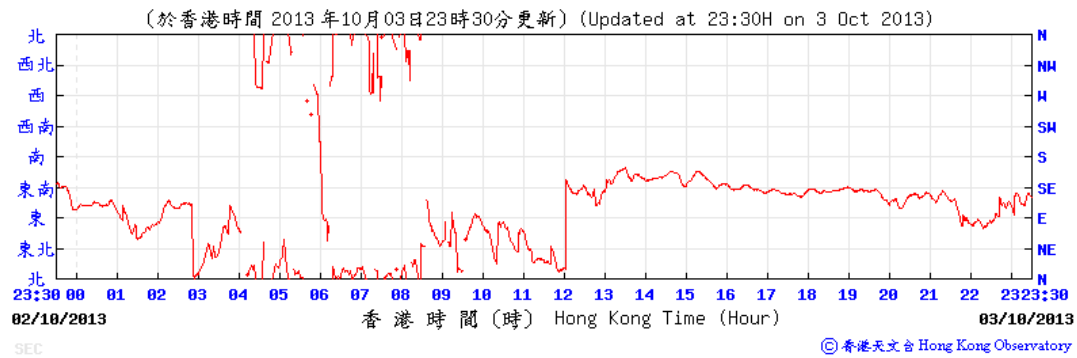
(公里/小時) (於香港時間 2013 年10月26日23時50分更新) (Updated at 23:50H on 26 Oct 2013)



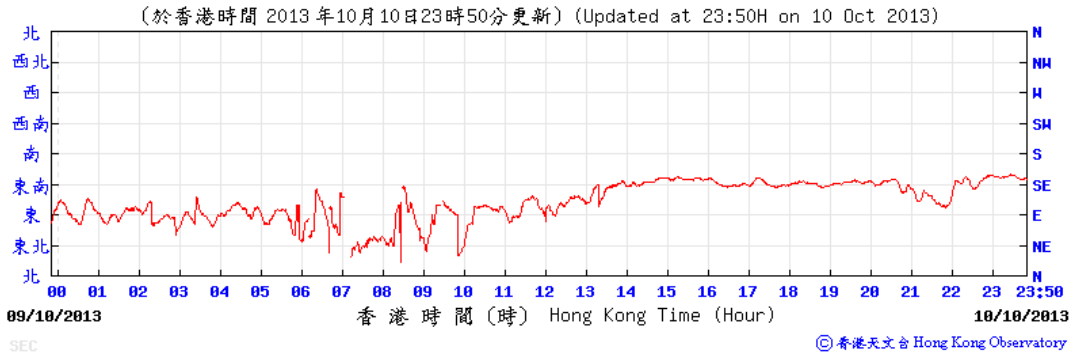
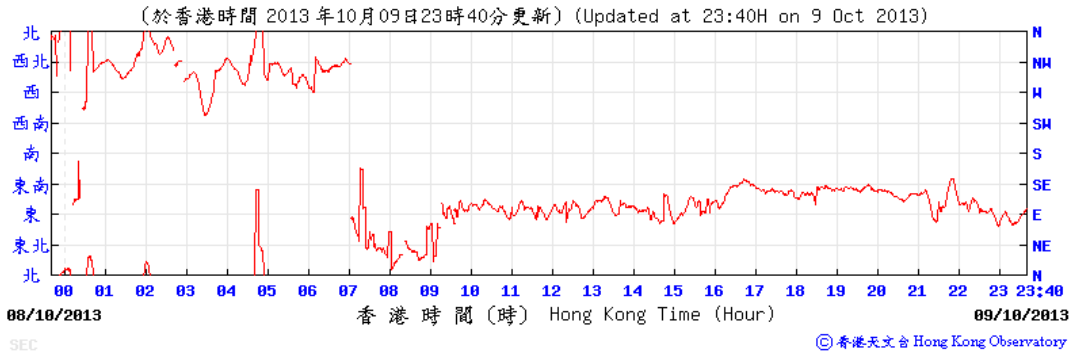


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

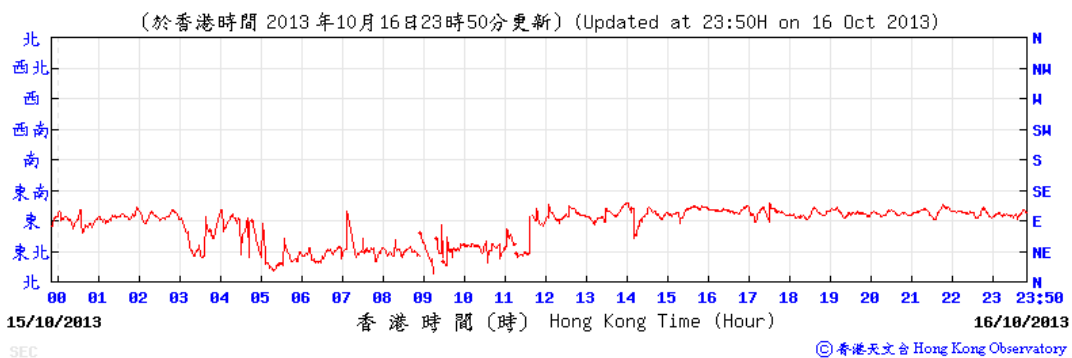
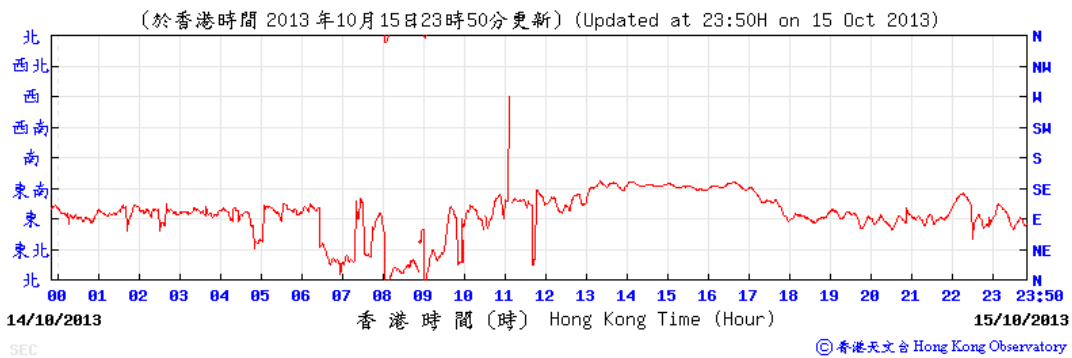
3 – 4 October 2013



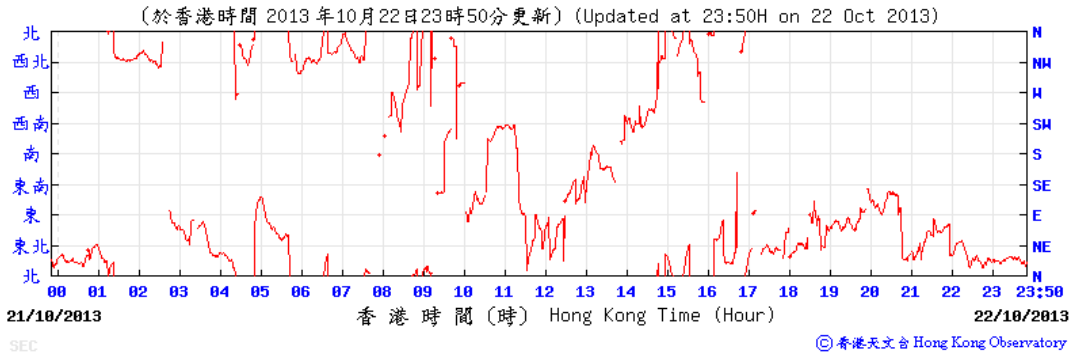
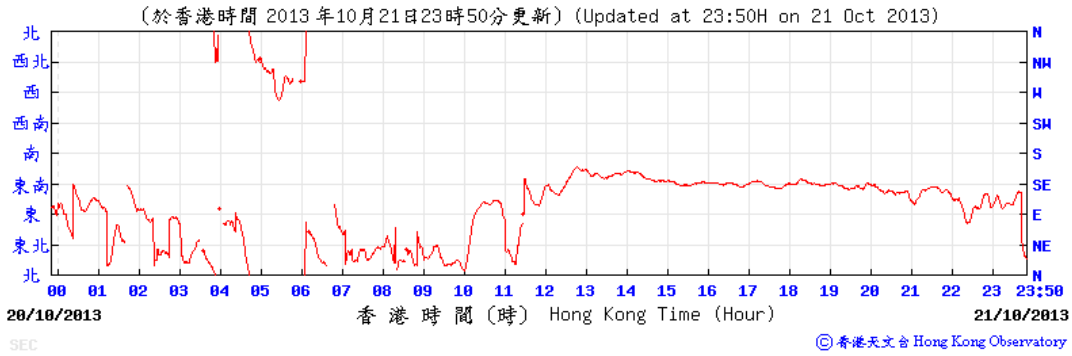
9 – 10 October 2013



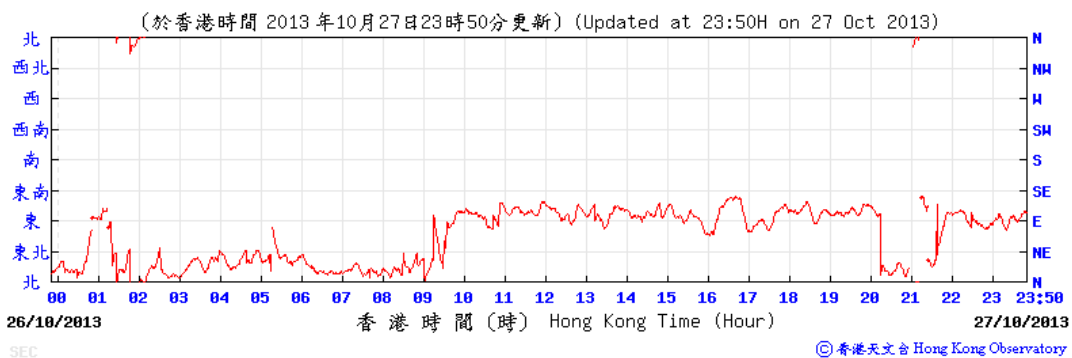
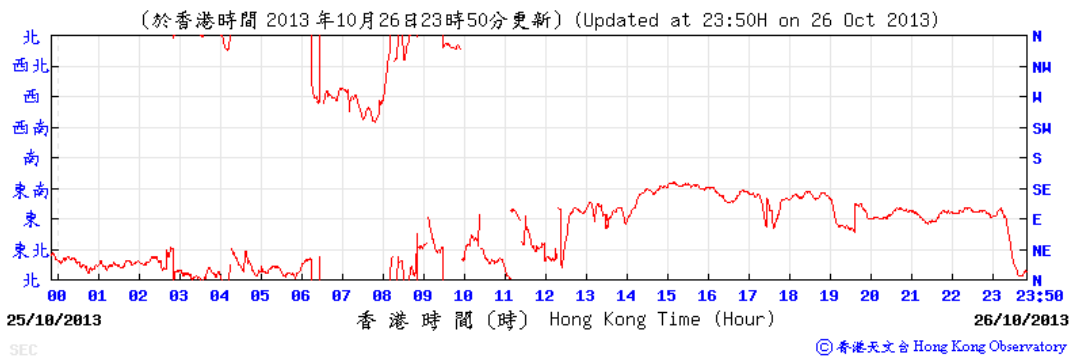
15 – 16 October 2013



21 – 22 October 2013



26 – 27 October 2013



Annex K

Waste Flow Table

Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2013

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill (in '000m ³)
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 5)	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities (See Note 6)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse (See Note 5)	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Sep 2012	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct 2012	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov 2012	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec 2012	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Sub-total	17.472	0.000	0.605	0.000	0.028	16.839	12.800	0.396	5.315	0.000	0.887	6.804
Jan 2013	19.828	0.000	0.000	0.000	0.006	19.822	0.000	0.036 (See Note 7)	0.416	0.000	0.081 (See Note 8)	0.000
Feb 2013	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
Mar 2013	14.673	0.000	0.000	0.000	0.000	14.673	0.000	0.036	0.463	0.000	0.064 (See Note 9)	0.000
Apr 2013	13.557	0.000	0.000	0.000	0.025	13.533	0.000	0.036	0.148	0.000	0.086	0.000
May 2013	9.969	0.000	0.000	0.000	0.000	9.969	0.000	0.000	0.481	0.000	0.065	0.000
Jun 2013	5.538	0.000	0.000	0.000	0.000	5.538	0.000	0.045	0.784	0.32 (See Note 11)	0.065	0.000
Jul 2013	6.116	0.000	0.000	0.000	0.000	6.116	0.000	0.063	0.868	0.400	0.058	0.000
Aug 2013	11.537	0.000	0.000	0.000	0.000	11.537	0.000	0.068	0.464	0.000	0.071	0.000
Sep 2013	4.641	0.000	0.000	0.000	0.000	4.641	0.000	0.027	0.522	0.000	0.110	0.000
Oct 2013	9.708	0.000	0.000	0.000	0.000	9.708	0.000	0.036	0.348	0.000	0.086	0.000
Total	121.412	0.000	0.605	0.000	0.064	120.742	12.800	0.743	10.252	0.400	1.449	6.804

Notes:

- 1 The performance targets are given below:
 - All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
 - All metallic waste to be recovered for collection by recycling contractors;
 - All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
 - All chemical wastes to be collected and properly disposed of by specialist contractors; and
 - All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- 2 Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- 3 Broken concrete for recycling into aggregates.
- 4 The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 5 Density Assumption: 1.6(kg/l) for Public Fill and 0.9(kg/l) for General Refuse
- 6 Inert C&D Material was delivered to contract 1108A from 10-Dec-2012.
- 7 The quantity of paper/ cardboard packaging generated in January 2013 was updated by the Contractor in March 2013.
- 8 The quantity of general refuse generated in January 2013 was updated by the Contractor in March 2013.
- 9 The quantity of general refuse generated in March 2013 was updated by the Contractor in April 2013.
- 10 Chemical waste includes waste oil. It is assumed density of waste oil to be 0.8 kg/L.
- 11 The quantity of chemical waste generated in June 2013 was updated by the Contractor in August 2013.

Annex L

Investigation Reports

Investigation Report of Environmental Quality Limit Exceedance

Date	8 October 2013
Time	13:30 – 14:00; 14:00 – 14:30; 14:30 – 15:00; 15:00 – 15:30; 15:30 – 16:00; 16:00 – 16:30; 16:30 – 17:00.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, L_{Aeq} (30mins)
Action / Limit Levels	Limit level - 79 dB(A) (according to the latest Continuous Noise Monitoring Plan, CNMP)
Measured Level (With baseline level adjustment)	90.1 dB(A) (13:30 – 14:00); 89.2 dB(A) (14:00 – 14:30); 90.2 dB(A) (14:30 – 15:00); 90.8 dB(A) (15:00 – 15:30); 89.4 dB(A) (15:30 – 16:00); 90.5 dB(A) (16:00 – 16:30); 81.7 dB(A) (16:30 – 17:00).
Possible reason	Based on site record on 8 October 2013, the potential noise sources from the Project works were identified, including trench excavation by cutter at E3, construction of guide wall and concrete breaking at ex-pedestrian footpath at E6. Two breakers and two cutters were used during the construction works. Having considered the above, the exceedances recorded are potentially project-related.
Action Taken / Action to be Taken	The following actions/noise mitigation measures had been undertaken: <ol style="list-style-type: none"> 1. According to SCL EIA Section 8.4.6, the Contractor had considered and implemented a good site practice of scheduling the construction works to minimize the potential noise impact to the normal school class periods. 2. Noise fabrics as barrier had been erected on the site hoarding at worksites E3 and E6; 3. Noise fabrics and movable noise barrier had been provided for trench cutters and breaker, respectively. Also, acoustic cover has been provided for breaker tip. 4. The Contractor has conducted site inspections twice a day, to remind workers to implement necessary noise mitigation measures, such as erection of movable noise barrier at the excavation area, to collect details regarding the site activities in vicinity to the concerned works area, to check if any further mitigation measures is needed;

	<p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will continue to review and provide sufficient and necessary mitigation measures to mitigation the noise to avoid any exceedance of the Action/Limit Level.</p> <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimize the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date: 16-Oct-13

Investigation Report of Environmental Quality Limit Exceedance

Date	10 October 2013
Time	15:09 – 15:39; 15:39 – 16:09
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, L_{Aeq} (30mins)
Action / Limit Levels	Limit level - 79 dB(A) (according to the latest Continuous Noise Monitoring Plan, CNMP)
Measured Level (With baseline level adjustment)	82 dB(A) (15:09 – 15:39); 84 dB(A) (15:39 – 16:09)
Possible reason	<p>Based on site record on 10 October 2013, the potential noise sources from the Project works were identified, including trial pits excavation, construction of school protective screens and concrete breaking at ex-pedestrian footpath at E6; trench excavation by cutter at E3. Two breakers, two cutters and one drilling rig were used during the construction works.</p> <p>Having considered the above, the exceedances recorded are potentially project-related.</p>
Action Taken / Action to be Taken	<p>The following actions/noise mitigation measures had been undertaken:</p> <ol style="list-style-type: none"> 1. According to SCL EIA Section 8.4.6, the Contractor had considered and implemented a good site practice of scheduling the construction works to minimize the potential noise impact to the normal school class periods. 2. Noise fabrics as barrier had been erected on the site hoarding at worksites E3 and E6; 3. Noise fabrics and movable noise barrier had been provided for trench cutters and breaker, respectively. Also, acoustic cover has been provided for breaker tip. 4. The Contractor has conducted site inspections twice a day, to remind workers to implement necessary noise mitigation measures, such as erection of movable noise barrier at the excavation area, to collect details regarding the site activities in vicinity to the concerned works area, to check if any further mitigation measures is needed; 5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise

Samsung – Hsin Chong Joint Venture
 SCL 1109 – Shatin to Central Link – Stations and Tunnels of Kowloon City Section

	<p>mitigation measures.</p> <p>The Contractor will continue to review and provide sufficient and necessary mitigation measures to mitigation the noise to avoid any exceedance of the Action/Limit Level.</p> <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimize the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date: 16-Oct-13

Annex M

Environmental Complaint,
Environmental Summon
and Prosecution

Annex M Environmental Complaint, Environmental Summon and Prosecution Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
September 2012	0	0
October 2012	0	0
November 2012	0	0
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
Overall Total	0	0

Appendix C

**11th EM&A Report for Works Contract 1101 –
Ma On Shan Line Modification Works**

MTR Corporation Limited

**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report

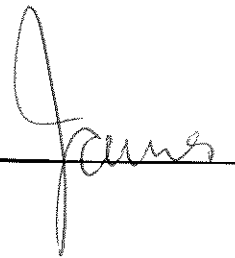
[Period from 1 to 31 October 2013]

Works Contract 1101

Ma On Shan Modification Works

(November 2013)

Certified by: James Choi



Position: Environmental Team Leader

Date: 14 November 2013

SCL Contract No. 1101

Ma On Shan Line Modification Works

Monthly EM&A Report (SCL) (October 2013)

for

Sun Fook Kong Joint Venture

Prepared By	Checked By	Approved for Issue
A Chan <i>Tung</i>	A Lee <i>AL</i>	J Choi <i>J Choi</i>
Version	0	Date
		3 November 2013
<p>The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of the brief. This report has been prepared for the sole and specific use of our client and EDMS Consulting Limited accepts no responsibility for its use by others.</p> <p>This report is copyright and may not be reproduced in whole or in part without prior written permission. All rights reserved.</p>		

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EXECUTIVE SUMMARY

Sun Fook Kong Joint Venture (SFKJV) was awarded the Shatin to Central Link (SCL) Contract No. 1101 Ma On Shan Line (MOL) Modification Works (this Project). EDMS Consulting Limited (EDMS) was commissioned by SFKJV as the Environmental Team (ET) for undertaking the Environmental Monitoring and Audit (EM&A) works during the construction period. The works areas under this Project covered by Environmental Permit (EP-438/2012/D) for the SCL Tai Wai to Hung Hom Section (TAW-HUH) included works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard of which EM&A programme according to the EM&A Manual of SCL (TAW-HUH) should be implemented.

Construction Activities

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

Air Quality and Noise Monitoring

According to the EM&A Manual of SCL (TAW-HUH), there is no designated monitoring stations for work sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard.

Environmental Auditing

Weekly site inspections were carried out by ET to ensure proper implementation of environmental mitigation measures and compliance with environmental legislation. During the reporting month, a total of 5 site inspections were conducted and the joint site inspection with IEC was conducted on 23 October 2013. All observations, which were recorded in inspection checklist and together with the ET's recommendations, were passed to the Contractor and ER for necessary corrective action.

Waste Disposal

No C&D materials and chemical wastes were disposed of in the reporting month and 58.5 m³ general refuse were disposed of to NENT Landfill in the reporting month.

Complaint Log

No environmental complaint was received during the reporting month.

Notification of Summons and Successful Prosecution

No Notification of Summons or successful prosecution was received during the reporting month.

Future Key Issues

No construction activity is scheduled in the upcoming months.

Reporting Changes

No reporting change was observed during the reporting month.

1. INTRODUCTION

1.1 Background

The Shatin to Central Link - Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an extension of the Ma On Shan Line (MOL) and is approximately 11 km long. It links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1101 covers the works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard of which EM&A programme according to the EM&A Manual of SCL (TAW-HUH) should be implemented.

EDMS Consulting Limited (EDMS) was commissioned by Sun Fook Kong Joint Venture (SFKJV), the main contractor as the Environmental Team (ET) during the construction phase of SCL(TAW-HUH) for Contract No. 1101.

1.2 Description of the Construction Works

The major works of Contract No. 1101 includes construction of noise cover over the viaduct at Tai Wai Mei Tin Road. The works was completed in September 2013.

The works areas including works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard are shown in *Appendix A* and the updated construction programme of the construction works is shown in *Appendix B*.

1.3 Purpose of this Report

This is the 11th monthly EM&A report summarising audit findings of the EM&A program carried out according to EM&A Manual for SCL (TAW-HUH) by ET during the reporting month in October 2013.

As there is no designated air quality, noise and water quality monitoring stations for works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard, this report mainly summarises the waste management details, site inspections findings, environmental complaint records and investigations, and any notification of summons, prosecutions and corrective actions in the reporting month. This monthly EM&A Report is organised as follows:

- Section 1 Introduction
- Section 2 Project Information
- Section 3 Waste Management
- Section 4 Site Inspection
- Section 5 Environmental Complaint
- Section 6 Summary of Notification of Summons, Successful Prosecutions and Corrective Actions
- Section 7 Future Key Issues

2. PROJECT INFORMATION

2.1 Project Organization and Management Structure

The organization chart, contact detail and lines of communication with respect to the environmental management are shown in *Appendix C*.

2.2 Construction Activities

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

Offsite works areas at To Shek Storage Yard and Shek Mun Storage Yard were only used for storage of construction materials and no construction activities were carried out.

2.3 Status of License, Permit and Submissions under Environmental Protection Requirements

A summary of relevant permits and licences related to environmental protection for the Construction Works and submission under and EP-438/2012/D for contract no. 1101 is given in *Table 1* and *Table 2* in *Appendix D*.

3. WASTE MANAGEMENT

The status of waste management in the reporting month is summarized in the following table. Details of the quantities of waste materials generated during the reporting month are shown in the waste flow table given in *Appendix E*.

Table 3.1 Waste Generated in the Reporting Month

Waste Type	Quantity this month m³	Cumulative-to-Date m³
Inert C&D materials disposed	0	13.00
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	0	3.00
General waste disposed of to NENT Landfill	58.5	175.75
Chemical waste disposed of to Chemical Waste Treatment Centre at Tsing Yi	0	0

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 2, 9, 16, 23, 30 October 2013. The joint site inspection with IEC was carried out on 23 October 2013. All observations together with the appropriate recommended mitigation measures where necessary were recorded in the site inspection checklists that were passed to the Contractor. Major environmental deficiencies observed during the site inspection and recommendations made by the ET are given in **Table 4.1**.

Table 4.1 Summary of Major Environmental Deficiencies in the Reporting Month

Date	Item	ET's Observations and Recommendations	Follow-up Action
2 Oct 2013	2	At Shek Mun Storage Yard – construction wastes were observed. The Contractor was advised to remove the construction wastes more frequently. Also, sorting of the construction material and wastes should be properly performed. Good housekeeping practices should be performed throughout the whole construction period. (Remark was raised since 24.9.2013)	At Shek Mun Storage Yard – Construction wastes were removed on 9.10.2013. Last observation raised since 24.9.2013 closed.
9 Oct 2013	--	No site observation	NA
16 Oct 2013	--	No site observation	NA
23 Oct 2013	--	No site observation	NA
30 Oct 2013	--	No site observation	NA

Remark:

No construction activity had been carried out at To Shek Storage Yard and Shek Mun Storage Yard.

During site inspections in the reporting month, no non-conformance of implementation of environmental mitigation measures was identified. All relevant environmental mitigation measures for construction stages as stated in the EM&A Manual of SCL (TAW-HUH) was carried out properly in the reporting month. The mitigation measures implementation schedule is shown in **Appendix F**.

5. ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month.

A log of environmental complaints is shown in *Appendix G*. Cumulative statistic of environmental complaints is shown in *Table 5.1*.

Table 5.1 Cumulative Statistic of Environmental Complaint

Compliant Received in the Reporting Month	Cumulative Number of Compliant
0	0

6. SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS

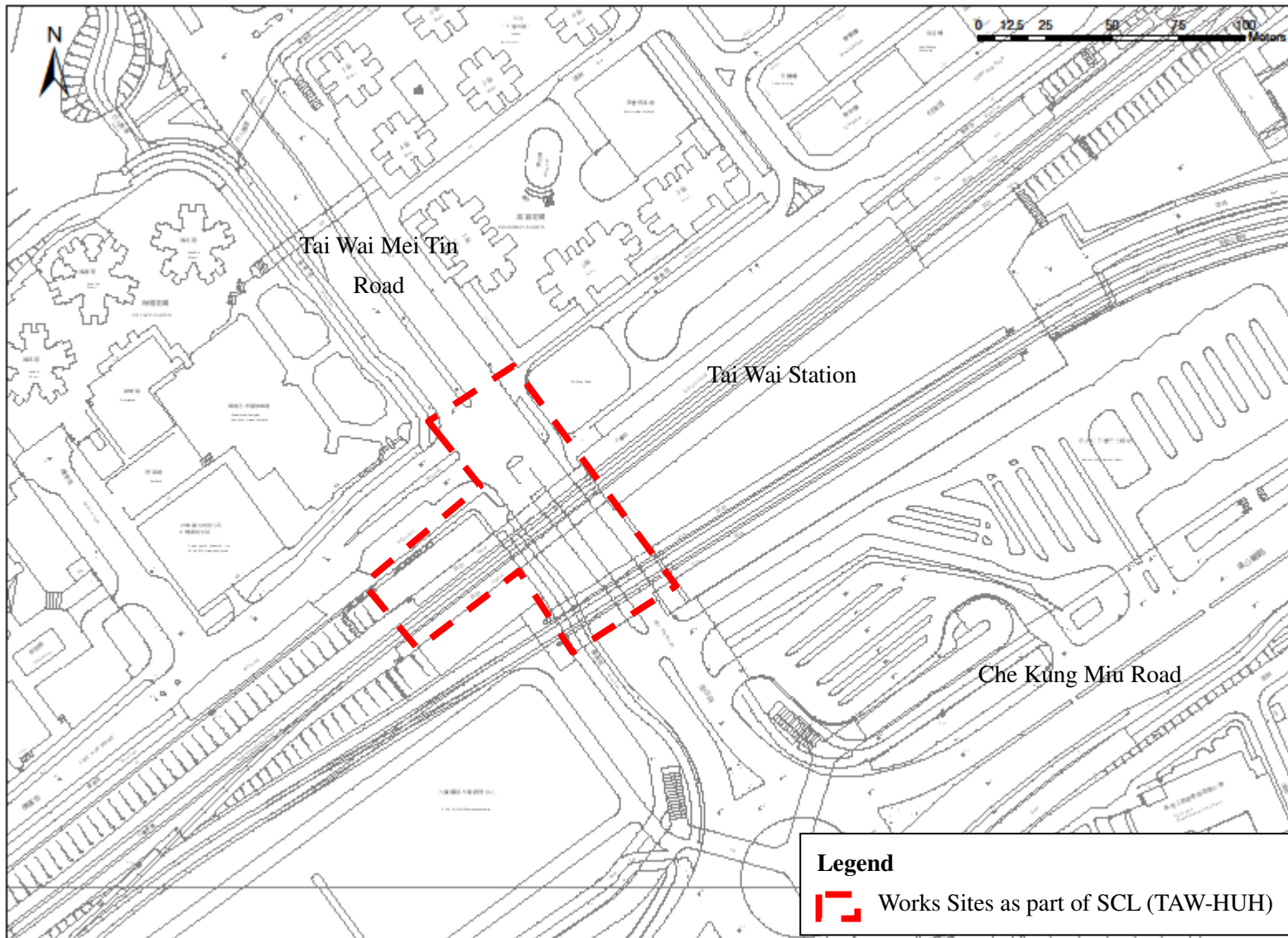
Neither Notification of Summon nor successful prosecution was received by the Contractor during the reporting month.


7. FUTURE KEY ISSUES

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

APPENDIX A

LOCATION PLAN OF WORKS AREA AND STORAGE YARD

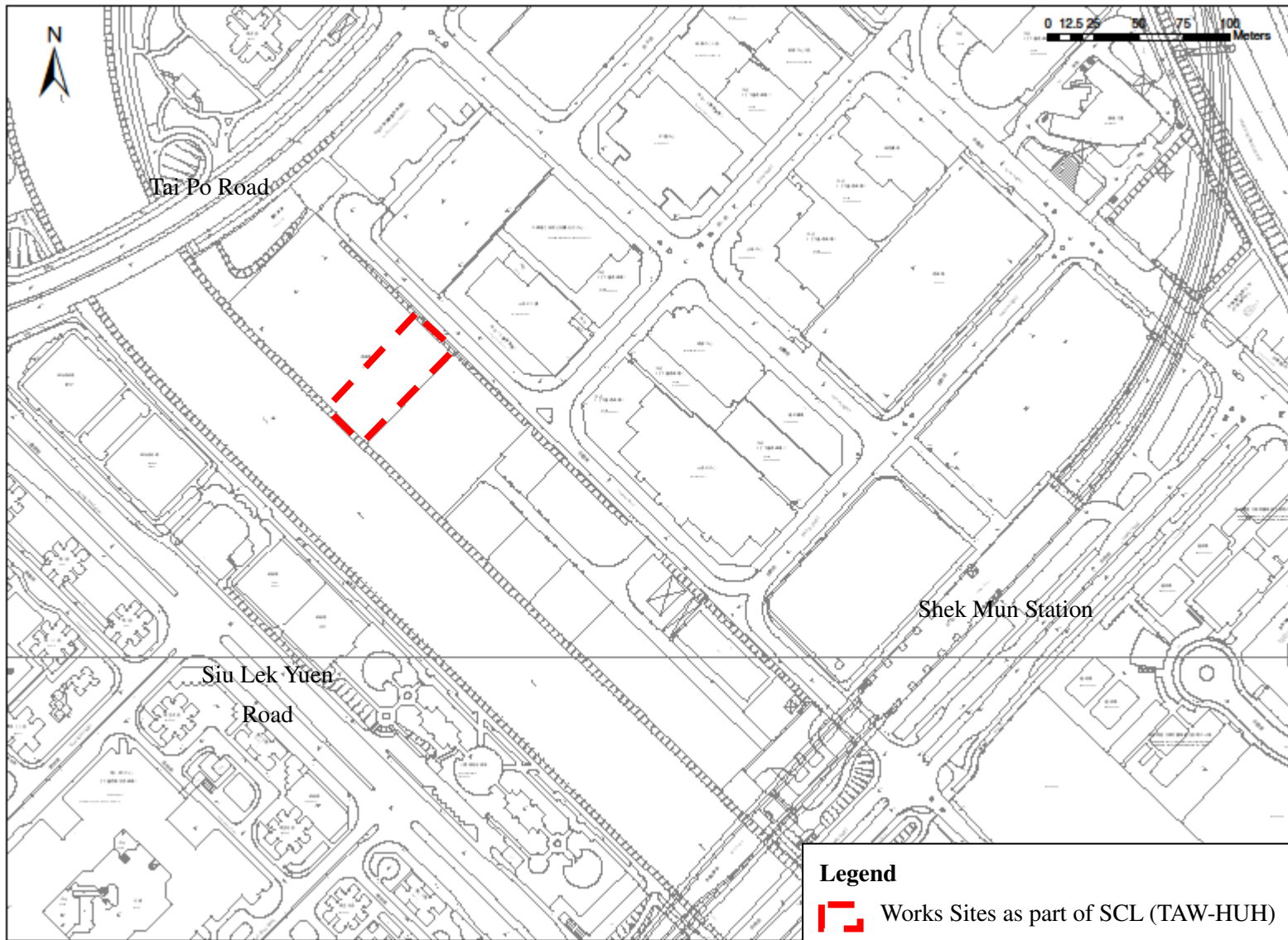


Legend
 Works Sites as part of SCL (TAW-HUH)

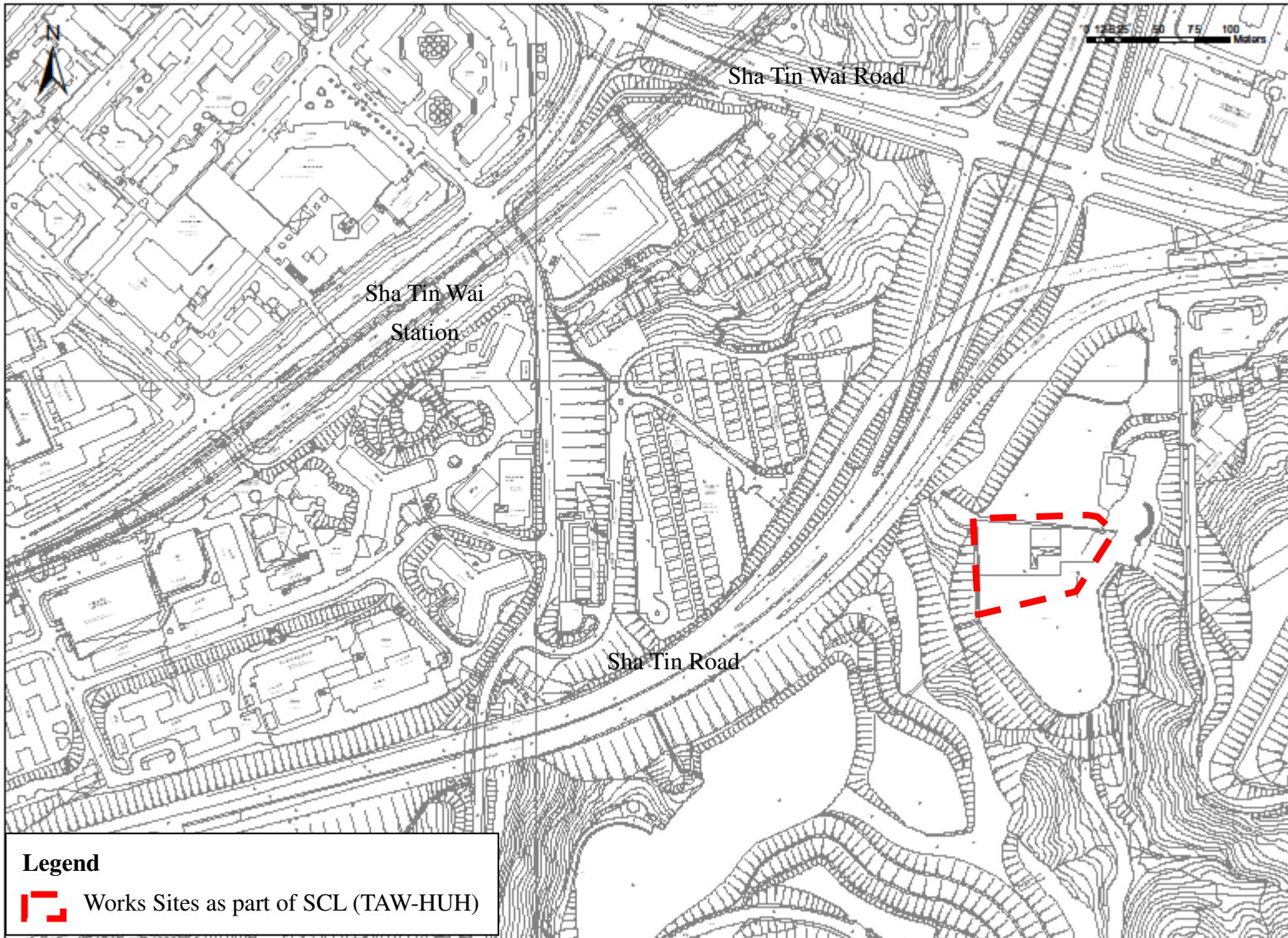


Location Plan of Works Area and Storage Yard
Tai Wai Mei Tin Road

SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 1 of 3)		1



SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 2 of 3)		1



SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 3 of 3)		1

APPENDIX B

UPDATED CONSTRUCTION PROGRAMME

Construction Programme (SCL)

Work site	Activities	2012				2013												2014												2015												2016						
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul												
Tai Wai Mei Tin Road	Noise Barrier Installation Work			I	I	I	I	I	I	I	I	I	I																																			

Note:

1. Abbreviation:

I Engineering Possession (2:00 to 4:00)

2. Construction works were completed at Tai Wai Mei Tin Road in September 2013.

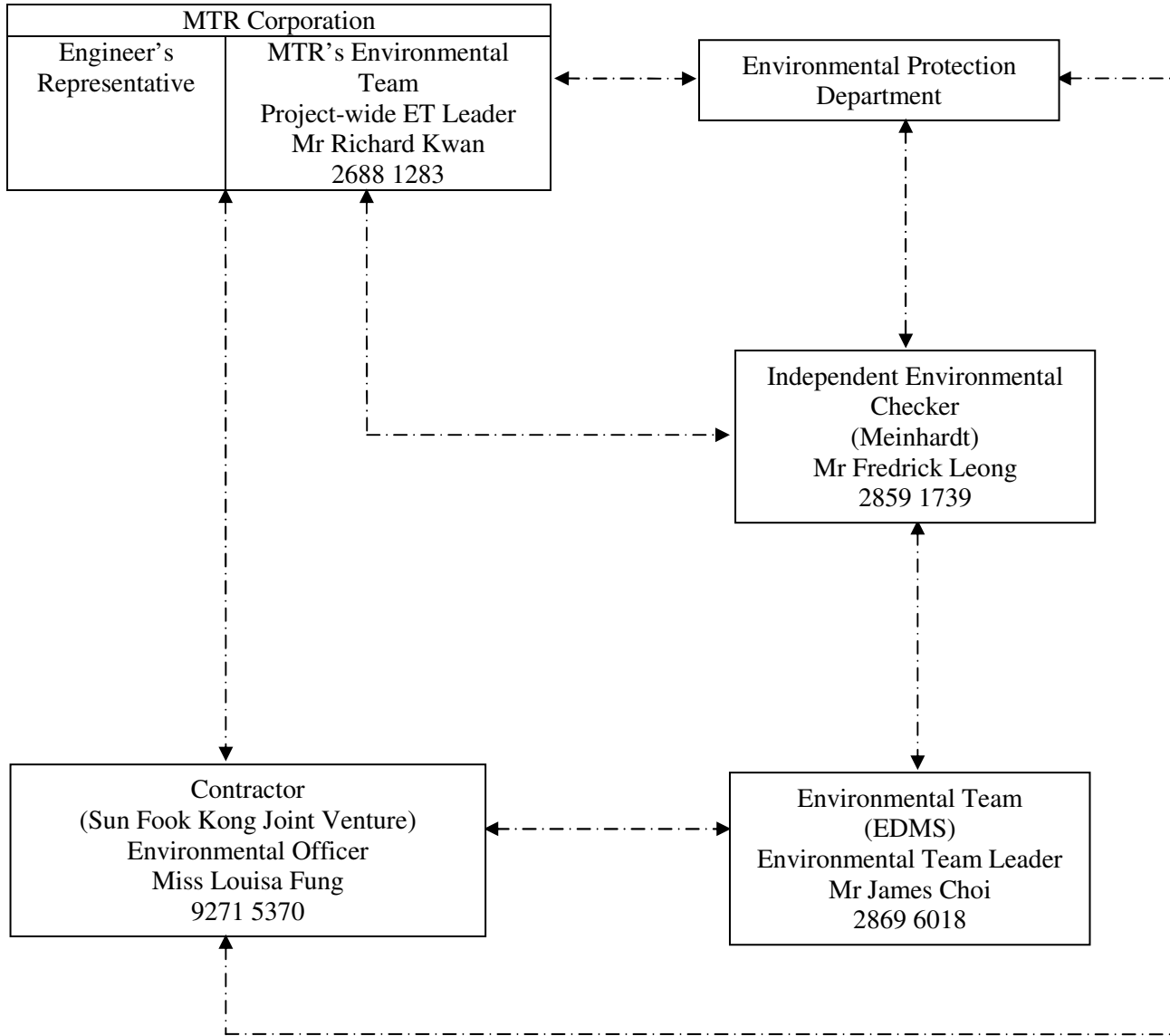
3. No construction activity had been carried out at To Shek Storage Yard and Shek Mun Storage Yard.

APPENDIX C

ORGANISATION CHART OF ENVIRONMENTAL MANAGEMENT

Appendix C Organisation Chart of Environmental Management

Project Organization Chart



----- Line of communication

APPENDIX D

STATUS OF LICENSE, PERMIT AND SUBMISSIONS UNDER ENVIRONMENTAL PROTECTION REQUIREMENTS

Appendix D Status of License, Permits and Submission under Environmental Protection Requirements

Table 1 Environmental Management Related Licenses and Permits

Subject	Reference No.	Application Date	Issued Date	Effective Date	Expired Date
Environmental Permit					
Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section	EP-438/2012/D	30 August 2013	13 September 2013	13 September 2013	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0433-13	19 July 2013	6 August 2013	18 August 2013	17 February 2014
Chemical Waste Producer					
Tai Wai Station (At Tai Wai Mei Tin Road)	5213-757-S3683-02	6 September 2012	8 October 2012	8 October 2012	N/A
To Shek Storage Yard	5213-759-S3683-08	10 January 2013	14 February 2013	14 February 2013	N/A
Wastewater Discharge Licence					
Tai Wai Station (At Tai Wai Mei Tin Road)	WT00014550-2012	5 November 2012	19 November 2012	19 November 2012	30 November 2017
To Shek Storage Yard	WT00014628-2012	12 November 2012	12 December 2012	12 December 2012	31 December 2017

Note: Only include those valid or under application; “N/A” for non-applicable item(s).

Table 2 Summary of Submission Status under EP-438/2012/D

EP Condition	Submission	Date of Submission
Condition 3.4	Monthly EM&A Report (September 2013)	15 October 2013

APPENDIX E

WASTE FLOW TABLE

Waste Flow Table for 2012 (year) (in cu. meter) for SCL

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste
January								
February								
March								
April								
May								
June								
Sub-total								
July								
August								
September	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00
December	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cumulative Total	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00

Remark: - Waste Generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Yard and Tai Shui Hang Storage Yard.
 - 1 full loaded dumping truck is assumed equivalent to 6.5 m³ by volume from Archsd D/OL03/09.002
 - Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.

Waste Flow Table for 2013 (year) (in cu. meter) for SCL

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
April	0.00	0.00	0.00	0.00	0.00	3.00	16.25	0.00
May	0.00	0.00	0.00	0.00	0.00	0.00	35.75	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00	22.75	0.00
Sub-total	13.00	0.00	0.00	0.00	13.00	3.00	107.50	0.00
July	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
September	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00	58.50	0.00
November								
December								
Cumulative Total	13.00	0.00	0.00	0.00	13.00	3.00	175.75	0.00

- Remark: - Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Yard and Tai Shui Hang Storage Yard from January 2013 – April 2013.
- Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Yard only from May 2013 onwards
 - Tai Shui Hang Storage Yard has been handed back to land owner on 15 April 2013
 - 1 full loaded dumping truck is assumed equivalent to 6.5 m³ by volume from Archsd D/OL03/09.002
 - Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.

APPENDIX F

MITIGATION MEASURES IMPLEMENTATION SCHEDULE FOR CONSTRUCTION STAGE

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)								
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilization works; 	Minimise ecological impacts	Contractor	All construction sites	During construction	• ProPECC PN 1/94	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

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* Not satisfactory but rectified by the contractor

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		<ul style="list-style-type: none"> No on-site burning of waste; Waste and refuse in appropriate receptacles. 						
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	<p>The following good site practices and measures for minimization and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p>	Minimize visual & landscape impact	Contractor	Within Project Site	Contraction stage	TM-EIAO	^

Remarks:

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		<ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 						
S6.12	LV2	<ul style="list-style-type: none"> <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <u>Tree Transplanting</u> 	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^

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		Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D2	<ul style="list-style-type: none"> • Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 L/m² to achieve the dust removal efficiency 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^

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S7.6.5	D3	<ul style="list-style-type: none"> Proper watering of exposed spoil should be undertaken throughout the construction phase; Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Where practices, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA criteria 	^

Remarks:

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; 						

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		<ul style="list-style-type: none"> Every stock of more than 20 bags of cement or by pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; 	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^

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		<ul style="list-style-type: none"> Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; Plant down to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; Mobile plant should be sited as far away from NSRs as possible and practicable; Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities. 						
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoarding shall be properly maintained throughout the construction period.	Reduce the construction noise level at low-level zone of NSRs through partial screening	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^

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S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^

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		<p>the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilities the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediments/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5m³/s the basin would be 150m³. The detailed design of the sand/silt traps shall be undertaken by the constructor prior to the commencement of construction. • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surface should be covered by tarpaulin or other means. 						

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		<ul style="list-style-type: none"> The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or 						

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		<p>debris into any drainage system.</p> <ul style="list-style-type: none"> Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 or ProPECC PN 1/94. Particular attention should be paid to the control of silt surface runoff during storm events, especially for areas located near steep slopes. All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads 						

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		<p>and drains.</p> <ul style="list-style-type: none"> Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt best management practices. 						
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water 	^

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		should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.						
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the location should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste produce if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical waste should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke roke should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> DEVB TC(W) No.6/2010 	^

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		from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Apilte Dyke rock, etc should also be explored.						
S11.5.1	WM2	<u>Construction and Demolition Material</u> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt “Selective Demolition” technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	*

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		<p>purpose, where possible;</p> <ul style="list-style-type: none"> Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documents and verified; and Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction; In addition, disposal of the C&D materials onto ant sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation. 						
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	^

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		<ul style="list-style-type: none"> The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 						
S11.5.1	WM4	<u>General Refuse</u> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labeled bins for their deposit should be provided if feasible. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	^

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		<ul style="list-style-type: none"> Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 						
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	^

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		<p>incompatible materials are adequately separated;</p> <ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						
EM&A Project								
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	MTR Corporation	All construction sites	Construction Stage	<ul style="list-style-type: none"> EIAO Guidance Note No.4/2010 TM-EIAO 	^
S14.2-14.4	EM2	<ol style="list-style-type: none"> An Environmental Team needs to be employed as per the EM&A Manual. Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with. 	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> EIAO Guidance Note No. 4/2010 TM-EIAO 	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

APPENDIX G

ENVIRONMENTAL COMPLAINT LOG



Appendix G Environmental Complaint Log

Complaint Log No.	Name of Complainant	Date Complaint Received	Complaint Date	Complaint Location	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Validity To Project
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Appendix D

**10th EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnel**

Gammon- Kaden SCL 1111 Joint Venture**Shatin to Central Link -
Tai Wai to Hung Hom Section and
Mong Kok East
to Hung Hom Section****Works Contract 1111 -
Hung Hom North Approach Tunnels****Monthly EM&A Report for
October 2013****November 2013**

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

Version: 0

Date: 14 November 2013

Disclaimer

This report is prepared for Gammon-Kaden SCL1111 JV and is given for its sole benefit in relation to and pursuant to SCL1111 and may not be disclosed to, quoted to or relied upon by any person other than Gammon-Kaden SCL1111 JV without our prior written consent. No person (other than Gammon-Kaden SCL1111 JV) into whose possession a copy of this report comes may rely on this report without our express written consent and Gammon-Kaden SCL1111 JV may not rely on it for any purpose other than as described above.

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1111 – Hung Hom North Approach Tunnels (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL) which aimed to convey a total of 17km extension of the existing Ma On Shan Line (MOL) through east Kowloon to West Rail Line and also East Rail Line (EAL) through Hung Hom across the harbour to Admiralty Station (ADM). The Project covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom Area for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS).

The EM&A programme commenced in January 2013. The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 October 2013. As informed by the Contractor, major activities in the reporting period were:-

Hung Hom Area

- Excavation work, demolition work, site formation, slope work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Cable trough installation, overhead line portals erection, track rail installation,
- Geological investigation,
- Trial pit, sheet piling, pile piling, pipe piling, pre-drilling, pre-grouting,
- Hoarding erection and tree felling,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Noise panel installation, ABWF and E&M works.

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

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.

Continuous Noise Monitoring

As the construction works identified by the Construction Noise Mitigation Measures Plan (CNMMP) to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.

Complaint, Notification of Summons and Successful Prosecution

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

Future Key Issues

Key issues to be considered in the coming month included:-

Hung Hom Area

- Excavation work, demolition work, site formation, slope work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Cable trough installation, overhead line portals erection, track rail installation,
- Geological investigation,
- Trial pit, sheet piling, pile piling, pipe piling, pre-drilling, pre-grouting,
- Hoarding erection and tree felling,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Noise panel installation, ABWF and E&M works.

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

1 INTRODUCTION

Gammon-Kaden SCL1111 Joint Venture (GKSCLJV) was commissioned by MTR as the Civil Contractor for Works Contract 1111. AECOM Asia Company Limited (AECOM) was appointed by GKSCLJV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the tenth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 October 2013.

1.2 Report Structure

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

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

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 – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] (Register No.: AEIAR-167/2012), SCL – Mong Kok East to Hung Hom Section [SCL (MKK-HUH)] (Register No.: AEIAR-165/2012) and SCL - Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS)(EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/D) was issued by Director of Environmental Protection (DEP) on 13 September 2013.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1111 – Hung Hom North Approach Tunnels (hereafter referred to as “the Project”) covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom under the two EPs.

2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1111 include:
- SCL (MKK-HUH) – (i) Construction of an realigned and modified railway from Portal 1A near Oi Man Estate to Hung Hom Station; (ii) Construction of Noise Enclosure at Portal 1A; (iii) modification works on the existing Homantin Siding; and (iv) new EVA near Hung Hom Station.
 - SCL (TAW-HUH) – Part of the railway tunnel from Ho Man Tin Station to Hung Hom.
 - SCL (HHS) – Construction of tracks and noise barrier of Hung Hom Stabling Sidings.
- 2.2.2 **Figure 1.1** shows the works areas for the Works Contract 1111.

2.3 Construction Programme and Activities

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

Hung Hom Area

- Excavation work, demolition work, site formation, slope work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Cable trough installation, overhead line portals erection, track rail installation,
- Geological investigation,
- Trial pit, sheet piling, pile piling, pipe piling, pre-drilling, pre-grouting,
- Hoarding erection and tree felling,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Noise panel installation, ABWF and E&M works.

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

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. Michael Fu	3127 6201	3124 6422
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
GKSCKJV	Contractor	Project Manager	Mr. Alan Yan	9855 0361	3904 9630
		Environmental Manager	Mr. Brian Kam	9456 9541	
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 2.1**.

Table 2.1 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-437/2012	22 Mar 2012	-	Valid	-
EP-438/2012/D	13 Sep 2013	-	Valid	-
Construction Noise Permit				
GW-RE0670-13	03 Jul 2013	28 Dec 2013	Valid	For Cross Track Duct Installation at Oi Sen Path near Workfronts No. 5 & 6
GW-RE0732-13	14 Jul 2013	15 Nov 2013	Valid	For Cross-track Duct Installation and Hoarding Erection at Workfronts No. 1, 2 & 3
GW-RE0741-13	18 Jul 2013	31 Dec 2013	Valid	For ADMS Installation Works near Hung Hom Station
GW-RE0782-13	01 Aug 2013	31 Jan 2014	Valid	E&M Works at Mong Kok East Station Concourse
GW-RE0794-13	31 Jul 2013	26 Jan 2014	Valid	For General Works at Mong Kok Freight Terminal
GW-RE0838-13	08 Aug 2013	29 Jan 2014	Valid	For General and Re-provisioning Works at Hung Hom Station
GW-RE0908-13	30 Aug 2013	12 Oct 2013	Valid	For Scaffolding Erection during Night Time adjacent to Workfront No. 7
GW-RE1021-13	03 Oct 2013	02 Nov 2013	Valid	For Hoarding Works at Oi Sen Path Rest Area
GW-RW1025-13	03 Oct 2013	30 Nov 2013	Valid	For Noise Panel Installation at Mong Kok East Station
GW-RE0941-13	07 Sep 2013	31 Oct 2013	Valid until cancellation on 29 Oct 2013	For Tree Felling Works and Mobilization Works at Oi Sen Path near Workfronts No. 5&6
GW-RE1030-13	25 Sep 2013	28 Nov 2013	Valid	For Tree Felling and Transplant at Slip Road adjoining Hong Chong Road and Chatham Road North
GW-RE1054-13	27 Sep 2013	15 Oct 2013	Valid	For Tree Felling Works of Cut & Cover Tunnel at Chatham Road North (Westbound)
GW-RE1061-13	30 Sep 2013	31 Oct 2013	Valid	For Working Platform for Inspection at Existing Bridge OB2 and OB2A
GW-RE1128-13	23 Oct 2013	31 Dec 2013	Valid	For OLE Shelter Demolition Work near Homantin Siding
GW-RE1156-13	29 Oct 2013	31 Dec 2013	Valid	For Tree Felling Works and Mobilization Works at Oi Sen Path near Workfronts No.5 &6

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Wastewater Discharge License				
WT00015148-2013	20 Feb 2013	28 Feb 2018	Valid	For Winslow Street Works
WT00015644-2013	16 Apr 2013	30 Apr 2018	Valid	For Homantin Sidings Works
WT00015606-2013	25 Apr 2013	30 Apr 2018	Valid	For Mong Kok Freight Terminal Works
WT00016090-2013	14 Jun 2013	30 Jun 2018	Valid	For Hung Hom Station Works
WT00016108-2013	14 Jun 2013	30 Jun 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Hong Chong Road)
WT00015859-2013	14 May 2013	31 May 2018	Valid	For Works in EWL8 and Oi Sen Path Garden
WT00016447-2013	24 Jul 2013	31 Jul 2018	Valid	For Winslow Street Slope Works Between Chatham Road North and Wai Fung Street
WT00016435-2013	23 Jul 2013	31 Jul 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Oi Sen Path)
Chemical Waste Producer Registration				
5213-213-G2618-01	22 Mar 2013	-	Valid	For Winslow Street Works
5213-213-G2618-03	08 Apr 2013	-	Valid	For Hung Hom Station Re provisioning Works
5213-222-G2618-05	25 Apr 2013	-	Valid	For Mong Kok Freight Terminal Works
5213-213-G2618-06	16 Apr 2013	-	Valid	For Homantin Sidings Works
5213-236-G2618-10	14 Jun 2013	-	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link
5213-236-G2618-11	27 May 2013	-	Valid	For Works near Chatham Road North
Billing Account for Construction Waste Disposal				
7016658	24 Jan 2013	-	Account Active	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
353991	02 Jan 2013	18 Apr 2018	Notified	-

3 ENVIRONMENTAL MONITORING REQUIREMENTS**3.1 Construction Dust Monitoring*****Monitoring Requirements***

- 3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

- 3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at each designated monitoring station. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:894-0835))
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0843))

Monitoring Locations

- 3.1.3 One monitoring station was set up at the proposed location in accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS) as well as the works areas of the Project. The location of the construction dust monitoring station is summarised in **Table 3.2** and shown in **Figure 2.1**.

Table 3.2 Locations of Construction Dust Monitoring Stations

ID	Location	Monitoring Station
AM1	No. 234 – 238 Chatham Road North	Roof top of the premises facing Chatham Road North

Note:

- (1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location has been approved by IEC and EPD.

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-
- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
 - (ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
 - (iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
 - (iv) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
 - (v) No furnace or incinerator flues nearby.
 - (vi) Airflow around the sampler was unrestricted.
 - (vii) Permission was obtained to set up the samplers and access to the monitoring stations.
 - (viii) A secured supply of electricity was obtained to operate the samplers.
 - (ix) The sampler was located more than 20 meters from any dripline.
 - (x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
 - (xi) Flow control accuracy was kept within $\pm 2.5\%$ deviation over 24-hour sampling period.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
 - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
 - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
 - (ii) The filter holder and the area surrounding the filter were cleaned.
 - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
 - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
 - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
 - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
 - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
 - (viii) A new flow rate record sheet was set into the flow recorder.
 - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/min).
 - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
 - (xi) The initial elapsed time was recorded.
 - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
 - (xiii) The final elapsed time was recorded.
 - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - (xv) It was then placed in a clean plastic envelope and sealed.
 - (xvi) All monitoring information was recorded on a standard data sheet.
 - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
 - (ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
 - (iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

- 3.1.5 The schedule for environmental monitoring in October 2013 is provided in **Appendix F**.

3.2 Regular Construction Noise Monitoring

Monitoring Requirements

- 3.2.1 In accordance with the EM&A Manuals, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.4** 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 3.4 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, L10 and L90 would be recorded.	At least once per week

Monitoring Equipment

- 3.2.2 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 3.5**.

Table 3.5 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238 (S/N: 2255677)&(S/N: 2285692), Model No. 2250L (S/N: 2681366) & Model No. 2270 (S/N: 2644597))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10186482) & (S/N: 10307216))

Monitoring Locations

- 3.2.3 Two monitoring stations were set up at the proposed locations in accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS) as well as the works areas of the Project. Locations of the noise monitoring stations are summarised in **Table 3.6** and shown in **Figure 3.1**.

Table 3.6 Locations of Regular Construction Noise Monitoring Stations

ID	Location	Monitoring Station	Type of Measurement
NM1	Carmel Secondary School (South Block)	1m from the exterior of the roof top façade of the premises facing Oi Sen Path	Façade
NM2	No. 234 – 238 Chatham Road North ⁽¹⁾	Free-field on the rooftop of the premise	Free Field

Note:

- (1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location has been approved by IEC and EPD.

Monitoring Methodology

3.2.4 Monitoring Procedure

- (a) The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at NM2. A correction of +3 dB(A) shall be made to the free field measurements.
- (b) Façade measurements were made at NM1.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) 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.
- (e) 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.
- (f) 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.
- (g) 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.
- (h) 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.

3.2.5 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

3.2.6 The schedule for environmental monitoring in October 2013 is provided in **Appendix F**.

3.3 Continuous noise monitoring***Monitoring Requirements***

- 3.3.1 According to EP conditions under EP-437/2012 (Condition 2.8) and EP-438/2012/D (Condition 2.10), continuous noise monitoring should be conducted at the NSRs as identified by the Construction Noise Mitigation Measures Plan (CNMMP) to have residual air-borne noise impacts. A Continuous Noise Monitoring Plan (CNMP) was prepared and submitted to EPD before the commencement of the construction of the Project.

Monitoring Locations

- 3.3.2 With reference to the CNMP, continuous noise monitoring should be conducted during period at which the predicted airborne construction noise levels exceed the relevant noise criteria at the respective NSRs. The proposed continuous noise monitoring locations are presented in **Table 3.7** and shown in **Figure 2.1**.

Table 3.7 Summary of Proposed Continuous Noise Monitoring Location

NSR ID	NSR Description	Uses	Proposed Continuous Noise Monitoring Location	Alternative Noise Monitoring Location
OM4a	Carmel Secondary School (South Block)	Educational	NM1	-
HH2	Wing Fung Building	Residential	NM2	No. 234-238 Chatham Road North ⁽¹⁾

Note:

(1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.

Monitoring Equipment

- 3.3.3 Continuous noise monitoring will be 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 will be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.8**.

Table 3.8 Noise Monitoring Equipment for Continuous Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Rion (Model No. NL-31)
Acoustic Calibrator	Rion (Model No. NC-73)

Monitoring Parameters, Frequency and Duration

- 3.3.4 Continuous noise level will be measured in terms of the A-weighted equivalent continuous sound pressure level for 30 minutes ($L_{eq, 30 \text{ min}}$) for time period between 0700 and 1900 hours on normal working hours (i.e. Mondays to Saturdays) during the construction period that the predicted noise levels exceed the relevant noise criteria at the identified NSRs. The recommended measurement period for the continuous noise monitoring programme in the CNMP is summarised in **Table 3.9**.

Monitoring Methodology

- 3.3.5 Immediately prior to the noise measurement, the accuracy of the sound level meter will be checked using an acoustic calibrator, which generated a known sound pressure level at a known frequency. The accuracy of the sound level meter will also be checked on an annual-basis. Measurement will be accepted as valid only if the calibration level before and after the noise measurement agrees to within 1.0dB. Noise measurement will be made in accordance with standard acoustical principles and practices in relation to weather conditions.

Event and Action Plan

- 3.3.6 Summary of the proposed continuous noise monitoring programme are presented in **Table 3.9**. The Event and Action Plan for the continuous noise monitoring programme recommended in the CNMP is presented in **Appendix I**.

Table 3.9 Summary of Proposed Continuous Noise Monitoring Plan

Monitoring Location	NSR Description	Action/Limit Level, dB(A)	Measurement Period
NM1	Carmel Secondary School (South Block)	69 ⁽¹⁾	Dec of 2014 Mar of 2015 Mar of 2017
NM2	No. 234-238 Chatham Road North ⁽²⁾	77	Sep to Dec of 2014 Jan / Mar to May 2015

Note:

(1) Action/Limit level will only be applicable during the examination period.

(2) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.

3.4 Landscape and Visual

- 3.4.1 As per the EM&A Manuals, the landscape and visual mitigation measures should 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 EPs 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 EPs 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-437/2012) & Condition 3.4 (EP-438/2012/D)	Monthly EM&A Report for September 2013	15 October 2013

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Results in the Reporting Period

ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	92.0	56.8 – 140.8	183.9	260

5.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring location in the reporting month.

5.1.3 The event action plan is annexed in **Appendix I**.

5.1.4 Major dust sources during the monitoring included construction dust from the Project site and other nearby construction sites and also nearby traffic emission.

5.2 Regular Construction Noise Monitoring

5.2.1 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix H**.

Table 5.2 Summary of Impact Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), L_{eq} (30 mins)	Limit Level, dB(A), L_{eq} (30 mins)
NM 1 ⁽²⁾	<Baseline – 59.7	70 (65) ⁽¹⁾
NM 2 ⁽²⁾	<Baseline	75

Note:

(1) Daytime noise Limit Level of 70dB(A) applies to education institutions while 65dB(A) applies during school examination period. The construction noise monitoring was conducted during school examination period from 29 to 31 October 2013.

(2) 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. No correction was made to NM2 as all measured noise levels were below the baseline noise level.

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

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

5.2.4 The event action plan is annexed in **Appendix I**.

5.2.5 Major noise sources during the monitoring included construction noise from the Project site and other nearby construction sites, nearby traffic noise and noise from school activities and the community.

5.3 Continuous Noise Monitoring

5.3.1 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.

5.4 Waste Management

- 5.4.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.4.2 As advised by the Contractor, 1,044m³ of inert C&D material was generated and disposed as public fills at TKO 137 and/ or TM 38 while 216,370kg of general refuse was disposed at NENT landfill in the reporting month. 329kg of paper/cardboard packaging, 1kg of plastics and 67kg of metals were collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix K**.
- 5.4.3 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.
- 5.4.4 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.

5.5 Landscape and Visual

- 5.5.1 Inspection of the implementation of landscape and visual mitigation measures were conducted bi-weekly. 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**.
- 5.5.2 The event and action plan is annexed in **Appendix I**.

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 site inspection is provided in **Appendix C**.

6.1.2 In the reporting month, 5 site inspections were carried out on 3, 10, 17, 24 and 30 October 2013. The one held on 24 October 2013 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
Water Quality	03 Oct 2013	<ul style="list-style-type: none"> The effluent collecting point in Oi Sen Path was observed to be extended beyond the site boundary. Moreover, stagnant water was observed along the effluent collecting trench. The Contractor should define the effluent collecting point which shall be located within the site boundary and clean the stagnant water in timely manner. 	The item was rectified by the Contractor on 09 Oct 2013.
	10 Oct 2013	<ul style="list-style-type: none"> Accumulation of effluent was observed in the internal drainage in Homantin Siding. The Contractor should clear the stagnant waste water from the internal drainage regularly. 	The item was observed to be rectified by the Contractor on 17 Oct 2013.
Air Quality	17 Oct 2013	<ul style="list-style-type: none"> Deposited sand and grit were observed near the vehicle entrance in EWL8. The Contractor should clear the concerned deposited materials to prevent the arising of dust nuisance. 	The item was rectified by the Contractor on 23 Oct 2013.
		<ul style="list-style-type: none"> Debris and non-used materials for the formation of wooden shed were found to be placed at improper area in Oi Sen Path. The Contractor should enhance the house-keeping practice and remove the mentioned debris to prevent the arising of dust nuisance. 	
	31 Oct 2013	<ul style="list-style-type: none"> Dusty stockpiles and exposed area were observed in NSL8, Homantin Siding and Winslow Street Slope Work. The Contractor should provide regular spraying of water to the captioned stockpiles. Moreover, frequent spraying of water should also be provided within the construction site. 	The item was rectified by the Contractor on 06 Nov 2013.

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	31 Oct 2013	<ul style="list-style-type: none"> Ineffective wheel washing facilities were observed at exit of PolyU Phase 8 in Homantin Siding. The Contractor should provide effective wheel washing facilities on site and ensure vehicles are clear of dusty materials before leaving the construction site. 	The item was rectified by the Contractor on 06 Nov 2013.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	10 Oct 2013	<ul style="list-style-type: none"> Oil stain was found on ground in Homantin Siding. The Contractor should clear the oil stain and dispose off as chemical waste 	The item was observed to be rectified by the Contractor on 17 Oct 2013.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

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

6.1.4 The items of which their inspection for follow-up actions were outstanding as recorded in the last reporting month have already been rectified by the Contractor as confirmed by the ET during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.
- 7.1.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.
- 7.1.3 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 J**.

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 J**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Month

8.1.1 The major construction works in November and December 2013 will be:-

Hung Hom Area

- Excavation work, demolition work, site formation, slope work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Cable trough installation, overhead line portals erection, track rail installation,
- Geological investigation,
- Trial pit, sheet piling, pile piling, pipe piling, pre-drilling, pre-grouting,
- Hoarding erection and tree felling,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Noise panel installation, ABWF and E&M works.

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 and waste management.

8.3 Monitoring Schedule for the Next Month

8.3.1 The tentative schedule for environmental monitoring in November 2013 is provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.
- 9.1.2 All 24-hour TSP monitoring results complied with the Action / Limit Level at in the reporting month.
- 9.1.3 No noise complaint was received in the reporting month. Hence, no Action Level exceedance was recorded.
- 9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.5 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.
- 9.1.6 5 nos. of environmental site inspections were carried out in October 2013. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.7 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.
- Provide effective wheel washing facility.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

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

Chemical and Waste Management

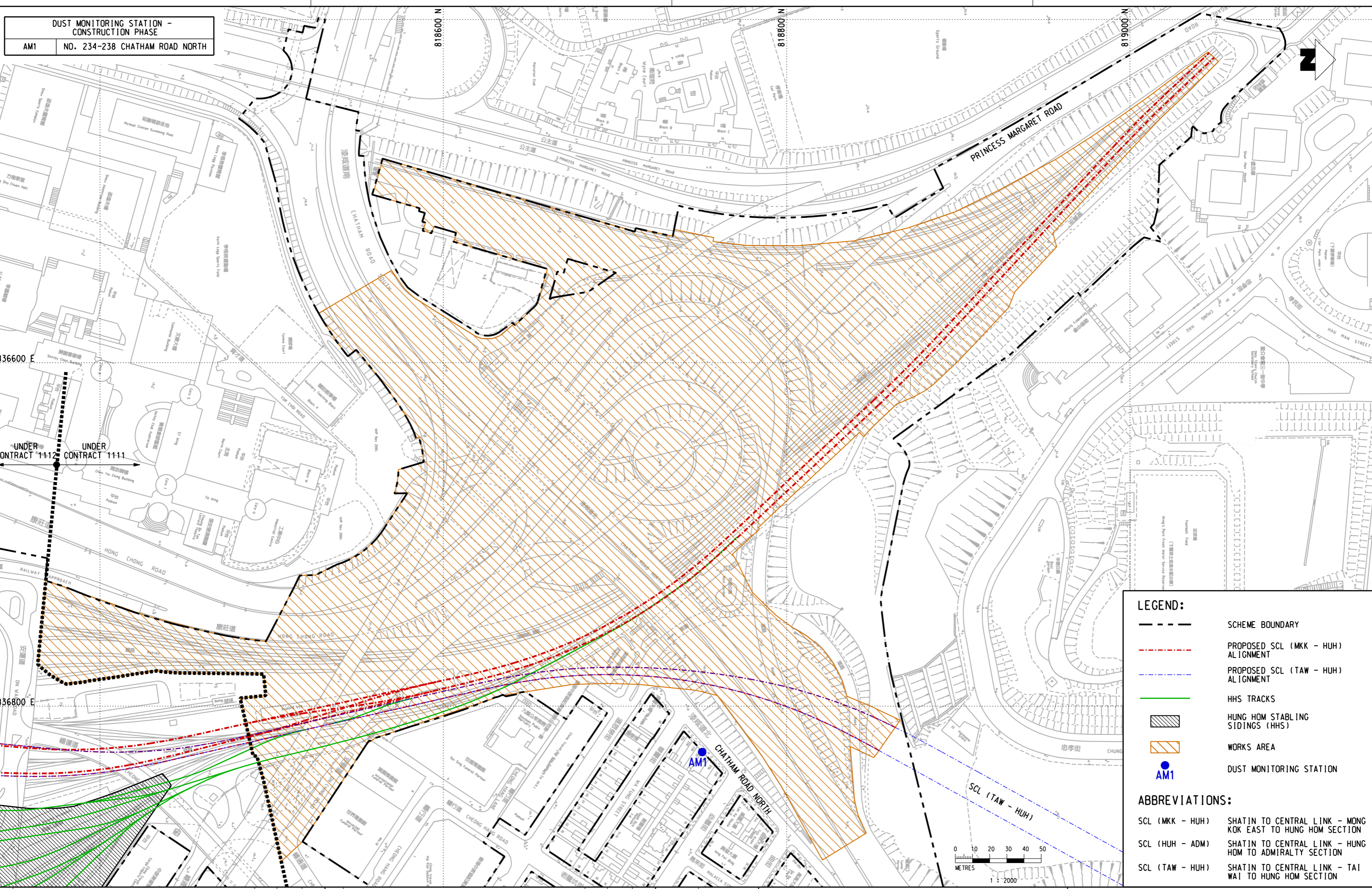
- Provide proper chemical waste management.

FIGURES

DUST MONITORING STATION -
CONSTRUCTION PHASE
AM1 NO. 234-238 CHATHAM ROAD NORTH

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LEGEND:

- SCHEME BOUNDARY
- - - PROPOSED SCL (MKK - HUH) ALIGNMENT
- - - PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- [Hatched Box] HUNG HOM STABILING SIDINGS (HHS)
- [Orange Hatched Box] WORKS AREA
- [Blue Circle with 'AM1'] DUST MONITORING STATION

ABBREVIATIONS:

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	HD
DESIGNED	LCLL
CHECKED	LCLL
APPROVED	IMW
DATE	08/JAN/2013

MTR

SHATIN TO CENTRAL LINK

CONTRACTOR: **Gammon** **Kaden**
 Gammon - Kaden SCL 1111 Joint Venture

ORIGINATOR: **AECOM**

CADD REF. Figure 2.1.dgn

TITLE: **CONTRACT 1111**
HUNG HOM NORTH APPROACH TUNNELS
LOCATION OF AIR QUALITY MONITORING STATION

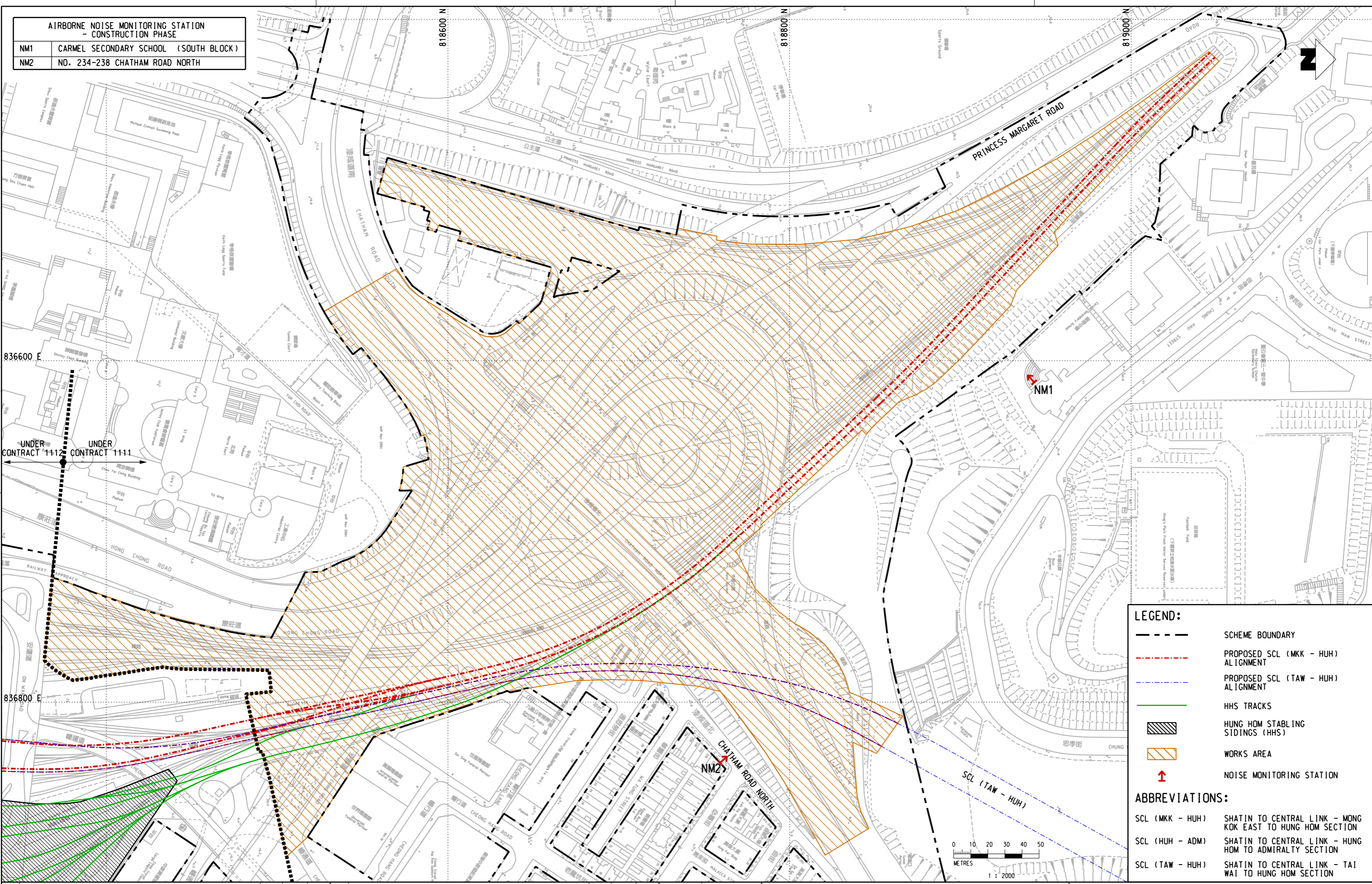
SCALE: 1 : 2000 (A3) FIGURE NO. **FIGURE 2.1**

REV. -

AIRBORNE NOISE MONITORING STATION - CONSTRUCTION PHASE	
NM1	CARMEL SECONDARY SCHOOL (SOUTH BLOCK)
NM2	NO. 234-238 CHATHAM ROAD NORTH

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LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL (MKK - HUH) ALIGNMENT
- PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLING SIDINGS (HHS)
- WORKS AREA
- NOISE MONITORING STATION

ABBREVIATIONS:

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION

<p>SHATIN TO CENTRAL LINK</p> <p>HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)</p>				<p>CONTRACT 1111</p> <p>FIGURE 3.1</p>				
DRAWN	HD	DESIGNED	LCLL	CHECKED	LCLL			
APPROVED	IMW	DATE	08/JAN/2013	<p>DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE IDENTIFIED ON SITE. © MTR CORPORATION LIMITED 2008. COPYRIGHT IN RESPECT OF THIS DRAWING / DOCUMENT IS OWNED BY THE MTR CORPORATION LIMITED OF HONG KONG. NO REPRODUCTION OF THE DRAWING / DOCUMENT OR ANY PART BY WHATEVER MEANS IS PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT OF THE MTR CORPORATION LIMITED.</p>				
CONTRACTOR			<p>MTR</p> <p>Gammon Kaden Gammon - Kaden SCL 1111 Joint Venture</p>		ORIGINATOR	AECOM		
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REV	DESCRIPTION	BY	DATE	APPROVED	DESCRIPTION	BY	DATE	APPROVED

APPENDIX A

Construction Programme

Activity Description	Start	Finish	2013												2014												2015												2016												2017																
			D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D
REPROVISIONING WORKS																																																																			
Commencement of Works	17/12/12																																																																		
Existing HUH Station Platform Level Works	14/01/13	26/01/14																																																																	
Mong Kok Freight Terminal Podium Level	14/01/13	25/08/13																																																																	
Poly U Railway Reserve & New Maintenance Sidings	01/04/13	26/01/14																																																																	
Inter City Crew Accomodation on HUH EWL Platform	14/01/13	24/08/14																																																																	
NSL/EWL TUNNEL																																																																			
NSL/EWL Area 3 Tunnel (early handover)	03/06/14*	04/09/15																																																																	
NSL/EWL Area 4 Tunnel	03/06/14*	22/02/16																																																																	
NSL/EWL Area 5 Tunnel	03/03/14*	20/01/16																																																																	
NSL/EWL Area 6 Tunnel	03/03/14*	07/03/16																																																																	
NSL TUNNEL																																																																			
NSL Area 7 Tunnel (inc CRN1 & Traffic Diversion)	30/05/14*	26/05/17																																																																	
NSL Area 8A Tunnel	04/06/13*	07/01/17																																																																	
TB1	13/05/13*	17/10/14																																																																	
TB2	04/06/13*	05/03/14																																																																	
NSL Area 8B Tunnel	13/06/14*	05/03/16																																																																	
NSL Area 9 Tunnel	01/12/14*	06/04/16																																																																	
Oi Sen Path Slope Works and Tunnel	14/02/13*	13/10/16																																																																	
Oi Sen Path Noise Enclosure	14/12/13*	09/03/16																																																																	
EWL TUNNEL																																																																			
EWL Area 6A Tunnel	15/02/13*	22/07/14																																																																	
EWL Areas 7&8 Tunnel	22/02/13*	27/02/16																																																																	
EWL Area 9 Tunnel (late possession)	15/06/15*	02/04/16																																																																	

Early Bar
 Progress Bar
 Critical Activity

**SCL 1111
SUMMARY PROGRAMME**

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure

APPENDIX C

**Implementation Schedule of Environmental Mitigation
Measures**

Appendix C - Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Environmental Mitigation Measures		Location	Implementation Status
Landscape and Visual Impact				
S6.9.3 (TAW-HUH) , S6.12 (HHS), S6.12 (TAW-HUH), Table 6.9 (HHS) & Table 4.9 (MKK-HUH)	Minimize visual & landscape impact	Existing topsoil shall be re-used where possible for new planting areas within the Project.	All construction sites	N/A
		Ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone.	All construction sites	N/A
		All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period.	All construction sites	V
		Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas.	All construction sites	V
		Giving control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	All construction sites	V
		Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable.	All construction sites	N/A

		Compensatory tree & shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	All construction sites	N/A
		Control of night-time lighting glare	All construction sites	N/A
		All hard and soft landscape areas disturbed temporarily during construction shall be reinstated to equal or better quality, to the satisfaction of the relevant Government Departments.	All construction sites	N/A

Construction Noise Impact				
8.3.6 (TAW-HUH) , S8.5.6 (HHS) & S6 (MKK-HUH)	To control construction airborne noise	Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.	All construction sites	V
		Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum	All construction sites	V
		Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs	All construction sites	V
		Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works	All construction sites	V
		Mobile plant should be sited as far away from NSRs as possible and practicable;	All construction sites	V
		Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities	All construction sites	V
		The following quiet PME should be used: <ul style="list-style-type: none"> • Asphalt Paver (SWL=101dB(A)) • Backhoe (SWL=106dB(A)) • Backhoe with Hydraulic Breaker (SWL=110dB(A)) • Concrete lorry mixer (SWL=96dB(A)) • Concrete mixer truck (SWL=96dB(A)) • Concrete Pump (SWL=106dB(A)) 	Works areas where required	N/A

		<ul style="list-style-type: none"> • Concrete Pump Truck (SWL=106dB(A)) • Crane, mobile (SWL=94dB(A)) • Crawler Crane (SWL=102dB(A)) • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A)) • Roller (SWL = 101dB(A)) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A)) 		
		<p>Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs.</p>	<p>All construction sites</p>	<p>V</p>

		Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants	All construction sites	V
		Sequencing operation of construction plants where practicable.	All construction sites	V
		Particularly noisy construction activities will be scheduled to avoid school examination period as far as practicable.	Works areas near the Carmel Secondary School	V
Construction Air Quality Impact				
S7.6.5 (TAW-HUH) , S7.6.6 (HHS), S5.50, 5.51 &5.57 (MKK-HUH)	Minimize dust impact at nearby sensitive receivers	Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%.	All construction sites	@
		Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.	All construction sites	@
		Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	All construction sites	@
		A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones.	All construction sites	V
		The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle	All construction sites	N/A
		Vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point.	All construction sites	@

	The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	All construction sites	V
	When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided.	All construction sites	V
	The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials.	All construction sites	N/A
	Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously.	All construction sites	V
	Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet.	All construction sites	N/A
	Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building.	All construction sites	V
	Any skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	N/A
	Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	All construction sites	N/A

		Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.	All construction sites	N/A
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	All construction sites	N/A
		Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	All construction sites	N/A
		Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site.	All construction sites	N/A
		Imposition of speed controls for vehicles on site haul roads.	All construction sites	N/A

Construction Water Quality Impact				
S10.7.1 (TAW-HUH) , S10.7.1 (HHS) & S8 (MKK-HUH)	To minimize construction water quality impact	Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment.	Site drainage system	@
		Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins.	Site drainage system	V
		Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities.	All works area	V
		Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site.	All works area	V
		Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly.	All construction sites	@
		Construction works should be programmed to minimize soil excavation works in rainy seasons.	All construction sites	N/A
		Temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds.	All construction sites	V
		Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried	All construction sites	N/A

		out immediately after the final surfaces are formed to prevent erosion caused by rainstorms.		
		Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	All construction sites	V
		Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities	All construction sites	V
		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All construction sites	V
		Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area.	All construction sites	V
		All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads.	All construction sites	@
		Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should	All construction sites	V

		either be dewatered or mixed with inert fill material for disposal to a public filling area.		
		A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works areas.	Excavation works areas	N/A
		Wastewater generated should not be discharged into the stormwater drainage system.	All construction sites	@
		Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers.	All construction sites	N/A
		Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site	All construction sites	V
		The Contractor should apply for a discharge license under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	All construction sites where practicable	N/A
		Appropriate measures will be deployed to minimize the intrusion of groundwater into excavation works areas.	All construction sites	N/A
		Measures should be put in place in order to mitigate any drawdown effects to the groundwater table during the operation of the temporary dewatering works	All construction sites	N/A

Waste Management				
S11.5.1(TAW-H UH), S11.5.1(HHS) & S9 (MKK-HUH)	Good site practice to minimize the generation and impact of the waste.	Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;	All construction sites	N/A
		Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions.	All construction sites	V
		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.	All construction sites	V
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	All construction sites	@
		Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	All construction sites	N/A
		Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution.	All construction sites	V
		Maintain and clean storage areas routinely.	All construction sites	V
		Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away.	All construction sites	@
		Waste should be removed in timely manner	All construction sites	V
				Waste collectors should only collect wastes prescribed by their permits.

	Waste should be disposed of at licensed waste disposal facilities.	All construction sites	V
	Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.	All construction sites	V
	Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All construction sites	V
	The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides.	All construction sites	V
	The Contractor should register as a chemical waste producer if chemical wastes would be generated.	All construction sites	V
	Disposal of chemical waste should be via a licensed waste collector.	All construction sites	V
	Stockpiling of contaminated sediments should be avoided as far as possible.	All construction sites	N/A
	All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances.	All construction sites	N/A

Contaminated Land				
S10.24– 10.34 (MKK-HUH)	To act as a general precautionary measure to screen soils for the presence of contamination during construction.	Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil.	Within Project Boundary where signs of contamination is identified	N/A
		If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination.		N/A
	To remediate contaminated soil	If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP.		N/A

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

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels**Table 1 Action and Limit Levels for 24-hour TSP**

ID	Location	Action Level	Limit Level
AM1	No. 234 – 238 Chatham Road North	183.9 $\mu\text{g}/\text{m}^3$	260.0 $\mu\text{g}/\text{m}^3$

Table 2 Action and Limit Levels for Regular Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM1	Carmel Secondary School (South Block)	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers.	65 / 70 dB(A) ⁽¹⁾
NM2	No. 234 – 238 Chatham Road North		75 dB(A)

Note:

(1) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

Table 3 Action and Limit Levels for Continuous Noise

ID	Location	Action/Limit Level
NM1	Carmel Secondary School (South Block)	69 dB(A) ⁽¹⁾
NM2	No. 234-238 Chatham Road North	77 dB(A)

Note:

(1) Action/Limit level will only be applicable during the examination period.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station 234 - 238 Chatham Road North; SCL - DMS - 11 Operator: Shum Kam Yuen
 Cal. Date: 11-Sep-13 Next Due Date: 11-Nov-13
 Equipment No.: --- Serial No. 894-0835

Ambient Condition			
Temperature, Ta (K)	302	Pressure, Pa (mmHg)	757.1

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99238	Intercept, bc	-0.00351
Last Calibration Date:	6-Dec-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	6-Dec-13	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (m ³ /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	9.0	2.97	1.49	48.0	47.59
13	7.0	2.62	1.32	41.0	40.65
10	5.9	2.41	1.21	36.0	35.69
7	4.4	2.08	1.05	29.0	28.75
5	3.1	1.75	0.88	20.0	19.83

By Linear Regression of Y on X
 Slope, mw = 44.7916 Intercept, bw = -18.7723
 Correlation Coefficient* = 0.9966
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min
 From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 39.80

Remarks: _____

QC Reviewer: WS CHAN Signature: [Signature] Date: 12/09/13



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
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 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 06, 2012 Rootsometer S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 0843 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4040	3.2	2.00
2	NA	NA	1.00	0.9860	6.4	4.00
3	NA	NA	1.00	0.8850	8.0	5.00
4	NA	NA	1.00	0.8420	8.8	5.50
5	NA	NA	1.00	0.6930	12.9	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0018	0.7136	1.4186	0.9957	0.7092	0.8828
0.9976	1.0118	2.0061	0.9915	1.0056	1.2485
0.9953	1.1247	2.2429	0.9893	1.1178	1.3959
0.9943	1.1809	2.3524	0.9883	1.1737	1.4640
0.9888	1.4269	2.8371	0.9828	1.4182	1.7657
Qstd slope (m) = 1.99238			Qa slope (m) = 1.24760		
intercept (b) = -0.00351			intercept (b) = -0.00219		
coefficient (r) = 0.99992			coefficient (r) = 0.99992		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0709 03 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.:	2255677 / N.009.02	,	2250455
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 09-Jul-2013

Date of test: 10-Jul-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 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 10-Jul-2013

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0325 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2285692 <i>N009.04</i>	,	2250420
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 25-Mar-2013

Date of test: 26-Mar-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-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI

Ambient conditions

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

Test specifications

- 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.
- 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%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

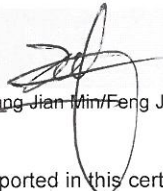
Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 26-Mar-2013

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0305 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2250-L	,	4950
Serial/Equipment No.:	2681366 (N-011.01)	,	2665582
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 05-Mar-2013

Date of test: 05-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-May-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI

Ambient conditions

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

Test specifications

- 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.
- 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%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 05-Mar-2013

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0305 01-02

Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2270	,	4189
Serial/Equipment No.:	2644597	,	2638713
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	05-Mar-2013

Date of test: 05-Mar-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-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI

Ambient conditions

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

Test specifications

- 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.
- 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%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 05-Mar-2013

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0313 02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10307216 / N.004.06
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO. LTD
Address of Customer: -
Request No.: -
Date of receipt: 13-Mar-2013

Date of test: 14-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	29-May-2013	SCL
Preamplifier	B&K 2673	2239857	17-Dec-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	17-Dec-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	29-May-2013	CEPREI
Universal counter	53132A	MY40003662	29-May-2013	CEPREI

Ambient conditions

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

Test specifications

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

Test results

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

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

Approved Signatory:

Huang Jian-Min/Feng Jun Qi

Date: 14-Mar-2013

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0325 01-03 Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10186482 / N.004.09
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 25-Mar-2013

Date of test: 26-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	29-May-2013	SCL
Preamplifier	B&K 2673	2239857	17-Dec-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	17-Dec-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	29-May-2013	CEPREI
Universal counter	53132A	MY40003662	29-May-2013	CEPREI

Ambient conditions

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


Test specifications

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

Test results

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

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

Approved Signatory:  Date: 26-Mar-2013 Company Chop:

Huang Jian Min/Feng Jun Qi



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.

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Impact Monitoring Schedule for October 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Oct	02-Oct	03-Oct	04-Oct	05-Oct
				24-hour TSP (AM1)	Noise (NM1, NM2)	
06-Oct	07-Oct	08-Oct	09-Oct	10-Oct	11-Oct	12-Oct
			24-hour TSP (AM1)	Noise (NM1, NM2)		
13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct
		24-hour TSP (AM1)	Noise (NM1, NM2)			24-hour TSP (AM1)
20-Oct	21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct
	Noise (NM1, NM2)				24-hour TSP (AM1)	
27-Oct	28-Oct	29-Oct	30-Oct	31-Oct		
				24-hour TSP (AM1) Noise (NM1, NM2)		

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for November 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Nov	02-Nov
03-Nov	04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov
			24-hour TSP (AM1)	Noise (NM1, NM2)		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
		24-hour TSP (AM1)	Noise (NM1, NM2)			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
		Noise (NM1, NM2)			24-hour TSP (AM1)	

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

APPENDIX G

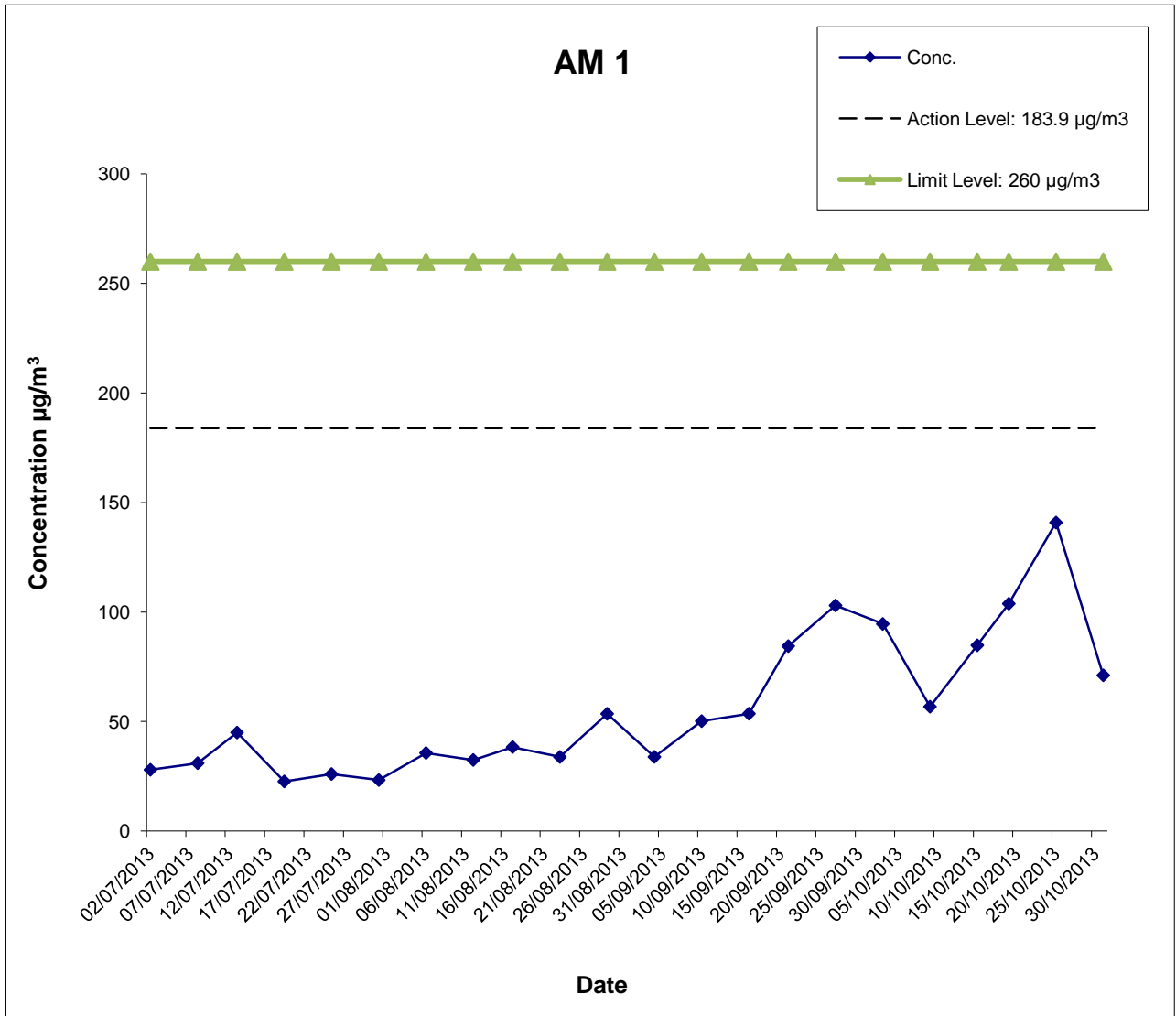
**Air Quality Monitoring Results and
their Graphical Presentations**

Appendix G
Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM1 (No. 234 – 238 Chatham Road North)

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
03-Oct-13	0:00	04-Oct-13	0:00	Sunny	26.7	1013.0	1.33	1.33	1.33	1916.6	2.9561	3.1373	0.1812	13177.87	13201.87	24.00	94.5
09-Oct-13	0:00	10-Oct-13	0:00	Sunny	27.2	1010.8	1.33	1.33	1.33	1916.6	2.9440	3.0528	0.1088	13201.87	13225.87	24.00	56.8
15-Oct-13	0:00	16-Oct-13	0:00	Sunny	26.9	1013.5	1.33	1.33	1.33	1916.6	2.9034	3.0659	0.1625	13225.87	13249.87	24.00	84.8
19-Oct-13	0:00	20-Oct-13	0:00	Sunny	24.8	1015.2	1.33	1.33	1.33	1916.6	2.8986	3.0975	0.1989	13249.87	13273.87	24.00	103.8
25-Oct-13	0:00	26-Oct-13	0:00	Sunny	23.8	1015.4	1.33	1.33	1.33	1916.6	2.8142	3.0841	0.2699	13273.87	13297.87	24.00	140.8
31-Oct-13	0:00	01-Nov-13	0:00	Sunny	24.8	1016.7	1.33	1.33	1.33	1916.6	2.8039	2.9401	0.1362	13297.87	13321.87	24.00	71.1
																Average	92.0
																Minimum	56.8
																Maximum	140.8

Appendix G Air Quality Monitoring Results



	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Nov-13
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.	60284101	APPENDIX No. G	Rev. -

Appendix G Extract of Meteorological Observations for King's Park* Automatic Weather Station, October 2013

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
Oct-01	0.0	130	9.9
Oct-02	0.0	50	5.4
Oct-03	0.0	120	6.4
Oct-04	0.0	130	5.5
Oct-05	0.0	280	6.0
Oct-06	0.0	10	8.2
Oct-07	0.0	10	10.0
Oct-08	0.0	40	8.3
Oct-09	0.0	120	7.8
Oct-10	1.0	130	8.8
Oct-11	0.0	120	6.3
Oct-12	0.0#	***#	*****#
Oct-13	*****	***	*****
Oct-14	*****	***	*****
Oct-15	0.0#	130#	11.5#
Oct-16	0.0	120	12.4
Oct-17	0.0	120	11.5
Oct-18	0.0	120	8.7
Oct-19	0.0	40	5.5
Oct-20	0.0	120	5.8
Oct-21	0.0	50	4.8
Oct-22	0.0	50	6.8
Oct-23	0.0	40	7.8
Oct-24	0.0#	40	9.2
Oct-25	0.0	040#	12.5#
Oct-26	0.0	060#	7.0#
Oct-27	0.0	120	7.5
Oct-28	0.0	120	10.3
Oct-29	0.0	120	8.4
Oct-30	0.0	120	9.4
Oct-31	0.0	120	7.1
Mean	-----	120#	8.1#
Total	1.0#	---	-----
Maximum	1.0#	---	12.5#
Minimum	0.0#	---	4.8#

*Meteorological data of the nearest Automatic Weather Station is presented.

*****Data unavailable

missing (less than 24 hourly observations a day)

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

APPENDIX H

**Noise Monitoring Results and
their Graphical Presentations**

Appendix H Regular Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station NM 1 (Carmel Secondary School (South Block))

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				
04-Oct-13	Sunny	10:13	67.0	69.5	68.6	59.7 [#]	68.0	70	N
10-Oct-13	Sunny	10:05	66.4	69.7	67.5	67.5	68.0	70	N
16-Oct-13	Sunny	10:01	65.2	67.5	66.4	66.4	68.0	70	N
21-Oct-13	Sunny	10:00	69.7	66.0	68.2	54.7 [#]	68.0	70	N
31-Oct-13	Sunny	10:30	64.8	67.4	66.1	66.1	68.0	65	N

Daytime Noise Monitoring Results at Station NM 2 (No. 234 – 238 Chatham Road North)

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				
04-Oct-13	Sunny	9:40	71.1	74.0	72.7	72.7	79.0	75	N
10-Oct-13	Sunny	11:32	72.0	77.1	75.2	75.2	79.0	75	N
16-Oct-13	Sunny	14:50	68.6	72.2	70.4	70.4	79.0	75	N
21-Oct-13	Sunny	11:00	73.0	69.5	71.8	71.8	79.0	75	N
31-Oct-13	Sunny	11:15	67.4	69.9	68.3	68.3	79.0	75	N

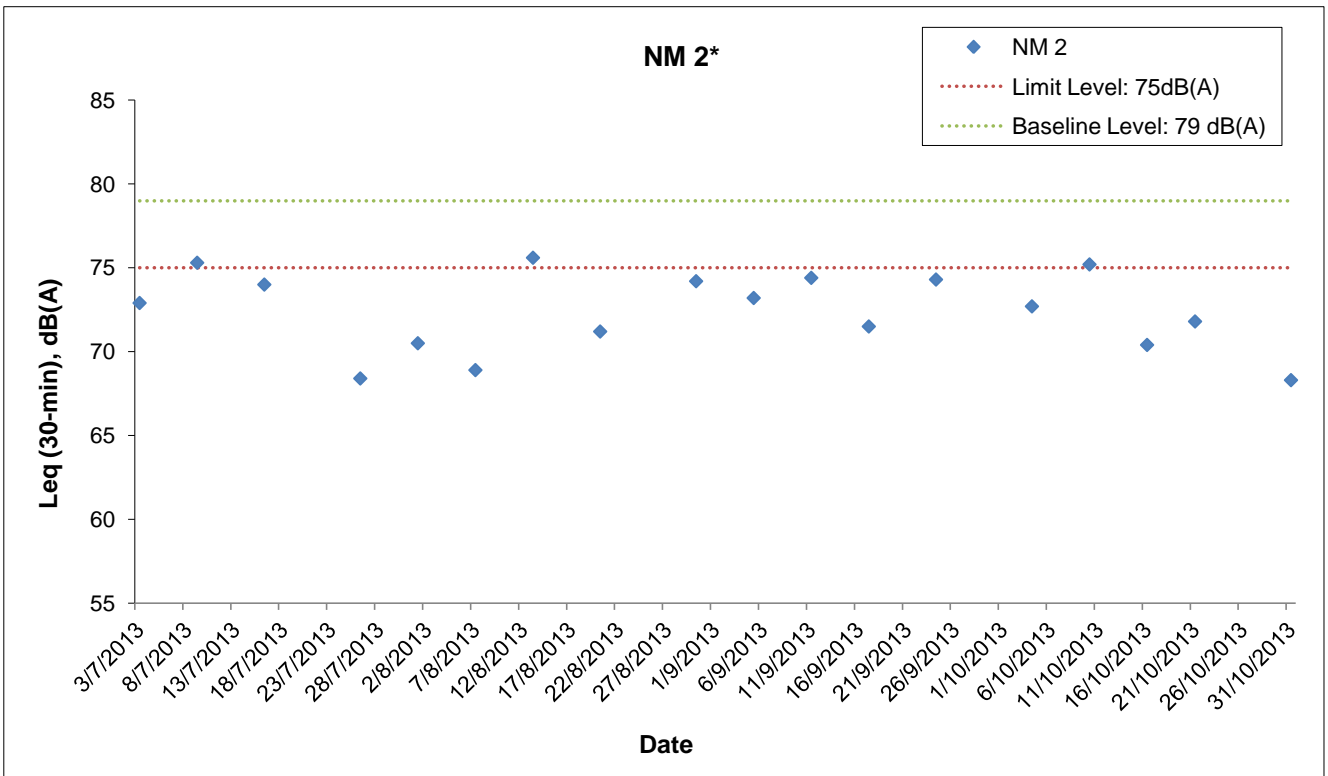
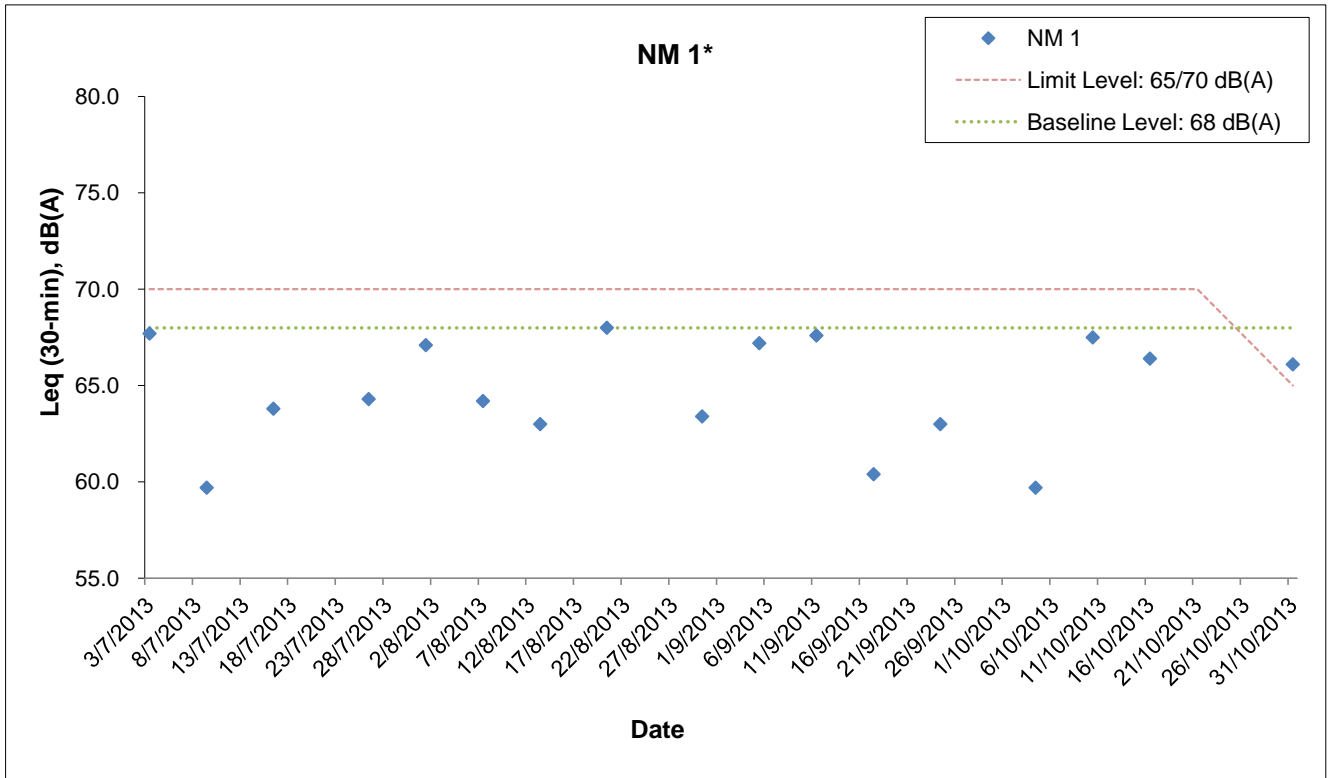
⁺ - Façade measurement

⁺⁺ - Free field measurement


^{***} - Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period. The construction noise monitoring was conducted during school examination period from 29 to 31 October 2013.

[#] - The noise monitoring results of the measurements are higher than the daytime construction noise criterion. However, the results are not considered as exceedance if they are either below the baseline level or below the limit level after deducting the baseline noise level.

Appendix H Regular Construction Noise Monitoring Results



* - The noise monitoring results of the measurements are higher than the daytime construction noise criterion. However, the results are not considered as exceedance if they are either below the baseline level or below the limit level after deducting the baseline noise level.

	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Nov-13
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Noise Monitoring Results	JOB NO.	60284101	APPENDIX	H

APPENDIX I

Event Action Plan

Appendix I – Event and Action Plan

Event / Action Plan for Construction Dust

EVENT	ACTION			
	ET	IEC	ER	Contractor
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.

EVENT	ACTION			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

EVENT	ACTION			
	ET	IEC	ER	Contractor
LIMIT LEVEL				
1. Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.

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

Event / Action Plan for Regular Construction Noise

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.

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

Event / Action Plan for Continuous Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action/Limit Level	1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by the Works Contract 1111 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1111 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1111 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 Works Contract 1111 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper 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 with the Works Contract 1111 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Landscape and Visual during Construction Stage

EVENT	ET	IEC	ER	Contractor
ACTION LEVEL				
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX J

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

Appendix J

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 K

Waste Flow Table

Appendix K Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly (Note 1)										Actual Quantities of non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly				
	Generated				Disposed						Recycled			Disposed	
	Fill Material	Artificial Material		Total Quantity Generated	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Total Quantity Disposal	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
		Soil and Rock	Broken Concrete												
Unit	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	0.043	0.000	0.021	0.065	0.000	0.000	0.000	0.065	0.000	0.065	0.000	0.000	0.000	0.000	17.110
Feb	0.172	0.004	0.019	0.195	0.026	0.000	0.000	0.165	0.004	0.195	0.000	0.000	0.000	0.000	29.440
Mar	0.280	0.010	0.094	0.384	0.000	0.000	0.001	0.347	0.036	0.384	7.490	0.000	0.000	0.000	112.240
Apr	0.726	0.041	0.073	0.840	0.000	0.000	0.000	0.777	0.062	0.840	0.000	0.000	0.000	0.000	213.390
May	2.032	0.087	0.064	2.183	0.000	0.000	0.000	1.695	0.488	2.183	0.000	0.077	0.000	0.000	112.700
Jun	3.920	0.035	0.065	4.020	0.000	0.000	0.000	1.088	2.932	4.020	0.000	0.189	0.000	0.000	213.570
SUB-TOTAL	7.173	0.177	0.337	7.687	0.026	0.000	0.001	4.137	3.522	7.687	7.490	0.266	0.000	0.000	698.450
Jul	4.204	0.032	0.055	4.291	0.000	0.000	0.000	0.045	4.246	4.291	0.000	0.287	0.000	0.000	127.540
Aug	2.124	0.023	0.034	2.180	0.000	0.000	0.000	0.006	2.174	2.180	0.000	0.336	0.000	0.000	121.170
Sep	1.344	0.012	0.004	1.359	0.000	0.000	0.000	0.000	1.359	1.359	0.012	0.282	0.001	0.000	113.560
Oct	0.936	0.069	0.039	1.044	0.000	0.000	0.000	0.000	1.044	1.044	0.067	0.329	0.001	0.000	216.370
Nov															
Dec															
TOTAL	15.780	0.312	0.469	16.560	0.026	0.000	0.001	4.188	12.345	16.560	7.569	1.500	0.002	0.000	1277.090

Note:

1. Assume the density of fill is 2 ton/m³.
2. Refuses disposed of at NENT landfill.
3. Assume the weight of recycled papers is 7 kg/bag.

Appendix E

**9th EM&A Report for Works Contract 1103 –
Hin Keng to Diamond Hill**

MTR Corporation Limited

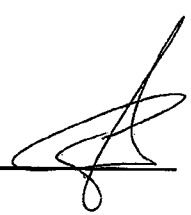
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 9

[Period from 1 to 31 October 2013]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(November 2013)

Certified by: _____ Coleman Ng 

Position: Environmental Team Leader

Date: 12/11/2013

MTR Corporation Limited

**SCL1103 Hin Keng to Diamond
Hill Tunnels Construction Stage -
Environmental Services**

**Monthly Environmental Monitoring
and Audit Report – October 2013**

228105-27

October 2013

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 228105-27

Ove Arup & Partners Hong Kong Ltd
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ARUP

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Executive Summary

This is the ninth monthly Environmental Monitoring and Audit (EM&A) report prepared by Ove Arup & Partners Hong Kong Limited (Arup), the designated Environmental Team (ET), for the Project “SCL1103 Hin Keng to Diamond Hill Tunnels”. Construction works of this works contract commenced on 14 February 2013 and this report presents the results of EM&A works conducted in the month of October 2013 (1 to 31 October 2013).

In the reporting month, the following activities took place for the Project:

- Site Excavation and Strutting at Diamond Hill;
- Pipe Piling and Mucking Out at Hin Keng;
- Drainage Diversion Works and Platform Erection at Fung Tak; and
- Drainage Diversion Works and Diaphragm Wall at Ma Chai Hang.

Air Quality and noise monitoring were performed and the results were checked and reviewed. Site audits were conducted on weekly basis. The implementation of the environmental mitigation measures, Event and Action Plans and environmental complaint handling procedures were checked.

Impact monitoring was carried out at 3 air quality and 3 noise monitoring stations during the reporting month.

Environmental Monitoring Works – Breaches of Action and Limit Levels

Air Quality

All measured 24-hour TSP concentrations in the reporting month were below the Action and Limit Levels.

Noise

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

No exceedance of Limit Level of regular construction noise was recorded during the reporting month.

Landscape and Visual Audit

Landscape and visual site audits in accordance with the requirements stipulated in the EM&A manual were conducted in the reporting month. Based on the site inspections, no substantial change of Landscape Resources, Landscape Character Areas and Visual Sensitive Receivers was noted.

Waste Disposal

Inert C&D Materials with an actual amount of 8,868m³ were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 97m³ of general refuse was generated and disposed of at NENT landfill.

Environmental Auditing

A total of 5 environmental site audits were conducted on a weekly basis in the reporting month. The first site inspection was on 2 October 2013 and the final, an IEC joint site audit, was undertaken on 30 October 2013. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

No complaint in relation to the environmental issues was made against the Project in the reporting period.

Notifications of Summons and Successful Prosecutions

No summons or prosecution related to the environmental issues were made against the Project in the reporting period.

Reporting Changes

As assessed in the quantitative risk assessment (QRA) conducted as part of the approved SCL(TAW-HUH) EIA Study, four explosive stores in the temporary magazine site at Tseung Kwan O Area 137, with capacity of 250kg per each storage, were dedicated for the use of SCL(TAW-HUH) project. As stated in the QRA, Lion Rock Tunnel and Ho Man Tin Tunnel will each have two dedicated explosive stores. Further to the change of tunnel construction method from drill & blast to bored tunneling for Ho Man Tin Tunnel, it is now proposed to use the four explosive stores for Lion Rock tunnel to allow flexibility for both blast design and better management of explosive storage.

As stated in the Monthly EM&A Report (September 2013), a QRA study has been conducted to address the recent changes in the planned blasting activities which has assessed the use of 4 explosive stores for SCL(TAW-HUH) Project (details refer to Appendix M of September Report). The study concluded that the risk associated will be within the risk envelope of 'Worst Case Scenario' indicated in the approved SCL (TAW-HUH) EIA and no unacceptable impacts will be anticipated. Since the proposed use of 4 explosive stores for the Project has been assessed in the recent QRA study, the findings and recommendations remain valid.

Future Key Issues

Construction noise is one of the key environmental issues. The implemented construction noise mitigation measures should also be maintained and improved as necessary. Especially in restricted hours, the conditions stipulated in the CNPs should be strictly followed when the construction works were carried out during restricted hours.

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge. The solid and liquid waste management should be strictly followed in accordance with the requirements stipulated in the EIA report.

1 Environmental Status

1.1 Project Background

The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an extension of the Ma On Shan Line and is approximately 11 km long. It links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1103 covers the construction of the tunnels between Diamond Hill (DIH) and Hin Keng (HIK).

1.2 Construction Programme

An up-to-date rolling construction programme is attached in **Appendix A**.

1.3 Work Undertaken During the Reporting Month

The major construction activities carried out by the Contractor in the reporting month are summarized in **Table 1.1**. Location of the works area is indicated in **Figures 1.1** to **1.6**. The structure of the project organisation in relation to the environmental management is shown in **Figure 1.7**. Contacts of key environmental staff of the Project are shown in **Table 1.2**.

Table 1.1 Construction Activities in the Reporting Month

Locations	Major Works Undertaken
Diamond Hill	Site Excavation and Strutting.
Hin Keng	Pipe Piling and Mucking Out.
Fung Tak	Drainage Diversion Works and Platform Erection.
Ma Chai Hang	Drainage Diversion Works and Diaphragm Wall.

1.4 Project Organization

Contacts of key environmental staff of the Project and are shown in **Table 1.2**.

Table 1.2 Contacts of Key Environmental Staff

Organisation	Name	Telephone
Project Proponent: MTRC Engineer's Representative SCL Project-wide Environmental Team Leader	Thomas Barrett Richard Kwan	2163 6181 2688 1283
Independent Environmental Checker: Meinhardt Infrastructure & Environment Ltd. Independent Environmental Checker	Fredrick Leong	2859 1739
Contractor: VINCI Constructions Grand Projects Project Director IMS Manager	Francois Dudouit L K Mak	3765 5610 3765 5635
Contractor's Environmental Team: Ove Arup & Partners Hong Kong Ltd. Designated Environmental Team Leader for Works Contract 1103	Coleman Ng	2268 3097

1.5 Project Area and Environmental Monitoring Locations

The Project area is shown in **Figures 1.1 to 1.6**, while **Table 1.3** and **Figures 1.8 to 1.13** show the names and locations of the monitoring stations.

Table 1.3 Summary of Air Quality and Noise Monitoring Stations

ID	Premise
Air Quality	
DMS-1	C.U.H.K.A.A. Thomas Cheung School
DMS-2	Price Memorial Catholic Primary School
DMS-3 ^(Note 2) / DMS-4 ^(Note 3)	Hong Kong Sheng Kung Hui Nursing Home ^(Note 1)
Noise	
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3 ^(Note 2) / NMS-CA-4 ^(Note 3)	Hong Kong Sheng Kung Hui Nursing Home

Note:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On House.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

1.6 Impact Monitoring Schedule

Environmental monitoring and audit was carried out in accordance with the requirements stipulated in the EM&A Manual. Air quality and noise monitoring as well as weekly site audit schedule for the reporting month with respect to the construction programme is shown in **Appendix B**.

1.7 Status of Environmental Licensing and Permitting

All permits/licences for the reporting month are summarised in **Table 1.4**. They are all properly kept by the contactor at their site office.

Table 1.4 Summary of Environmental Licensing Status

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
Environmental Permit	EP-438/2012	All	22 Mar 2012	Superseded
	EP-438/2012A	All	12 July 2012	Superseded
	EP-438/2012/B	All	26 Oct 2012	Superseded
	EP-438/2012/C	All	30 Apr 2013	Superseded
	EP-438/2012/D	All	13 Sept 2013	Throughout the contract
Discharge License under WPCO	WT00014697-2012	Diamond Hill	30 Nov 2012	30 Nov 2017
	WT00014650-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00014648-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00015145-2013	Shui Chuen O	21 Feb 2013	28 Feb 2018
	WT00015513-2013	Ma Chai Hang	2 Apr 2013	30 Apr 2018
	WT00015430-2013	Fung Tak	18 Mar 2013	31 Mar 2018
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	351345	All	22 Oct 2012	15 Apr 2018
Construction Noise Permit	GW-RE0118-13	Diamond Hill	14 Feb 2013	13 Aug 2013
	GW-RE0130-13	Diamond Hill	14 Feb 2013	Expired
	GW-RE0145-13	Diamond Hill	20 Feb 2013	10 Aug 2013
	GW-RE0411-13	Diamond Hill	3 May 2013	Expired
	GW-RE0295-13	Ma Chai Hang	28 Mar 2013	Expired
	GW-RE0366-13	Hin Keng	17 July 2013	16 Jan 2014
	GW-RE0441-13	Hin Keng	2 Aug 2013	19 Feb 2014
	GW-RE0816-13	Diamond Hill	14 Aug 2013	12 Feb 2014
	GW-RE0879-13	Diamond Hill	1 Sep 2013	Expired
	GW-RE0988-13	Diamond Hill	15 Sep 2013	Expired

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
	GW-RE1063-13	Diamond Hill	2-Oct-13	1-Apr-14
Chemical Waste Producer Registration	5213-759-V2179-01	Hin Keng	13 Dec 2012	Throughout the Contract
	5213-281-V2180-01	Diamond Hill	12 Dec 2012	Throughout the Contract
	5213-281-V2179-03	Fung Tak	5 Mar 2013	Throughout the Contract
	5213-282-V2180-02	Ma Chai Hang	18 Mar 2013	Throughout the Contract
Billing Account for Disposal of Construction Waste	7016250	All	2 Nov 2012	Throughout the Contract

1.8 Purpose of the Report

The purpose of this monthly EM&A report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions during the construction of this works contract for the EM&A conducted during the construction period. This is the ninth monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, ecology, waste management, landscape and visual monitoring and environmental site audit from 1 to 31 October 2013.

2 Implementation Status

2.1 Implementation Status of Mitigation Measures

During weekly site inspections, the environmental protection, and pollution control/mitigation measures in accordance with the requirements stipulated in the EIA were observed. The key observations and ET's corresponding recommendations while the Contractor's response and follow-up status are described in **Section 7.1**.

2.2 Updated Implementation Schedule

According to the Environmental Permit, the mitigation measures detailed in the permits are required to be implemented. The Implementation Schedule of Mitigation Measures was inspected during the weekly site inspections in reporting month. The details of the findings/observations are described in **Section 7.1**. An updated summary of the Implementation Schedule of Mitigation Measures is presented in **Appendix C**. The status of the required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 2.1**.

Table 2.1 Status of Required Submissions under the EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (September 2013)	15 th October 2013

As assessed in the quantitative risk assessment (QRA) conducted as part of the approved SCL(TAW-HUH) EIA Study, four explosive stores in the temporary magazine site at Tseung Kwan O Area 137, with capacity of 250kg per each storage, were dedicated for the use of SCL(TAW-HUH) project. As stated in the QRA, Lion Rock Tunnel and Ho Man Tin Tunnel will each have two dedicated explosive stores. Further to the change of tunnel construction method from drill & blast to bored tunneling for Ho Man Tin Tunnel, it is now proposed to use the four explosive stores for Lion Rock tunnel to allow flexibility for both blast design and better management of explosive storage.

As stated in the Monthly EM&A Report (September 2013), a QRA study has been conducted to address the recent changes in the planned blasting activities which has assessed the use of 4 explosive stores for SCL(TAW-HUH) Project (details refer to Appendix M of September Report). The study concluded that the risk associated will be within the risk envelope of 'Worst Case Scenario' indicated in the approved SCL (TAW-HUH) EIA and no unacceptable impacts will be anticipated. Since the proposed use of 4 explosive stores for the Project has been assessed in the recent QRA study, the findings and recommendations remain valid.

3 Air Quality Monitoring

3.1 Air Quality Monitoring Requirements

Monitoring Parameters

Regular 24-hour TSP levels shall be monitored during the construction stage while 1-hour TSP levels shall be required to monitor in case of complaints received.

Monitoring Frequency

The monitoring frequency is summarised in **Table 3.1**.

Table 3.1 Air quality monitoring parameters and frequency

Parameters	Monitoring Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days (as required in case of complaints)

Monitoring Locations

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three air quality monitoring locations during construction stage are required. The locations of the three air quality monitoring stations are shown below in **Table 3.2**:

Table 3.2 Air Quality Monitoring Locations

ID	Premise
DMS -1	C.U.H.K.A.A. Thomas Cheung School
DMS -2	Price Memorial Catholic Primary School
DMS-3 ^(Note 2) / DMS-4 ^(Note 3)	Hong Kong Sheng Kung Hui Nursing Home ^(Note 1)

Note:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On House.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

Wind Monitoring

Wind monitoring data including wind speed and wind directions shall be collected from Hong Kong Observatory – Kai Tak and Sha Tin Meteorological Stations and shown in **Appendix F**.

Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 3.3** and **3.4**.

Table 3.3 Action and Limit Level for Air Quality Monitoring of 24-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, $\mu\text{g}/\text{m}^3$	148.7	167.4	159.1
Limit Level, $\mu\text{g}/\text{m}^3$	260		

Table 3.4 Action and Limit Level for Air Quality Monitoring of 1-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, $\mu\text{g}/\text{m}^3$	283.9	276.2	278.4
Limit Level, $\mu\text{g}/\text{m}^3$	500		

Note:

Note 1: 1-hr TSP monitoring would be required in case of receiving complaints.

3.2 Air Quality Monitoring Methodology

3.2.1 Monitoring Equipment

High Volume Sampler (HVS) was used to monitor the 24-hour TSP. **Table 3.5** shows the equipment used for the air quality monitoring.

Table 3.5 Air Quality Equipment List for Impact Air Quality Monitoring

Equipment	Manufacturer & Model No	Measurement Parameter	Serial No.
High Volume Sampler	TE-5170	24-hour TSP	3761, 3762, 3763
Fibreglass Filter	G810		-
HVS Calibration Kit	GMW-2535		2421

3.2.2 Maintenance and Calibration

The HVSs and their accessories were frequently checked and maintained in accordance with the manufacturer's operation and maintenance manual. The maintenance included checking of supporting screen and gasket, as well as routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVSs were calibrated at 2-month intervals using GMW-2535 calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration spreadsheets of the HVSs and calibration certificate of the calibration kit are provided in **Appendix D**.

3.2.3 Monitoring Procedures

Specifications of the HVS are as follows:

- 0.6 – 1.7 m^3/min (20 – 60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hour operation;

- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hour operation;
- Capable of providing a minimum exposed area of 406 cm² (63in²);
- Flow control accuracy: +/-2.5% deviation over 24-hour sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for 24-hour period.

The HVSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were recorded.

A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd (HOKLAS no.: 066)), in accordance with their standard QA/QC procedures, with constant temperature and humidity control as well as equipped with necessary measuring and conditioning instruments to handle the 24-hour TSP samples was employed for sample analysis, and equipment calibration and maintenance. Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity controlled chamber for over 24-hour and pre-weighed before use for the sampling.

The 24-hour TSP levels were measured by following the standard High Volume Method for Total Suspended Particulates as set out in the Title 40 of the United States Code of Federal Regulations, Chapter 1 (Part 50), Appendix B. TSP was sampled by drawing air through a conditioned, pre-weighted filter paper inside the HVS at a controlled air flow rate. After 24-hour sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg. All the collected samples shall be kept in a good condition for 6 months before disposal.

3.3 Monitoring Results and Observations

3.3.1 Weather Condition

No adverse weather conditions were recorded during the monitoring dates.

3.3.2 Air Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 4, 10, 16, 22, 28 October 2013. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix E** and are summarised in **Table 3.6**. The graphical presentations of the monitoring results are provided in **Appendix E**. Wind data obtained from the Hong Kong Observatory – Kai Tak and Sha Tin stations during the reporting period are presented in **Appendix F**.

Table 3.6 Summary of Impact Air Quality Monitoring Results

Monitoring Station	24- hour TSP Monitoring Results ($\mu\text{g}/\text{m}^3$)		Action Level	Limit Level
	Average	Range		
DMS-1	55.8	85.2	148.7	260
DMS-2	64.9	97.6	167.4	260
DMS-3 / DMS-4	69.2	83.9	159.1	260

All 24-hour TSP measurements during the reporting month were below the Action/Limit Level. No exceedance of action and limit level was found.

The event and action plan is provided in **Appendix I**.

3.3.3 General Observations

Major construction works including site formation, ground investigation, diaphragm wall construction, hoarding erection, pipe piling, and utilities detection and diversion. No abnormal condition was recorded during the monitoring period.

4 Noise Monitoring

4.1 Noise Monitoring Requirements

4.1.1 Impact Monitoring

Monitoring Parameters

Construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} shall also be recorded as supplementary reference information for data auditing.

Monitoring Frequency

Noise measurements shall be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 4.1**.

Table 4.1 Construction Noise Monitoring Parameters and Frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency
Between 0700-1900 hours on normal weekdays	$L_{eq}(30 \text{ min})$	Once per week

Monitoring Location

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three noise monitoring locations during the construction stage are required, namely:

Table 4.2 Noise Monitoring Locations

ID	Premise
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3 ^(Note 2) / NMS-CA-4 ^(Note 3)	Hong Kong Sheng Kung Hui Nursing Home ^(Note 1)

Notes:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On house.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 4.3**.

Table 4.3 Action and Limit Levels of construction noise

Location ^(Note 1)	Time Period ^(note 3)	Action Level	Limit Level dB(A)
NMS-CA-1 & NMS-CA-2	0700 - 1900 hours on normal weekdays	When one documented complaint is received	70/65 ^(Note 2)
NMS-CA-3 / NMS-CA-4			75

Notes:

1. The detail of monitoring locations was presented in Table 1.3.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.
3. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

4.2 Noise Monitoring Methodology

4.2.1 Monitoring Equipment

Noise level was measured by a Sound Level Meter (SLM) in terms of A-weighted equivalent continuous sound pressure level. L_{eq} , L_{10} and L_{90} were recorded as supplementary information for data auditing. **Table 4.4** shows the equipment list of the noise monitoring.

Table 4.4 Noise Equipment List for Impact Noise Monitoring

Equipment	Manufacturer & Model No.	Serial No.	Precision Grade
Integrated SLM	Brüel & Kjær 2238	2562763	IEC 651 Type 1 IEC 804 Type 1
Sound level calibrator	Brüel & Kjær 4231	2713427	IEC 942 Type 1

4.2.2 Maintenance and Calibration

The SLM and calibrator in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specifications according to the EM&A manual.

SLM complying with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions) and acoustical calibrator complying with IEC 942 were adopted for the noise measurement. All equipments are calibrated externally. The calibration certificates for the noise equipment are given in **Appendix G**.

4.2.3 Monitoring Procedures

- The SLM and battery were checked to ensure that they are in proper condition. The SLM was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade;
- Before conducting the measurement, the SLM was calibrated by an acoustical calibrator;

- Measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes;
- Wind speed was checked during noise monitoring to ensure the steady wind speed does not exceed 5m/s, or wind with gusts does not exceed 10m/s;
- Any abnormal conditions that generated intrusive noise during the measurement was recorded on the field record sheet;
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet;
- After conducting the measurement, the SLM was calibrated by a sound level calibrator; and
- The SLM was re-calibrated by the sound level calibrator to confirm that there is no significant drift of reading. Measurements shall be accepted as valid only if the calibration levels before and after the noise measurement agrees to within 1.0 dB.

4.3 Monitoring Results and Observations

4.3.1 Weather Condition

The weather condition was mainly overcast with periods of rain during the noise monitoring period in the reporting month.

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 5, 11, 17, 23 and 29 October 2013. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix H** and are summarised in **Tables 4.5 - 4.7**. The graphical presentations of the monitoring results are provided in **Appendix H**.

Table 4.5 Summary of Impact Noise Monitoring at Location NMS-CA-1

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
5 Oct13	13:20-13:50	58.2	57.0	52.0	70/65
11 Oct13	10:50-11:20	58.3		52.4	
17 Oct13	10:35-11:05	59.5		55.9	
23 Oct13	13:45-14:15	58.4		52.8	
29 Oct13	11:40-12:10	59.5		55.9	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.

Table 4.6 Summary of Impact Noise Monitoring at Location NMS-CA-2

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
5 Oct13	09:05-09:25	67.8	66.0	63.1	70/65
11 Oct13	12:20-12:50	68.4		64.7	
17 Oct13	12:50-13:20	68.7		65.4	
23 Oct13	12:30-13:00	67.9		63.4	
29 Oct13	13:00-13:30	67.2		61.0	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.

Table 4.7 Summary of Impact Noise Monitoring at Location NMS-CA-3/NMS-CA-4

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
5 Oct13	11:15-11:45	68.1	73.0	< Baseline Level	75
11 Oct13	09:15-09:45	68.8		< Baseline Level	
17 Oct13	14:05-14:35	67.9		< Baseline Level	
23 Oct13	09:20-09:50	68.4		< Baseline Level	
29 Oct13	14:20-14:50	69.1		< Baseline Level	

Note:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.

4.3.3 Exceedance of Limit and Action Levels for Construction Noise

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

No exceedance of Limit Level of regular construction noise was recorded during the reporting month.

The event and action plan is provided in **Appendix I**.

4.3.4 General Observations

The construction site has been under normal operation during the noise monitoring period and no unusual operation was observed.

5 Landscape and Visual Monitoring

5.1 Introduction

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The event and action plan is provided in **Appendix I**.

5.2 Mitigation Measures

Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting month on 10 and 24 October 2013. During the site inspections no issues regarding landscape and visual were identified.

6 Waste Disposal

The actual amounts of different types of waste generated by the activities of the Project during the reporting month are shown in **Table 6.1**. The monthly waste summary flow table is provided in **Appendix J**.

Table 6.1 Amount of Waste Generated

Waste Type	Amount	Disposal Locations
Inert C&D Materials	8868m ³	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	0	Disposed of by a licensed collector
Paper / cardboard packaging	525kg	-
Plastic	0	
Metal	0	
General Refuse	97m ³	NENT Landfill

7 Environmental Performance

7.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis, with the IEC joint site inspection being carried out on 30 October 2013, to monitor environmental issues on the construction sites to ensure that all mitigation measures were implemented timely and properly. A summary of the site inspections in the reporting month is presented in **Table 7.1**.

Table 7.1 Key Findings of Weekly Environmental Site Audit

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
Water Quality				
2 Oct 2013	Ma Chai Hang	Seepage of muddy water was observed being discharged into public storm drain. The Contractor should ensure all water at the drilling area has been control properly without any seepage.	Agreed with ET's Advice.	The contractor rectified the issue and increased the provision of sandbags. Closed 9 Oct 2013.
30 Oct 2013	Hin Keng	A single truck was observed leaving a paved haul road after loading without undergoing wheel washing. Whilst no mud was observed on the haul road or public road, the contractor shall ensure all vehicles are subject to wheel washing prior to leaving the site.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.
Noise				
25 Sept 2013	Ma Chai Hang	The Contractor was reminded to set up noise barrier for the power pack of the plant upon the commencement of construction activities for diaphragm wall.	Agreed with ET's Advice.	The contractor rectified the issue and set up a noise barrier. Closed 2 Oct 2013.
2 Oct 2013	Diamond Hill	The Contractor was reminded to properly position welding machines in order to mitigate noise impact where necessary.	Agreed with ET's Advice.	The contractor rectified the issue and repositioned the welding machine. Closed 9 Oct 2013.
Air				

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
2 Oct 2013	Hin Keng	The Contractor was reminded to apply water spraying on site where necessary.	Agreed with ET's Advice.	The contractor rectified the issue and sprayed water where necessary. Closed 9 Oct 2013.
9 Oct 2013	Diamond Hill, Ma Chai Hang	The Contractor was reminded to increase water spraying, where necessary, during hot and dry conditions.	Agreed with ET's Advice.	The contractor rectified the issue and sprayed water where necessary. Closed 16 Oct 2013.
9 Oct 2013	Hin Keng	The Contractor should enhance water spraying during loading operations.	Agreed with ET's Advice.	The contractor rectified the issue and sprayed water where necessary during loading operations. Closed 16 Oct 2013.
16 Oct 2013	Fung Tak	The Contractor was reminded to increase water spraying, where necessary, during hot and dry conditions.	Agreed with ET's Advice.	The contractor rectified the issue and sprayed water where necessary. Closed 23 Oct 2013.
Waste				
16 Oct 2013	Diamond Hill	The Contractor was reminded to tidy up used form work materials.	Agreed with ET's Advice.	The contractor rectified the issue and tidied up the work materials. Closed 23 Oct 2013.
23 Oct 2013	Diamond Hill	Oil drums were observed with the provision of a tarpaulin sheet at their base as well as being fully covered. The contractor is	Agreed with ET's Advice.	The contractor rectified the issue and

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
		reminded to provide drip trays for the oil drums.		provided oil drums. Closed 30 October 2013.
23 and 30 Oct 2013	Fung Tak	Oil stains were observed within a semi-bunded area of the site. The contractor shall prevent the spillage of oil during maintenance works.	Agreed with ET's Advice.	The contractor rectified the issue. Closed 30 October 2013.
30 Oct 2013	Fung Tak	The contractor is reminded to properly label chemical waste storage areas.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.

7.2 Summary of Environmental Complaint

No environmental complaints regarding environmental issue were recorded in the reporting month. The updated statistical summary of complaint is presented in **Table 7.2**. The updated complaint logs, if any, of the Project in the reporting month is shown in **Appendix L**.

Table 7.2 Summary of Complaints

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
01/10/13–31/10/13	0	0	N/A	N/A	N/A

7.3 Summary of Environmental Non-Compliance

There was no non-compliance identified during the reporting month so review of the non-compliance was not required.

7.4 Summary of Environmental Summon and Successful Prosecution

No summons of prosecutions related to environmental issues were received or made against the project in the reporting month. Please refer to **Appendix L** for a Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions.

8 Future Key Issues

8.1 Key Issues for the Coming Month

Works to be undertaken in the coming reporting month are summarised in **Table 8.1** below.

Table 8.1 Tentative Programme of Construction Works for the Coming Month

Locations	Major Works Undertaken
Diamond Hill	Site Excavation and Strutting.
Hin Keng	Pipe Piling and Mucking Out.
Fung Tak	Drainage Diversion Works and Platform Erection.
Ma Chai Hang	Drainage Diversion Works and Diaphragm Wall.

8.2 Environmental Monitoring Program for the Coming Month

Environmental monitoring and audit will be carried out in accordance with the requirements stipulated in the EM&A manual. Tentative air and noise monitoring as well as weekly site audit schedule for the coming month with respect to the construction programme is shown in **Appendix K**.

8.3 Construction Program for the Coming Month

The construction programme for the coming month is shown in **Appendix A**.

9 Conclusions and Recommendations

9.1 Conclusions

The construction phase of the project commenced on 14 February 2013. The EM&A programme has since been implemented, including air quality, noise and environmental site audits. Four environmental site audits were conducted in the reporting month.

No exceedance of the Action and Limit Levels of regular construction noise was recorded at the designated monitoring stations during the reporting period.

No exceedance of the Action and Limit Levels of 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting period.

No non-compliance event was recorded during the reporting period.

No complaint and summons/prosecution was received during the reporting period.

The Contractor's ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

9.2 Recommendations

Impact monitoring will continue to be carried out in the following month and will follow the requirements stipulated in the EM&A manual. Attention will be paid to the environmental issues identified in the EIA report and weekly site audit. Mitigation measures recommended in EIA report and Implementation Schedule of Mitigation Measure will be fully implemented.

Construction noise is one of the key environmental issues. The implemented construction noise mitigation measures should also be maintained and improved as necessary. Especially in restricted hours, the conditions stipulated in the CNPs should be strictly followed when the construction works were carried out during restricted hours.

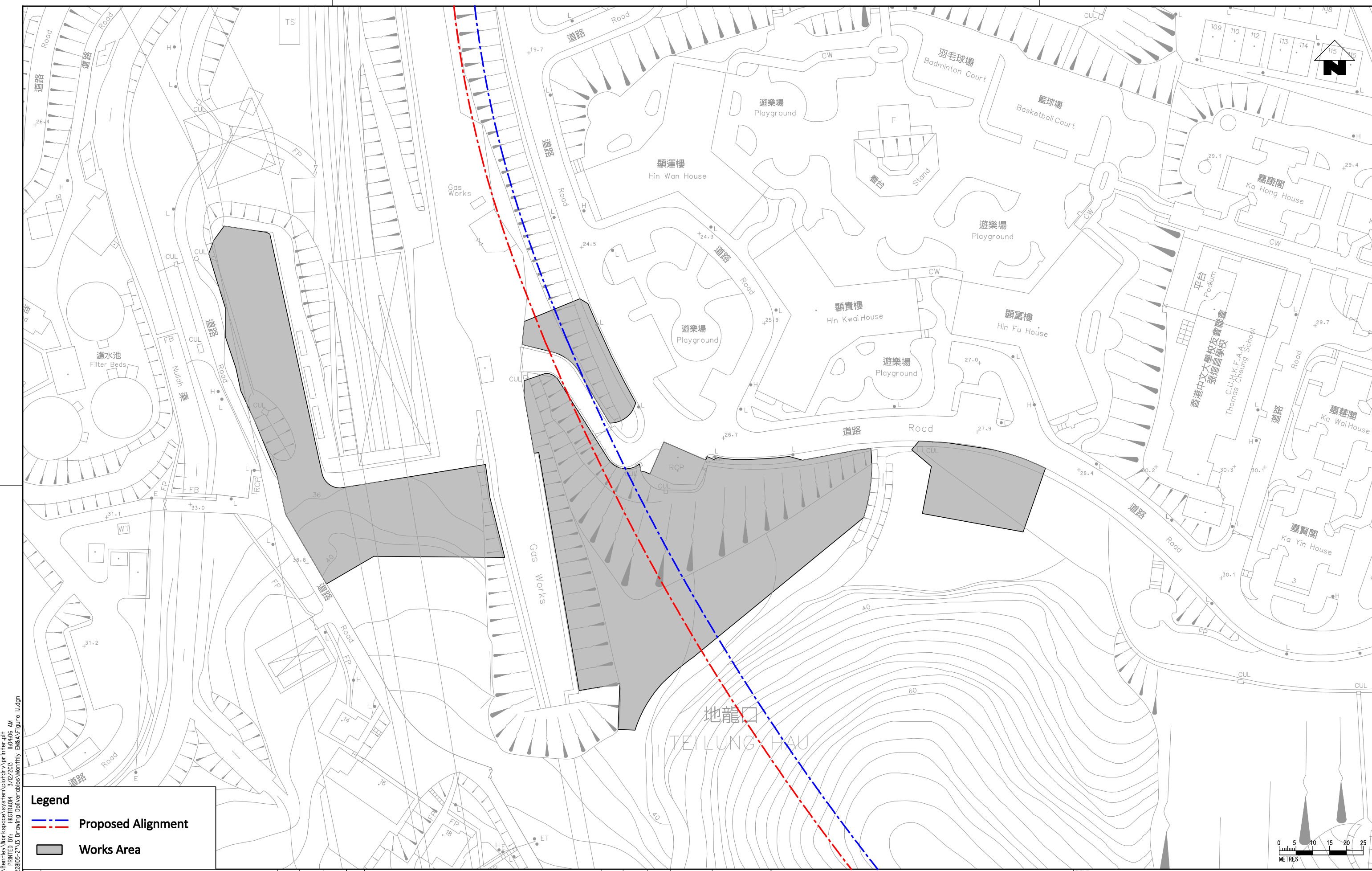
Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge. The solid and liquid waste management should be strictly followed in accordance with the requirements stipulated in the EIA report.

Landscape and Visual is another key environmental issue. The implemented landscape and visual mitigation measures such as the provision of tree protection zones should be maintained and improved as necessary.

10 Reference

- (1) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Final Environmental Impact Assessment Report. October 2011.
- (2) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Environmental Monitoring and Audit Manual. October 2011.
- (3) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Final Environmental Impact Assessment Report. October 2011.
- (4) MTR Corporation Limited. SCL - NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Environmental Monitoring and Audit Manual. October 2011.

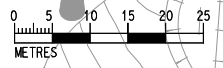
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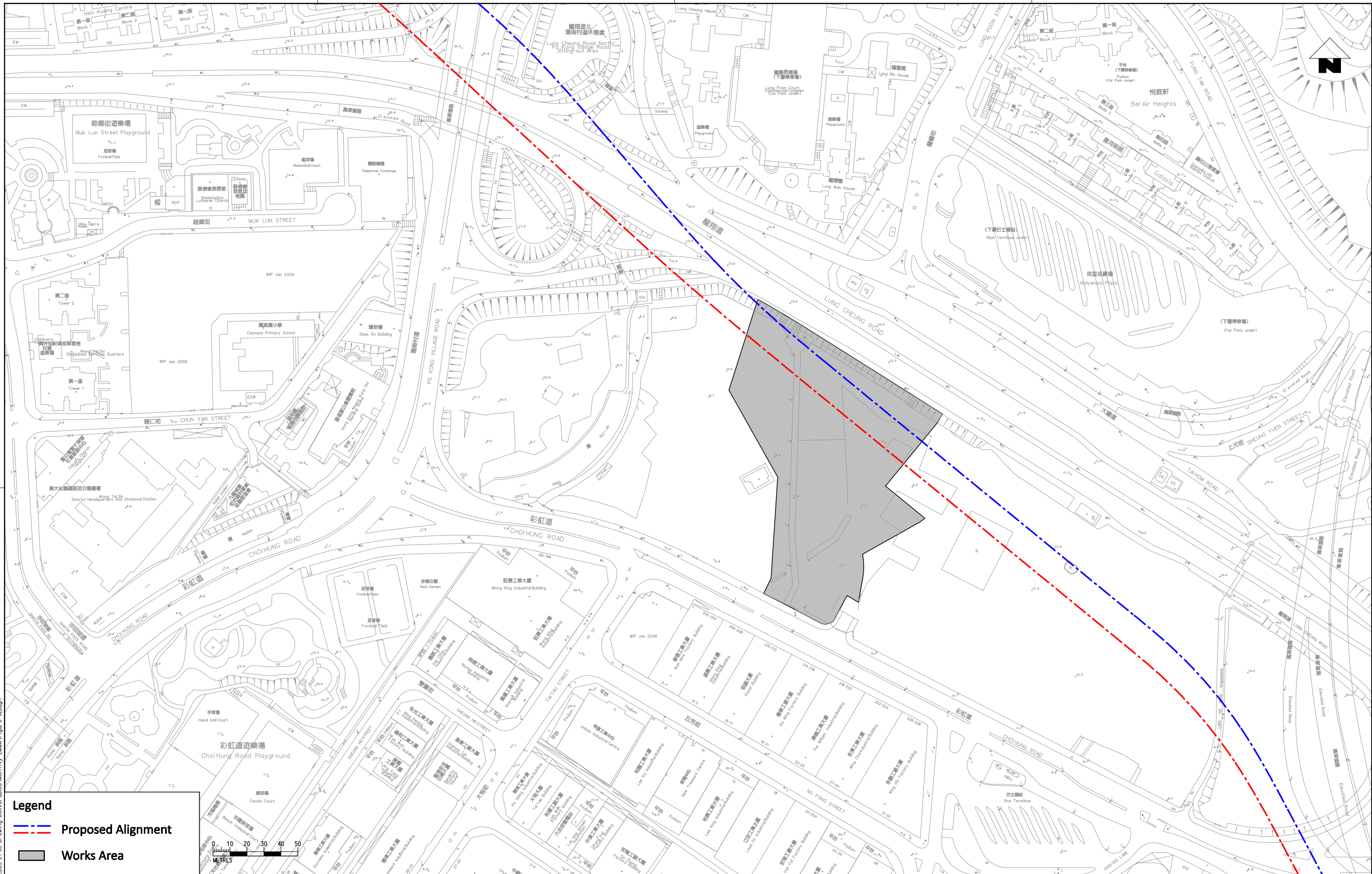
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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Project Works Areas
 - General Site Layout of Hin Keng Works Area
 (Sheet 1 of 6)

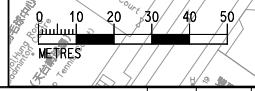
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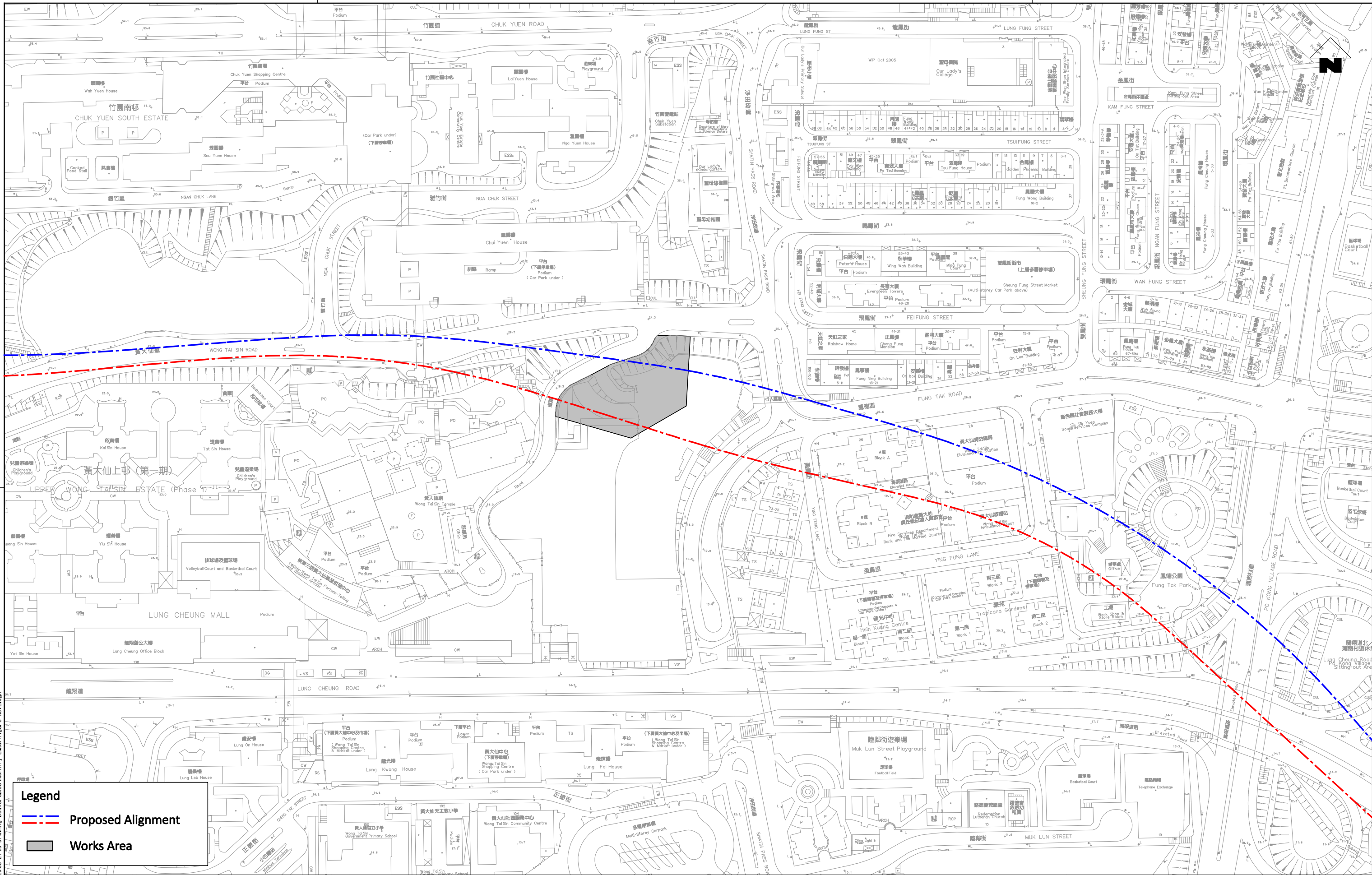
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Works Area



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- Works Area

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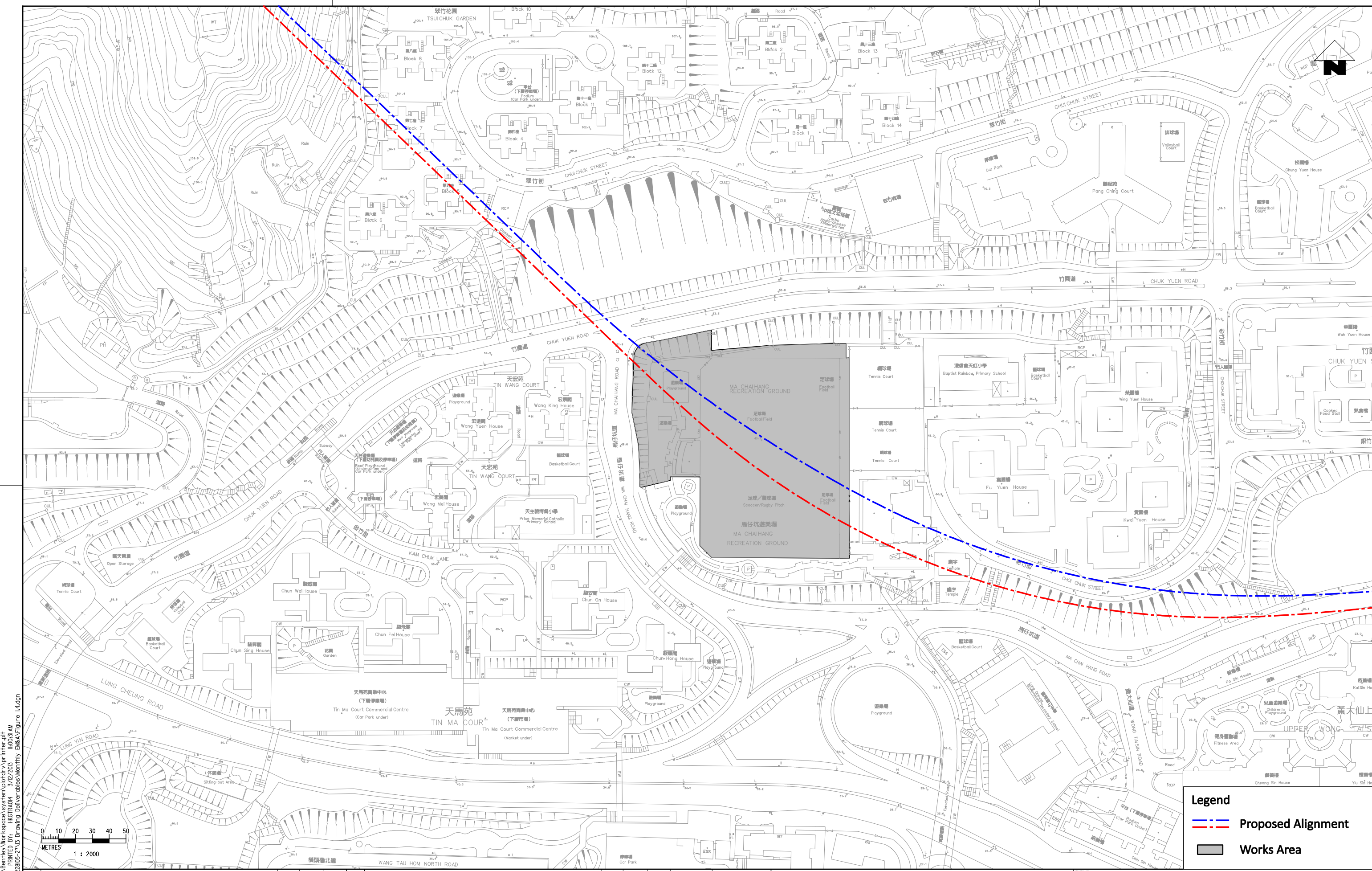
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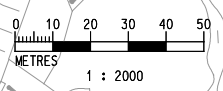
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- --- Proposed Alignment
- Works Area

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 Locations of Project Works Areas
 - Site Layout Plan of Ma Chai Hang Shaft
 (Sheet 4 of 6)

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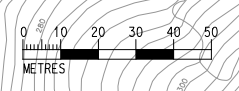
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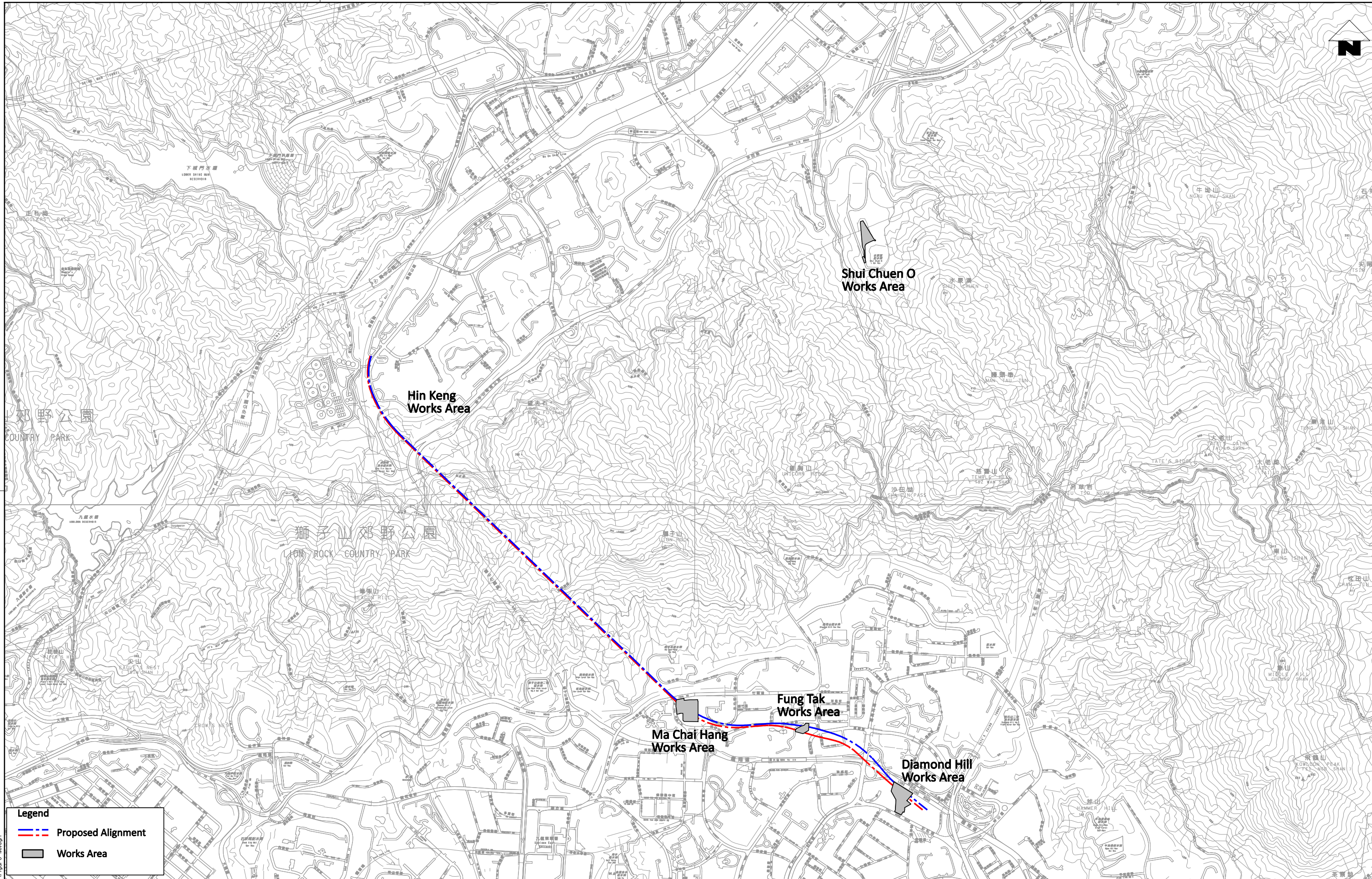
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Works Area



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- --- Proposed Alignment
- Works Area

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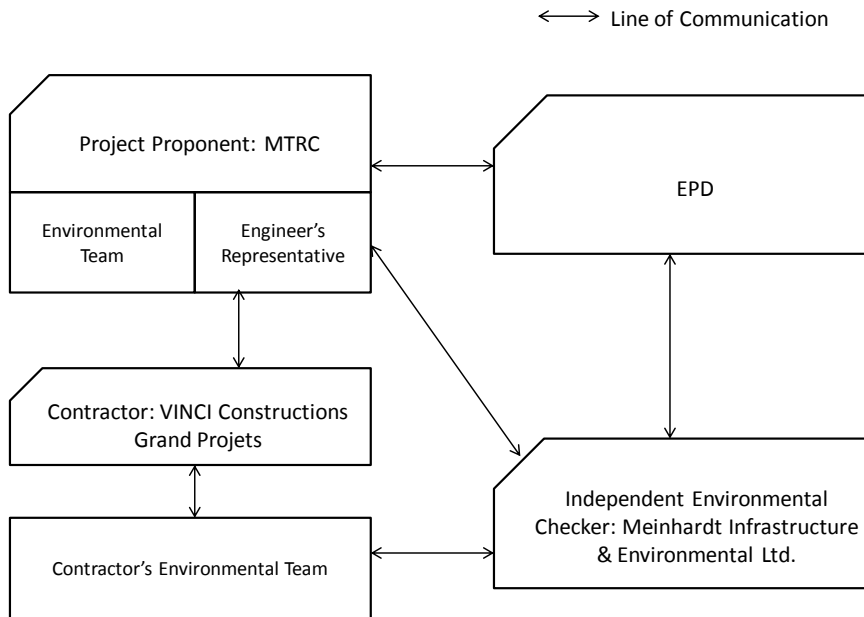
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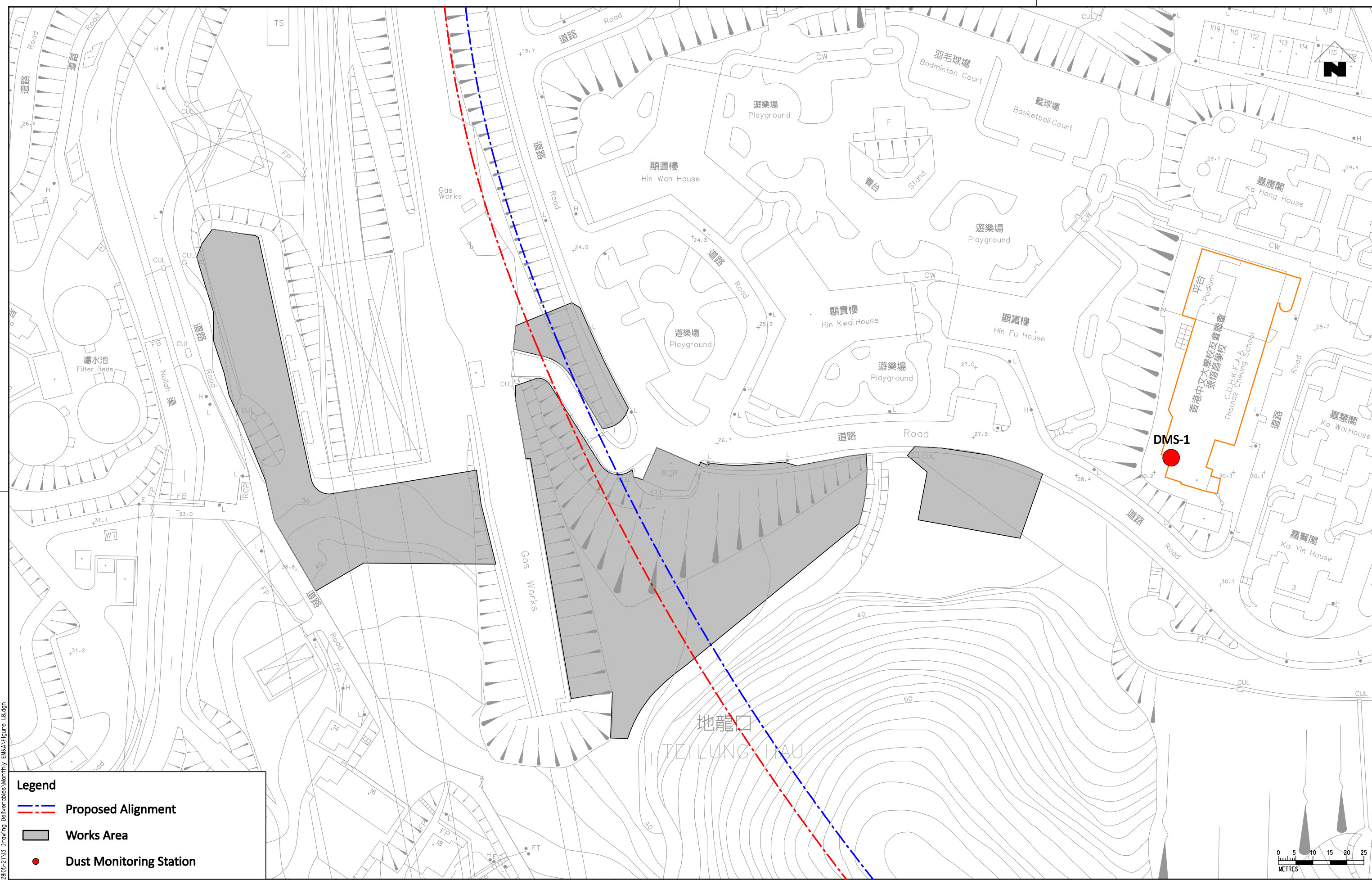
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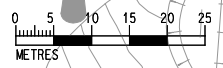
Figure 1.7 - Project Organisation for Environmental Works



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- Legend**
- --- Proposed Alignment
 - Works Area
 - Dust Monitoring Station



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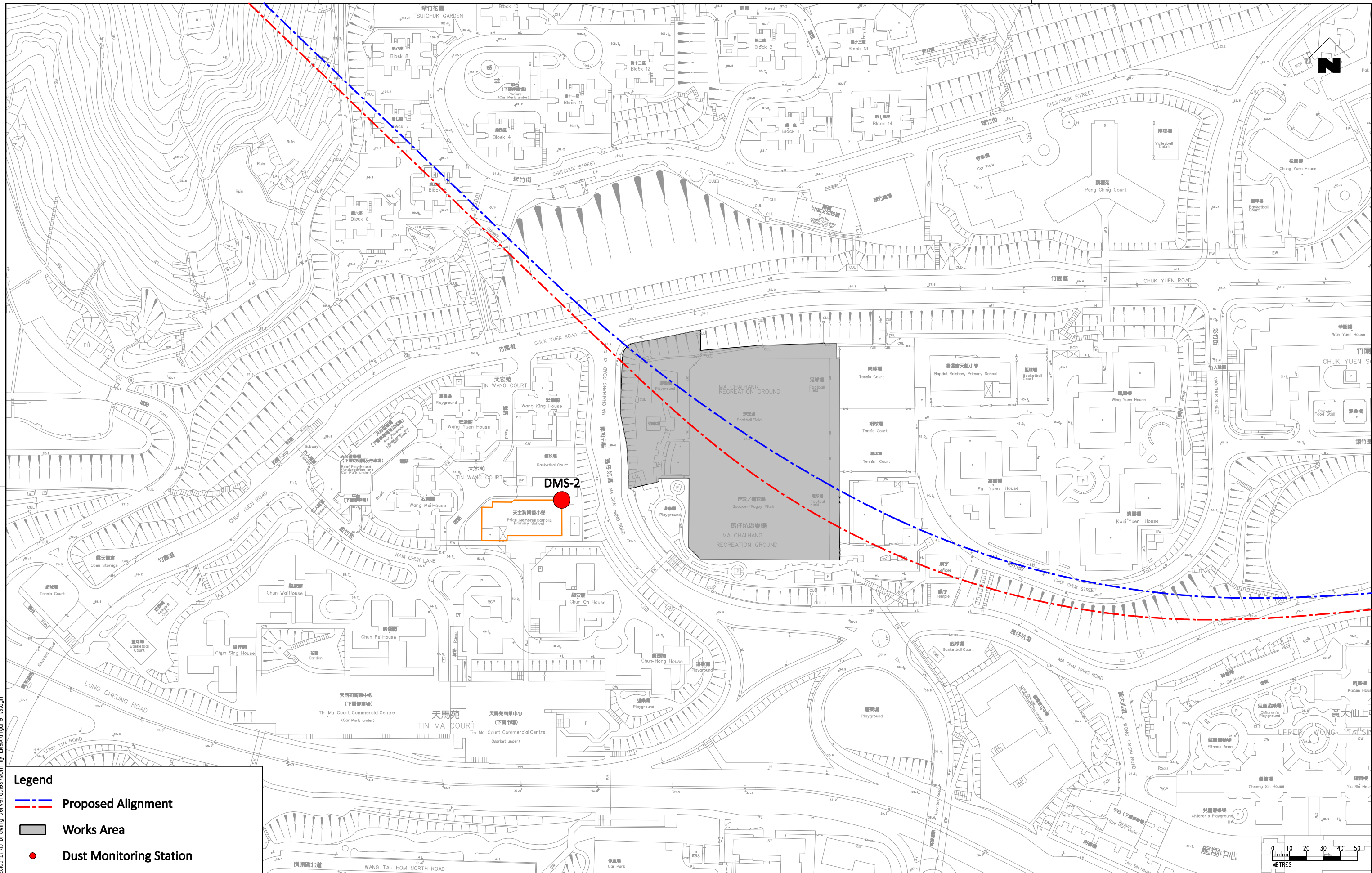
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- Legend**
- --- Proposed Alignment
 - Works Area
 - Dust Monitoring Station

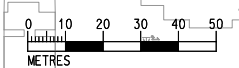
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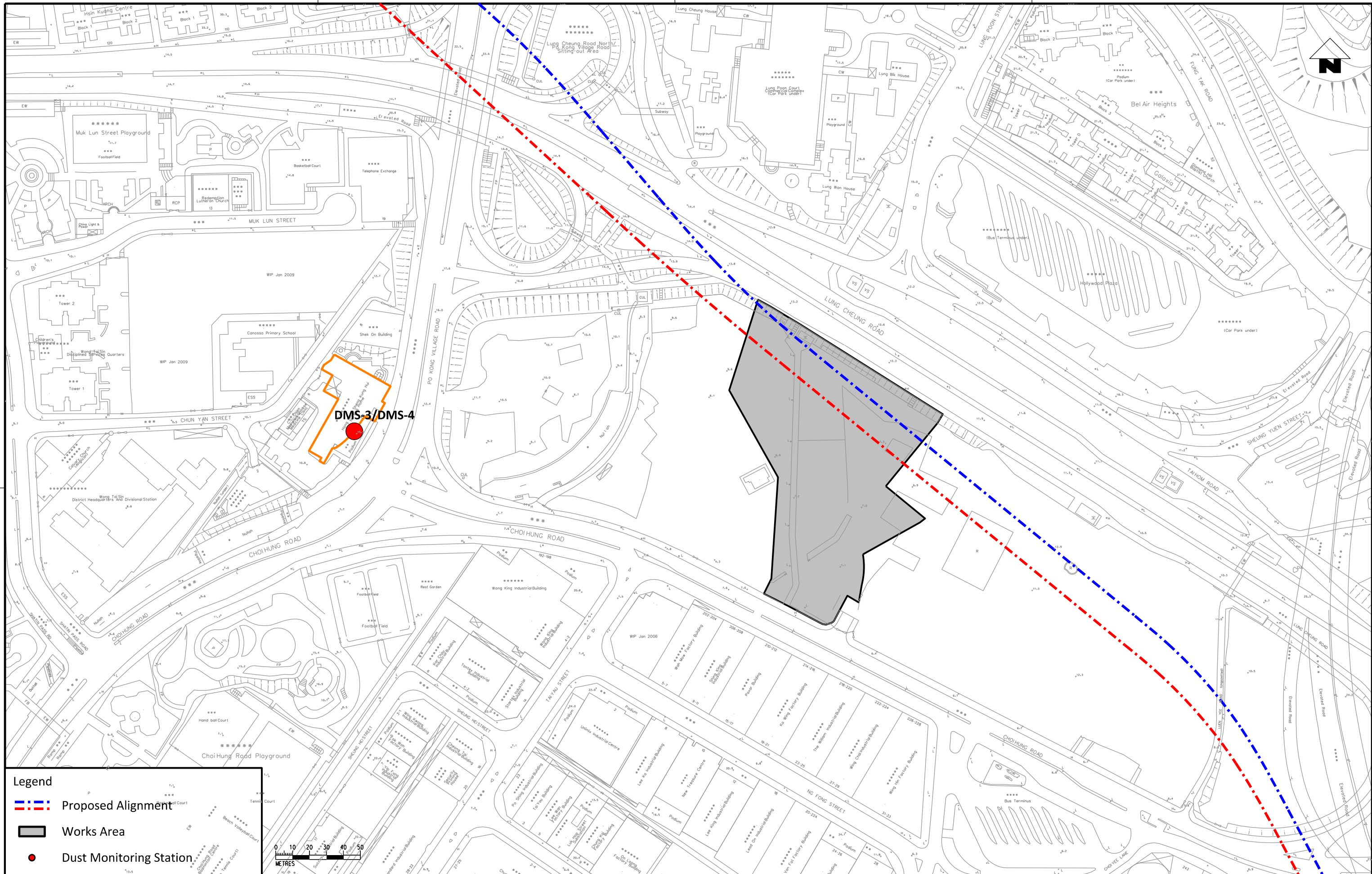
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- - - Proposed Alignment
- Works Area
- Dust Monitoring Station



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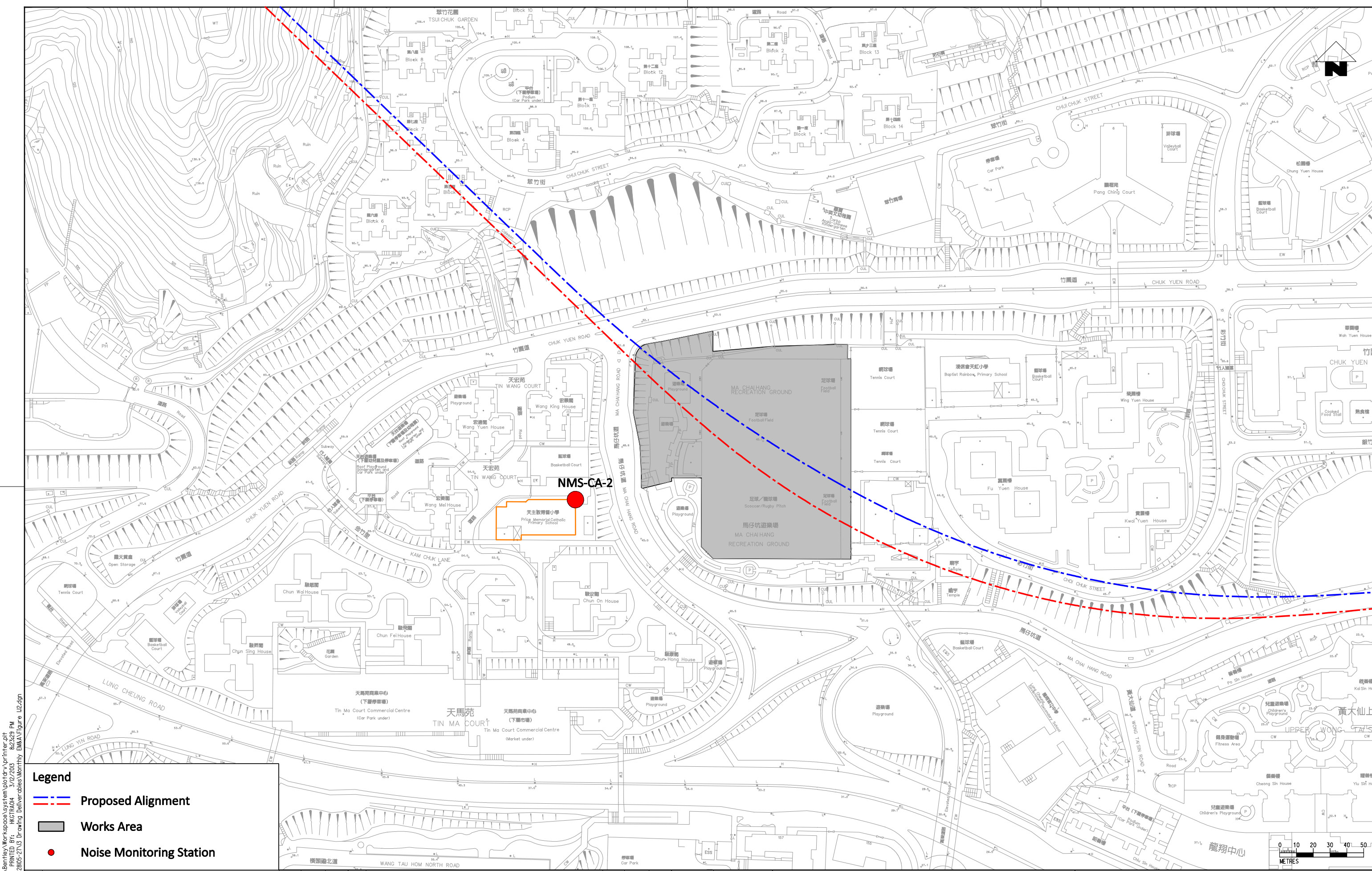
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- Legend**
- --- Proposed Alignment
 - Works Area
 - Noise Monitoring Station

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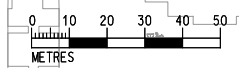
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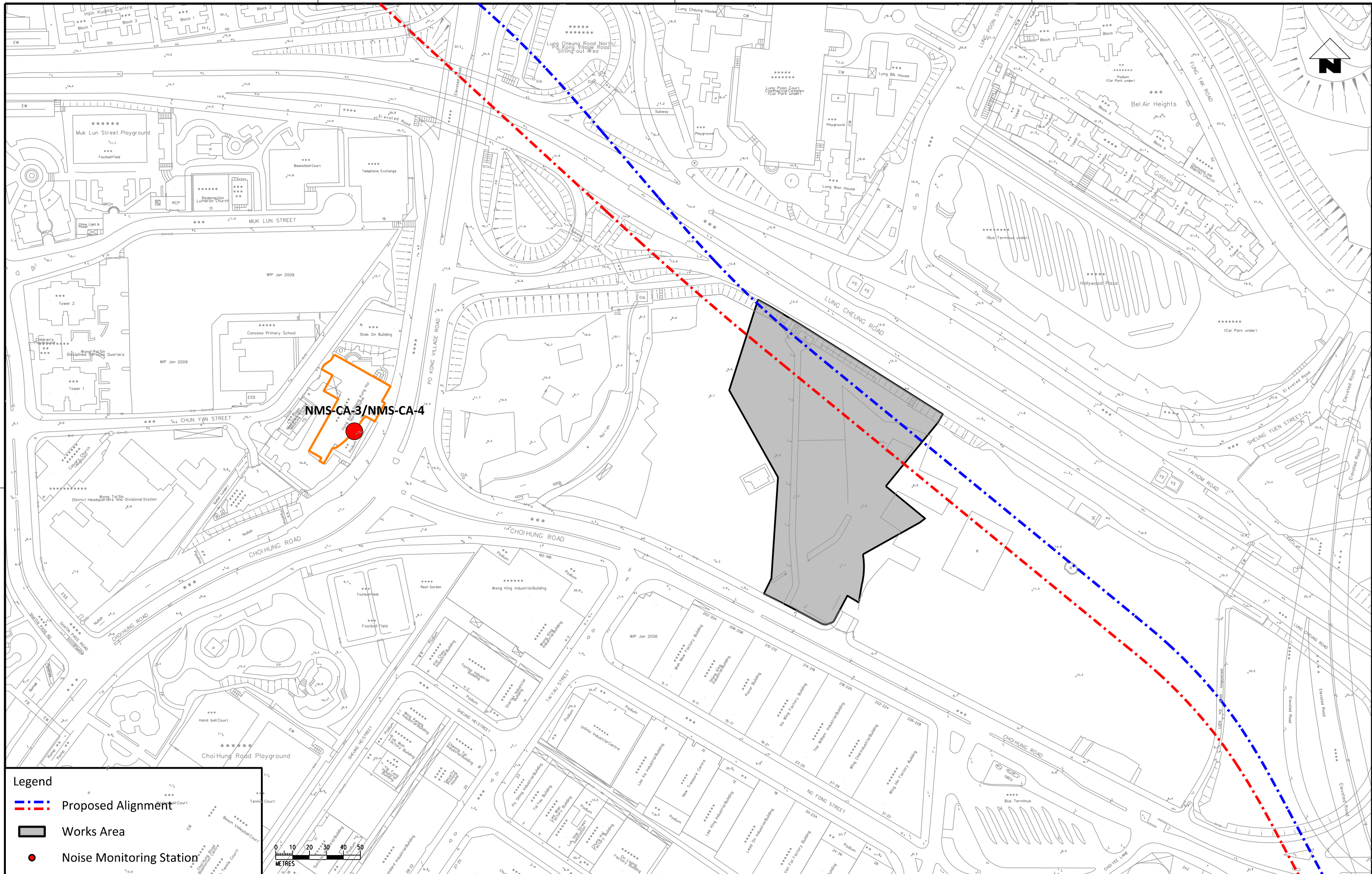
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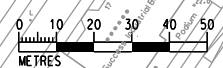
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 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Noise Monitoring Stations
 (Construction Airborne Noise)
 (Sheet 2 of 3)

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- Legend**
- --- Proposed Alignment
 - Works Area
 - Noise Monitoring Station



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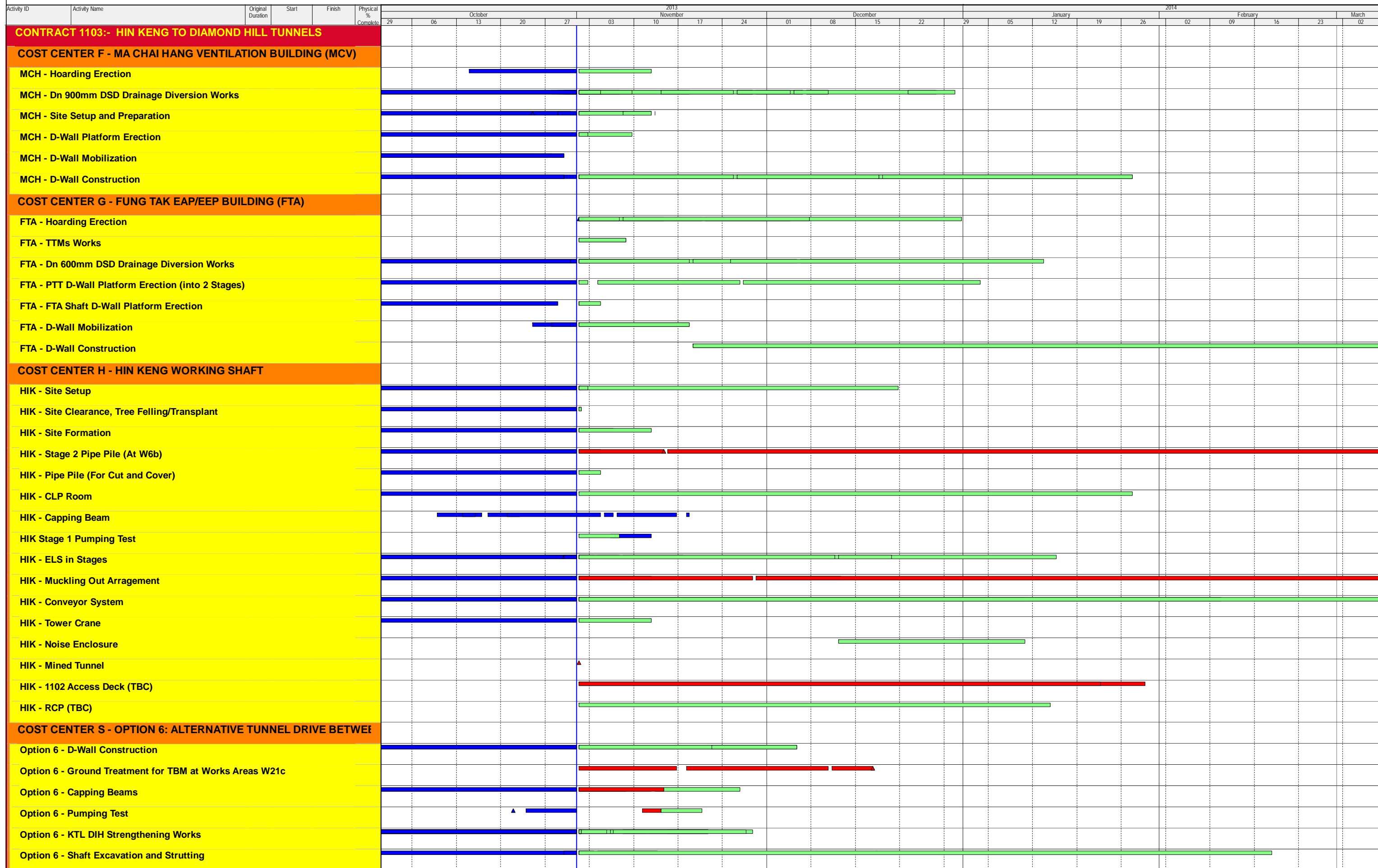
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Appendix A

Construction Programme



Appendix B

Environmental
Monitoring
Programme in
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - October 2013**

Date	Air Quality	Noise	Site Inspection
	24-hours TSP	L _{Aeq} , 30 min	
01-Oct-13	Tue		
02-Oct-13	Wed		
03-Oct-13	Thu		
04-Oct-13	Fri		
05-Oct-13	Sat		
06-Oct-13	Sun		
07-Oct-13	Mon		
08-Oct-13	Tue		
09-Oct-13	Wed		
10-Oct-13	Thu		
11-Oct-13	Fri		
12-Oct-13	Sat		
13-Oct-13	Sun		
14-Oct-13	Mon		
15-Oct-13	Tue		
16-Oct-13	Wed		
17-Oct-13	Thu		
18-Oct-13	Fri		
19-Oct-13	Sat		
20-Oct-13	Sun		
21-Oct-13	Mon		
22-Oct-13	Tue		
23-Oct-13	Wed		
24-Oct-13	Thu		
25-Oct-13	Fri		
26-Oct-13	Sat		
27-Oct-13	Sun		
28-Oct-13	Mon		
29-Oct-13	Tue		
30-Oct-13	Wed		
31-Oct-13	Thu		

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing	L _{Aeq} (30 min), L ₁₀ , L ₉₀

Appendix C

Environmental
Mitigation
Implementation
Schedule (EMIS)

Environmental Mitigation Implementation Schedule – Works Contract 1103

Note: Chapters 1 to 3 of the EIA report present the background information of the Project, identified concurrent projects, objectives and scope for various environmental aspects, and description on alternative options and construction description. Chapters 4 to 14 of the EIA report present the EIA findings and mitigation measures are described below with cross-reference to the EIA report for the reporting month. Chapters 15 & 16 describe the environmental monitoring requirements and conclusion.

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Ecology (Pre-Construction Phase)							
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimize ecological impacts	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	<ul style="list-style-type: none"> •AFCD's requirements •EIAO •Country Parks Ordinance 	✓
	E2	<p><u>Habitat Loss</u></p> <p>A detailed vegetation survey should be conducted in the Hin Keng Portal area to locate and enumerate individuals of <i>Aquilaria sinensis</i> which will potentially be affected by construction and operation of the Portal.</p> <p>A suitable site for transplanting all affected individuals within the footprint area should be identified and assessed for its suitability. A transplantation plan should then be drawn up and details of the transplantation methodologies and programme along with post-transplantation monitoring should be included.</p>	Minimize ecological impacts on important species	Hin Keng Portal areas	Prior to site clearance	<ul style="list-style-type: none"> •AFCD's requirements 	✓
S5.7	E3	<p><u>Tree felling and vegetation removal</u></p> <p>Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.</p>	Minimize ecological impacts to breeding bird species of conservation interest	Works sites for DIH	Prior to site clearance	<ul style="list-style-type: none"> •AFCD's requirements 	N/A

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Ecology (Construction Phase)							
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 	Minimize ecological impacts	All construction sites	Construction stage		<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

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S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream) and good site practices. Canopy tubes should be installed from the shaft structure and extend the full width of the stream. These canopy tubes with sieves along its length should be grouted and form a stable and low permeable 'umbrella' for further mining works to be carried out in stages. The canopy tubes beneath the stream area are within Completely Decomposed Granite (CDG) stratum. 	<ul style="list-style-type: none"> Avoid indirect water impact to any wetland habitats or wetland fauna Minimize the drawdown of water table 	Works area in Hin Keng	Construction stage	<ul style="list-style-type: none"> TCW No. 5/2005 	<p align="center">✓</p> <p align="center">N/A</p>

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Landscape and Visual (Construction Phase)							
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees 	Minimize visual & landscape impact	Within Project Site	Construction stage	TM-EIAO	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

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		prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.					✓
S6.12	LV2	<ul style="list-style-type: none"> <li>• <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <li>• <u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <li>• <u>Tree Transplanting</u> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 	Minimize visual & landscape impact	Within Project Site	Detailed design and construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	 ✓ ✓ ✓

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Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	✓
S7.6.5	D2	<ul style="list-style-type: none"> • Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 L/m² to achieve the dust removal efficiency 	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	Rdr
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the 	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	Rdr Obs ✓ ✓

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		<p>pedestrian barriers, fencing or traffic cones.</p> <ul style="list-style-type: none"> • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">N/A</p> <p align="center">✓</p>

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		<p>should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</p> <ul style="list-style-type: none"> Any skip hoist for material transport should be totally enclosed by impervious sheeting; Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 					<p align="center">✓</p> <p align="center">✓</p>
		<ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">N/A</p>
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Selected representative dust monitoring station	Construction stage	• TM-EIA	<p align="center">✓</p>

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Construction Noise (Airborne)							
S8.3.6	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; mobile plant should be sited as far away from NSRs as possible and practicable; material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>Rdr</p> <p>✓</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	All construction sites	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and	Screen the noisy plant items to be used at all construction sites	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	Rdr

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		saw.					
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring station	Construction stage	• TM-EIA	✓

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Water Quality (Construction Phase)							
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the 	To minimize water quality impact from construction site runoff and general construction activities	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	<p align="center">Obs</p> <p align="center">✓</p> <p align="center">✓</p>

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		<p>commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

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		<p>adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p> <ul style="list-style-type: none"> • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">Obs</p> <p align="center">✓</p> <p align="center">✓</p>

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		<p>and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</p> <ul style="list-style-type: none"> All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt best management practices 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN 1/94 TM-water TM-EIAO 	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p>	To minimize water quality	All construction sites	Construction	<ul style="list-style-type: none"> Water Pollution 	

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		<ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	from sewage effluent	where practicable	stage	Control Ordinance • TM-water	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality 	To minimize groundwater quality impact from contaminated area	Excavation areas where contamination is found.	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance • TM-water • TM-EIAO 	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>

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		<p>will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. 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 substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.</p>					
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Waste Management (Construction Phase)							
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored. 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	All construction sites	Construction stage	<ul style="list-style-type: none"> DEVB TC(W) No. 6/2010 	✓
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance 	✓ ✓

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<p>promote the use of recycled aggregates where appropriate;</p> <ul style="list-style-type: none"> Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 				<ul style="list-style-type: none"> ETWB TCW No. 19/2005 	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005 	<p align="center">Rdr</p> <p align="center">N/A</p>

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	All construction sites	Construction stage	• Waste Disposal Ordinance	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S11.5.1	WM5	<p><u>Excavated Contaminated Soils</u></p> <p>Details of the mitigation measures on handling of the contaminated soil shall be referred to Section on Land Contamination below.</p>	To remediate contaminated soil	Site L4 (Former Tai Hom Village)	Site remediation	• Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boat yards and Car Repair/Dismantling Workshop.	

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 	Control the chemical waste and ensure proper storage, handling and disposal.	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	<p align="center">Obs</p> <p align="center">✓</p> <p align="center">Rdr</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	✓
S14.2 – 14.4	EM2	<p>1) An Environmental Team needs to be employed as per the EM&A Manual.</p> <p>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</p> <p>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.</p>	Perform environmental monitoring & auditing	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	<p>✓</p> <p>✓</p> <p>✓</p>

Appendix D

Calibration
Certificates for Air
Monitoring
Equipment

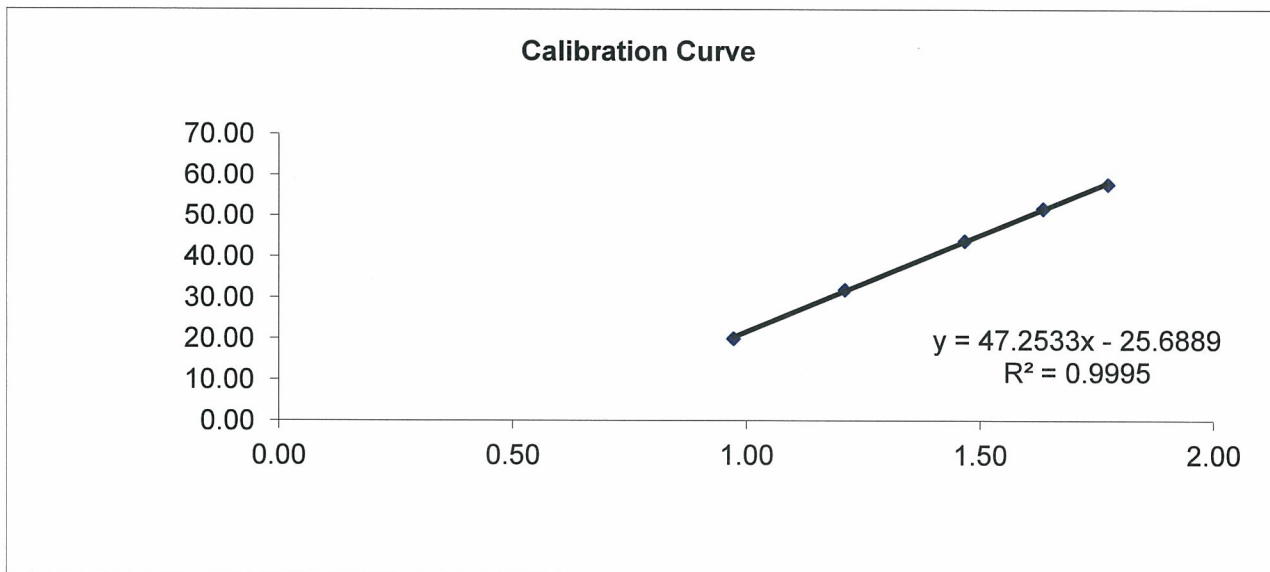
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	24-Sep-13	Barometric pressure	758 mm Hg
Next Calibration date	23-Nov-13	Temperature (°C)	27 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (K)	300 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3763	T _{std}	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m _s	2.0458
Intercept of the standard curve, b _s	0.0019

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	4.00	20.00	0.97	19.91
7	6.20	32.00	1.21	31.85
10	9.10	44.00	1.47	43.80
13	11.30	52.00	1.63	51.76
18	13.30	58.00	1.77	57.73



Linear Regression

Sampler slope (m) :	47.2533
Sampler intercept (b) :	-25.6889
Correlation coefficient (R ²) :	0.9995

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: 

Date: 24.9.13

Checked by: J. Rollinson

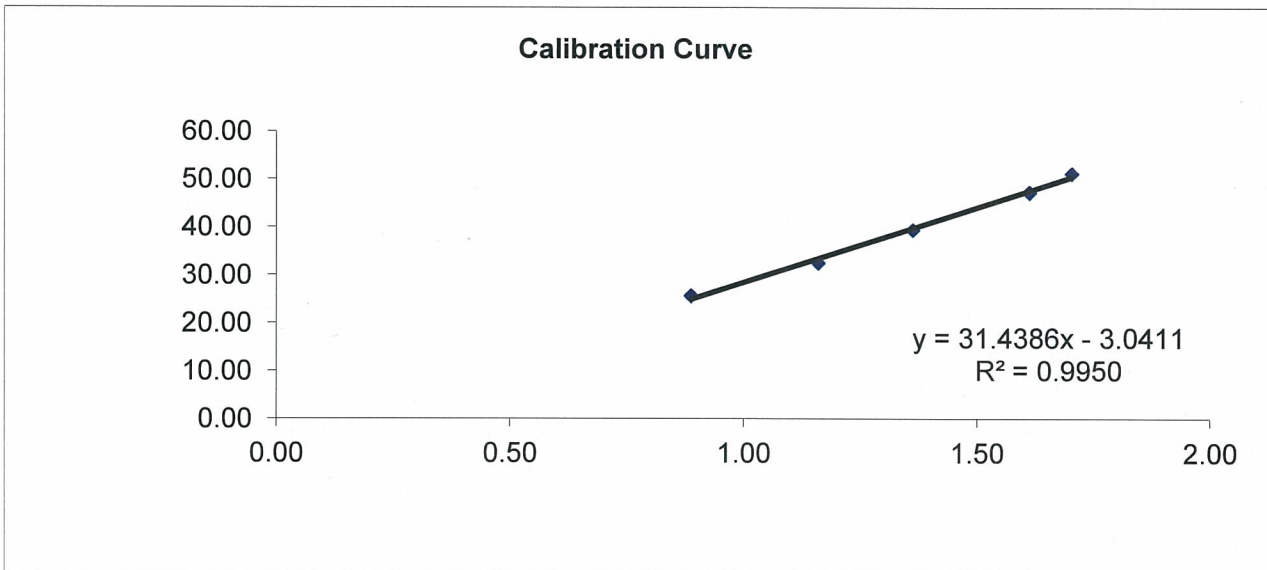
Date: 25-9-13

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	26-Aug-13	Barometric pressure	751 mm Hg
Next Calibration date	25-Oct-13	Temperature (°C)	30 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	303 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3761	T _{std}	298 K
Calibrator model	GMW-2535		
Calibrator serial number	2421		
Slope of the standard curve, m _s	2.0458		
Intercept of the standard curve, b _s	0.0019		


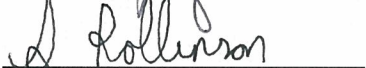
Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.40	26.00	0.89	25.63
7	5.80	33.00	1.16	32.53
10	8.00	40.00	1.36	39.43
13	11.20	48.00	1.61	47.32
18	12.50	52.00	1.70	51.26



Linear Regression

Sampler slope (m) : **31.4386**
 Sampler intercept (b) : **-3.0411**
 Correlation coefficient (R²) : **0.9950**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: 
 Checked by: 

Date: 26.8.13
 Date: 26.8.13

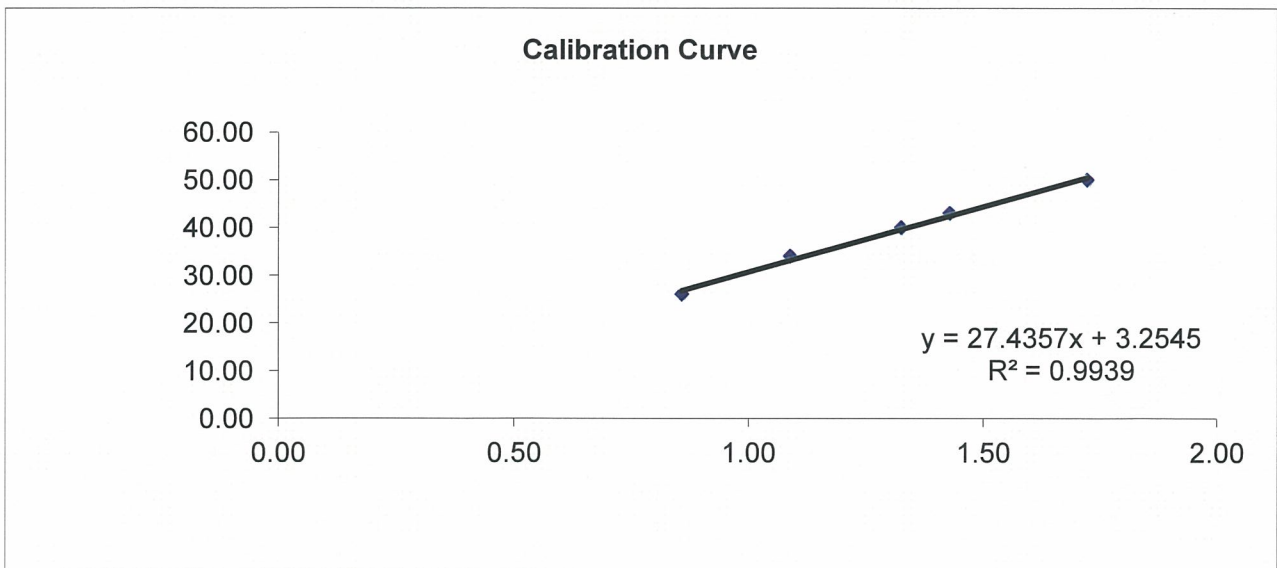
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	23-Oct-13	Barometric pressure	757 mm Hg
Next Calibration date	22-Dec-13	Temperature (°C)	25 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	298 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3761	T _{std}	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m _s	2.0458
Intercept of the standard curve, b _s	0.0019

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.10	26.00	0.86	25.95
7	5.00	34.00	1.09	33.93
10	7.40	40.00	1.33	39.92
13	8.60	43.00	1.43	42.92
18	12.50	50.00	1.72	49.90



Linear Regression

Sampler slope (m) :	27.4357
Sampler intercept (b) :	3.2545
Correlation coefficient (R ²) :	0.9939

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____

Date: 23-10-13

Checked by: J Hollendon

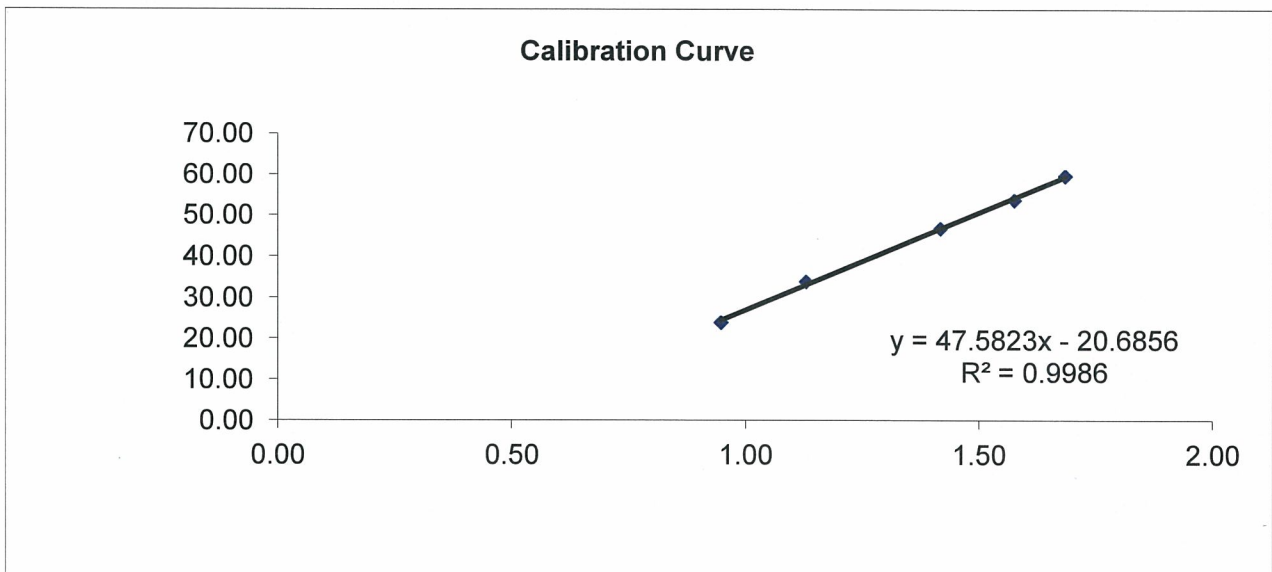
Date: 24-10-13

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	24-Sep-13	Barometric pressure	758 mm Hg
Next Calibration date	23-Nov-13	Temperature (°C)	27 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing Home	Temperature (K)	300 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3762	T _{std}	298 K
Calibrator model	GMW-2535		
Calibrator serial number	2421		
Slope of the standard curve, m _s	2.0458		
Intercept of the standard curve, b _s	0.0019		

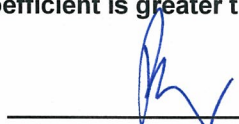
Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.80	24.00	0.95	23.89
7	5.40	34.00	1.13	33.84
10	8.50	47.00	1.42	46.78
13	10.50	54.00	1.58	53.75
18	12.00	60.00	1.68	59.72

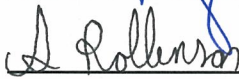


Linear Regression

Sampler slope (m) : **47.5823**
 Sampler intercept (b) : **-20.6856**
 Correlation coefficient (R²) : **0.9986**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: 

Checked by: 

Date: 24-9-13

Date: 25-9-13



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
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 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 21, 2013 Roots-meter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2421 Pa (mm) - 759.46

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4550	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9140	7.9	5.00
4	NA	NA	1.00	0.8680	8.8	5.50
5	NA	NA	1.00	0.7180	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0120	0.6955	1.4257	0.9958	0.6844	0.8784
1.0078	0.9842	2.0163	0.9916	0.9683	1.2423
1.0057	1.1003	2.2543	0.9895	1.0826	1.3889
1.0045	1.1573	2.3643	0.9884	1.1387	1.4567
0.9992	1.3916	2.8514	0.9831	1.3692	1.7568
Qstd slope (m) =		2.04580	Qa slope (m) =		1.28105
intercept (b) =		0.00190	intercept (b) =		0.00117
coefficient (r) =		0.99997	coefficient (r) =		0.99997
y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

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

$$\text{Qstd} = \text{Vstd} / \text{Time}$$

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

$$\text{Qa} = \text{Va} / \text{Time}$$

For subsequent flow rate calculations:

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

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

Appendix E

Dust Results

Location: DMS-1 - C.U.H.K.A.A. Thomas Cheung School

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
102769	Oct-13	4-Oct-13	00:00	00:00	DMS1	Fine	Normal Operation	755.0	755.0	27.0	28.0	41.0	41.0	3.5449	3.6316	0.0867	1.4055	1.4041	1.4048	1056.29	1080.29	1440.00	2022.91	42.9	148.7	260.0
033677	Oct-13	10-Oct-13	00:00	00:00	DMS1	Fine	Normal Operation	755.0	756.0	28.0	29.0	41.0	41.0	3.6325	3.8393	0.2068	1.4041	1.4033	1.4037	1080.29	1104.29	1440.00	2021.33	102.3	148.7	260.0
033680	Oct-13	16-Oct-13	00:00	00:00	DMS1	Fine	Normal Operation	754.0	755.0	27.0	27.0	40.0	40.0	3.6280	3.6620	0.0340	1.3840	1.3845	1.3843	1104.29	1128.29	1440.00	1993.32	17.1	148.7	260.0
033682	Oct-13	22-Oct-13	00:00	00:00	DMS1	Fine	Normal Operation	757.0	758.0	25.0	25.0	43.0	43.0	3.6375	3.7572	0.1197	1.4519	1.4524	1.4522	1128.29	1152.29	1440.00	2091.10	57.2	148.7	260.0
033687	Oct-13	28-Oct-13	00:00	00:00	DMS1	Fine	Normal Operation	757.0	757.0	26.0	27.0	44.0	44.0	3.6629	3.7885	0.1256	1.4714	1.4699	1.4707	1152.29	1176.29	1440.00	2117.74	59.3	148.7	260.0

Average (µg/m3)	55.8
Max (µg/m3)	102.3
Min (µg/m3)	17.1

Location: DMS-2 Price Memorial Catholic Primary School

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
102770	Oct-13	4-Oct-13	00:00	00:00	DMS2	Fine	Normal Operation	755.0	755.0	27.0	28.0	42.0	42.0	3.5446	3.8101	0.2655	1.4238	1.4216	1.4227	912.39	936.39	1440.00	2048.69	129.6	167.4	260.0
033678	Oct-13	10-Oct-13	00:00	00:00	DMS2	Fine	Normal Operation	755.0	756.0	28.0	29.0	41.0	41.0	3.6328	3.6968	0.0640	1.3900	1.3888	1.3894	936.39	960.39	1440.00	2000.74	32.0	167.4	260.0
033683	Oct-13	16-Oct-13	00:00	00:00	DMS2	Fine	Normal Operation	754.0	755.0	27.0	27.0	41.0	40.0	3.6375	3.7528	0.1153	1.3913	1.3606	1.3760	960.39	984.39	1440.00	1981.37	58.2	167.4	260.0
033684	Oct-13	22-Oct-13	00:00	00:00	DMS2	Fine	Normal Operation	757.0	758.0	25.0	25.0	41.0	43.0	3.6480	3.7662	0.1182	1.3983	1.4627	1.4305	984.39	1008.39	1440.00	2059.92	57.4	167.4	260.0
033688	Oct-13	28-Oct-13	00:00	00:00	DMS2	Fine	Normal Operation	757.0	757.0	26.0	27.0	42.0	44.0	3.6650	3.7635	0.0985	1.4067	1.4766	1.4417	1008.39	1032.39	1440.00	2075.98	47.4	167.4	260.0

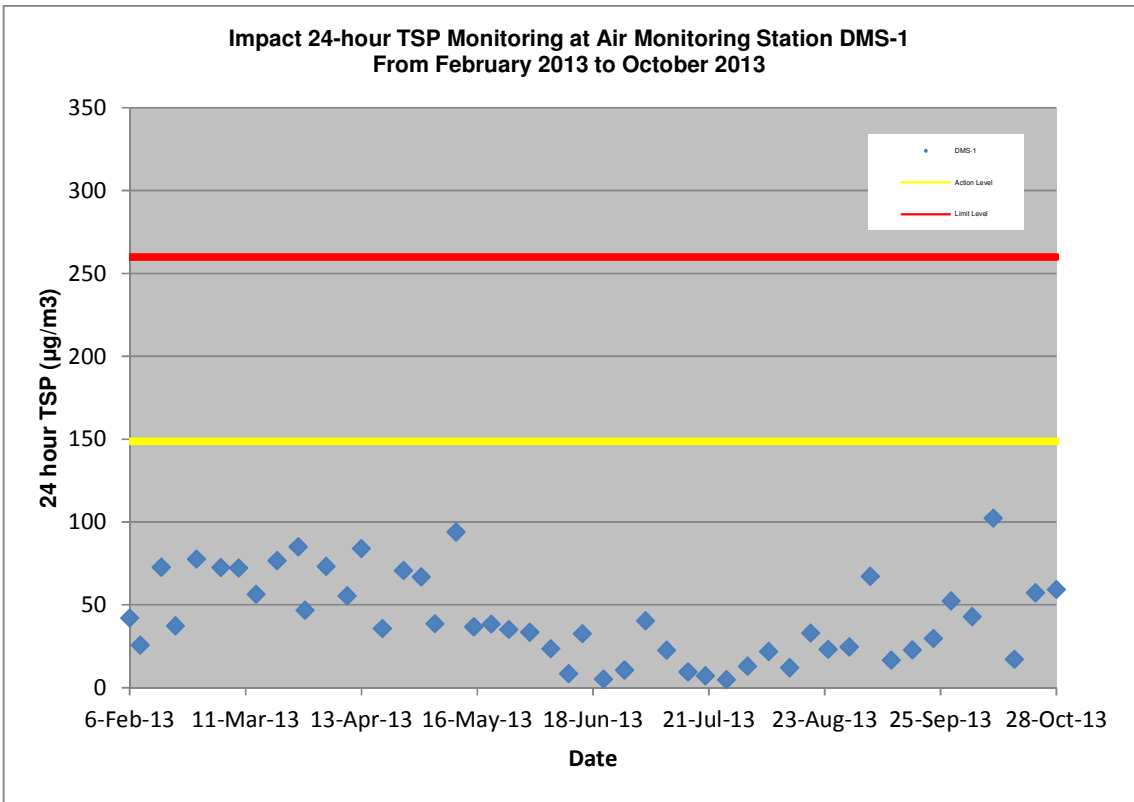
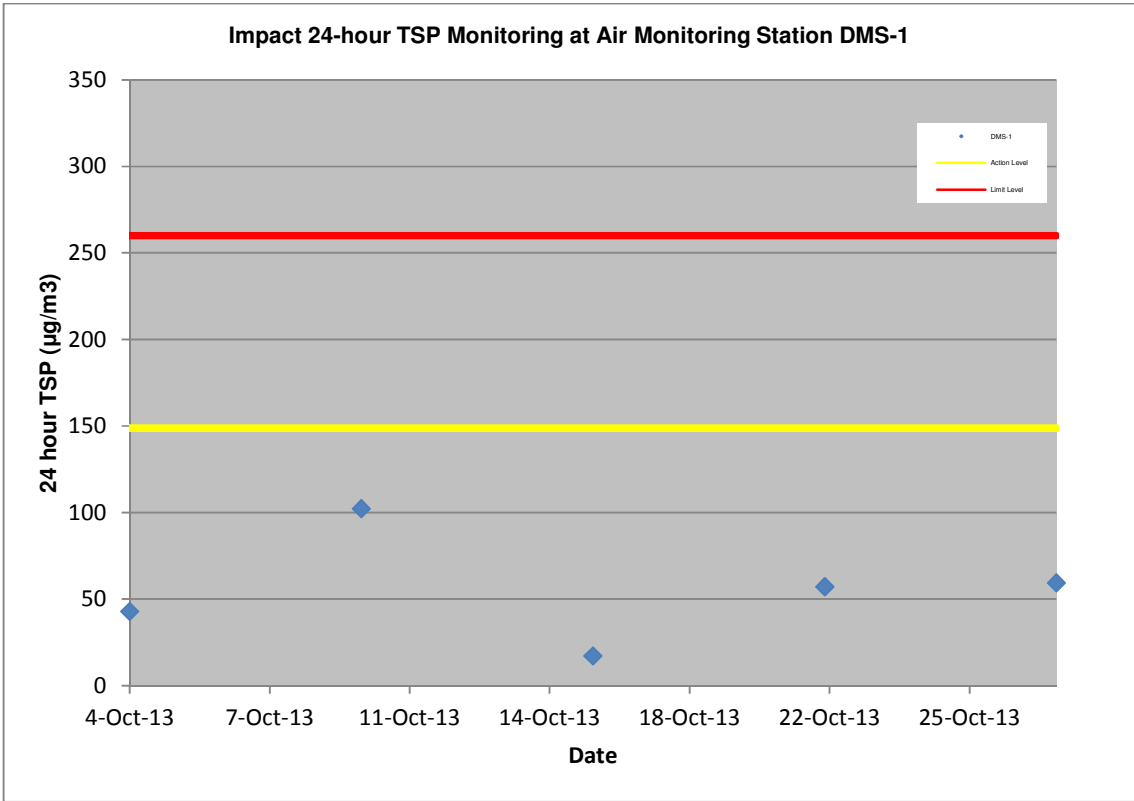
Average (µg/m3)	64.9
Max (µg/m3)	129.6
Min (µg/m3)	32.0

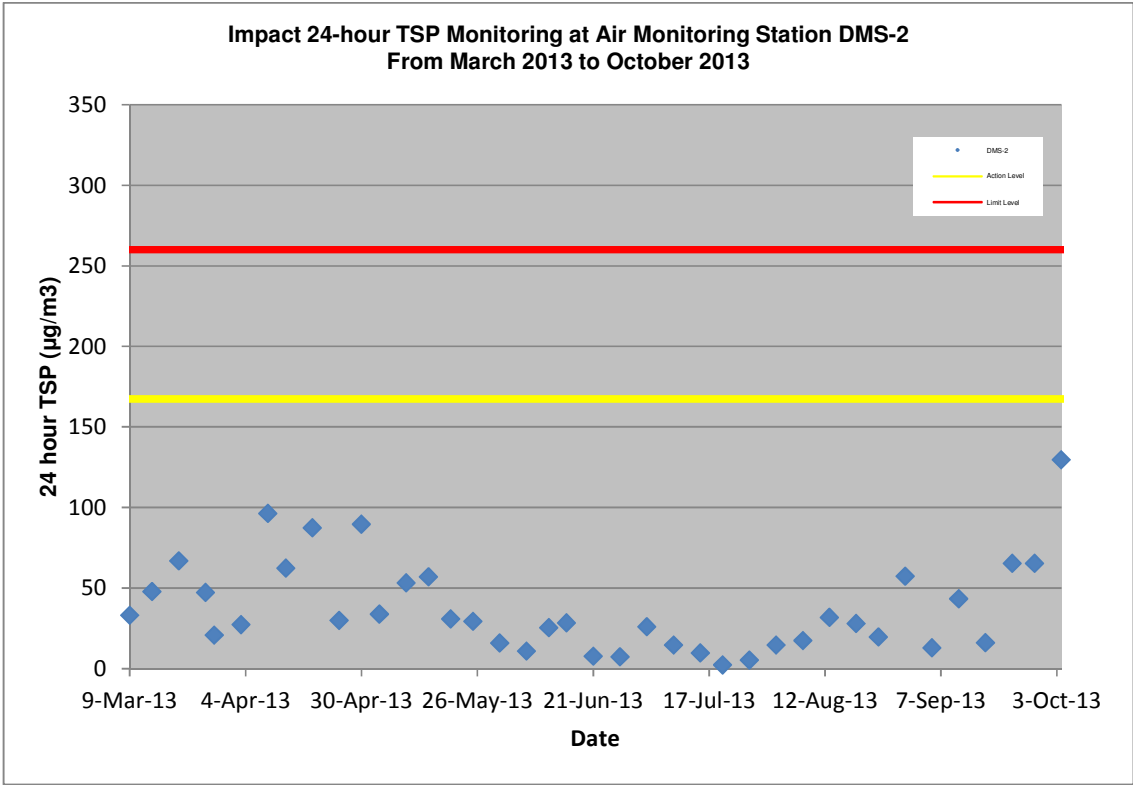
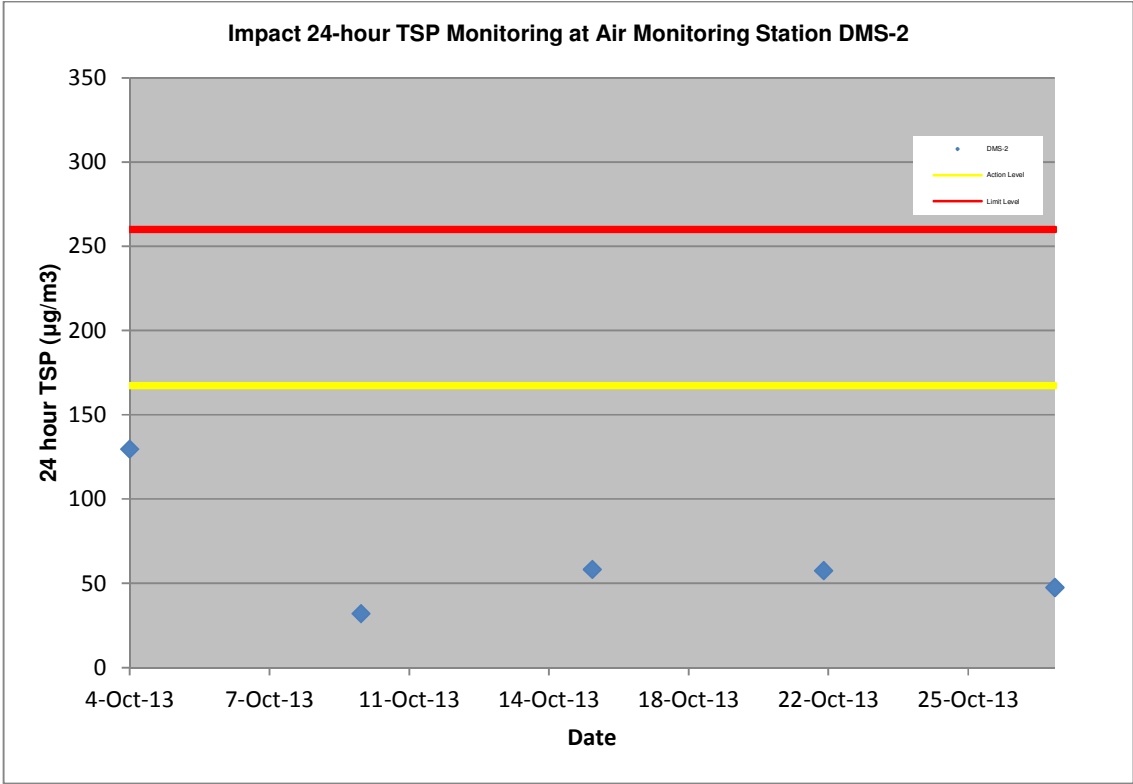
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

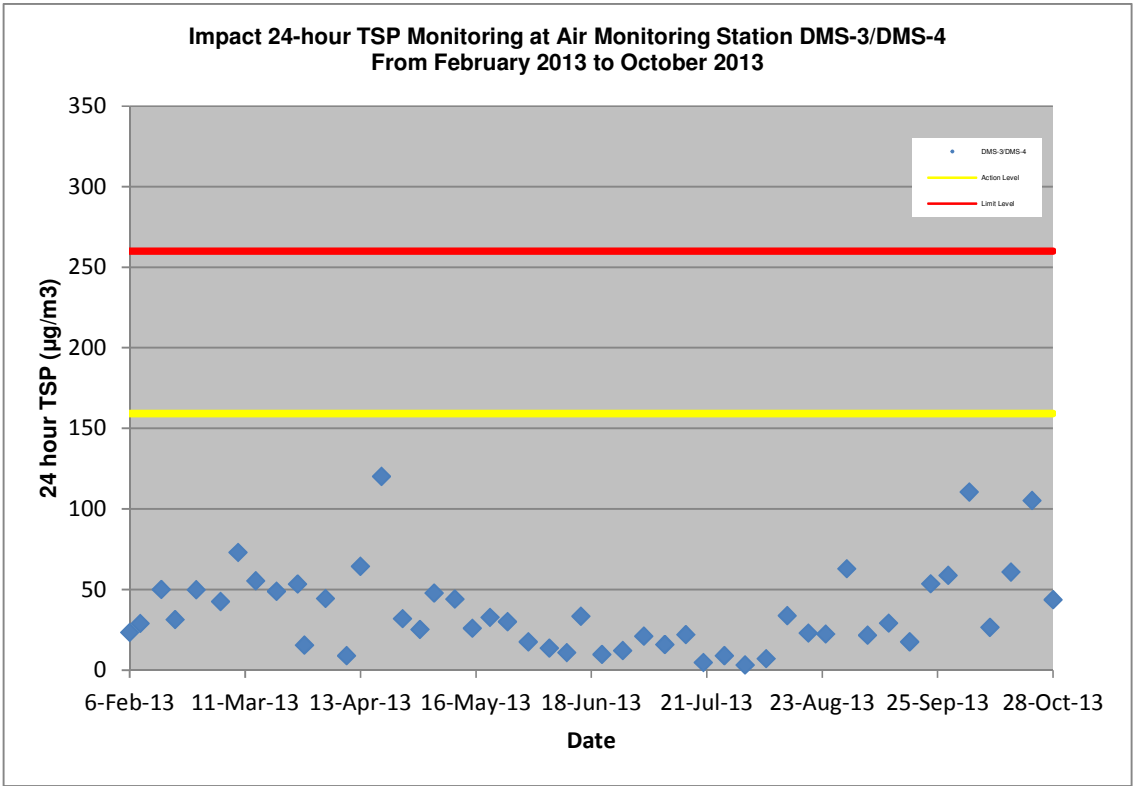
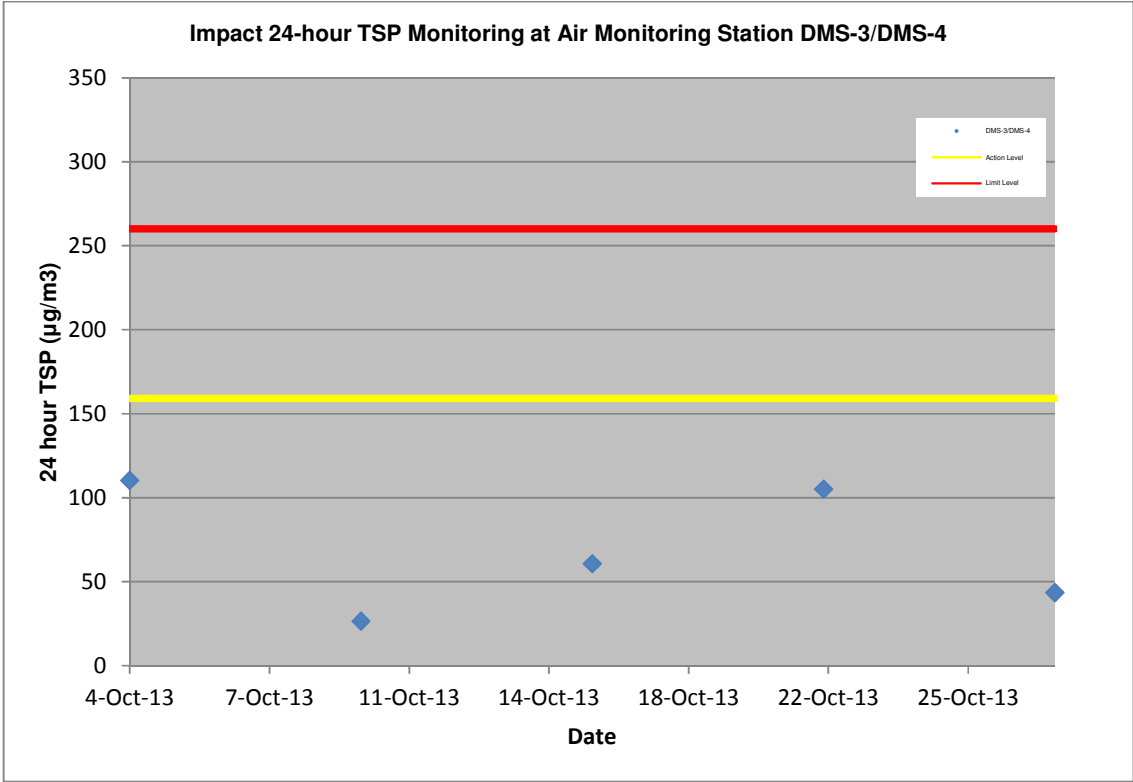
Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
033676	Oct-13	4-Oct-13	00:00	00:00	DMS3	Fine	Normal Operation	755.0	755.0	27.0	28.0	44.0	42.0	3.6350	3.8466	0.2116	1.3533	1.3101	1.3317	1056.40	1080.40	1440.00	1917.65	110.3	159.1	260.0
033679	Oct-13	10-Oct-13	00:00	00:00	DMS3	Fine	Normal Operation	755.0	756.0	28.0	29.0	41.0	42.0	3.6322	3.6816	0.0494	1.2892	1.3092	1.2992	1080.40	1104.40	1440.00	1870.85	26.4	159.1	260.0
033681	Oct-13	16-Oct-13	00:00	00:00	DMS3	Fine	Normal Operation	754.0	755.0	27.0	27.0	41.0	40.0	3.6329	3.7446	0.1117	1.2901	1.2698	1.2800	1104.40	1128.40	1440.00	1843.13	60.6	159.1	260.0
033686	Oct-13	22-Oct-13	00:00	00:00	DMS3	Fine	Normal Operation	757.0	758.0	25.0	25.0	42.0	42.0	3.6541	3.8533	0.1992	1.3157	1.3163	1.3160	1128.40	1152.40	1440.00	1895.04	105.1	159.1	260.0
033689	Oct-13	28-Oct-13	00:00	00:00	DMS3	Fine	Normal Operation	757.0	757.0	26.0	27.0	41.0	41.0	3.6735	3.7545	0.0810	1.2933	1.2918	1.2926	1152.40	1176.40	1440.00	1861.27	43.5	159.1	260.0

Average (µg/m3)	69.2
Max (µg/m3)	110.3
Min (µg/m3)	26.4





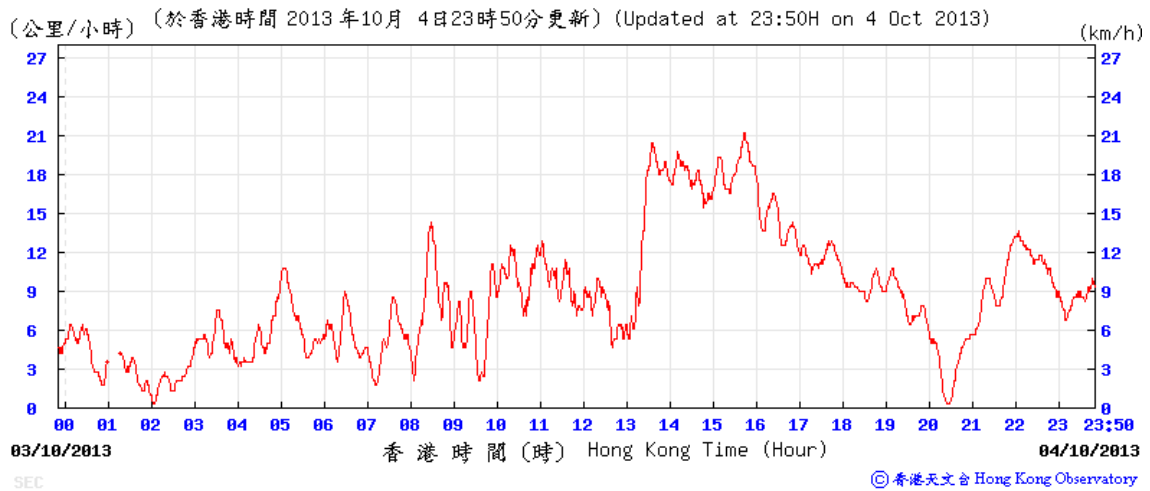


Appendix F

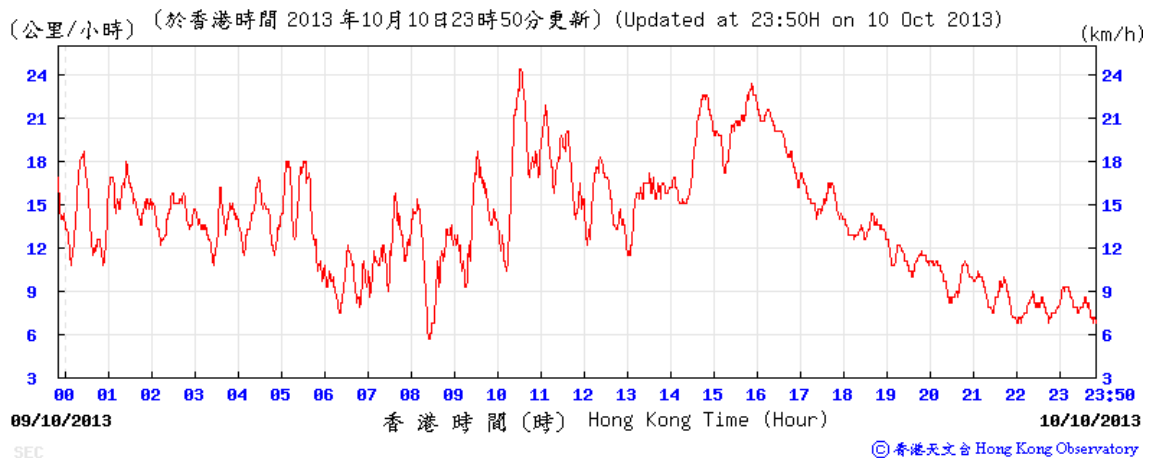
Wind data

Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

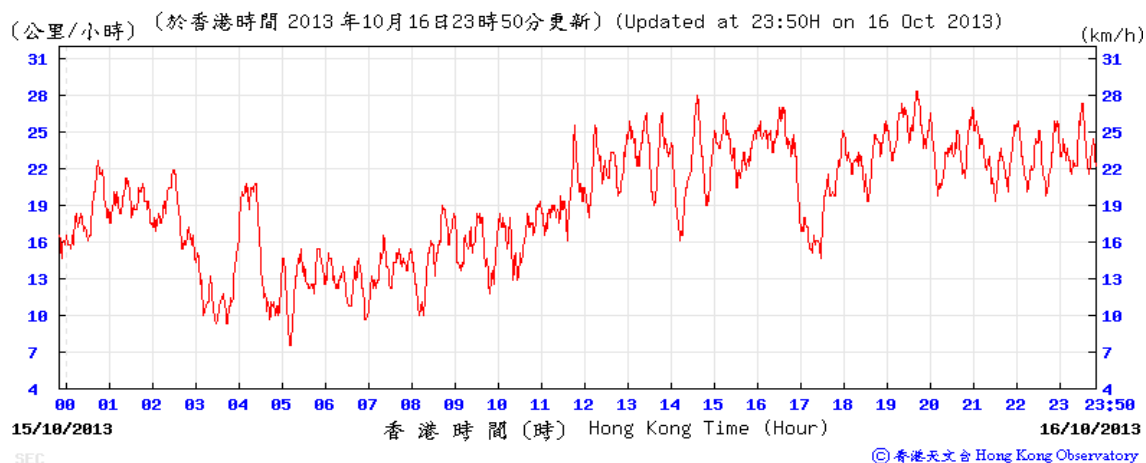
4 October 2013



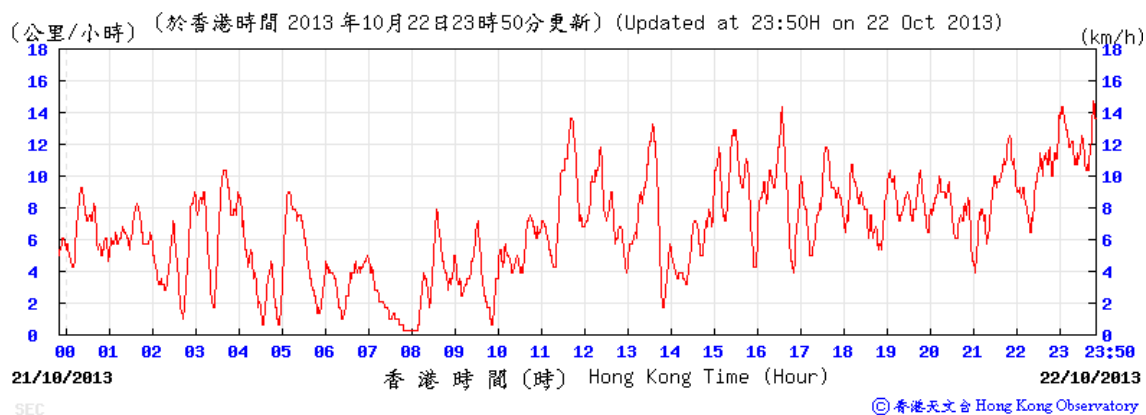
10 October 2013



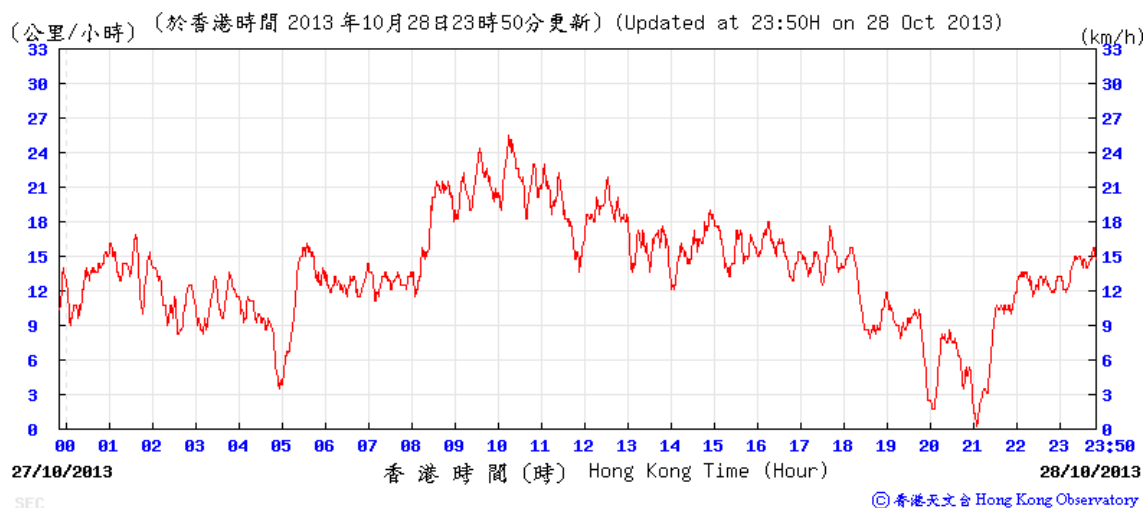
16 October 2013



22 October 2013

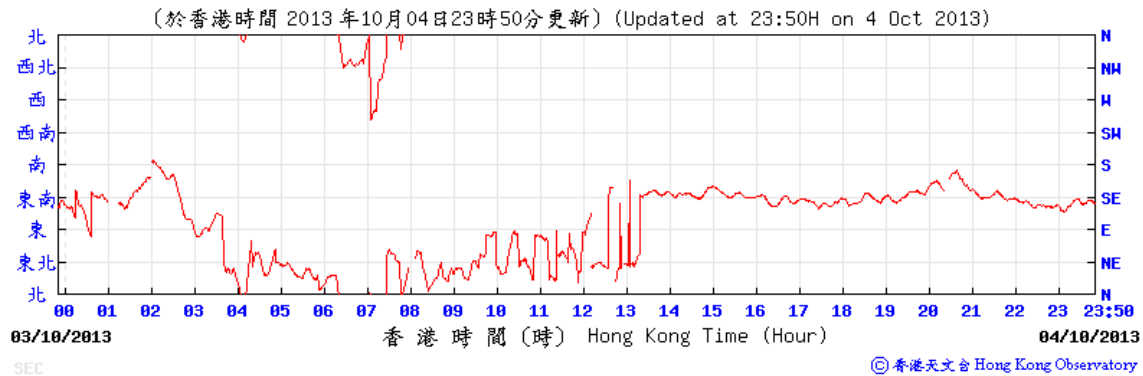


28 October 2013

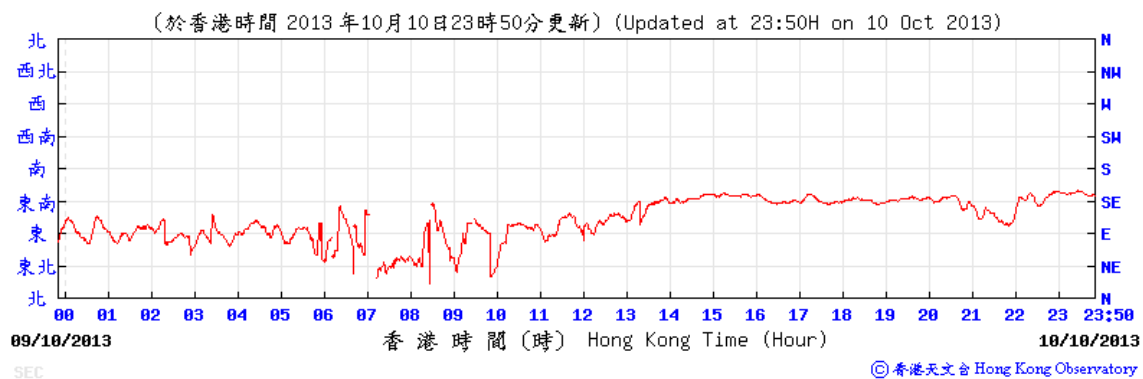


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

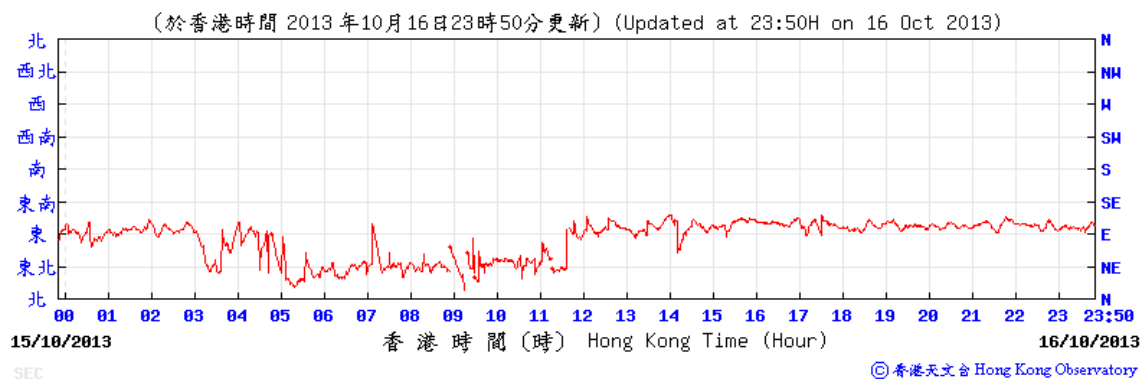
4 October 2013



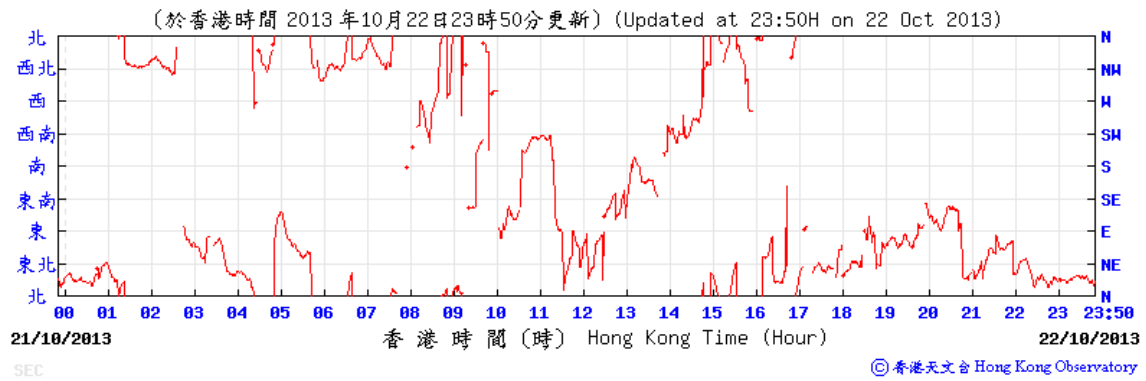
10 October 2013



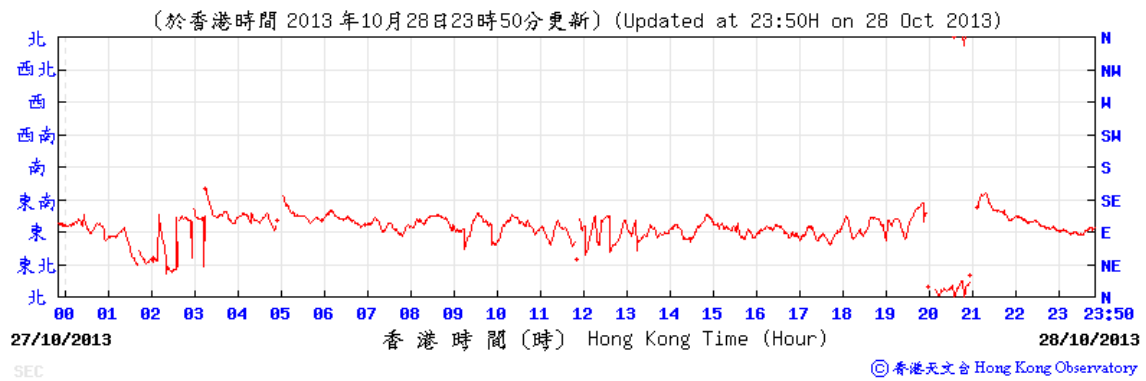
16 October 2013



22 October 2013

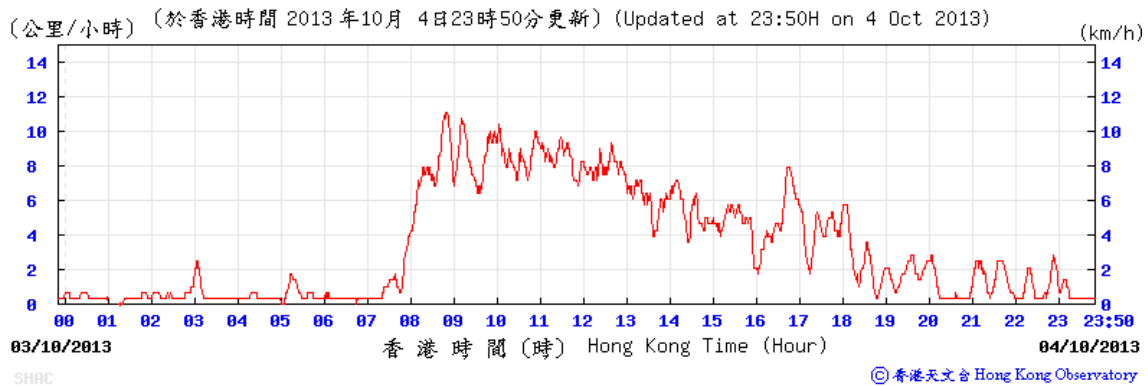


28 October 2013

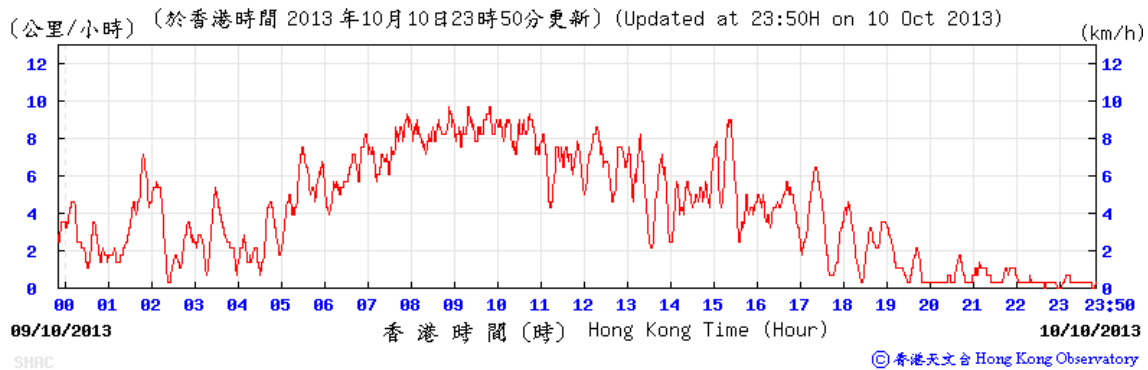


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

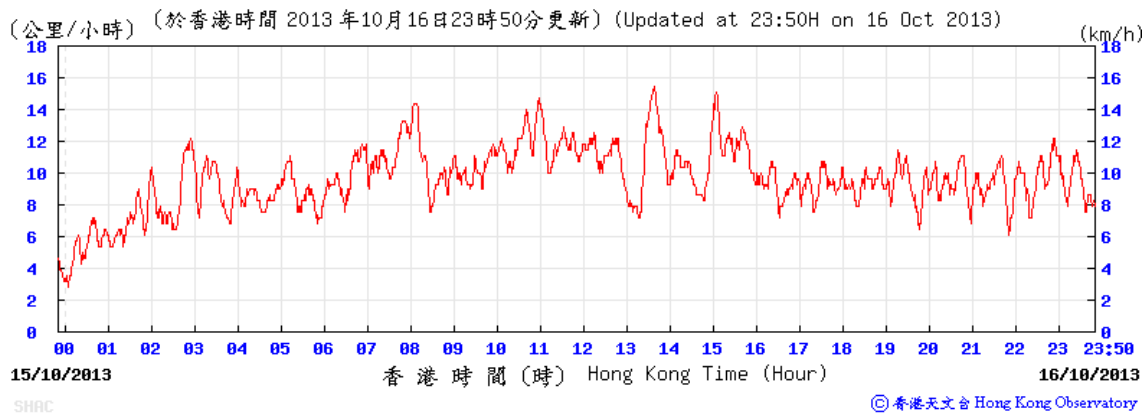
4 October 2013



10 October 2013

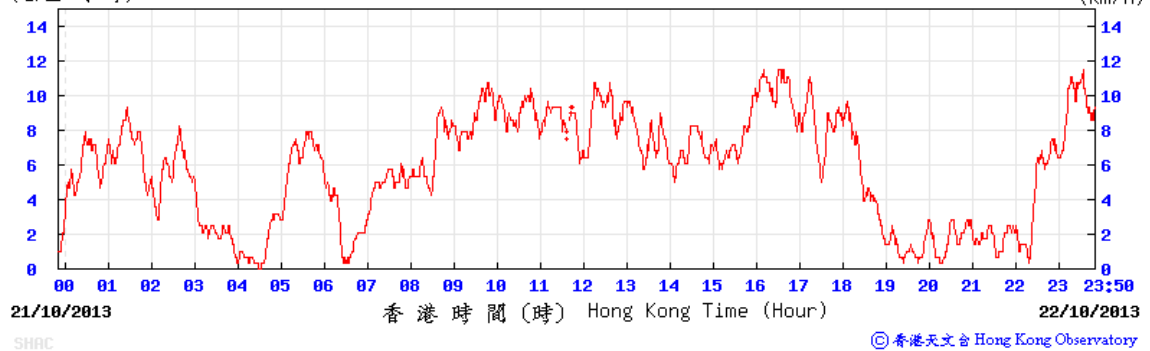


16 October 2013



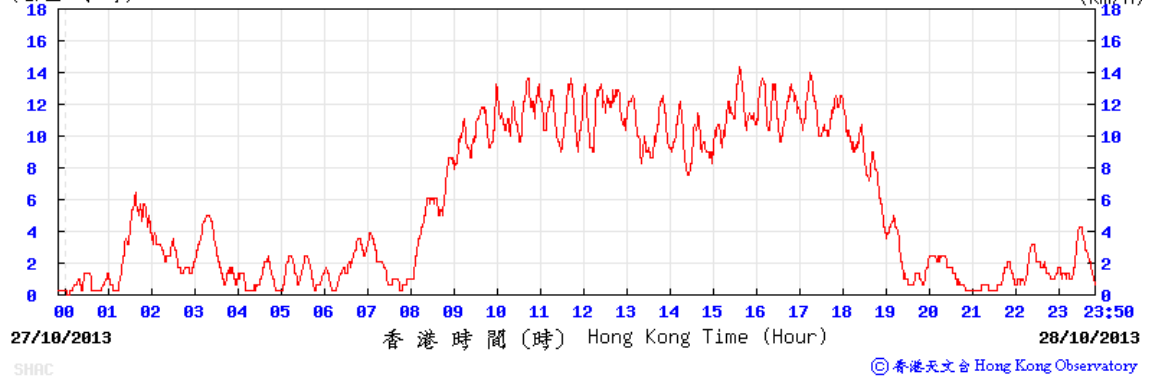
22 October 2013

(公里/小時) (於香港時間 2013 年10月22日23時50分更新) (Updated at 23:50H on 22 Oct 2013)



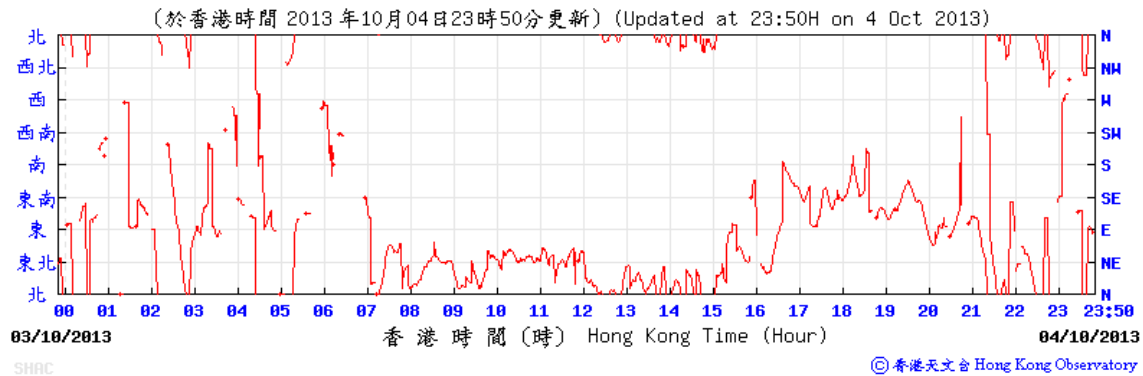
28 October 2013

(公里/小時) (於香港時間 2013 年10月28日23時50分更新) (Updated at 23:50H on 28 Oct 2013)

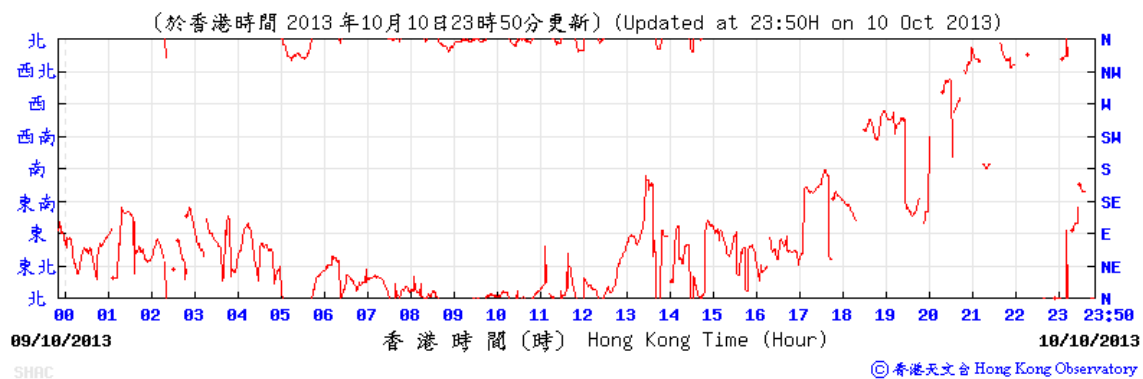


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

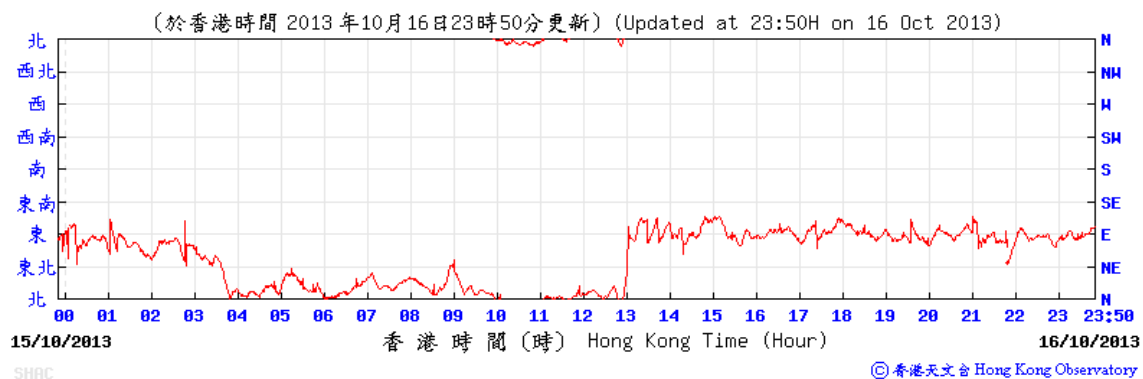
4 October 2013



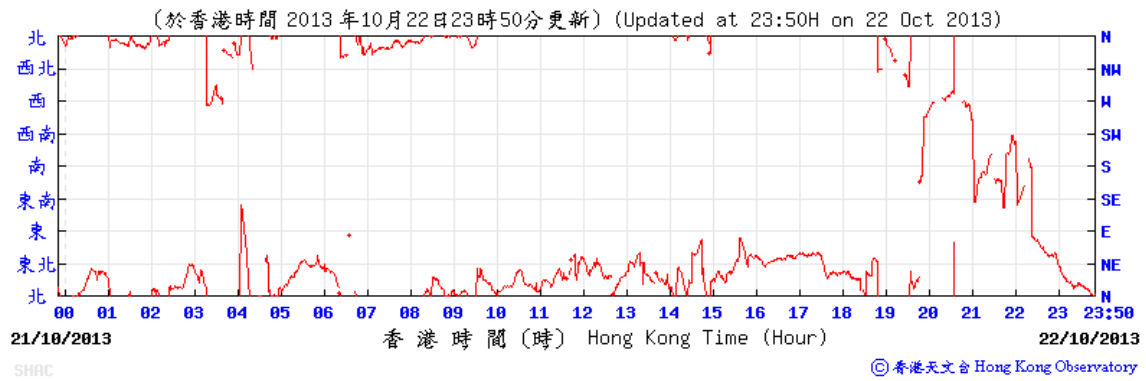
10 October 2013



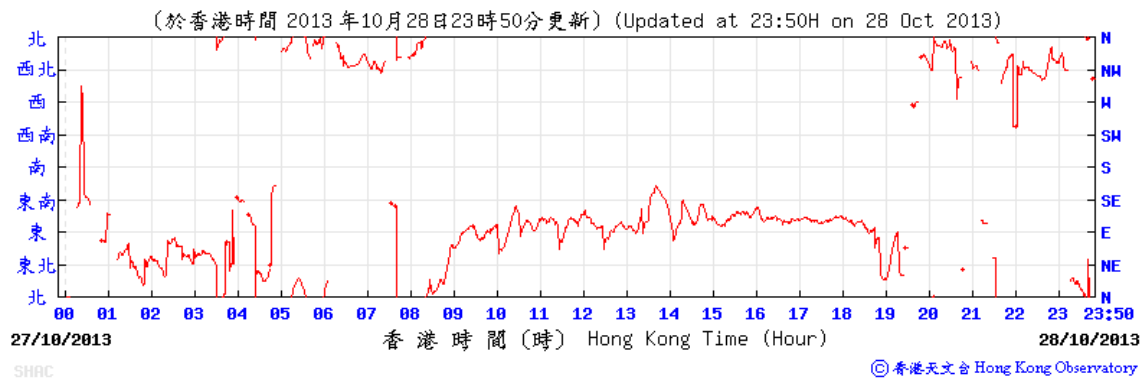
16 October 2013



22 October 2013



28 October 2013



Appendix G

Calibration
Certificates of Noise
Monitoring
Equipment

Certificate of Calibration

校正證書

Certificate No. : C134619
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1856)

Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2562763
Supplied By / 委託者 : Ove Arup & Partners Hong Kong Co., Ltd.
Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong,
Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 23 July 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試

: 
K C Lee

Certified By
核證

: 
K M Wu

Date of Issue : 24 July 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C134619

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC130171

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.4

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134619
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	Ref.
	L _{ASP}		S			94.1	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
					200 ms	105.0	-1.0 ± 1.0
	S				Continuous	106.0	Ref.
			L _{AFMax}		500 ms	102.0	-4.1 ± 1.0
					L _{ASP}		
	L _{ASMax}						

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.9	-39.4 ± 1.5
					63 Hz	68.0	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134619

證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
			60 sec.					90	90.1	± 0.5
			5 min.					80	79.8	± 1.0
								70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2658559

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	31.5 Hz - 125 Hz	± 0.35 dB
	250 Hz - 500 Hz	± 0.30 dB
	1 kHz	± 0.20 dB
	2 kHz - 4 kHz	± 0.35 dB
	8 kHz	± 0.45 dB
	12.5 kHz	± 0.70 dB
104 dB	1 kHz	± 0.10 dB (Ref. 94 dB)
114 dB	1 kHz	± 0.10 dB (Ref. 94 dB)
Burst equivalent level		± 0.2 dB (Ref. 110 dB continuous sound level)

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

Note :

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C134617

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1856)

Description / 儀器名稱 : Acoustical Calibrator
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2713427
Supplied By / 委託者 : Ove Arup & Partners Hong Kong Co., Ltd.
Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong,
Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^\circ\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 23 July 2013

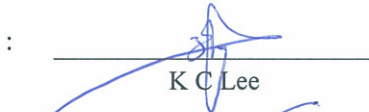
TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試


K C Lee

Certified By
核證


K M Wu

Date of Issue : 24 July 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134617

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.1		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

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

Note :

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

Appendix H

Noise Results

Location: NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School

Daytime Noise Monitoring Results

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
05-Oct-13	13:20 - 13:50	58.2	70.0	60.0	51.0	57.0	52.0
11-Oct-13	10:50 - 11:20	58.3	70.0	60.0	51.0	57.0	52.4
17-Oct-13	10:35 - 11:05	59.5	70.0	61.5	51.0	57.0	55.9
23-Oct-13	13:45 - 14:15	58.4	70.0	61.0	52.5	57.0	52.8
29-Oct-13	11:40 - 12:10	59.5	65.0	62.0	52.5	57.0	55.9

Notes: (*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	58.8
Max L _{Aeq,30min}	59.5
Min L _{Aeq,30min}	58.2

Location: NMS-CA-2 - Price Memorial Catholic Primary School

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
05-Oct-13	09:05 - 09:25	67.8	70.0	70.0	60.5	66.0	63.1
11-Oct-13	12:20 - 12:50	68.4	70.0	70.5	60.5	66.0	64.7
17-Oct-13	12:50 - 13:20	68.7	70.0	70.0	66.5	66.0	65.4
23-Oct-13	12:30 - 13:00	67.9	70.0	70.5	63.5	66.0	63.4
29-Oct-13	13:00 - 13:30	67.2	70.0	70.5	61.0	66.0	61.0

Notes: (*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	68.0
Max L _{Aeq,30min}	68.7
Min L _{Aeq,30min}	67.2

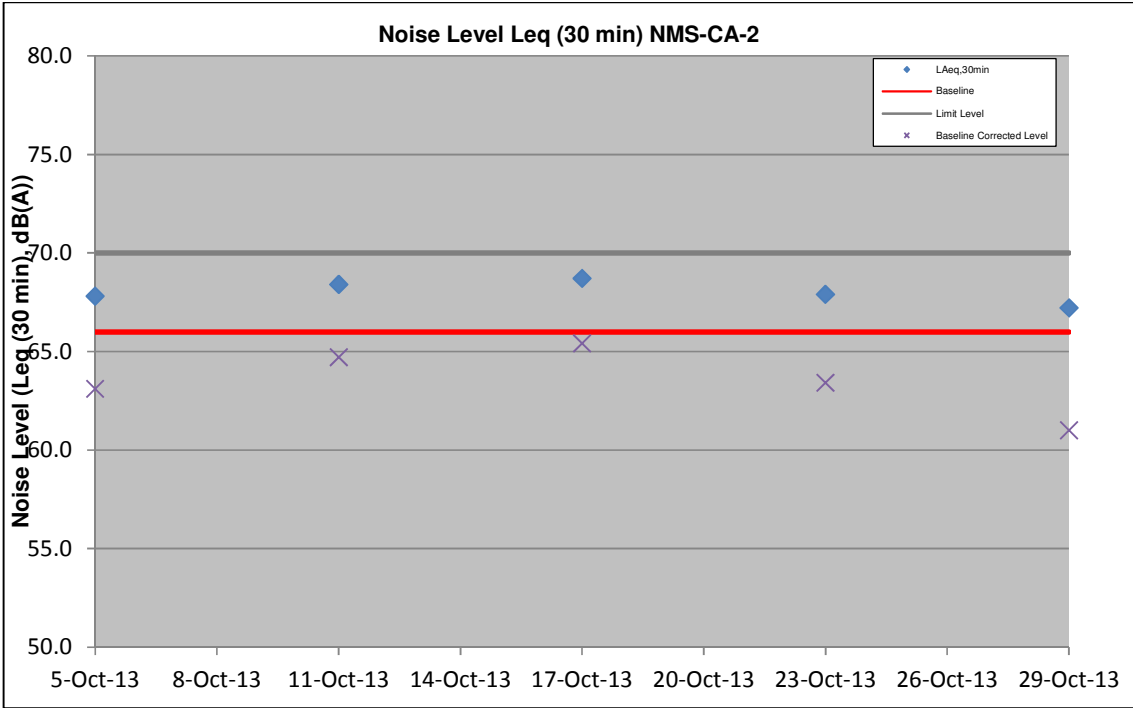
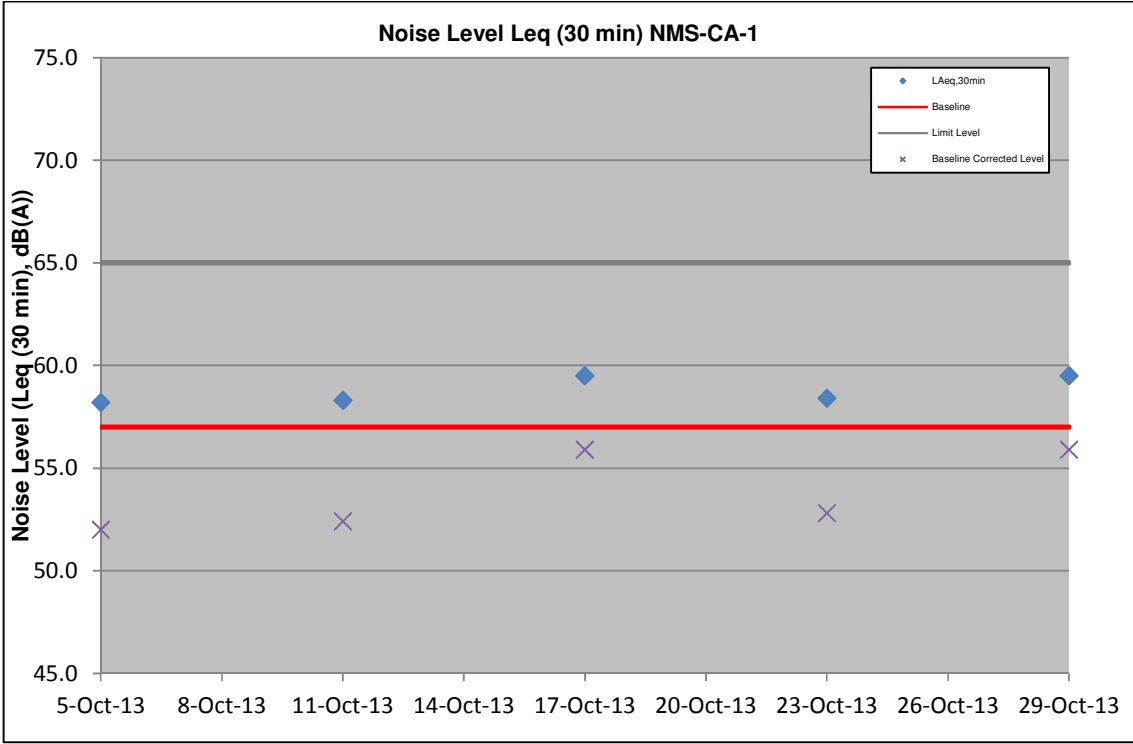
Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home

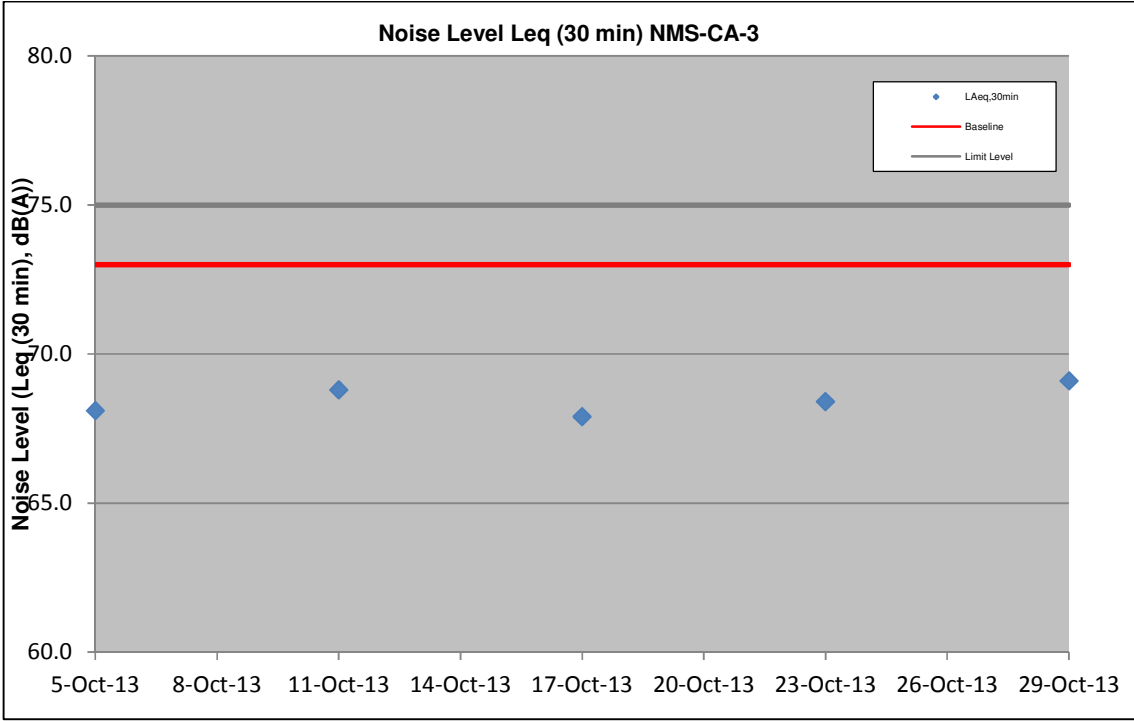
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
05-Oct-13	11:15 - 11:45	68.1	75.0	70.5	61.5	73.0	< Baseline Level
11-Oct-13	09:15 - 09:45	68.8	75.0	70.5	62.0	73.0	< Baseline Level
17-Oct-13	14:05 - 14:35	67.9	75.0	70.0	62.5	73.0	< Baseline Level
23-Oct-13	09:20 - 09:50	68.4	75.0	70.0	63.0	73.0	< Baseline Level
29-Oct-13	14:20 - 14:50	69.1	75.0	71.5	64.0	73.0	< Baseline Level

Notes: (*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	68.5
Max L _{Aeq,30min}	69.1
Min L _{Aeq,30min}	67.9





Appendix I

Event/Action Plan for
Air Quality, Airborne
Noise and Landscape
and Visual

Event and Action Plan for Air Quality

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

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

Event and Action Plan for Airborne Noise

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

Event / Action Plan for Landscape and Visual

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer’s Representative

Appendix J

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: ENV

Contract No.:MTR-SCL1103

Monthly Summary Waste Flow Table for 2013

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	1.694	0.000	0.000	0.000	1.694	0.000	0.000	0.000	0.000	0.000	0.087
Feb	1.962	0.000	0.000	0.526	1.436	1.339	0.000	0.000	0.000	0.000	0.014
Mar	3.171	0.000	0.440	1.537	1.194	2.199	0.000	0.000	0.000	0.000	0.025
Apr	3.319	0.000	0.000	2.621	0.698	0.000	0.000	0.000	0.000	0.000	0.045
May	4.776	0.000	0.000	3.848	0.928	0.000	0.000	0.000	0.000	0.600	0.044
Jun	4.128	0.000	0.000	3.130	0.998	0.000	0.000	0.000	0.000	1.200	0.037
Sub-total	19.050	0.000	0.440	11.662	6.948	3.538	0.000	0.000	0.000	1.800	0.253
Jul	4.422	0.000	0.110	2.881	1.431	0.000	0.000	0.000	0.000	0.000	0.045
Aug	3.885	0.000	0.000	2.428	1.456	0.000	0.000	0.000	0.000	1.000	0.362
Sep	2.914	0.000	0.000	1.366	1.184	0.363	0.000	0.000	0.000	0.000	0.489
Oct	8.868	0.000	0.765	1.364	6.671	0.068	0.000	0.525	0.000	0.000	0.097
Nov											
Dec											
Total	39.138	0.000	1.315	19.702	17.690	3.969	0.000	0.525	0.000	2.800	1.245

Comments:

- 1) Assumption: The densities of Rock, Soil, Mix Rock and Soil, and Regular Spoil are 2.0 ton/m³; the density of general refuse is 1.0 ton/m³; the density of waste oil is 1.0 ton/m³.
- 2) The cut-off date of waste amount in Oct is 29/10/2013 for TKO137FB/TM38FB, NENT landfill, and 26/10/2013 for Kai Tak 1108A.
- 3) The amounts of waste in Oct are 96.86 tons for NENT Landfill, 13342 tons for TKO137FB/TM38 FB, 2670.98 tons for Kai Tak (Contract 1108A).
- 4) The amount of waste reused in Oct are 102 trucks, approximately 1530 tons, in the Contract, and 57.36 tons in other project (i.e.821 barging point) for cut-off date as 30/10/2013.
- 5) The amount of imported fill is 9 trucks, approximately 135 tons, for cut-off date as 30/10/2013.
- 6) The amount of paper waste in Oct is 21 bags, approximately 525 kg, for cut-off date as 30/10/2013
- 7) The amount of chemical waste in Oct 0L for cut-off date as 30/10/2013.

Appendix K

Environmental
Monitoring
Programme for
Coming Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Tentative Impact Monitoring Schedule - November 2013**

Date	Air Quality	Noise	Site Inspection
	24-hours TSP	L _{Aeq} , 30 min	
01-Nov-13	Fri		
02-Nov-13	Sat		
03-Nov-13	Sun		
04-Nov-13	Mon		
05-Nov-13	Tue		
06-Nov-13	Wed		
07-Nov-13	Thu		
08-Nov-13	Fri		
09-Nov-13	Sat		
10-Nov-13	Sun		
11-Nov-13	Mon		
12-Nov-13	Tue		
13-Nov-13	Wed		
14-Nov-13	Thu		
15-Nov-13	Fri		
16-Nov-13	Sat		
17-Nov-13	Sun		
18-Nov-13	Mon		
19-Nov-13	Tue		
20-Nov-13	Wed		
21-Nov-13	Thu		
22-Nov-13	Fri		
23-Nov-13	Sat		
24-Nov-13	Sun		
25-Nov-13	Mon		
26-Nov-13	Tue		
27-Nov-13	Wed		
28-Nov-13	Thu		
29-Nov-13	Fri		
30-Nov-13	Sat		

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home	L _{Aeq} (30 min), L ₁₀ , L ₉₀

Appendix L

Cumulative Log for
Complaints,
Notifications of
Summons and
Successful
Prosecutions

Ove Arup and Partners HK Ltd.

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage

Environmental Complaint Log (October 2013)

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date Complaint Received	Complaint Date/ Period	Complaint Location	Area of Concern	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Validity to Project	Status
-	-	-	-	-	-	-	-	-	-	-	-	-

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage

Environmental Complaint Log (Cumulative)

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
February 2013	0	0	0
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
Total	0	0	0

Appendix F

**8th EM&A Report for Works Contract 1106 –
Diamond Hill Station**

MTR Corporation Limited

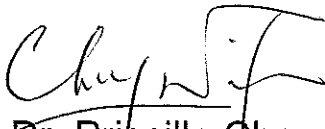
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 8

[Period from 1 to 31 October 2013]

Works Contract 1106 – Diamond Hill Station

(November 2013)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th November 2013

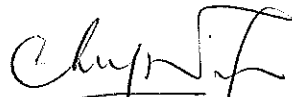
Sembawang – Leader Joint Venture

**Shatin to Central Link –
Contract 1106
Diamond Hill Station**

**Monthly Environmental
Monitoring and Audit Report
for October 2013**

(Version 2.0)

Certified By



Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 8th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1106 – Diamond Hill Station**. This report documents the findings of EM&A Works conducted from 1 to 31 October 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
 - D-wall construction;
 - Underpinning works and relocation of Old Pillbox;
 - Pre-drilling works;
 - Tree protection and transplanted works; and
 - CCTV inspection works for existing sewage and drainage system at Lung Cheung Road.

Environmental Monitoring and Audit Progress

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours

Noise Monitoring Station ID

- NMS-CA-3⁽¹⁾⁽³⁾/NMS-CA-4⁽²⁾⁽³⁾ (H.K. Sheng Kung Hui Nursing Home) 5 times
- NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) 5 times
- NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) 5 times

- Construction Dust (24-hour TSP) Monitoring

Dust Monitoring Station ID

- DMS-3⁽¹⁾⁽⁴⁾/DMS-4⁽²⁾⁽⁴⁾ (H.K. Sheng Kung Hui Nursing Home) 5 times
- DMS-4⁽¹⁾/DMS-3⁽²⁾ (Block 1, Rhythm Garden) 5 times

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Noise monitoring on NMS-CA-3⁽¹⁾/NMS-CA-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
- (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.

Cultural Heritage

4. An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village

commenced on 25 April 2013 and the fieldwork had been completed in September 2013 in accordance with the Licence granted and the approved AAP.

The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar was carried out in accordance with the approved Conservation Plan and completed in June 2013. Preparation works to relocate the Old Pillbox was carried in October 2013 in accordance with the approved Conservation Plan.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 1,932 m³ of inert C&D materials were generated from the Project and were sent to SCL1108A and Tuen Mun Area 38 Fill Bank during the reporting month. About 8 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. 2,560 kg chemical waste was collected by licensed collector during the reporting month. No steel material, plastics but 30 kg paper/cardboard packaging was collected by the recycler during this reporting month.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 9 and 22 October 2013. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 3, 9, 15, 22 and 29 October 2013. The representative of the IEC joined the site inspection on 22 October 2013. Details of the audit findings and implementation status are presented in Section 6.

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

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

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - D-wall construction;
 - Underpinning works and relocation of Old Pillbox; and
 - Tree protection and Tree transplantation works.

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Sembawang – Leader Joint Venture (SLJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1106 – Diamond Hill Station (hereafter referred to as the Project).

Purpose of the Report

- 1.2 This is the 8th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 October 2013.

Structure of the Report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1106 covers the construction of Shatin-to-Central Link (SCL) station in Diamond Hill (DIH).

General Site Description

- 2.3 For Works Contract 1106, the works area for the DIH station is located to the northeast of Choi Hung Road next to the existing Kwun Tong Line DIH Station. The DIH station will be constructed by cut-and-cover method. The alignment and works area for the Works Contract 1106 are shown in **Figure 1**.

Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
- D-wall construction;
 - Underpinning works and relocation of Old Pillbox;
 - Pre-drilling works;
 - Tree protection and transplantation works; and
 - CCTV inspection works for existing sewage and drainage system at Lung Cheung Road.

Project Organisation

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

Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in March 2013 is presented in **Table 2.1**.

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/D	13/09/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.: 353668	19/12/2012	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.: 7016601	27/12/2012	N/A	Valid
Registration of Chemical Waste Producer			
5213-281-S3711-01	11/01/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014959-2012	14/01/2013	31/01/2018	Valid
WT00016920-2013	06/09/2013	30/09/2018	Valid
Construction Noise Permit (CNP)			
GW-RE0340-13	12/04/2013	11/10/2013	Expired in Oct 2013
GW-RE1071-13	07/10/2013	06/11/2013	Valid
GW-RE1076-13	07/10/2013	06/04/2014	Valid
GW-RE1077-13	11/10/2013	10/04/2014	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1106 requires regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected; alternative locations were proposed and agreed by the ER (Engineer’s Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / NMS-CA-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home	Façade
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 ⁽¹⁾⁽⁵⁾ / NMS-CA-2 ⁽²⁾⁽⁵⁾	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-3⁽¹⁾/NMS-CA-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
- (5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq, 5-min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building’s external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30 min}$ reading)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVANTEK – SVAN 957 (Serial no.: 21459 and 21460)
Calibrator	SVANTEK – SV30A (Serial no.: 10929 and 24803)

Maintenance and Calibration

3.6 Maintenance and Calibration procedures were as follows:

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

Action & Limit Level for Construction Noise Monitoring

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

Continuous Noise Monitoring

3.8 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1106.

Regular Construction Dust Monitoring

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

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
DMS-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / DMS-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home
DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾	Block 1, Rhythm Garden

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.

Monitoring Parameter and Frequency

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

Table 3.4 Dust Monitoring Parameters and Frequency

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

Note:

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

Monitoring Equipment

- 3.11 **Table 3.5** summarizes the equipment used for the dust monitoring.

Table 3.5 Dust Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 2352	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 2323	1

Instrumentation

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

HVS Installation

- 3.13 The following guidelines were adopted during the installation of HVS:
- Sufficient support was provided to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The samplers were more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction

during monitoring.

Filters Preparation

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

Operating/Analytical Procedures

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

Maintenance/Calibration

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

Action and Limit Levels for Dust Monitoring

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

Cultural Heritage

- 3.20 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village shall be conducted in accordance with the Licence granted and the approved AAP.
- 3.21 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar and relocation work of the Old Pillbox shall be carried out in accordance with the approved Conservation Plan.

Landscape and Visual

- 3.22 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix I**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (September 2013)	15 th October 2013

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 10 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) on 4, 10, 16, 22 and 28 October 2013 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as they were below the baseline noise level while the noise monitoring results recorded at NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) did not exceed the daytime construction noise criterion.
- 5.3 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F**⁽³⁾.
- 5.5 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

- 5.6 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E**⁽³⁾ and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

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

Parameter	Minimum µg/m ³	Maximum µg/m ³	Average µg/m ³	Action Level, µg/m ³	Limit Level, µg/m ³
24-hr TSP (DMS-3 ⁽¹⁾⁽⁴⁾ / DMS-4 ⁽²⁾⁽⁴⁾)	26.4	110.3	69.2	159.1	260
24-hr TSP (DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾)	51.4	111.5	92.8	160.4	260

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
 (3) The monitoring results and graphical presentation for H.K. Sheng Kung Hui Nursing Home are presented in Monthly EM&A Report for Contract 1103.
 (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103

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

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

Cultural Heritage

- 5.10 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village commenced on 25 April 2013 and completed in September 2013 in accordance with the Licence granted and the approved AAP.
- 5.11 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar was carried out in accordance with the approved Conservation Plan and completed in June 2013. Preparation works to relocate the Old Pillbox was carried in October 2013 in accordance with the approved Conservation Plan.

Waste Management

- 5.12 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. No steel material, plastics but 30 kg paper/cardboard packaging was collected by the recycler during this reporting month. Detail of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/cardboard	Plastics			Metals		
October 2013	1,932 m ³	8 m ³	2,560 kg	30 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to SCL 1108A and Tuen Mun Area 38 Fill Bank during the reporting month.						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.						

Landscape and Visual

5.13 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 9 and 22 October 2013. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 6.2 Site audits were conducted on 3, 9, 15, 22 and 29 October 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 22 October 2013. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	24 Sep 2013	<u>Reminder:</u> To avoid further overflowing at sedimentation tank by properly check the pumps. (Next to Area W8)	No overflowing of the sedimentation tank was observed on 3 Oct 2013.
	3 Oct 2013	Bund should be provided to prevent the spillage of concrete water to access road. (Next to Area W8)	Sand bags were provided to prevent spillage of concrete water on 9 Oct 2013.
<i>Noise</i>	29 Oct 2013	Door should be kept close during the operation of the cutter. (near Old Pillbox)	Follow up actions will be reported in next month.
<i>Landscape and Visual</i>	24 Sep 2013	Metal plates were observed lean on tree DT 0799. The Contractor was reminded to remove them from tree protection zone.	The metal plates were removed by the Contractor on 3 Oct 2013.
	24 Sep 2013	The operating machine should keep away from Tree DT1911 to avoid damage to retaining tree.	The operating machine was placed away from the Tree on 9 Oct 2013.
	3 Oct 2013	The operating machine should keep away from Tree DT1911 to avoid damage to retaining tree.	The operating machine was placed away from the Tree on 9 Oct 2013.
	22 Oct 2013	To enhance the tree protection measures: the metal pipes and fences should be removed from tree DT3406; Proper tree protection fences should be provided for trees at archaeological area.	Adequate tree protection area erected for trees at archaeological area. No construction materials were observed near the tree DT3406 and trees at the archaeological area on 29 Oct 2013.
<i>Cultural Heritage</i>	N/A	N/A	N/A

Parameters	Date	Observations and Recommendations	Follow-up
<i>Air Quality</i>	9 Oct 2013	<u>Reminder:</u> To provide adequate water spray to exposed work area to avoid dust generation during dry season.	Water spray facility provided to exposed work area on 15 Oct 2013.
	15 Oct 2013	<u>Reminder:</u> Provide water spray to loading and unloading works to avoid dust generation.	Water spraying was provided for loading and unloading works on 22 Oct 2013.
	15 Oct 2013	<u>Reminder:</u> Cover the stockpile properly with impervious sheet.	The stockpile was covered by the Contractor on 22 Oct 2013.
	22 Oct 2013	To cover the stockpile near to tree DT 1885 to reduce dust generation in dry days.	The dusty stockpile was removed. The surface of the remaining exposed area was observed wet. No major dust generation was observed on 29 Oct 2013.
	29 Oct 2013	<u>Reminder:</u> Fully cover the cement bags properly by tarpaulin sheets at archaeological site (near descender).	Follow up actions will be reported in next month.
<i>Waste / Chemical Management</i>	24 Sep 2013	The empty plastic chemical containers, which waiting for recycling, should be removed from chemical storage area to prevent confusion. (Next to Area W8)	The empty plastic chemical containers were cleared on 3 Oct 2013.
	3 Oct 2013	The breaker head on earth should be enclosed with tarpaulin to prevent oil leakage to earth. (Next to slope of tree T1885)	The breaker head was removed from the observed place on 9 Oct 2013.
	15 Oct 2013	Drip tray should be provided to the welder to avoid chemical leakage.	The identified welder was removed from site on 22 Oct 2013.
<i>Permits/ Licenses</i>	N/A	N/A	N/A

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

- 8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:
- D-wall construction;
 - Underpinning works and relocation of Old Pillbox; and
 - Tree protection and Tree transplantation works.

Key Issues in the Next Month

- 8.2 Key issues to be considered in the coming month include:
- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and bentonite and excavated materials;
 - Control of silty surface runoff;
 - Preservation of Former Royal Air Force Hangar and Old Pillbox after dismantling and relocation;
 - Preservation and protection of retained and transplanted trees; and
 - Implementation of mitigation measures for noise nuisance from construction works.

Monitoring Schedule in the Next Month

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

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 October 2013 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

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

Water Quality

- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times.
- It is recommended particular attention should be paid to the control of silty surface runoff. Stockpiles of materials that are likely to generate silty surface runoff should be covered by impervious sheets whenever practicable.
- Concrete washing should be properly confined and treated by wastewater treatment facility before discharge.
- Slurry on the haul road should be cleared regularly to reduce the runoff generation.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.
- Door of operating engine and other noise generation parts should be closed at all time.

Landscape and Visual

- “No-intrusion zone” should be established and maintained for existing trees as far as practicable. The Contractor is reminded to closely monitor and restrict the site working staff and construction plants from entering the erected “no-intrusion zone” for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection. No construction works should be carried out in the “no-intrusion zone” for existing trees.

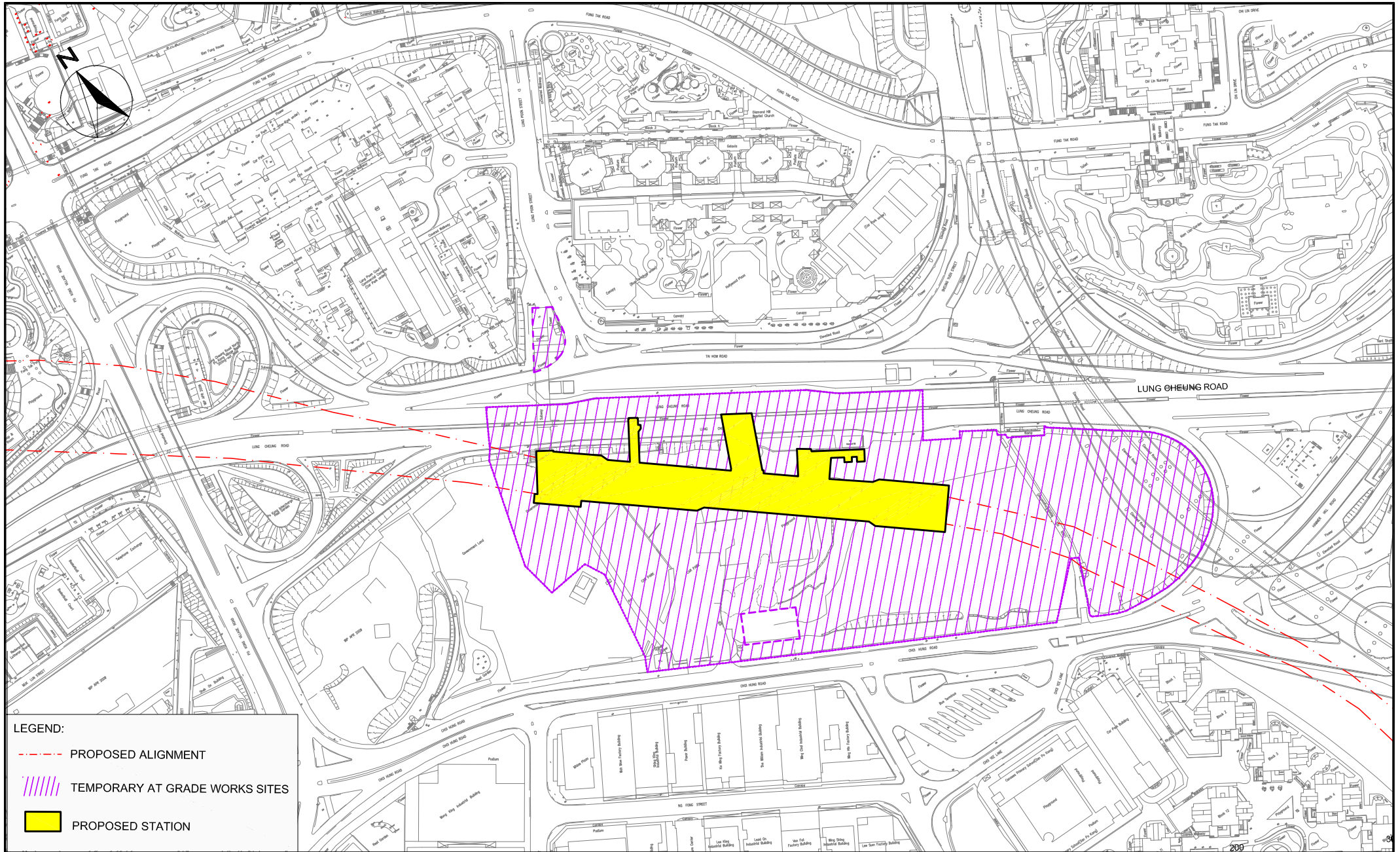
Air Quality

- Regular water spraying on site is reminded to be implemented as per EP requirement.
- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading.
- Every stock of more than 20 bags of cement should be entirely covered or sheltered by impervious sheets.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained.
- On-site sorting of materials are advised to be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal whenever practicable.
- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works.

FIGURES



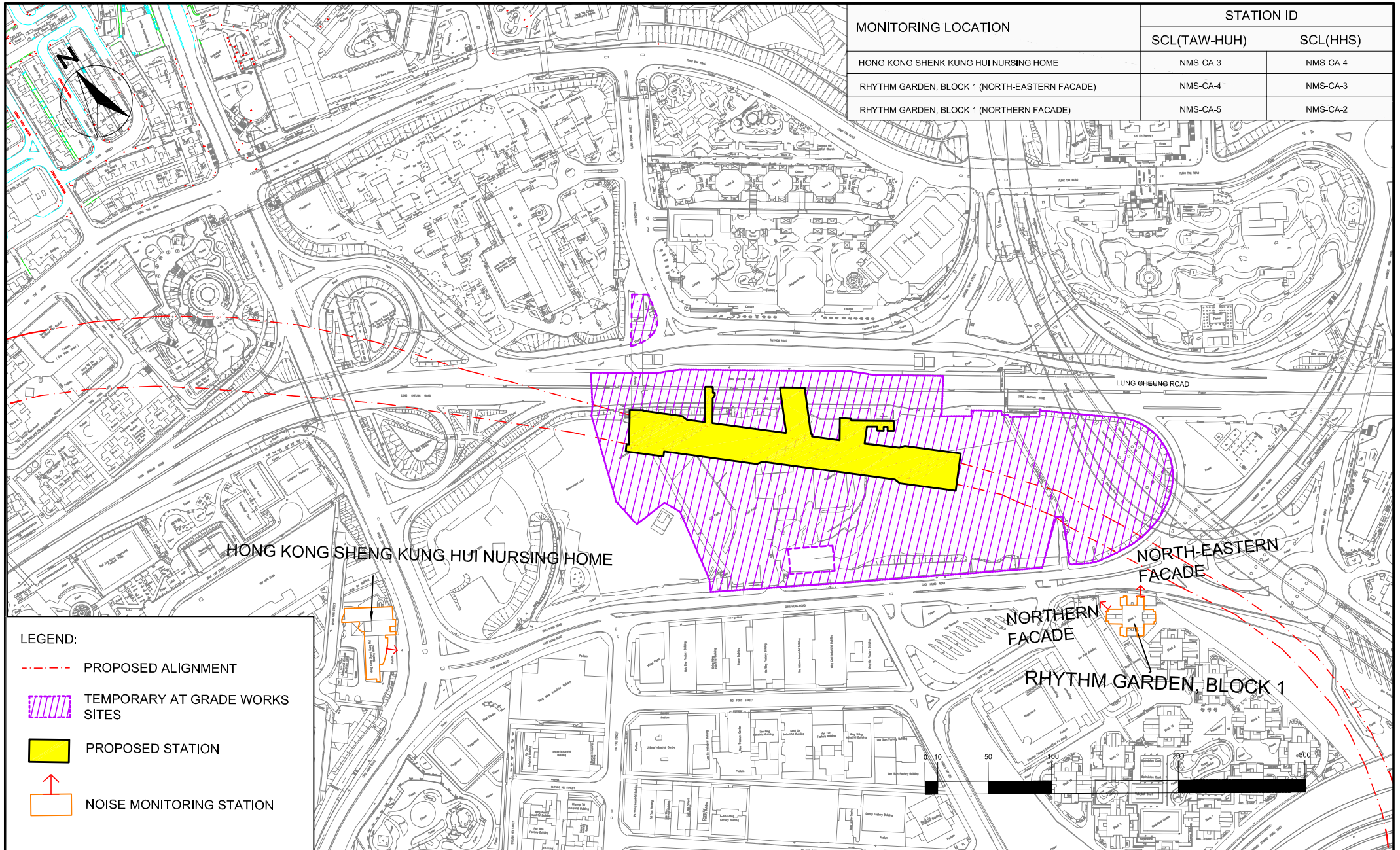
- LEGEND:**
- - - PROPOSED ALIGNMENT
 - ||||| TEMPORARY AT GRADE WORKS SITES
 - PROPOSED STATION

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

SITE LAYOUT PLAN



SCALE	1:80	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	1	REV
				-

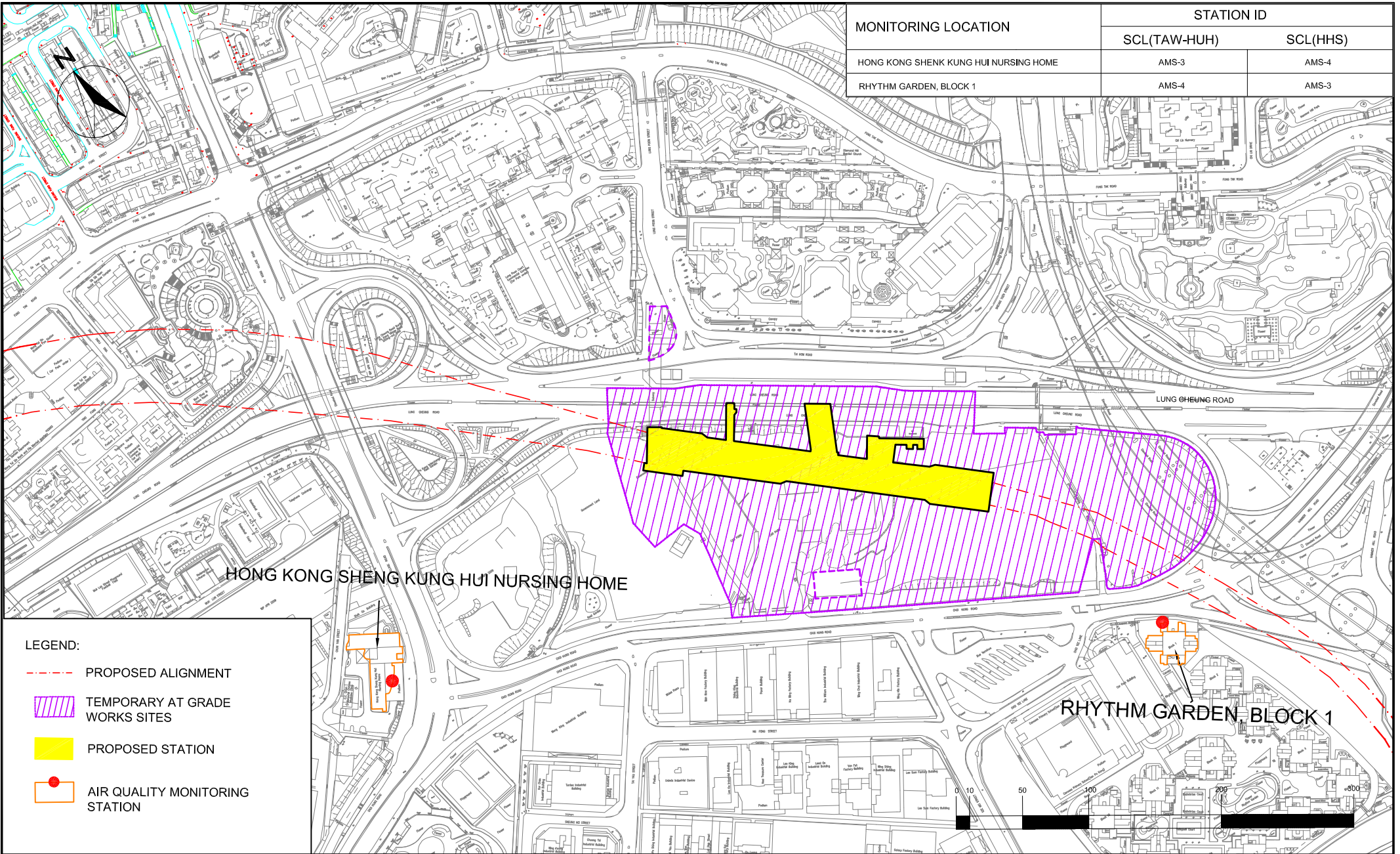


MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHENK KUNG HUI NURSING HOME	NMS-CA-3	NMS-CA-4
RHYTHM GARDEN, BLOCK 1 (NORTH-EASTERN FACADE)	NMS-CA-4	NMS-CA-3
RHYTHM GARDEN, BLOCK 1 (NORTHERN FACADE)	NMS-CA-5	NMS-CA-2

LEGEND:

- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- ↑ NOISE MONITORING STATION

SCALE	1:100	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	2	REV -



MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHENG KUNG HUI NURSING HOME	AMS-3	AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4	AMS-3

HONG KONG SHENG KUNG HUI NURSING HOME

RHYTHM GARDEN, BLOCK 1

LEGEND:

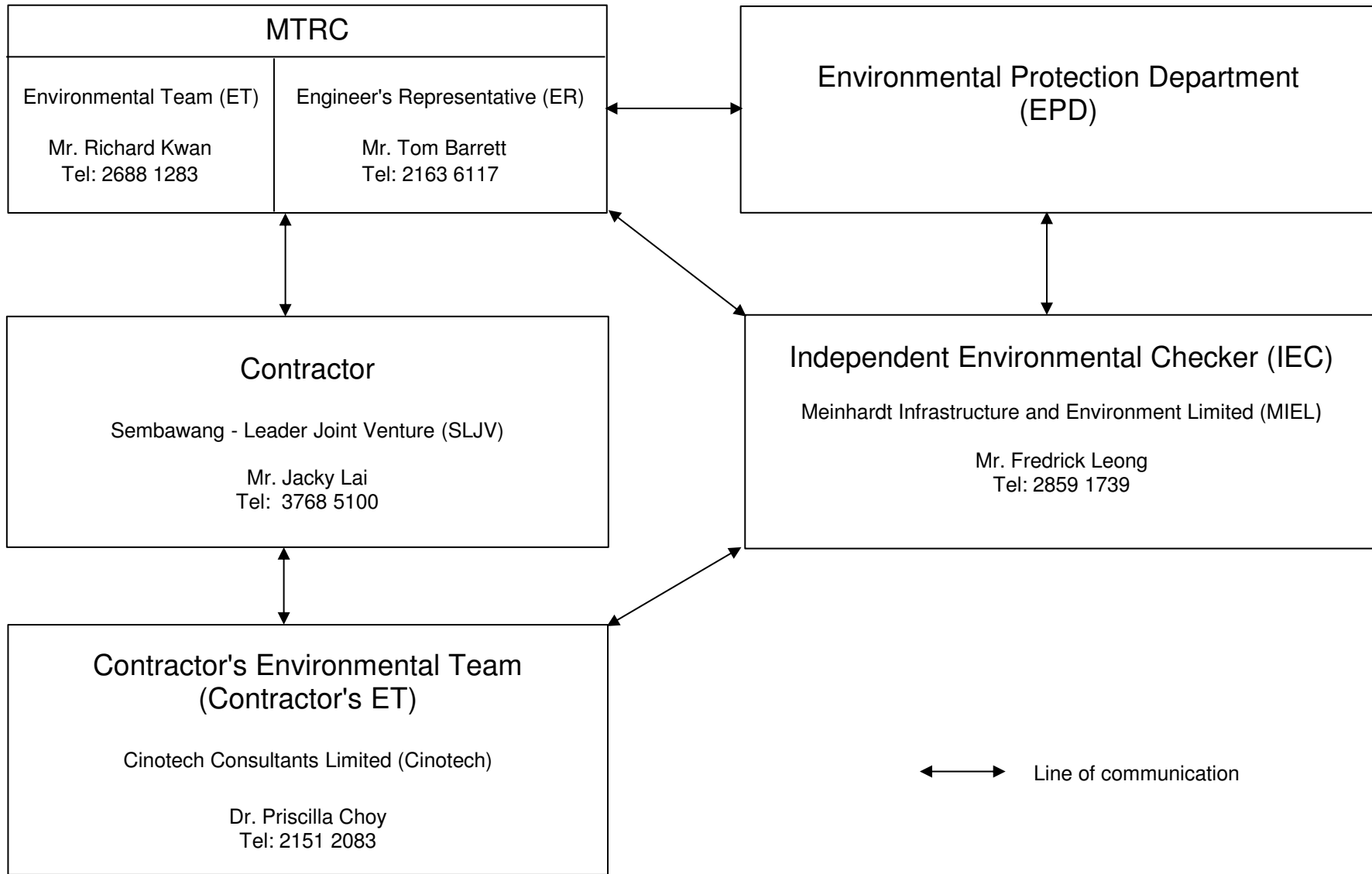
- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION



SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF AIR QUALITY MONITORING STATIONS

SCALE	1:100	DATE	MAY 2013
CHECK	KC	DRAWN	JW
JOB No.	MA12051	FIGURE NO.	3
		REV	-



Title

MTR SCL Works Contract 1106
Diamond Hill Station

Organisation Chart and Key Contact of the Project

Scale

N.T.S

Date

Jun-13

Proposal

No.

MA12051

Figure

4

CINOTECH

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**



Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December					January				
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27		

Contract Dates

Milestone Dates

Cost Centre A Milestones

Preliminaries

C1106.MSA04	A4: Engineer's Confirmation of Satisfactory Implementation of Programming Management System	0		27-Oct-13 A	100%		◆	◆	A4: Engineer's Confirmation of Satisfactory Implementation of Programming Management System
C1106.MSA05	A5: Engineer's Confirmation of Satisfactory Implementation of Quality Requirements	0		20-Jan-14	0%				◆ A5: Engine

Cost Centre B (Option 5 Tender (SCL), Entrances & Adits)

Completion Dates

C1106.MSB04	B4: All Permanent Works MCS accordance GS Approved. Complete 50% Dwall by nos. between GL39-49	0		27-Oct-13 A	100%		◆	◆	B4: All Permanent Works MCS accordance GS Approved. Complete 50% Dwall by nos. between GL39-49
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Cost Centre C (Option 5 (KTL) Station Modification)

Completion Dates

C1106.CMSC01	C1: Complete New Concession at Concourse Level GL 2-4	0		30-Dec-13	0%				◆ C1: Complete New Concession at
C1106.CMSC02	C2: Complete Demolished Existing Concession at CC Level GL3-4 and GL13-14, Sheet Pile for lift LT-02 at Lung Poon	0		23-Jan-14	0%				◆ C2: Co

Cost Centre D - Re-provisioning, Remedial and Improvement Works (RRIW)

Completion Dates

C1106.DMS003	D3: Complete Archaeological Survey-Cum-Excavation & Relocation of Heritage Structure	0		07-Nov-13	0%			◆	D3: Complete Archaeological Survey-Cum-Excavation & Relocation of Heritage Structure
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Cost Centre A - Preliminaries

General Requirements

Submissions

General

C1106.GS0270	Prepare & Submit Drawing Submission Schedule	28	05-Dec-13*	02-Jan-14	0%				Prepare & Submit Drawing Sub
C1106.GS0275	Review & Approve Drawing Submission Schedule	28	02-Jan-14	30-Jan-14	0%				
C1106.GS0278	Prepare & Submit Preliminary ABWF Programme	28	15-Dec-13*	12-Jan-14	0%				Prepare & Submit P
C1106.GS0282	Review & Approve Preliminary ABWF Programme	28	12-Jan-14	09-Feb-14	0%				
C1106.GS0320	1st Progress Monitoring & Programming Management System Audit - A4	90	13-Jul-13 A	27-Oct-13 A	100%				1st Progress Monitoring & Programming Management System Audit - A4
C1106.GS0322	1st Quality Management Audit - A5	90	28-Oct-13 A	20-Jan-14	5%				1st Quality

- Baseline (PMP)
- Previous Month (Sept)
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Baseline Milestone
- ◆ Milestone

1 of 8

MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 October 2013

3 Month Rolling Programme

Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December					January												
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27										
C1106.GS0325	1st System Assurance & Risk Management and Design for Safety Audit - A6	92	21-Jan-14	22-Apr-14	0%																												
C1106.GS0485	Review & Approve by BD/ RDO	28	23-May-13 A	10-Nov-13	90%	Review & Approve by BD/ RDO																											
C1106.GS0495	Prepare & Submit BD BA10 Form	7	11-Nov-13	17-Nov-13	0%	Prepare & Submit BD BA10 Form																											
C1106.GS0575	Erect and Equip Engineer's Site Office	70	18-Nov-13	13-Feb-14	0%																												
Cost Centre B: SCL- DIH Station, Entrances and Adits																																	
Design & Approval																																	
General																																	
General																																	
C1106.DS0585	Prepare & Submit Excavation & ELS Design, ICE Check	21	08-Aug-13 A	20-Nov-13	90%	Prepare & Submit Excavation & ELS Design, ICE Check																											
C1106.DS0590	Review & Approve Excavation & ELS Design for the Station	30	21-Nov-13	27-Dec-13	0%	Review & Approve Excavation & ELS																											
C1106.DS0595	Prepare & Submit Pumping Test Design (SCL DIH Bulk Excavation)	21	14-Dec-13	10-Jan-14	0%	Prepare & Submit Pur																											
C1106.DS0600	Review & Approve Pumping Test Design (SCL DIH Bulk Excavation)	25	11-Jan-14	12-Feb-14	0%																												
TTMS Implementation																																	
Submissions																																	
TTM Submission																																	
C1106.TMS0310	Prepare & Submit Construction Traffic Impact Assessment (CTIA) with Contingency Plan	21	01-Nov-13	21-Nov-13	0%	Prepare & Submit Construction Traffic Impact Assessment (CTIA) with Contingency Plan																											
C1106.TMS0320	MTR Review for Endorsement to Transport Department (TD)	28	22-Nov-13	19-Dec-13	0%	MTR Review for Endorsement to Transport D																											
C1106.TMS0325	Review & Approval of TTMS at Lung Cheung Road by Transport Department	60	20-Dec-13	17-Feb-14	0%																												
Lung Cheung Road																																	
TTA Implementation																																	
C1106.TMS0380	TTA for Installation of Instrumentation at Lung Cheung Road (SLG/1106/006/DIH/004/001A)	12	26-Sep-13 A	07-Oct-13 A	100%	TTA for Installation of Instrumentation at Lung Cheung Road (SLG/1106/006/DIH/004/001A)																											
C1106.TMS0385	TTA for Trial Pit Excavation for Locating Existing CLP Cables at LCR Footpath (SLG/1106/013/DIH/001/001A)	11	08-Oct-13 A	18-Oct-13 A	100%	TTA for Trial Pit Excavation for Locating Existing CLP Cables at LCR Footpath (SLG/1106/013/DIH/001/001A)																											
C1106.TMS0390	TTA for Trial Pit Excavation for Locating Existing Water Mains at LCR Footpath (SLG/1106/013/DIH/003/001A)	12	21-Oct-13 A	01-Nov-13	95%	TTA for Trial Pit Excavation for Locating Existing Water Mains at LCR Footpath (SLG/1106/013/DIH/003/001A)																											
C1106.TMS0395	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 1 (SLG/1106/014/DIH/004/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 1 (SLG/1106/014/DIH/004/001A)																											
C1106.TMS0400	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 1 (SLG/1106/014/DIH/004/002A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 1 (SLG/1106/014/DIH/004/002A)																											
C1106.TMS0405	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 2 (SLG/1106/014/DIH/005/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 2 (SLG/1106/014/DIH/005/001A)																											
C1106.TMS0410	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 2 (SLG/1106/014/DIH/005/002A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 2 (SLG/1106/014/DIH/005/002A)																											
C1106.TMS0415	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 3 (SLG/1106/014/DIH/006/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 3 (SLG/1106/014/DIH/006/001A)																											
C1106.TMS0420	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 3 (SLG/1106/014/DIH/006/002A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 3 (SLG/1106/014/DIH/006/002A)																											

- Baseline (PMP) ◆ Baseline Milestone
- Previous Month (Sept) ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013

3 Month Rolling Programme

Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December					January				
						30/04	07/04	14/04	21/04	28/04	04/05	11/05	18/05	25/05	02/06	09/06	16/06	23/06	30/06	06/07	13/07	20/07	27/07		
C1106.TMS0425	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 1 (SLG/1106/014/DIH/007/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 1 (SLG/1106/014/DIH/007/001A)																			
C1106.TMS0430	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 1 (SLG/1106/014/DIH/007/002A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 1 (SLG/1106/014/DIH/007/002A)																			
C1106.TMS0435	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 2 (SLG/1106/014/DIH/008/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 2 (SLG/1106/014/DIH/008/001A)																			
C1106.TMS0440	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 2 (SLG/1106/014/DIH/008/002A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 2 (SLG/1106/014/DIH/008/002A)																			
C1106.TMS0445	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 3 (SLG/1106/014/DIH/009/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 3 (SLG/1106/014/DIH/009/001A)																			
C1106.TMS0450	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 3 (SLG/1106/014/DIH/009/002A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 3 (SLG/1106/014/DIH/009/002A)																			
C1106.TMS0455	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 4 (SLG/1106/014/DIH/010/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 4 (SLG/1106/014/DIH/010/001A)																			
C1106.TMS0460	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 4 (SLG/1106/014/DIH/010/001A)	31	07-Oct-13 A	06-Nov-13	90%	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 4 (SLG/1106/014/DIH/010/001A)																			
Tree Feeling / Transplanting																									
General																									
Tree Transplanting																									
C1106.BTP1435	Tree Transplant to Permanent Location for Category A&B (DT1907 & DT2002)	40	21-Jul-13 A	17-Dec-13	70%	Tree Transplant to Permanent Location for Category A&B (DT1907 & DT2002)																			
C1106.BTP1482	Tree Transplant to Permanent Location for Category C Trees - (DT1904, DT1906, DT1913)	43	27-Sep-13 A	20-Dec-13	40%	Tree Transplant to Permanent Location for Category C Trees - (DT1904, DT1906, DT1913)																			
C1106.BTP1485	Tree Work DT1855 (Rootball Box) Installing of Sheet Pile	30	25-Sep-13 A	05-Nov-13	95%	Tree Work DT1855 (Rootball Box) Installing of Sheet Pile																			
C1106.BTP1525	Excavation and Install of Horizontal Pipe Pile for DT1855 Tree	70	10-Oct-13 A	09-Nov-13	70%	Excavation and Install of Horizontal Pipe Pile for DT1855 Tree																			
C1106.BTP1528	DT1855 - Rootball Preparation & Transplanting of Tree to Receptor Site	5	11-Nov-13	15-Nov-13	0%	DT1855 - Rootball Preparation & Transplanting of Tree to Receptor Site																			
C1106.BTP1530	Tree Transplant to Permanent Location for DT1911 - 1 no.	34	06-Nov-13	14-Dec-13	0%	Tree Transplant to Permanent Location for DT1911 - 1 no.																			
C1106.BTP1535	Erection of Steel Frame for DT1911 Tree Transplanting	10	06-Nov-13*	16-Nov-13	0%	Erection of Steel Frame for DT1911 Tree Transplanting																			
C1106.BTP1540	Excavation and Install of Horizontal Pipe Pile for DT1911 Tree	7	18-Nov-13	25-Nov-13	0%	Excavation and Install of Horizontal Pipe Pile for DT1911 Tree																			
C1106.BTP1545	Further Excavation and Welding for Steel Universal Beam & Structural Frame Member	7	26-Nov-13	03-Dec-13	0%	Further Excavation and Welding for Steel Universal Beam & Structural Frame Member																			
C1106.BTP1550	Preparation Works for the Transplanting of DT1911 Tree	5	04-Dec-13	09-Dec-13	0%	Preparation Works for the Transplanting of DT1911 Tree																			
C1106.BTP1555	Undercutting and Root Ball Preparation for DT1911 Tree Transplanting	5	10-Dec-13	14-Dec-13	0%	Undercutting and Root Ball Preparation for DT1911 Tree Transplanting																			
C1106.BTP1560	Transplanting of DT1911 Tree to Receptor Site	0		14-Dec-13	0%	◆ Transplanting of DT1911 Tree to Receptor Site																			
Diaphragm Wall & Foundation Works																									
DIH (SCL) Gridline 39 - 49																									
Guidewall																									
C1106.BDW4635	GL 45-47 Construction of Guide Wall for Dwall Panel A61 to A63	14	05-Oct-13 A	12-Oct-13 A	100%	GL 45-47 Construction of Guide Wall for Dwall Panel A61 to A63																			
Dwall Construction																									
C1106.BDW4065	GL 43-44 Construct Dwall Panel A17 (Gang 2)	14	12-Sep-13 A	28-Oct-13 A	100%	GL 43-44 Construct Dwall Panel A17 (Gang 2)																			

- Baseline (PMP)
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- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Baseline Milestone
- ◆ Milestone

3 of 8

**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013**

3 Month Rolling Programme			
Date	Revision	Checked	Appr...
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Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October				November				December				January			
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13
C1106.BDW4070	GL 43-44 Construct Dwall Panel A18 (Gang 2)	20	30-Oct-13 A	23-Nov-13	10%																
C1106.BDW4075	GL 45-46 Construct Dwall Panel A26 (Gang 2)	17	07-Nov-13	26-Nov-13	0%																
C1106.BDW4082	GL 46-47 Construct Dwall Panel A27 (Gang 2)	13	27-Nov-13	11-Dec-13	0%																
C1106.BDW4095	GL 43-44 Construct Dwall Panel A19 (Gang 2)	21	25-Nov-13	18-Dec-13	0%																
C1106.BDW4097	GL 44-45 Construct Dwall Panel A20 (Gang 2)	21	19-Dec-13	15-Jan-14	0%																
C1106.BDW4100	GL 44-45 Construct Dwall Panel A21 (Gang 2)	30	16-Jan-14	22-Feb-14	0%																
C1106.BDW4112	GL 45-46 Construct Dwall Panel A24 (Gang 7)	16	19-Sep-13 A	12-Oct-13 A	100%																
C1106.BDW4113	GL 45-46 Construct Dwall Panel A23 (Gang 7)	16	16-Oct-13 A	06-Nov-13	60%																
C1106.BDW4470	GL 39-40 Construct Dwall Panel A75 (Gang 3)	26	07-Oct-13 A	19-Nov-13	45%																
C1106.BDW4480	GL 39-40 Construct Dwall Panel A76 (Interface) (Gang 3)	28	20-Nov-13	21-Dec-13	0%																
C1106.BDW4640	GL 46-47 Construct Dwall Panel A61 (Gang 3)	35	12-Oct-13 A	03-Dec-13	40%																
C1106.BDW4655	GL 48-49 Construct Dwall Panel A58 (Gang 4)	35	24-Oct-13 A	29-Nov-13	15%																
C1106.BDW4660	GL 48-49 Construct Dwall Panel A57 (Gang 4)	27	06-Aug-13 A	22-Oct-13 A	100%																
C1106.BDW4665	GL 46-47 Construct Dwall Panel A62 (Gang 3)	40	04-Dec-13	22-Jan-14	0%																
C1106.BDW4670	GL 46-47 Construct Dwall Panel A63 (Closing) (Gang 3)	40	23-Jan-14	13-Mar-14	0%																
C1106.BDW4705	GL 43-44 Construct Dwall Panel A67 (Gang 7)	24	16-Sep-13 A	07-Nov-13	90%																
C1106.BDW4712	GL 46-48 Construction of Guide Wall for Dwall Panel A28 to A32	10	16-Nov-13	27-Nov-13	0%																
C1106.BDW4725	GL 46-47 Construct Dwall Panel A29 (Primary) (Gang 5)	8	12-Dec-13	20-Dec-13	0%																
C1106.BDW4734	GL 46-47 Construct Dwall Panel A30 (Gang 5)	9	21-Dec-13	03-Jan-14	0%																
C1106.BDW4735	GL 47-48 Construct Dwall Panel A31 (Gang 5)	24	07-Jan-14	06-Feb-14	0%																
C1106.BDW4763	GL 45-46 Construct Dwall Panel A64 (Primary) (Gang 5)	31	19-Jul-13 A	03-Oct-13 A	100%																
C1106.BDW4790	GL 41-42 Construct Dwall Panel A71 (Closing) (Gang 6)	29	10-Sep-13 A	18-Nov-13	50%																
C1106.BDW4793	GL 48-49 Construct Dwall Panel A33 (Primary) (Gang 6)	27	19-Nov-13	19-Dec-13	0%																
C1106.BDW4796	GL 48-49 Construct Dwall Panel A34 (Gang 6)	27	20-Dec-13	23-Jan-14	0%																
C1106.BDW4798	GL 49-50 Construct Dwall Panel A35 (Gang 6)	26	24-Jan-14	26-Feb-14	0%																
C1106.BDW4808	GL 44-46 Construct Dwall Panel A65 (Closing) (Gang 7)	31	08-Nov-13	13-Dec-13	0%																
C1106.BDW4815	GL 44-45 Construct Dwall Panel A66 (Closing) (Gang 7)	25	20-Jan-14	20-Feb-14	0%																
Capping Beam & Sheet Pile																					
C1106.BDW4120	GL 39-41 Construct Capping Beam (A01-A07, 24m) at +8.270mPD & Dwall Grouting	18	15-Jan-14*	07-Feb-14	0%																

- Baseline (PMP) ◆ Baseline Milestone
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4 of 8

**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013**

3 Month Rolling Programme			
Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December					January				
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27		
C1106.BDW4435	GL 39-43 Construct Capping Beam (A70- A76, 43m) at +7.70mPD & Dwall Grouting	30	31-Dec-13*	07-Feb-14	0%																				
C1106.BDW4810	GL 43-46 Install Sheet Piles Wall behind Diaphragm Wall A17-28 (49m)	7	02-Jan-14*	09-Jan-14	0%																				
C1106.BDW4820	GL 43-46 Construct Capping Beam (A17- A28, 49m) at +10.0mPD & Dwall Grouting	20	10-Jan-14	05-Feb-14	0%																				
DIH (SCL) Gridline 49 - 53																									
Station Cofferdam																									
C1106.BDW4042	GL Q-R Construct Dwall Panel A46 (Gang 1)	12	21-Oct-13 A	07-Nov-13	60%																				
C1106.BDW4047	GL Q-R Construct Dwall Panel A45 (Gang 1)	17	08-Nov-13	27-Nov-13	0%																				
C1106.BDW4052	GL Q-R Construct Dwall Panel A44 (Gang 1)	12	28-Nov-13	11-Dec-13	0%																				
C1106.BDW4057	GL N-P Construct Dwall Panel A42 (Gang 1)	15	12-Dec-13	31-Dec-13	0%																				
C1106.BDW4062	GL N-P Construct Dwall Panel A43 (Gang 1)	15	02-Jan-14	18-Jan-14	0%																				
C1106.BDW4483	GL 51-52 Construct Dwall Panel A52 (Gang 8)	26	10-Sep-13 A	31-Oct-13 A	100%																				
C1106.BDW4485	GL 52-53 Construct Dwall Panel A55 (Gang 8)	27	01-Nov-13	02-Dec-13	0%																				
C1106.BDW4490	GL Q-R Construct Dwall Panel A47 (Gang 8)	11	20-Jan-14	04-Feb-14	0%																				
C1106.BDW4700	GL 49-50 Construct Dwall Panel A56 (Gang 5)	20	30-Nov-13	23-Dec-13	0%																				
C1106.BDW4710	GL 50-51 Construct Dwall Panel A38 (Gang 5)	25	16-Sep-13 A	22-Nov-13	70%																				
C1106.BDW4715	GL 50-51 Construct Dwall Panel A37 (Gang 5)	31	03-Dec-13	10-Jan-14	0%																				
C1106.BDW4812	GL 51-52 Construct Dwall Panel A39 (Gang 5)	21	11-Jan-14	07-Feb-14	0%																				
C1106.BDW5315	GL N-R Construction of Guide Wall for DWall Panel A41-A51	14	04-Oct-13 A	17-Oct-13 A	100%																				
C1106.BDW5317	GL 48-51 Construct Guide Wall for Dwall Panel A33 to A37	10	08-Nov-13*	19-Nov-13	0%																				
C1106.BDW5325	GL 51-52 Construct Dwall Panel A49 (Gang 4)	21	14-Dec-13	10-Jan-14	0%																				
C1106.BDW5340	GL 52-53 Construct Dwall Panel A50 (Gang 4)	21	11-Jan-14	07-Feb-14	0%																				
C1106.BDW5365	GL 48-50 Install Sheet Piles Wall behind Diaphragm Wall A32-37 (37m)	8	11-Jan-14	20-Jan-14	0%																				
C1106.BDW5370	GL N-R Instal Capping Beam for A41-A50; 53m at +10.0mPD & Dwall Grouting	15	21-Jan-14	10-Feb-14	0%																				
C1106.BDW5385	GL 48-50 Construct Capping Beam (A32- A37, 37m) at +10.0mPD & Dwall Grouting	21	21-Jan-14	17-Feb-14	0%																				
DIH (SCL) Gridline 35-39																									
Station Cofferdam																									
C1106.BDW3510	GL 35-39 Possession of Areas for Capping Beam Construction	0	23-Nov-13*		0%																				
C1106.BDW3515	GL 35-39 Construct Capping Beam	30	23-Jan-14*	01-Mar-14	0%																				
DIH (SCL) Gridline 35-53																									

- Baseline (PMP) ◆ Baseline Milestone
- Previous Month (Sept) ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

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**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013**

3 Month Rolling Programme			
Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December					January					
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27			
Station Cofferdam																										
C1106.BDW4850	GL 35-53 Install Instrumentation & Wells	40	11-Jan-14	01-Mar-14	0%																					
ABWF & Miscellaneous Works																										
Manufacture & Delivery																										
Delivery																										
C1106.BML5963	Procure, Manufacture & Delivery ABWF Finishes	120	20-Nov-13*	16-Apr-14	0%																					
Construction of Interchange Adit																										
Submissions																										
General																										
C1106.BIA6022	Prepare & Submit Pumping Test Design for Interchange Adit	25	25-Nov-13*	23-Dec-13	0%																					
C1106.BIA6027	Review & Approve Pumping Test Design for Interchange Adit	25	24-Dec-13	24-Jan-14	0%																					
C1106.BIA6031	Amend & Resubmit Cofferdam (ELS) Design, ICE Check for Interchange Adit (Rev. B)	25	16-Sep-13 A	17-Oct-13 A	100%																					
C1106.BIA6036	Engineer's Approval for ELS Design Interchanged Adit (Rev. B)	21	18-Oct-13 A	29-Oct-13 A	100%																					
Site Preparation																										
C1106.BIA6020	Relocation of Works Area for Cut & Fixing R.B for Diaphragm Construction	7	15-Nov-13*	22-Nov-13	0%																					
C1106.BIA6023	Mobilize, Site Preparation & Locate Underground Utilities	14	23-Nov-13	09-Dec-13	0%																					
C1106.BIA6026	Fence Off Works Area & Site Formation Works	12	10-Dec-13	23-Dec-13	0%																					
C1106.BIA6034	Install Instrumentation & Markers	14	24-Dec-13	11-Jan-14	0%																					
C1106.BIA6068	Demolition of Existing Concrete Boundary Walls, Stairs & others	12	13-Jan-14	25-Jan-14	0%																					
Construction of Interchange Adit																										
Gridline U-V																										
C1106.BIA7000	Mobilize & Set-up for Equipment and Pre-Drilling Works	12	24-Dec-13	09-Jan-14	0%																					
C1106.BIA7002	Construct Guide Wal for Barrette	6	10-Jan-14	16-Jan-14	0%																					
C1106.BIA7005	Interchange Adit - Construct Barrette (No. 1/3 Panel)	24	17-Jan-14	17-Feb-14	0%																					
Construction of West Unpaid Link Adit																										
Submissions																										
General																										
C1106.BWA7538	Amend & Resubmit Cofferdam (ELS) Design, ICE Check for West Unpaid Link (Rev. B)	25	09-Sep-13 A	18-Oct-13 A	100%																					
C1106.BWA7540	Site Preparation & Survey	10	08-Nov-13*	19-Nov-13	0%																					

- Baseline (PMP)
- Previous Month (Sept)
- Actual Work
- Remaining Work
- Critical Remaining Work
- Baseline Milestone
- Milestone

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**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013**

3 Month Rolling Programme

Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December					January				
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27		
C1106.BWA7547	Engineer's Approval for ELS Design West Unpaid Link Adit (Rev. B)	25	19-Oct-13 A	28-Oct-13 A	100%																				
C1106.BWA7550	Earthwork Cut / Backfill Site Formation	8	15-Nov-13	23-Nov-13	0%																				
C1106.BWA7560	Install Instrumentation & Markers	7	25-Nov-13	02-Dec-13	0%																				
C1106.BWA7565	Demolition of Existing Concrete Boundary Wall & Others	10	30-Nov-13	11-Dec-13	0%																				
C1106.BWA7570	Prepare & Submit Pumping Test Design for West Unpaid Link	21	16-Dec-13*	11-Jan-14	0%																				
C1106.BWA7575	Review & Approve Pumping Test Design for West Unpaid Link	25	13-Jan-14	13-Feb-14	0%																				
West Adit Link - South Section																									
Adit Cofferdam																									
C1106.BWA8260	Mobilize & Set-up for Equipment and Pre-drilling Works	7	16-Nov-13*	23-Nov-13	0%																				
C1106.BWA8265	Construct Guide Wal for Barrette (No. 1)	6	25-Nov-13	30-Nov-13	0%																				
C1106.BWA8270	West Unpaid Link Adit - Install Prebored Socketed H-Pile 610mm (2 nos.)	12	18-Jan-14	04-Feb-14	0%																				
C1106.BWA8280	West Unpaid Link Adit - Construct Barrette (2 nos.)	38	02-Dec-13	17-Jan-14	0%																				
Cost Centre D - Reprovisioning, Remedial and Improvement Works (RIIW)																									
Preservation of Old Pillbox & RAF Hanger and Archaeological Survey-Cum-Excavation																									
Submissions																									
General																									
C1106.DRIW449	Amend and Submit Method Statement for Temp. Storage Compound for RAF Hangar	21	15-Oct-13 A	14-Nov-13	60%																				
C1106.DRIW479	Engineer's Approval on Method Statement for Temp. Storage Compound for RAF Hangar	14	15-Nov-13	30-Nov-13	0%																				
Preservation of Old Pillbox																									
General																									
C1106.DRIW417	Install Horizontal Pipe piles	8	02-Sep-13 A	05-Oct-13 A	100%																				
C1106.DRIW418	Install 2 nos Girder Outside	4	07-Oct-13 A	10-Oct-13 A	100%																				
C1106.DRIW423	Tunnel Excavation for the remaining 2 nos. Girder in the Middle	13	11-Oct-13 A	26-Oct-13 A	100%																				
C1106.DRIW428	Fixing of Shim Plates	5	28-Oct-13 A	04-Nov-13	50%																				
C1106.DRIW473	Construction of Temporary Storage Compound for Pill Box	10	07-Oct-13 A	18-Oct-13 A	100%																				
C1106.DRIW478	Construction of Access Road for Relocation of Pill Box	10	23-Oct-13 A	04-Nov-13	60%																				
C1106.DRIW480	Delivery of Bogie on Site & Assembly	2	05-Nov-13*	06-Nov-13	0%																				
C1106.DRIW495	Transportation of Pill Box by Bogie to Final Position	1	07-Nov-13	07-Nov-13	0%																				
C1106.DRIW500	Disassembly and Demobilization of Bogie	2	08-Nov-13	09-Nov-13	0%																				

- Baseline (PMP) ◆ Baseline Milestone
- Previous Month (Sept) ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

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**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013**

3 Month Rolling Programme			
Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	October					November					December				January				
						30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27	
						42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	
Archaeological Survey																								
General																								
C1106.DRIW482	Excavation Completion Interim Report and Handover	7	09-Sep-13 A	02-Oct-13 A	100%	■ Excavation Completion Interim Report and Handover																		
C1106.DRIW483	Whole Site Handover	1	02-Oct-13 A	02-Oct-13 A	100%	■ Whole Site Handover																		
C1106.DRIW485	Preparation of Archaeological Survey-Cum-Excavation Report (Draft ASE Report)	20	04-Oct-13 A	04-Nov-13	90%	■ Preparation of Archaeological Survey-Cum-Excavation Report (Draft ASE Report)																		
C1106.DRIW490	Final submission of ASE Report incorporates AMO comments	46	05-Nov-13	20-Dec-13	0%	■ Final submission of ASE Report incorporates																		

- Baseline (PMP) ◆ Baseline Milestone
- Previous Month (Sept) ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

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**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 October 2013**

3 Month Rolling Programme

Date	Revision	Checked	Appr...
01-Nov-13	C-1106-3MRP/ 10	RR	RB

**APPENDIX B
ACTION AND LIMIT LEVELS**

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / DMS-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home	159.1	260
DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾	Block 1, Rhythm Garden	160.4	

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Location ⁽¹⁾	Description	Time Period	Action Level	Limit Level
NMS-CA-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / NMS-CA-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)			75 dB(A)
NMS-CA-5 ⁽¹⁾⁽⁵⁾ / NMS-CA-2 ⁽²⁾⁽⁵⁾	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) ⁽⁶⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-3⁽¹⁾/ NMS-CA-4⁽²⁾ is carried out by Environmental Team of SCL Works Contract 1103.
- (5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (6) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0004

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 5-Sep-13 Next Due Date: 4-Nov-13
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	297.5	Pressure, Pa (mmHg)	759.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	25-Dec-13				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.44	58.52	7.4	2.72
2	8.7	2.95	50.31	5.3	2.30
3	7.4	2.72	46.44	4.6	2.15
4	4.5	2.12	36.32	2.8	1.67
5	2.9	1.70	29.25	1.7	1.30

By Linear Regression of Y on X

Slope, mw = 0.0478 Intercept, bw = -0.0820

Correlation coefficient* = 0.9996

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.89

Remarks: _____

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

Date: 5/9/13
 Date: 5 September 2013



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149	0.9957	0.6896	0.8851
0.9925	0.9693	2.0010	0.9915	0.9683	1.2517
0.9903	1.0858	2.2372	0.9893	1.0847	1.3995
0.9893	1.1345	2.3464	0.9883	1.1334	1.4678
0.9840	1.3666	2.8299	0.9830	1.3652	1.7702
Qstd slope (m) =		2.09107	Qa slope (m) =		1.30939
intercept (b) =		-0.02838	intercept (b) =		-0.01775
coefficient (r) =		0.99996	coefficient (r) =		0.99996
y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

TEST REPORT

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

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/130830/3
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/130919/3
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1106 Diamond Hill Station
Impact Air Quality and Noise Monitoring Schedule for October 2013**

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

**Shatin to Central Link – Contract 1106 Diamond Hill Station
Tentative Impact Air Quality and Noise Monitoring Schedule for November 2013**

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

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

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

Appendix E - 24-hour TSP Monitoring Results

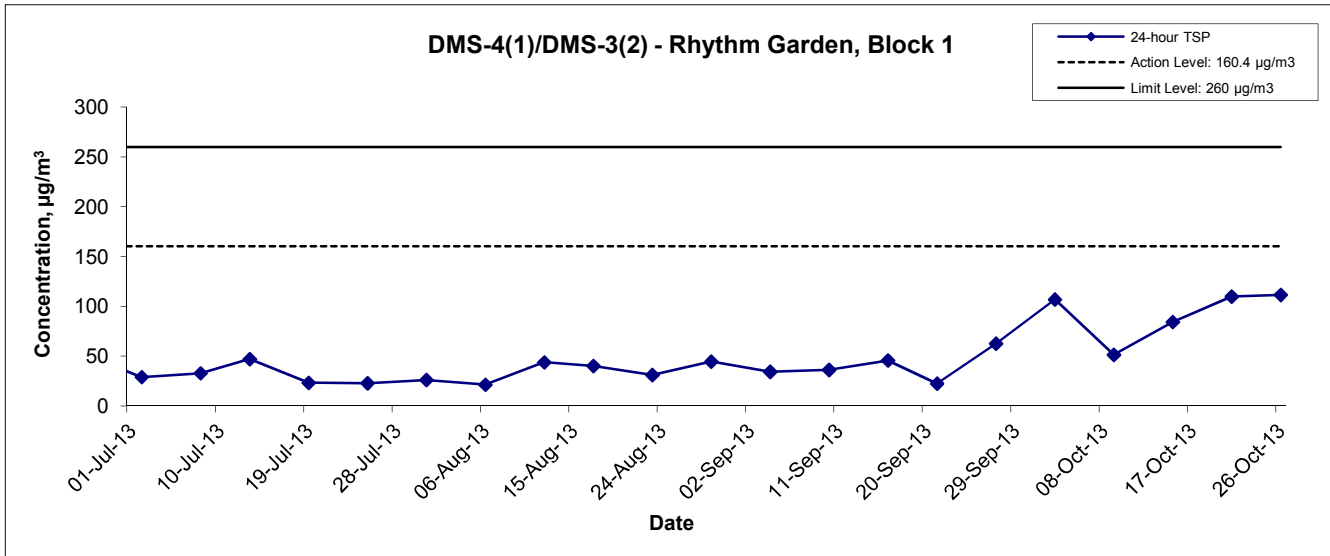
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
3-Oct-13	09:00	Sunny	298.4	763.2	3.7344	3.9224	0.1880	1673.9	1697.9	24.0	1.22	1.22	1.22	1758.8	106.9
9-Oct-13	09:00	Sunny	299.9	759.9	3.5810	3.6709	0.0899	1697.9	1721.9	24.0	1.21	1.21	1.21	1748.1	51.4
15-Oct-13	09:00	Sunny	299.7	762.8	3.7715	3.9192	0.1477	1721.9	1745.9	24.0	1.22	1.22	1.22	1751.9	84.3
21-Oct-13	09:00	Sunny	296.4	764.9	3.7722	3.9660	0.1938	1745.9	1769.9	24.0	1.22	1.22	1.22	1763.5	109.9
26-Oct-13	09:00	Sunny	294.3	767.5	3.7456	3.9433	0.1977	1769.9	1793.9	24.0	1.23	1.23	1.23	1772.4	111.5
														Min	51.4
														Max	111.5
														Average	92.8

Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

24-hour TSP Concentration Levels



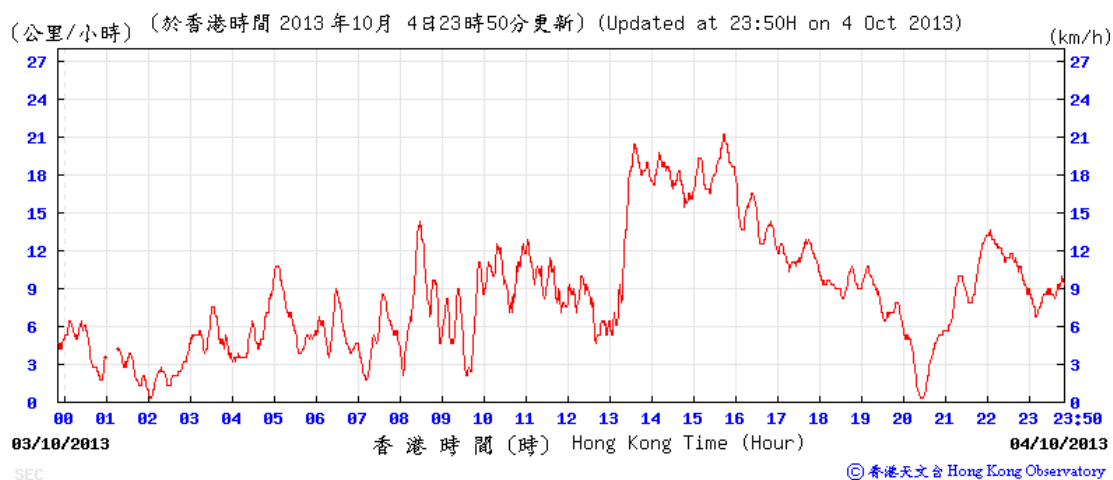
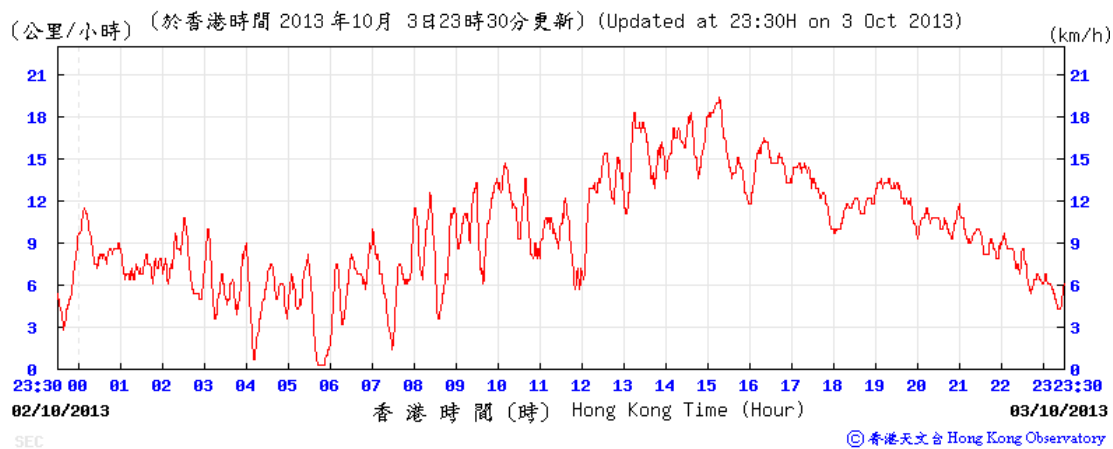
Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title Shatin to Central Link – Contract 1106 Diamond Hill Station Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA12051	CINOTECH
	Date Oct 13	Appendix E	

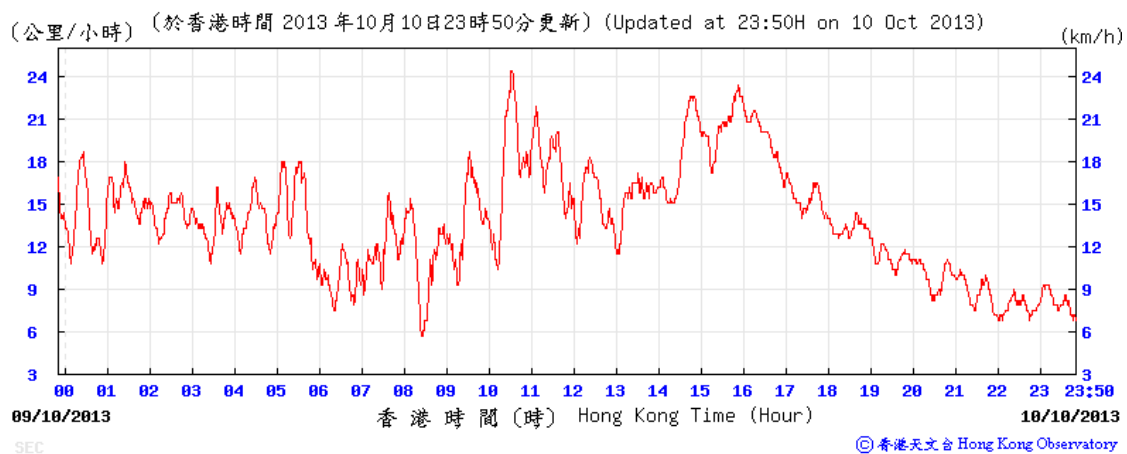
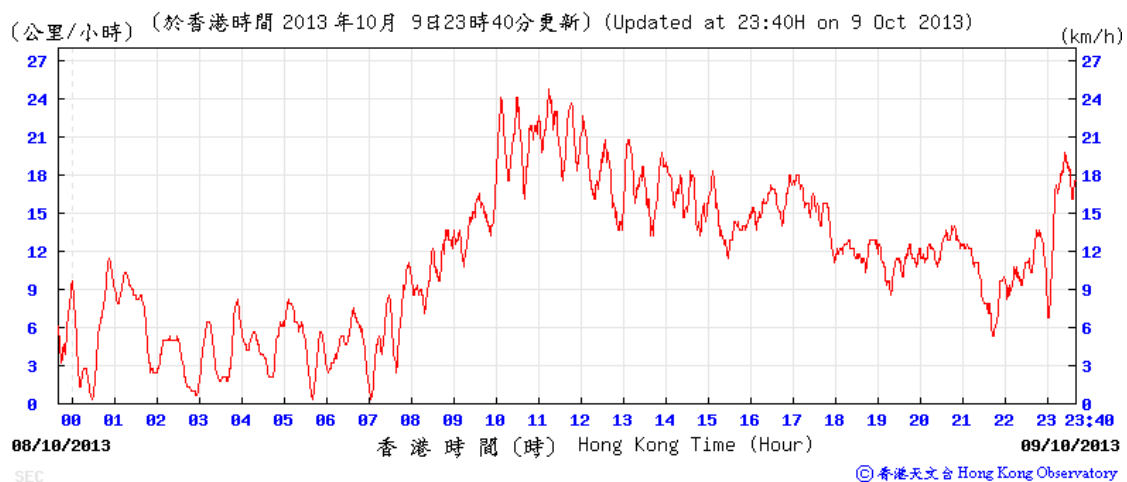
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3-4 October 2013



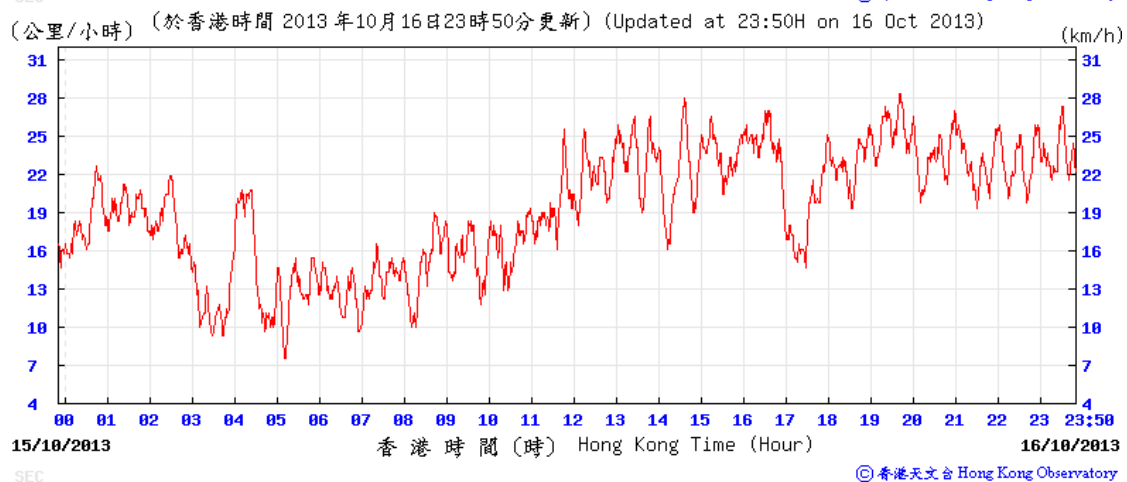
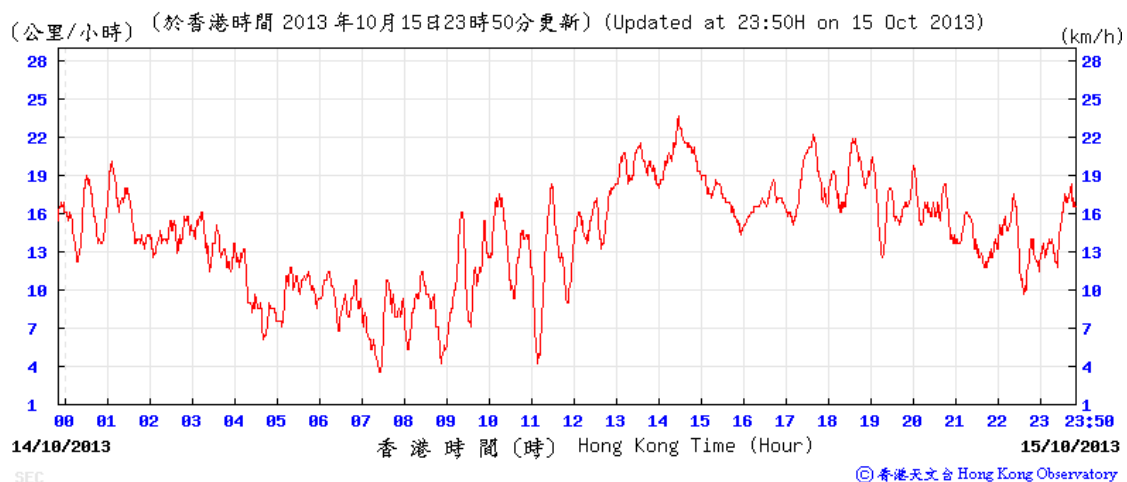
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

9-10 October 2013



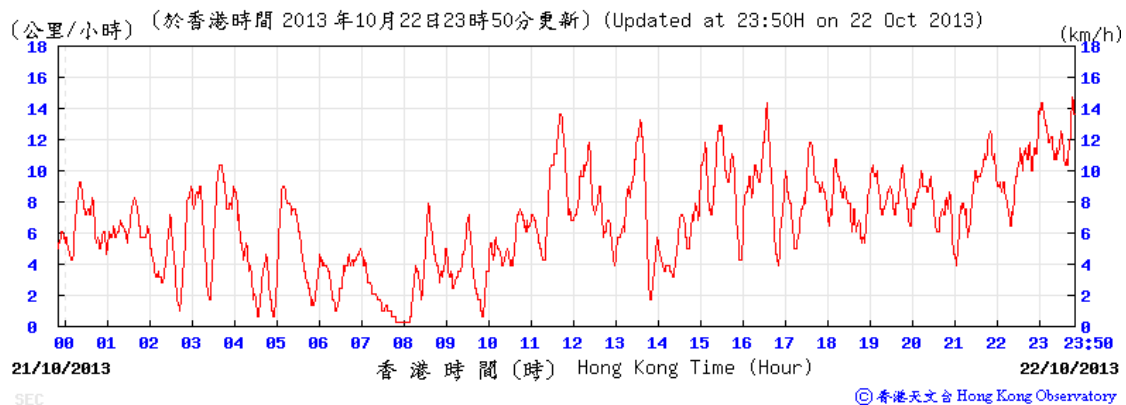
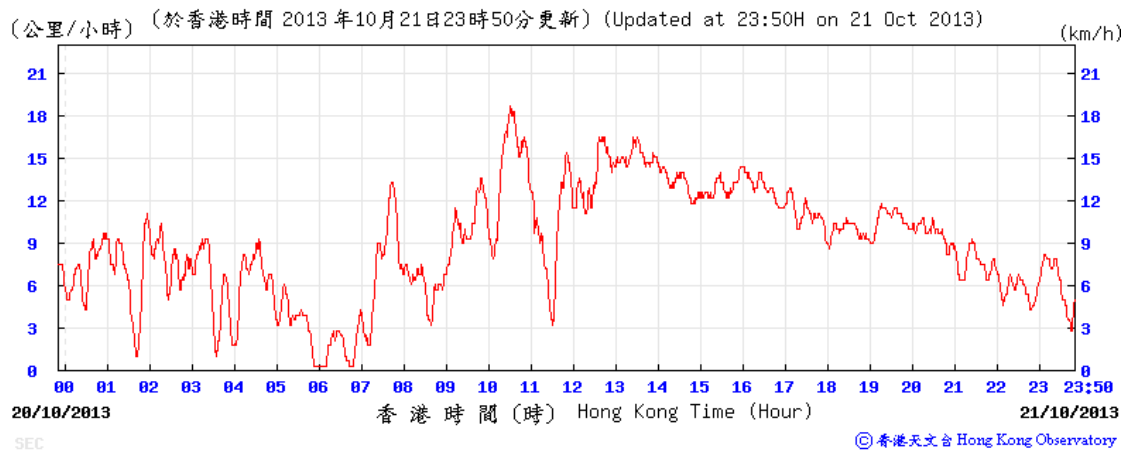
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

15-16 October 2013



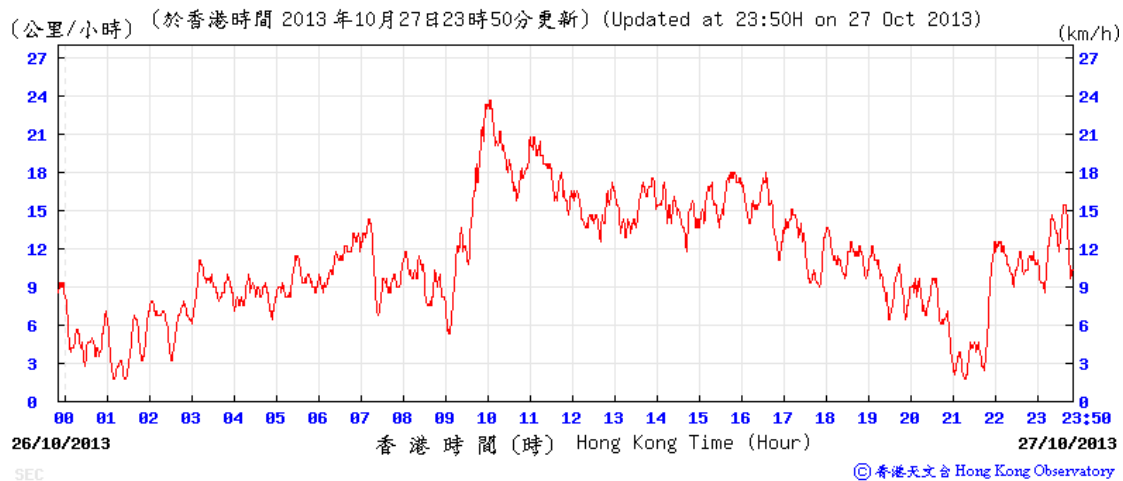
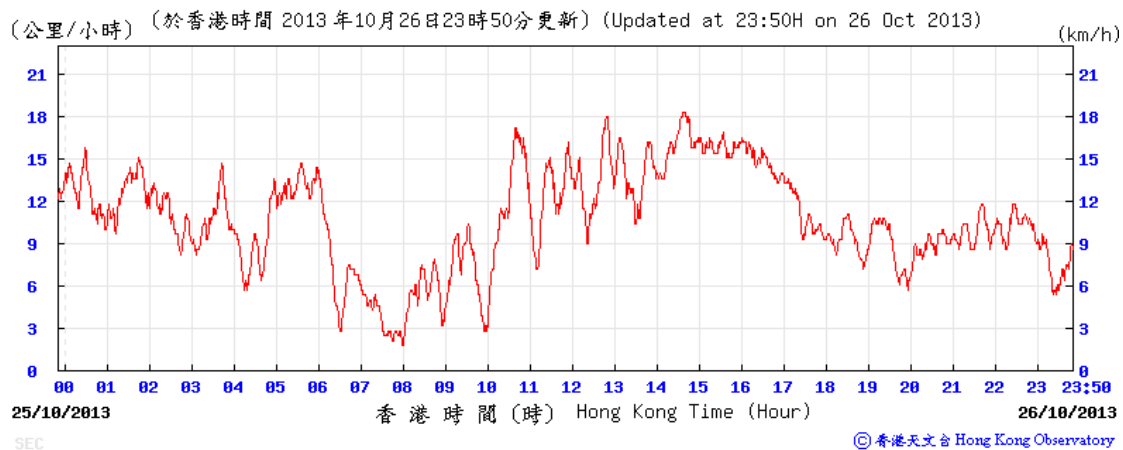
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 October 2013



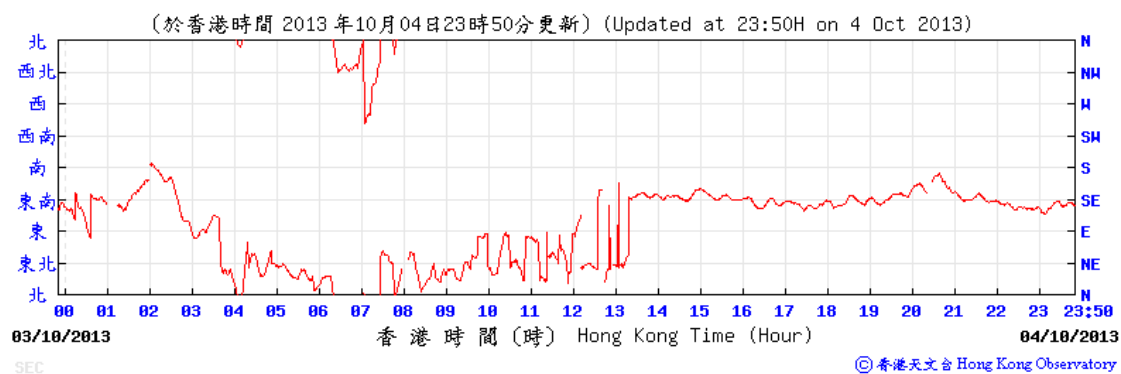
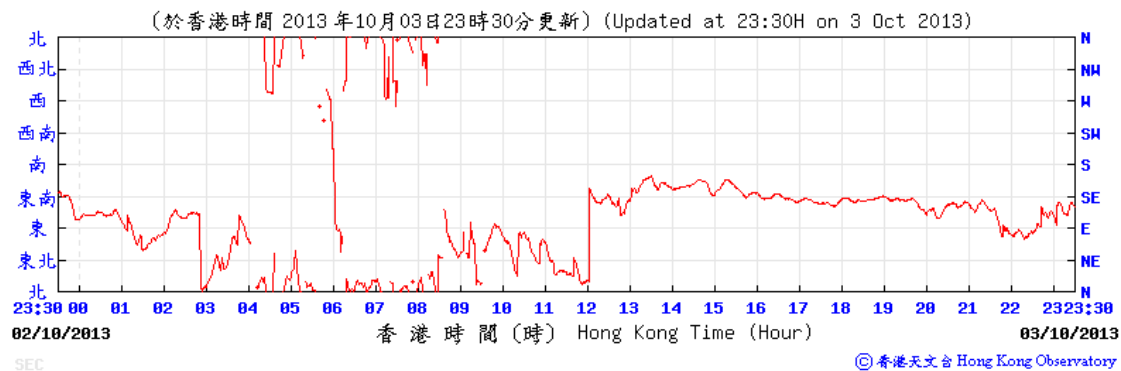
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

26-27 October 2013



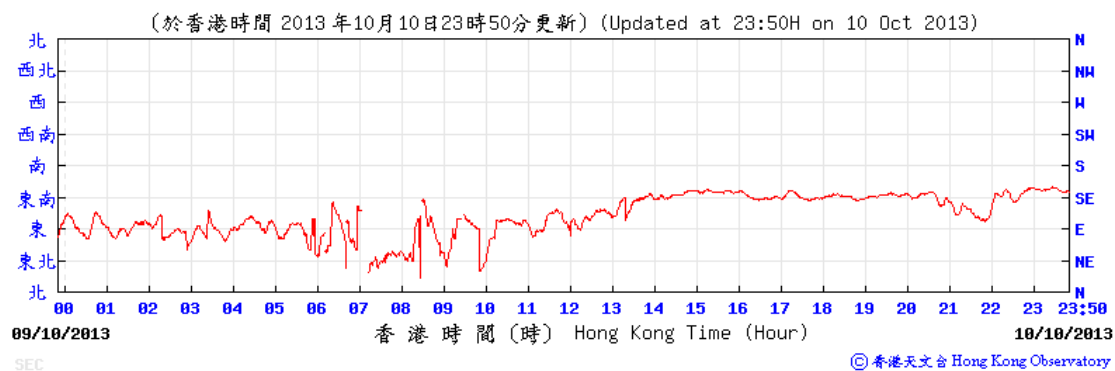
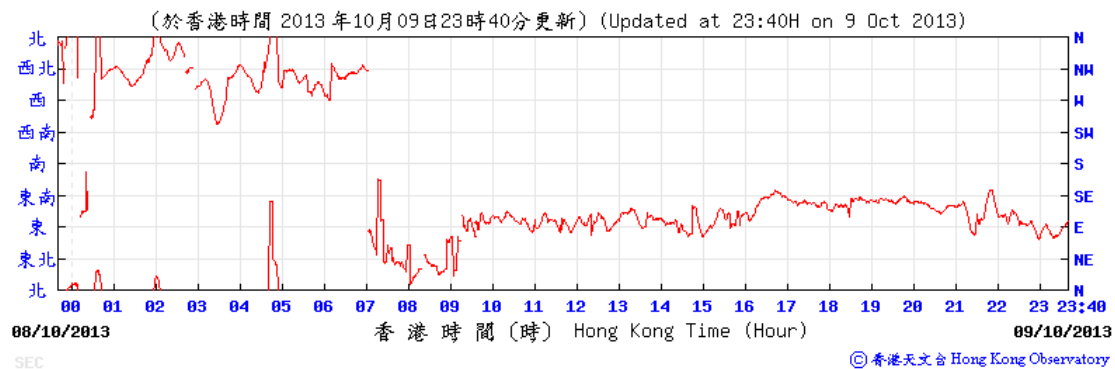
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3-4 October 2013



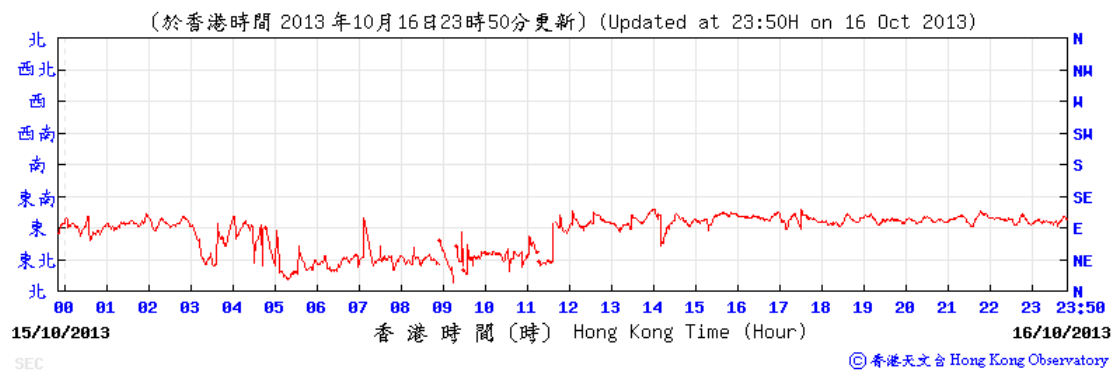
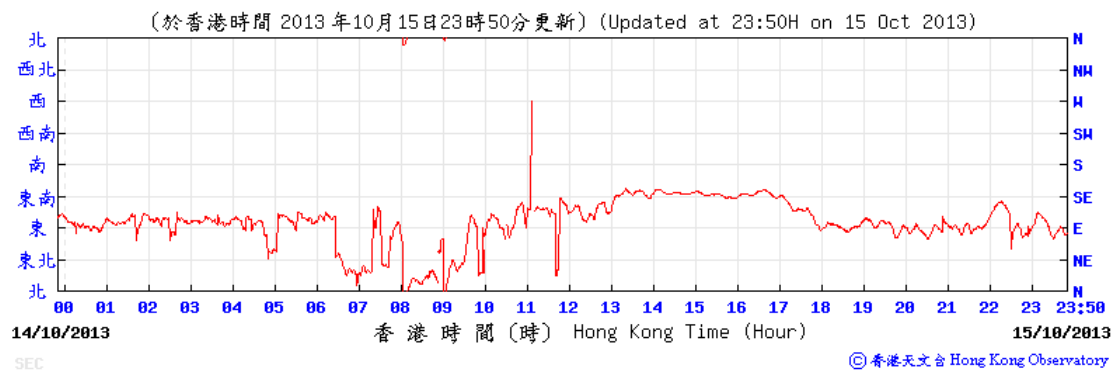
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

9-10 October 2013



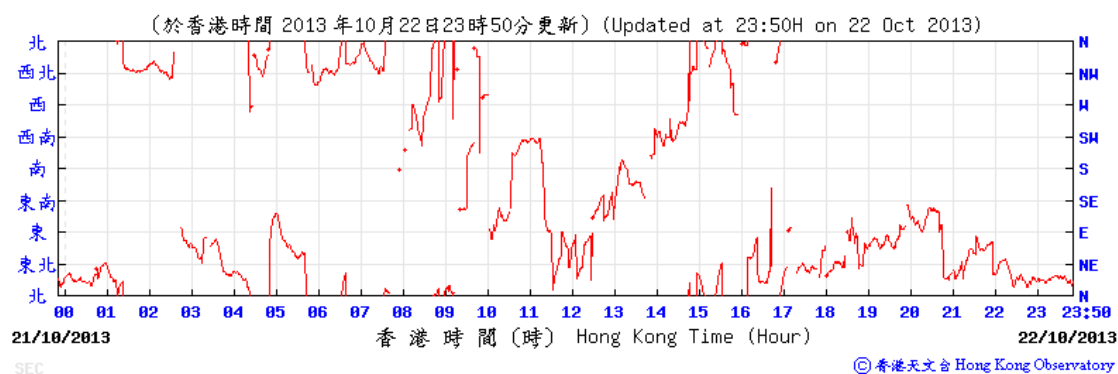
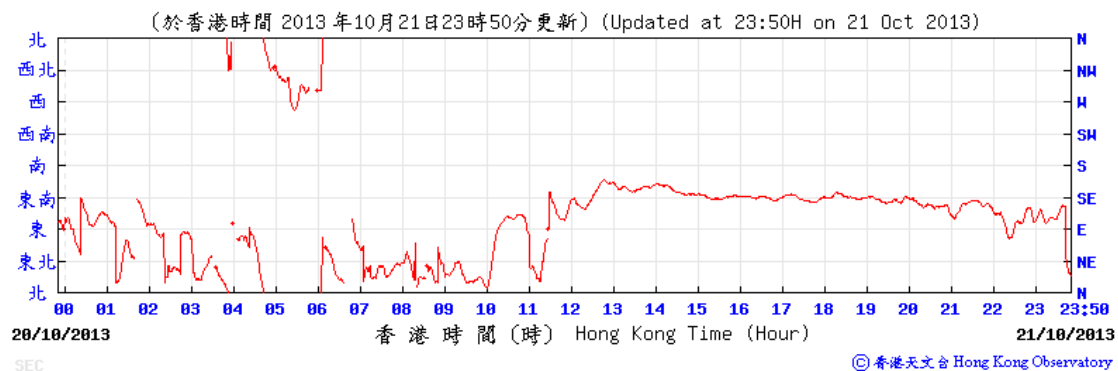
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

15-16 October 2013



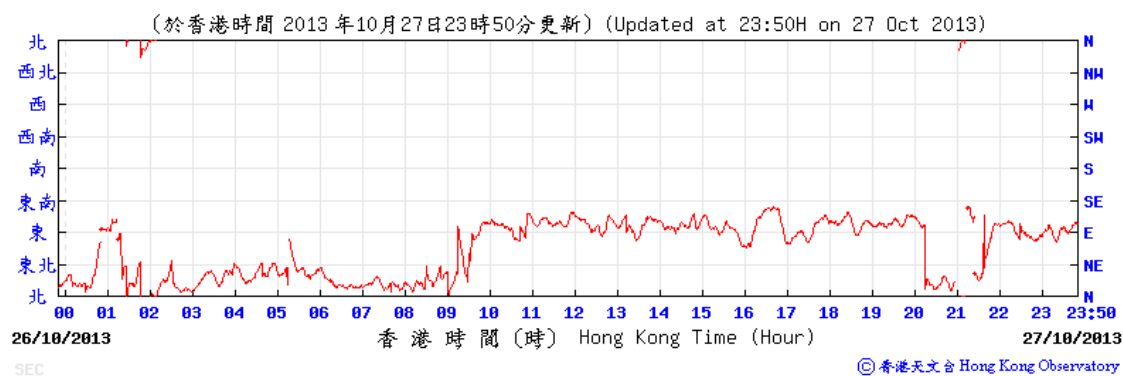
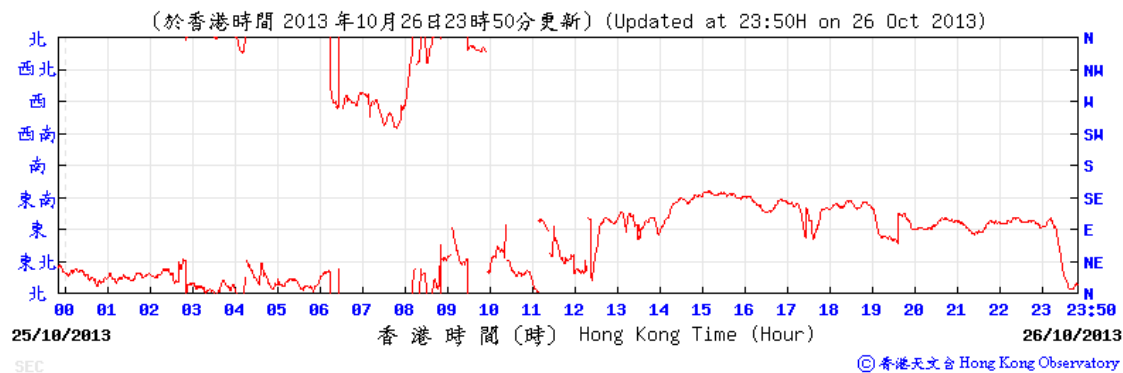
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 October 2013



Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

26-27 October 2013



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

Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Oct-13	Sunny	10:45	73.6	74.8	72.1	73.4	71	69.7
		10:50	73.4	74.6	72.1			
		10:55	73.4	74.6	72.2			
		11:00	73.4	74.6	72.0			
		11:05	73.3	74.6	71.8			
		11:10	73.2	74.5	71.6			
10-Oct-13	Sunny	11:20	73.2	74.5	71.5	73.0	71	68.7
		11:25	73.1	74.5	71.3			
		11:30	72.8	74.2	71.3			
		11:35	73.0	74.3	71.4			
		11:40	73.0	74.4	71.2			
		11:45	73.1	74.5	71.5			
16-Oct-13	Sunny	10:12	71.5	72.6	70.3	71.9	71	64.6
		10:17	71.4	71.9	70.7			
		10:22	71.8	72.8	70.7			
		10:27	72.0	73.2	70.5			
		10:32	72.3	73.4	71.1			
		10:37	72.3	73.3	71.0			
22-Oct-13	Sunny	13:10	71.2	72.3	70.0	71.5	71	61.9
		13:15	71.4	72.5	70.2			
		13:20	72.0	73.1	71.2			
		13:25	71.6	72.8	70.9			
		13:30	71.4	72.5	70.2			
		13:35	71.4	72.5	70.4			
28-Oct-13	Sunny	13:20	73.5	74.7	72.3	73.8	71	70.6
		13:25	74.2	75.5	72.4			
		13:30	73.8	75.0	72.2			
		13:35	73.6	74.8	72.2			
		13:40	73.5	74.9	71.9			
		13:45	74.2	75.4	73.0			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

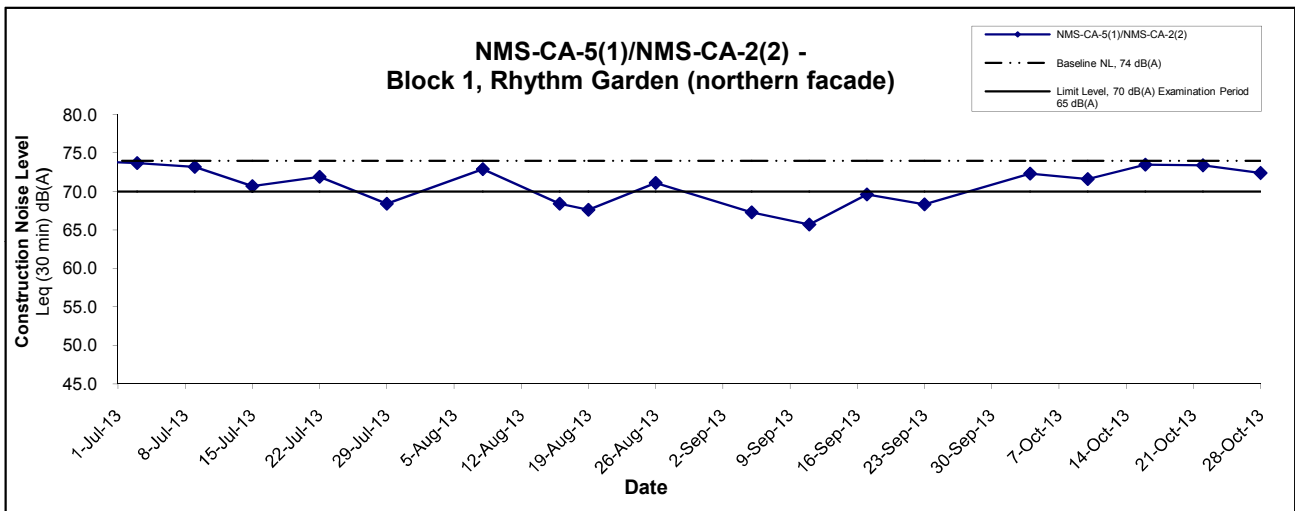
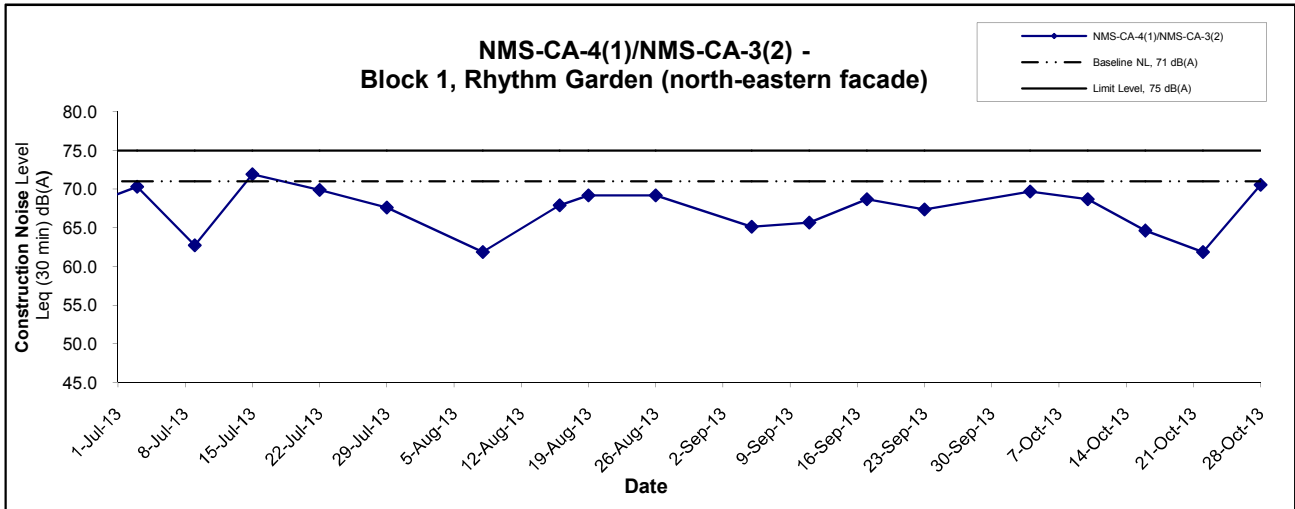
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Oct-13	Sunny	09:35	72.3	73.3	71.1	72.3	74	72.3 Measured ≤ Baseline Level
		09:40	72.2	73.3	71.0			
		09:45	72.1	73.1	71.0			
		09:50	72.3	73.5	71.1			
		09:55	72.4	73.6	71.1			
		10:00	72.2	73.3	71.1			
10-Oct-13	Sunny	10:45	71.7	72.8	70.3	71.6	74	71.6 Measured ≤ Baseline Level
		10:50	71.5	72.6	70.1			
		10:55	71.6	72.8	70.2			
		11:00	71.5	72.7	70.1			
		11:05	71.2	72.4	70.0			
		11:10	71.8	73.0	70.4			
16-Oct-13	Sunny	10:43	73.6	74.8	72.1	73.5	74	73.5 Measured ≤ Baseline Level
		10:48	73.5	74.7	72.1			
		10:53	73.4	74.8	72.0			
		10:58	73.1	74.3	71.5			
		11:03	73.7	74.8	72.3			
		11:08	73.4	74.7	72.0			
22-Oct-13	Sunny	13:41	73.6	74.8	72.0	73.4	74	73.4 Measured ≤ Baseline Level
		13:46	73.4	74.7	72.0			
		13:51	73.4	74.6	72.0			
		13:56	73.4	74.6	72.1			
		14:01	73.3	74.5	72.1			
		14:06	73.1	74.3	71.6			
28-Oct-13	Sunny	13:17	72.3	73.5	71.1	72.4	74	72.4 Measured ≤ Baseline Level
		13:22	72.3	73.5	71.0			
		13:27	72.5	73.7	71.2			
		13:32	72.3	73.4	71.1			
		13:37	72.3	73.4	71.0			
		13:42	72.6	73.7	71.4			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Noise Levels



Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) In case of Measured Level \leq Baseline Level, only Measured Level is presented on the graphical presentation.

Title Shatin to Central Link - Contract 1106 - Diamond Hill Station Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA12051	
	Date Oct 13	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: October 2013

- a) Exceedance Report for Dust Monitoring (NIL)**
- b) Exceedance Report for Noise Monitoring (NIL)**

APPENDIX H
SITE AUDIT SUMMARY

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

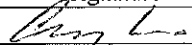

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131003
Date	3 October 2013 (Thursday)
Time	14:10 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
131003-002	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Bund should be provided to prevent the spillage of concrete water to access road. (Next to Area W8) 	B 21
131003-001	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> The operating machine should keep away from Tree DT1911 to avoid damage to retaining tree. 	D 3
131003-003	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> The breaker head on earth should be enclosed with tarpaulin to prevent oil leakage to earth. (Next to slope of tree T1885) <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130924), item ref. 130924 – 002 was found outstanding and will be followed up in the next site inspection. 	H 9

	Name	Signature	Date
Recorded by	Gary Lau		3 October 2013
Checked by	Dr. Priscilla Choy		3 October 2013

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

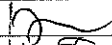
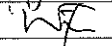
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131009
Date	9 October 2013 (Wednesday)
Time	10:30 – 11:45

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

Ref. No.	Remarks/Observations	Related Item No.
131009-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> To provide adequate water spray to exposed work area to avoid dust generation during dry season. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131003), all identified environmental deficiency was observed improved/rectified by the Contractor. 	E 5

	Name	Signature	Date
Recorded by	Johnny Fung		9 October 2013
Checked by	Dr. Priscilla Choy		9 October 2013

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131015
Date	15 October 2013 (Tuesday)
Time	9:00 – 10:15

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

Ref. No.	Remarks/Observations	Related Item No.
131015-R01 131015-R02	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part C – Ecology</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part D – Landscape & Visual</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part E – Air Quality</i></p> <ul style="list-style-type: none"> Provide water spray to loading and unloading works to avoid dust generation. Cover the stockpile properly with impervious sheet. 	E11 E6
131015-003	<p><i>Part F – Cultural Heritage</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part G – Construction Noise Impact</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part H – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> Drip tray should be provided to the welder to avoid chemical leakage. <p><i>Part I – Permits/Licenses</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part J – Others</i></p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131009), all identified environmental deficiency was observed improved/rectified by the Contractor. 	H10

	Name	Signature	Date
Recorded by	Johnny Fung		15 October 2013
Checked by	Dr. Priscilla Choy		15 October 2013

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

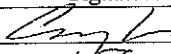

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131022
Date	22 October 2013 (Tuesday)
Time	9:00 – 10:45

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

Ref. No.	Remarks/Observations	Related Item No.
131022-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> To enhance the tree protection measures: the metal pipes and fences should be removed from tree DT3406; Proper tree protection fences should be provided for trees at archaeological area. 	D 2 & D3
131022-002	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> To cover the stockpile near to tree DT 1885 to reduce dust generation in dry days. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131015), all identified environmental deficiency was observed improved/rectified by the Contractor. 	E6

	Name	Signature	Date
Recorded by	Gary Lau		22 October 2013
Checked by	Dr. Priscilla Choy		22 October 2013

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

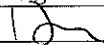

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131029
Date	29 October 2013 (Tuesday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
131029-R02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Fully cover the cement bags properly by tarpaulin sheets at archaeological site (near descender). 	E16
131029-O01	<p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Construction Noise Impact</p> <ul style="list-style-type: none"> Door should be kept close during the operation of the cutter. (near pillbox) <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131022), all identified environmental deficiency was observed improved/rectified by the Contractor. 	G9

	Name	Signature	Date
Recorded by	Johnny Fung		29 October 2013
Checked by	Dr. Priscilla Choy		29 October 2013

APPENDIX I
EVENT AND ACTION PLANS

Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

LIMIT LEVEL

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

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 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, Contractor 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1106 ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Cultural Heritage Impact (Construction Phase)</i>								
S4.8.1	CH1	Submit an Archaeological Action Plan. Survey-cum-excavation shall be conducted prior to the construction works at the former Tai Hom Village site.	Salvage cultural remains at the Former Tai Hom Village Site	Contractor	Former Tai Hom Village Site	Prior to the Construction Phase of DIH site	<ul style="list-style-type: none"> • AMO's requirements 	^ ^
S4.8.2	CH2	Submit a Conservation Plan for the Former Royal Air Force Hangar and the Old Pillbox to AMO for agreement.	Proposal for conservation of 2 historical buildings	Contractor	Former Tai Hom Village Site	Prior to the Construction Phase of DIH site	<ul style="list-style-type: none"> • AMO's requirements • Principles for the Conservation of Heritage Sites in China • Burra Charter, the Australia's ICOMOS Charter for Places of Cultural Significance 	^
<i>Ecology (Construction Phase)</i>								
S5.7	E1	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for	Minimise ecological impacts	Contractor	All construction sites	During Construction	<ul style="list-style-type: none"> • ProPECC PN 1/94 	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 						^ ^
<i>Landscape & Visual (Construction Phase)</i>								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> • To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	^ *

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</p> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. <p>Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</p>						N/A
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA criteria 	*

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</p> <ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						^ * ^ ^ N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	* ^ ^ N/A ^ ^
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			screening.					
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994	To minimize water quality impact from construction	Contractor	All construction sites	Construction stage	• Water Pollution Control Ordinance	

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>(ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes 	<p>site runoff and general construction activities</p>		<p>where practicable</p>		<ul style="list-style-type: none"> ProPECC PN1/94 TM-EIAO TM-Water 	<p>^</p> <p>*</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>and disposed of by spreading evenly over stable, vegetated areas.</p> <ul style="list-style-type: none"> • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular 						<p>N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes</p> <ul style="list-style-type: none"> • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>locations should be locked as far as possible from the sensitive watercourse and stormwater drains;</p> <ul style="list-style-type: none"> The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 						^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at 	<p>Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> DEVB TC(W) No. 6/2010 	N/A

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</p>						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>verified; and</p> <ul style="list-style-type: none"> • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation 						^
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005 	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.						
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p>

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

Contract No: MTR SCL 1106 - Diamond Hill Station

Date of Report: October, 2013

Monthly Summary Waste Flow Table for 2013

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects (See Note 2)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste (See Note 3)	Others, e.g. general refuse	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Jan	0.610	0.000	0.000	0.000	0.610	0.000	0.000	0.000	0.000	0.000	0.267	
Feb	2.171	0.000	0.000	0.272	1.899	0.000	0.000	0.000	0.000	0.000	0.203	
Mar	1.416	0.000	0.000	0.392	1.024	0.000	0.000	0.000	0.000	1.500	0.172	
Apr	1.977	0.000	0.000	0.463	1.514	0.000	0.000	0.000	0.000	0.000	1.545	
May	2.638	0.000	0.000	0.400	2.238	0.000	0.000	0.050	0.000	0.000	1.396	
Jun	2.467	0.000	0.000	0.000	2.467	0.000	0.002	0.000	0.000	0.480	0.612	
Sub-total	11.280	0.000	0.000	1.527	9.752	0.000	0.002	0.050	0.000	1.980	4.194	
Jul	2.730	0.000	0.000	2.143	0.588	0.000	0.000	0.000	0.000	0.640	0.321	
Aug	2.210	0.000	0.000	1.504	0.706	0.000	0.000	0.260	0.000	0.960	0.278	
Sept	2.505	0.000	0.000	1.594	0.912	0.000	0.000	0.000	0.000	0.000	0.011	
Oct	1.932	0.000	0.000	1.575	0.357	0.000	0.000	0.030	0.000	2.560	0.008	
Nov												
Dec												
Total	20.658	0.000	0.000	8.343	12.315	0.000	0.002	0.340	0.000	6.140	4.812	

Notes:

- 1) Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m³. Assumption the densities of general refuse is 1.0 tonnes/m³
- 2) Inert C&D material was delivered to Kai Tak Barging Point Facility (Contract 1108A)
- 3) Chemical waste includes waste diesel oil. It is assumed density of diesel oil to be 0.8kg/L.

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

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

Cumulative Complaint Log

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

Cumulative Log for Notifications of Summons

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

Cumulative Log for Successful Prosecutions

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

Appendix G

**6th EM&A Report for Works Contract 1107 –
Diamond Hill to Kai Tak Tunnels**

MTR Corporation Limited

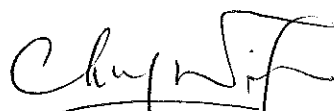
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report

[Period from 1 to 31 October 2013]

Works Contract 1107 – Diamond Hill to Kai Tak
Tunnels

(October 2013)

Certified by: 
Dr. Priscilla Choy

Position: Environmental Team Leader


Date: 11th November 2013

Chun Wo – SELI Joint Venture

**Shatin to Central Link –
Contract 1107
Diamond Hill to Kai Tak Tunnels**

**Monthly Environmental
Monitoring and Audit Report
for October 2013**

(Version 2.0)

Certified By 

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY**Introduction**

1. This is the 6th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1107 – Diamond Hill to Kai Tak Tunnels**. This report documents the findings of EM&A Works conducted from 1 October to 31 October 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Site investigation works;
 - Investigation and removal of old foundation works;
 - Hoarding erection;
 - D-wall construction;
 - Sheet piling works;
 - Tree transplantation; and
 - Preparation works for site access and drainage.

Variation in Construction Method

3. As of the reporting month, an alignment section of approximately 90m long between DIH and KAT under this Works Contract 1107 will be constructed by the cut-and-cover method, instead of bored tunnelling method as assessed in the approved Environmental Impact Assessment (EIA) Report of Shatin to Central Link - Stabling Sidings at Hung Hom Freight Yard (hereafter referred to as SCL (HHS)) [Register No.: AEIAR-164/2012] due to increased construction risk caused by potential left-in piles. Also, pile removal works would be conducted if reinforced bored piles are identified along the bored tunnelling section. Application for variation of Environmental Permit (VEP) was approved and the updated EP (EP No.: EP-438/2012/D) was issued by EPD on 13 September 2013 for the varied construction method.

Environmental Monitoring and Audit Progress

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours

Noise Monitoring Station ID

- NMS-CA-4⁽¹⁾⁽³⁾/NMS-CA-3⁽²⁾⁽³⁾ (Block 1, Rhythm Garden (north-eastern façade)) 5 times
- NMS-CA-5⁽¹⁾⁽⁴⁾/NMS-CA-2⁽²⁾⁽⁴⁾ (Block 1, Rhythm Garden (northern façade)) 5 times

- Construction Dust (24-hour TSP) Monitoring

Dust Monitoring Station ID

- DMS-4⁽¹⁾⁽⁵⁾/ DMS-3⁽²⁾⁽⁵⁾ (Block 1, Rhythm Garden) 5 times

Remarks:

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

(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

(3) Noise monitoring on NMS-CA-4⁽¹⁾/ NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) is carried out by Environmental Team of SCL Works Contract 1106.

(4) Noise monitoring on NMS-CA-5⁽¹⁾/ NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) is carried out by Environmental Team of SCL Works Contract 1106.

(5) Dust monitoring on DMS-4⁽¹⁾/ DMS-3⁽²⁾ (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works

Contract 1106.

Waste Management

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

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4 and 18 October 2013. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 4, 11, 18 and 25 October 2013. The representative of the IEC joined the site inspection on 18 October 2013. Details of the audit findings and implementation status are presented in Section 6.

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

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

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - Site investigation works;
 - Investigation and removal of old foundation works;
 - Hoarding erection;
 - Sheet piling works;
 - Shaft excavation; and
 - Site preparation works.

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Chun Wo – SELI Joint Venture (CSJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1107 – Diamond Hill to Kai Tak Tunnels (hereafter referred to as the Project).

Purpose of the Report

- 1.2 This is the 6th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 October to 31 October 2013. The major construction works for Contract 1107 commenced on 27 May 2013.

Structure of the Report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1107 covers the construction of running tunnel from Kai Tak (KAT) North to SCL Diamond Hill (DIH) Station which is under the approved SCL (HHS) EIA Report. This construction contract was awarded to Chun Wo - SELI Joint Venture (CSJV) in March 2013.

General Site Description

- 2.3 The construction of tunnel from KAT to DIH will employ either cut-and-cover method or bored tunneling. The alignment and works area for the Works Contract 1107 are shown in **Figure 1**.

Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
- Site investigation works;
 - Investigation and removal of old foundation works;
 - Hoarding erection;
 - D-wall construction;
 - Sheet piling works;
 - Tree transplantation; and
 - Preparation works for site access and drainage.

Project Organisation

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

Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**. New Construction Noise Permit (CNP) (Permit No. GW-RE1064-13) was granted by EPD on 7 October 2013.

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D since 13 September 2013
EP-438/2012/D	13/09/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref no.: 357051	18/03/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No. 7017163	26/03/2013	N/A	Valid
Registration of Chemical Waste Producer			
5213-286-C3798-01	29/04/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00015861-2013	13/05/2013	31/05/2018	Valid
WT00016009-2013	23/05/2013	31/05/2018	Valid
Construction Noise Permit (CNP)			
PP-RE0028-13	15/07/2013	14/01/2014	Valid
GW-RE0852-13	19/08/2013	31/12/2013	Valid
GW-RE1064-13	08/10/2013	31/03/2014	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1107 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected; alternative locations were proposed and agreed by the ER (Engineer’s Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location⁽⁴⁾⁽⁵⁾	Description	Type of Measurement
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 ⁽¹⁾⁽³⁾ / NMS-CA-2 ⁽²⁾⁽³⁾	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-4⁽¹⁾/ NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (5) Noise monitoring on NMS-CA-5⁽¹⁾/ NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq, 5-min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30 min}$ reading)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 957 (Serial no.: 21459, 21460)
Calibrator	SVANTEK – SV30A (Serial no.: 10929, 24803)

Maintenance and Calibration

3.6 Maintenance and Calibration procedures were as follows:

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

Action & Limit Level for Construction Noise Monitoring

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

Continuous Noise Monitoring

3.8 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared submitted under EP Condition 2.9 and Condition 2.10 respectively, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1107.

Regular Construction Dust Monitoring

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

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾	Block 1, Rhythm Garden

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Dust monitoring on DMS-4⁽¹⁾/DMS-3⁽²⁾ (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

Monitoring Parameter and Frequency

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

Table 3.4 Dust Monitoring Parameters and Frequency

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

Note:

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

Monitoring Equipment

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

Table 3.5 Dust Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 2352	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 2323	1

Instrumentation

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

HVS Installation

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

- Sufficient support was provided to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The samplers were more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filters Preparation

3.14 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.

- 3.15 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
- 3.16 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

- 3.17 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
 - The power supply was checked to ensure the sampler worked properly.
 - The filter holding frame and the area surrounding the filter were cleaned.
 - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
 - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
 - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
 - The shelter lid was closed and secured with the aluminum strip.
 - A new flow rate record chart was set into the flow recorder.
 - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
 - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
 - The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
 - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ± 3 °C; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

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

Action and Limit Levels for Dust Monitoring

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

Landscape and Visual

- 3.20 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The Event / Action Plan (EAP) for landscape and visual is presented in **Appendix I**. The implementation status is given in **Appendix J**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (September 2013)	15 th October 2013

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 10 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The noise monitoring results together with their graphical presentations are presented in **Appendix F**.
- 5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

- 5.5 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E** and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

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

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP (DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾)	51.4	111.5	92.8	160.4	260

- 5.6 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.7 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
 (3) Dust monitoring on DMS-4⁽¹⁾/DMS-3⁽²⁾ (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

Waste Management

- 5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and

paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. No plastics and metals were generated during this reporting month. Details of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/cardboard	Plastics			Metals		
October 2013	1,850 m ³	60 m ³	0 kg	61 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

Landscape and Visual

5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4 and 18 October 2013. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 4, 11, 18 and 25 October 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 18 October 2013. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	4 Oct 2013	<u>Reminder:</u> Avoid discharge of muddy water to discharge point.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 Oct 2013.
	11 Oct 2013	<u>Reminder:</u> Provide sand bag bunds to existing drainage to avoid potential silty water discharge in future.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	18 Oct 2013	Silty waste water was observed discharged out of site at the U-channel. The Contractor is reminded to provide more sand bug bunds.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	25 Oct 2013	<u>Reminder:</u> Clear the sediments accumulated in the U-channel to avoid discharge out of site.	Follow up action will be reported in next reporting month.
	25 Oct 2013	Muddy water observed deposited in the drainage. The Contractor is reminded to remove the muddy water as soon as possible to prevent discharge out of site.	Follow up action will be reported in next reporting month.
<i>Noise</i>	4 Oct 2013	<u>Reminder:</u> Properly maintain and provide the noise barrier to mechanical equipment.	The observation was observed to be improved/rectified by the Contractor during the audit session on 4 Oct 2013.
	18 Oct 2013	To provide noise barrier to the drill rigs near Rhythm Garden.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
<i>Landscape and Visual</i>	--	--	--

Parameters	Date	Observations and Recommendations	Follow-up
<i>Air Quality</i>	13 Sep 2013	<u>Reminder:</u> Properly cover the stockpile by impervious material.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	19 Sep 2013	<u>Reminder:</u> Properly cover the stockpile with impervious sheets.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	19 Sep 2013	<u>Reminder:</u> To check and maintain the generator to avoid black smoke emission.	The observation was observed to be improved/rectified by the Contractor during the audit session on 4 Oct 2013.
	27 Sep 2013	Black smoke emission observed from power pack. The contractor is reminded to properly maintain the mechanical equipment.	The observation was observed to be improved/rectified by the Contractor during the audit session on 4 Oct 2013.
	27 Sep 2013	<u>Reminder:</u> Properly cover the dusty stockpile with impervious sheeting.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	4 Oct 2013	<u>Reminder:</u> Cover the dusty stockpile properly by impervious sheet.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	11 Oct 2013	<u>Reminder:</u> Cover the dusty aggregate and material by impervious sheets.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	18 Oct 2013	Dusty stockpile should be covered by impervious sheets or provided with water spray facility to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	18 Oct 2013	<u>Reminder:</u> Cover the exposed slope properly with tarpaulin sheets.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
<i>Waste / Chemical Management</i>	18 Oct 2013	Drip tray should be provided to chemical containers on paved ground to avoid chemical leakage.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	18 Oct 2013	<u>Reminder:</u> Clear the stagnant water in the chemical waste storage tank.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Oct 2013.
	25 Oct 2013	<u>Reminder:</u> Clear the stagnant water in the drip tray near the silo tanks.	Follow up action will be reported in next reporting month.
<i>Permits/ Licenses</i>	27 Sep 2013	Construction Noise Permit should be displayed at the site entrance near Kai Ching Estate.	The observation was observed to be improved/rectified by the Contractor during the audit session on 4 Oct 2013.

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- Site investigation works;
- Investigation and removal of old foundation works;
- Hoarding erection;
- Sheet piling works;
- Shaft excavation; and
- Site preparation works.

Key Issues in the Next Month

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

- Dust impact from excavating works;
- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and bentonite;
- Treatment of wastewater from D-wall construction;
- To ensure the performance of sorting of C&D materials at source (during generation); and
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.

Monitoring Schedule in the Next Month

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

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 October 2013 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 4 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

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

Water Quality

- It is recommended particular attention should be paid to the control of silty surface runoff into existing drainage during storm events, especially during coming wet season.
- It is reminded to ensure that water discharge is in compliance with water discharge license.
- The Contractor is reminded to avoid surface runoff discharge and provide proper water treatment facilities.
- The Contractor is reminded to remove the muddy water as soon as possible to prevent discharge out of site.

Landscape and Visual

- N/A

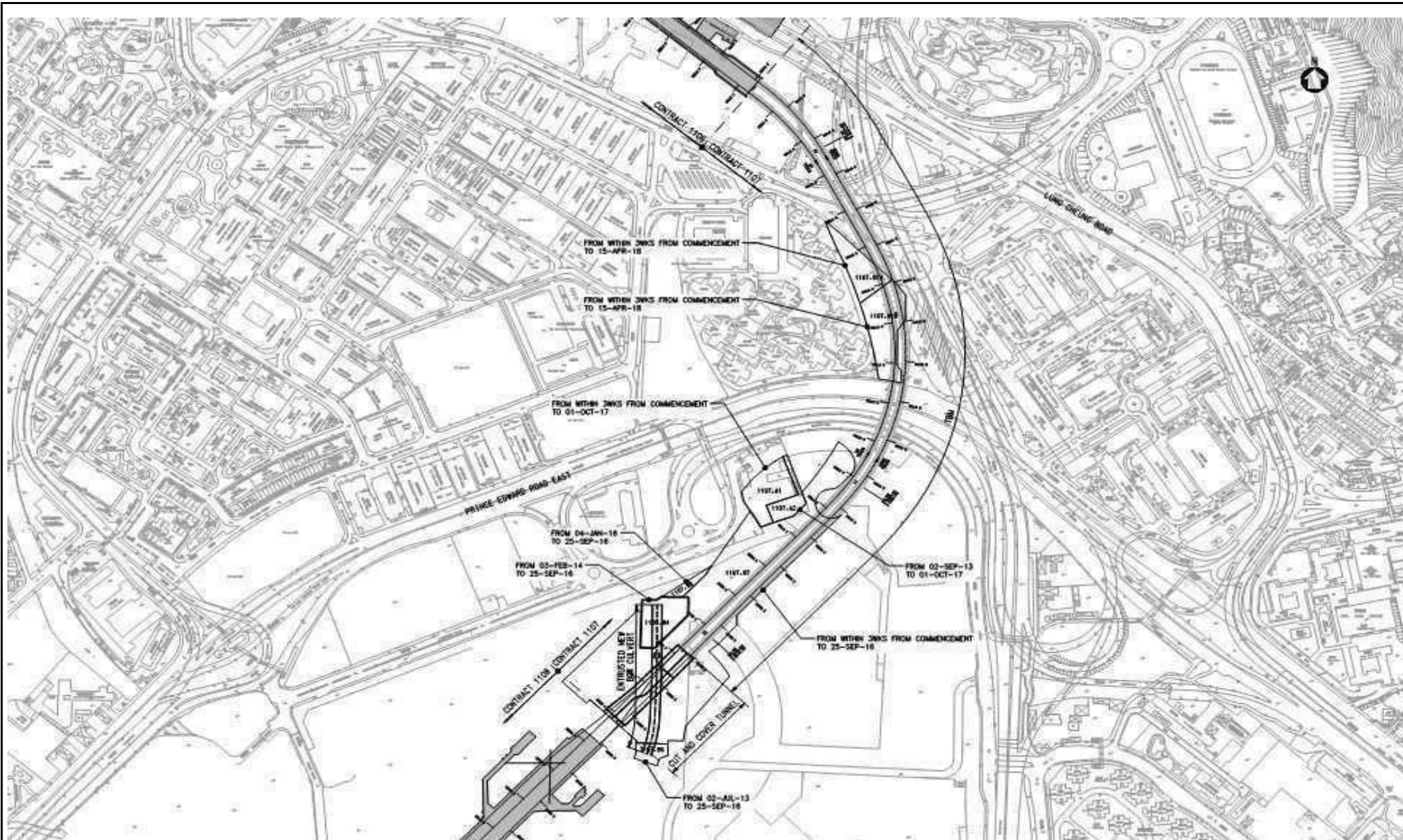
Air Quality

- It is reminded that any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.
- It is reminded to properly maintain the mechanical equipment to avoid black smoke emission.

Waste/Chemical Management

- It is reminded good site practice should be adopted by providing drip tray with adequate capacity for powered mechanical equipment whenever practicable. Drip tray should also be properly maintained in good condition such to prevent from accidental fuel/chemicals spillage.

FIGURES



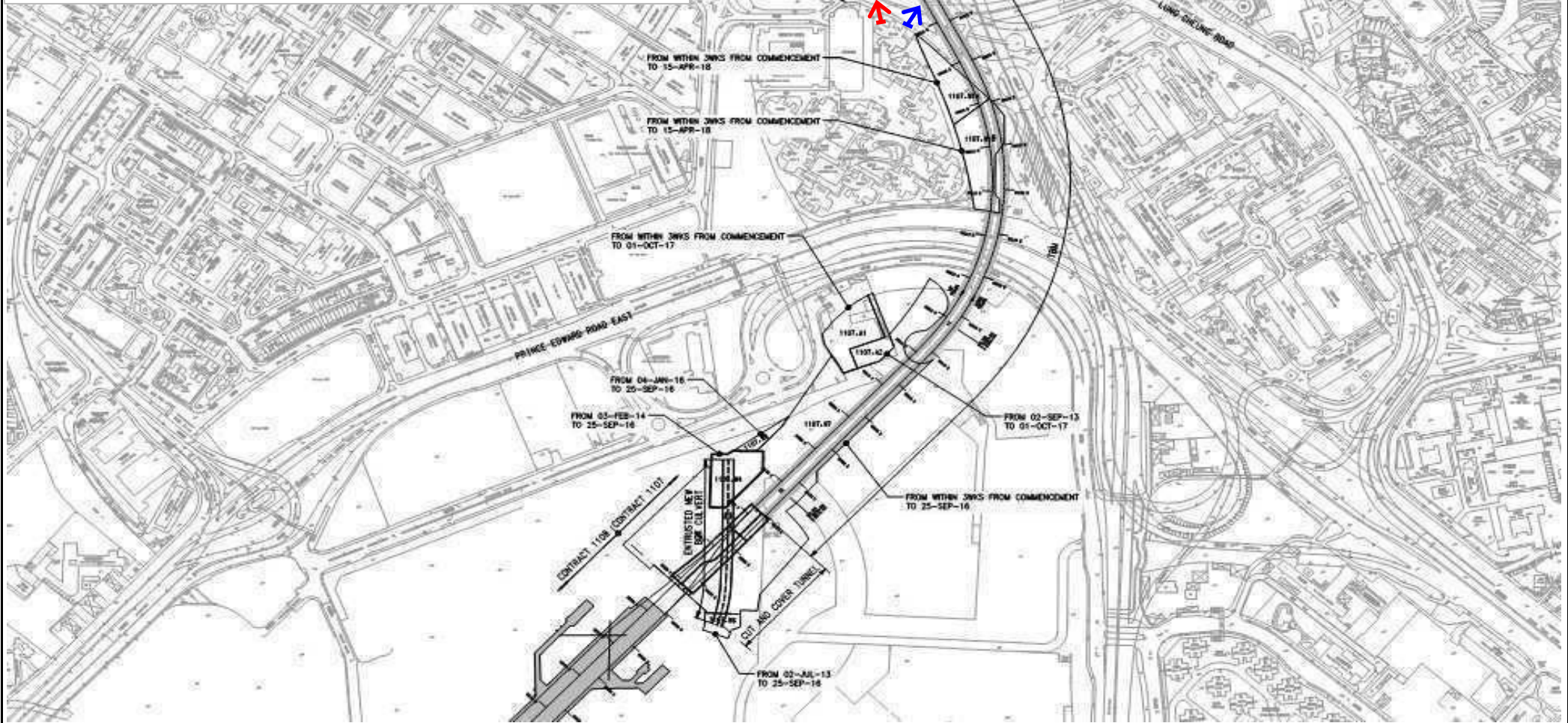
Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Site Layout Plan	Scale	N.T.S	Project No.	MA13018	CINOTECH
		Date	May-13	Figure	1	

Legend:

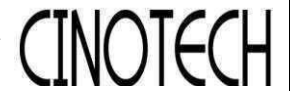
- ➔ NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ Block 1, Rhythm Garden (north-eastern façade)
- ➔ NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ Block 1, Rhythm Garden (northern façade)

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Locations of Constrction Noise Monitoring		Scale	N.T.S	Project No.	MA13018
			Date	May-13	Figure	2

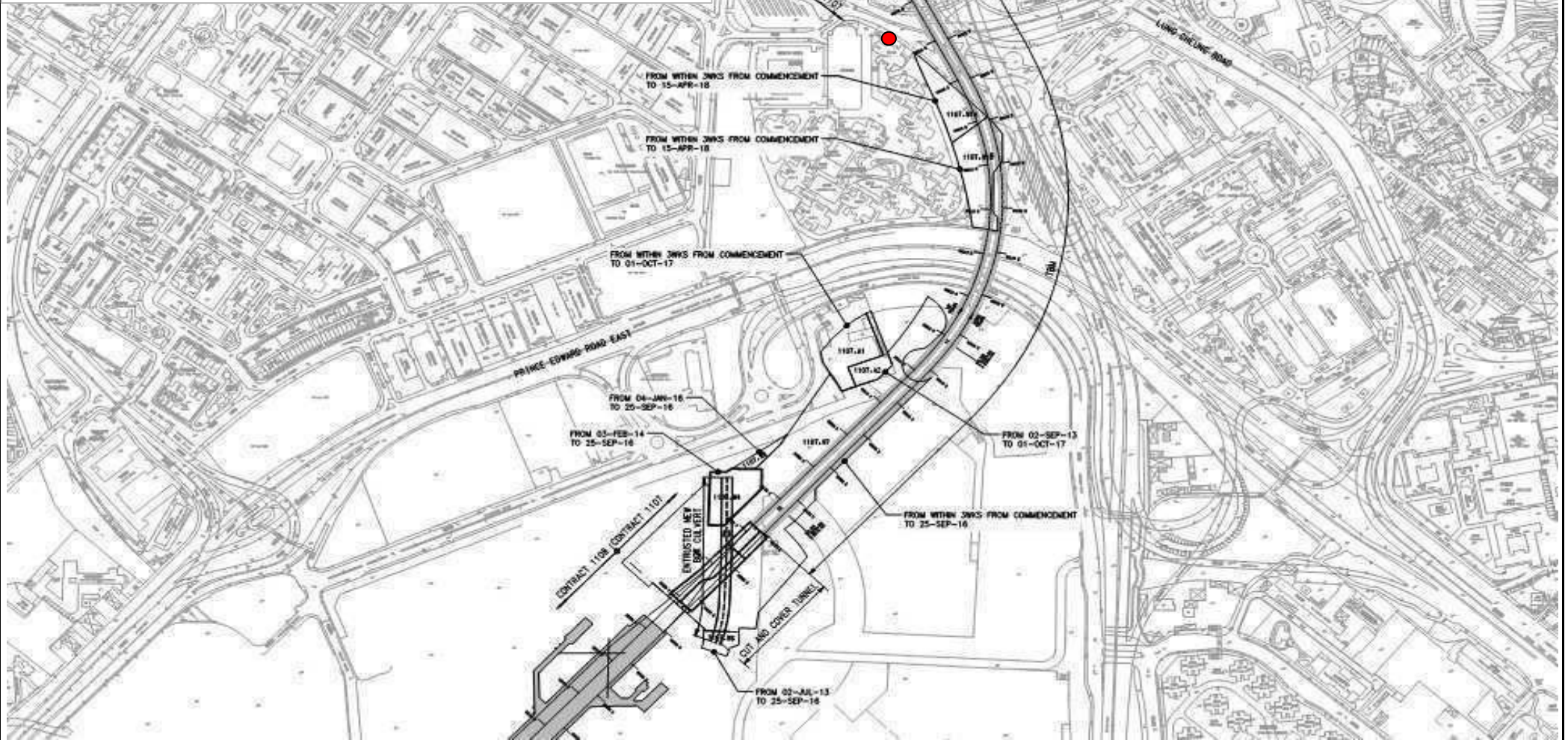


Legend:

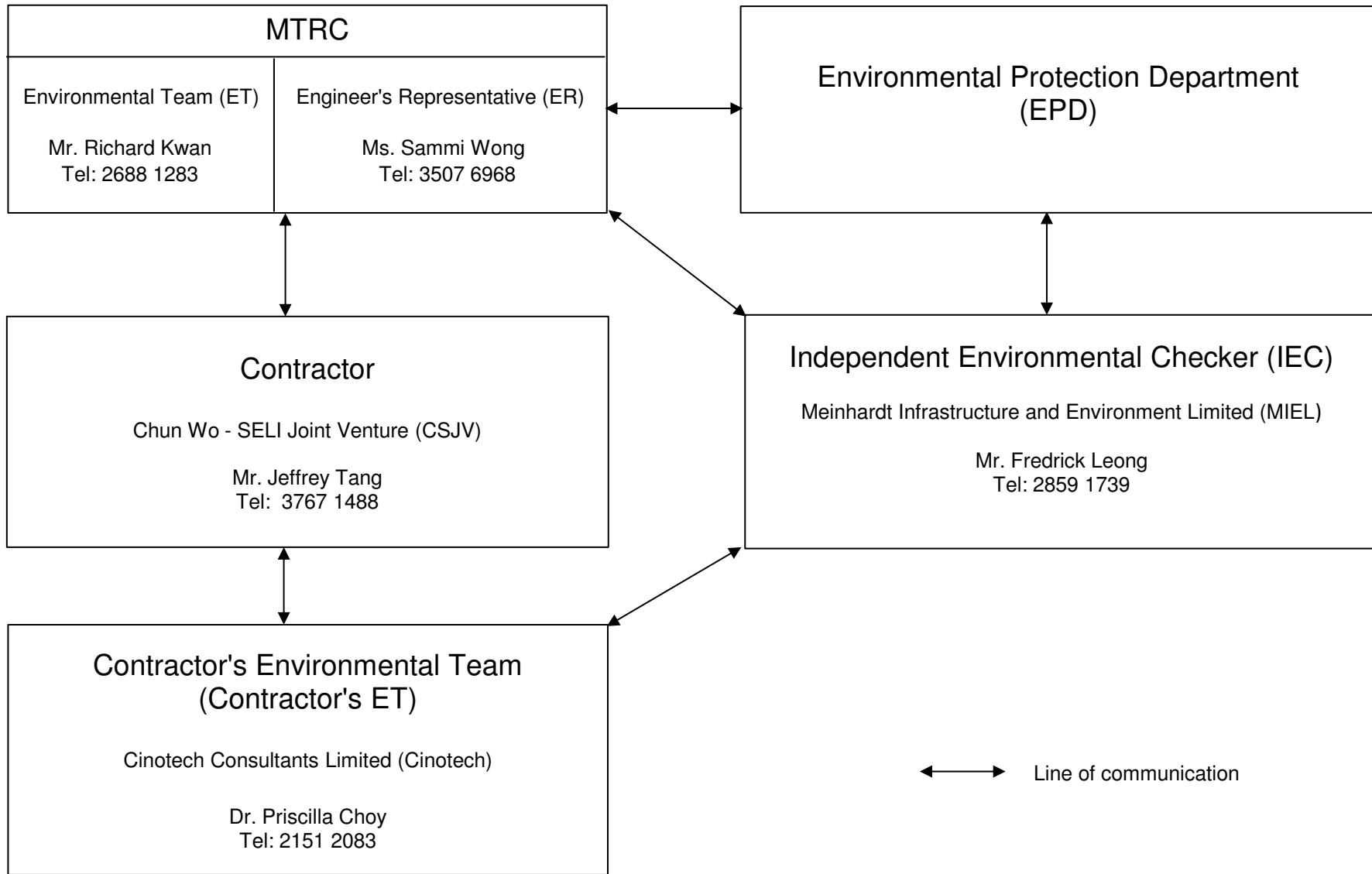
- DMS-4⁽¹⁾/DMS-3⁽²⁾ Block 1, Rhythm Garden

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Location of Dust Monitoring	Scale	N.T.S	Project No.	MA13018	CINOTECH
		Date	May-13	Figure	3	



Title

MTR SCL Works Contract 1107
Diamond Hill to Kai Tak Tunnels

Organisation Chart and Key Contact of the Project

Scale

N.T.S

Date

Jun-13

Proposal

No.

MA13018

Figure

4

CINOTECH

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

P_1107_ not	Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference	2013					2014
									Sep	Oct	Nov	Dec	Jan	
MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling			286	11-Mar-13	11-Feb-14	19-Jun-13 A	25-Feb-14							
Cost Centre A - Preliminaries			277	11-Mar-13	22-Jan-14	15-Jul-13 A	14-Feb-14							
Contractor Submission Schedule			277	11-Mar-13	22-Jan-14	18-Jul-13 A	14-Feb-14							
1107.11580		P35.2 Preparation & Submission of Civil/E&M/BS Coordination Programme	48	25-Nov-13	22-Jan-14	02-Dec-13	29-Jan-14							
1107.11660		P31.5 Preparation & Submission of Contractor's Cooperative Training Scheme (CCTS)	72	11-Mar-13	08-Jun-13	29-Aug-13 A	23-Nov-13							
1107.11690		P55.2 Preparation & Complete Building Information Model based on Engr's Dwgs	48	11-Mar-13	08-Jun-13	29-Aug-13 A	26-Oct-13							
1107.11710		P12.10.1 Method statement to confirm no remains of left-in foundation or obstructions in conflict with tunnel alignment	78	10-Oct-13	13-Jan-14	11-Nov-13	14-Feb-14							
1107.11730		G5.1.13, 5.1.14 Submit First Environmental Objectives & Targets	1	11-Mar-13	11-Mar-13	18-Jul-13 A	18-Jul-13 A	000154						
1107.11890		COC26.1 Effect Equipment Insurance	2	04-Oct-13	05-Oct-13	11-Oct-13	12-Oct-13							
1107.11990		G4.10.1 Submission of ABWF & BS Programme	48	04-Oct-13	29-Nov-13	11-Oct-13	06-Dec-13							
1107.12260		P19.3 Submit First TTMS As-built Records	14	09-Sep-13	25-Sep-13	24-Oct-13	08-Nov-13							
1107.12300		P28.6 Submit First Construction Record	22	04-Oct-13	30-Oct-13	11-Oct-13	06-Nov-13							
Project Audit			165	07-Jun-13	21-Dec-13	15-Jul-13 A	21-Dec-13							
1107.12440		1st Audit of safety & environmental plans	24	07-Jun-13	06-Jul-13	15-Jul-13 A	18-Jul-13 A							
1107.12470		1st Audit of System Assurance & Risk Management & Design for Safety & Constructability plans	24	25-Nov-13	21-Dec-13	25-Nov-13*	21-Dec-13							
Site Enabling Works			161	05-Apr-13	31-Dec-13	02-Aug-13 A	14-Feb-14							
Site Setup			161	05-Apr-13	31-Dec-13	02-Aug-13 A	14-Feb-14							
Engineer's Site Accomodation			161	05-Apr-13	10-Sep-13	02-Aug-13 A	14-Feb-14							
1107.12610		Engr's Site Accomodation- Design of Site Office	21	05-Apr-13	29-Apr-13	02-Aug-13 A	26-Aug-13 A							
1107.12620		Engr's Site Accomodation- First Design Submission & Review of Building Plans	21	30-Apr-13	25-May-13	02-Oct-13	26-Oct-13							
1107.12630		Engr's Site Accomodation- Final Submission of Building Plans	12	27-May-13	08-Jun-13	28-Oct-13	09-Nov-13							
1107.12640		Engr's Site Accomodation- Final Approval of Building Plans	6	10-Jun-13	17-Jun-13	11-Nov-13	16-Nov-13							
1107.12650		Engr's Site Accomodation- Construction Works	72	18-Jun-13	10-Sep-13	18-Nov-13	14-Feb-14							
Misc Items			89	14-Sep-13	31-Dec-13	13-Sep-13 A	31-Dec-13							
1107.18969		Provision of Site General Staff (Drivers, Amahs, etc) for Sept 13	13	14-Sep-13	30-Sep-13	14-Sep-13 A	30-Sep-13 A							
1107.18970		Provision of Site General Staff (Drivers, Amahs, etc) - Last Quarter of 2013	75	02-Oct-13	31-Dec-13	02-Oct-13	31-Dec-13							
1107.19150		Provision of Site General Labour for Temporary Works for Sep 13	13	14-Sep-13	30-Sep-13	13-Sep-13 A	28-Sep-13 A							
1107.19160		Provision of Site General Labour for Temporary Works - Last Quarter of 2013	75	02-Oct-13	31-Dec-13	30-Sep-13 A	30-Dec-13							
Cost Centre B - Procurement of TBM			178	28-Jun-13	17-Dec-13	28-Jun-13 A	29-Jan-14							
1107.12851		TBM Manufacture & Refurbishment	54	28-Jun-13	30-Aug-13	28-Jun-13 A	11-Oct-13							
1107.12852		Back Up Pre-assembly	42	31-Aug-13	22-Oct-13	12-Oct-13	30-Nov-13							
1107.12860		TBM Assembly & Testing	48	23-Oct-13	17-Dec-13	02-Dec-13	29-Jan-14							
Cost Centre C - Tunnel Construction by TBM			198	11-May-13	11-Feb-14	29-Jun-13 A	25-Feb-14							
Site Enabling Works for TBM			186	11-May-13	11-Feb-14	15-Jul-13 A	25-Feb-14							
OPTION 3 - Obstruction Removal			142	24-Jul-13	11-Feb-14	04-Sep-13 A	25-Feb-14							
Removal of Abandoned Airport Admin Bldg 1 Foundations			84	09-Sep-13	18-Dec-13	24-Sep-13 A	04-Jan-14							
1107.13510		Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed)	78	09-Sep-13	11-Dec-13	24-Sep-13 A	27-Dec-13							



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MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme
No 007 DD 01OCT2013

Date	Revision	Checked	Approved
03-Oct-13	0	KCL	KCL

P_1107_ not	Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference	2013					2014
									Sep	Oct	Nov	Dec	Jan	
	1107.13520	Reinstatement of Area (PROVISIONAL, To be Confirmed)	6	12-Dec-13	18-Dec-13	28-Dec-13	04-Jan-14							Reins
Removal of Abandoned Airport Admin Bldg 2 Foundations			126	09-Sep-13	11-Feb-14	24-Sep-13 A	25-Feb-14							
	1107.13540	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	12	09-Sep-13	23-Sep-13	24-Sep-13 A	08-Oct-13							
	1107.13550	Remove Pile Caps (PROVISIONAL, To be Confirmed)	36	24-Sep-13	06-Nov-13	09-Oct-13	20-Nov-13							
	1107.13560	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed)	78	07-Nov-13	11-Feb-14	21-Nov-13	25-Feb-14							
Removal of Abandoned Pre-existing Structure Foundations			90	24-Jul-13	08-Nov-13	17-Sep-13 A	06-Jan-14							06-J
	1107.13630	Stage 1 TTMS - Trail Pits (PROVISIONAL, To be Confirmed)	16	24-Jul-13	10-Aug-13	02-Oct-13	21-Oct-13							
	1107.13640	Stage 1 TTMS - Demolish Planter (PROVISIONAL, To be Confirmed)	16	12-Aug-13	29-Aug-13	17-Sep-13 A	26-Oct-13							
	1107.13650	Stage 1 TTMS - Extract Old Foundations (PROVISIONAL, To be Confirmed)	42	30-Aug-13	21-Oct-13	28-Oct-13	14-Dec-13							
	1107.13660	Stage 1 TTMS - Reinstate Area (PROVISIONAL, To be Confirmed)	16	22-Oct-13	08-Nov-13	16-Dec-13	06-Jan-14							Stag
Removal of Abandoned Blackdown Barracks Foundations			121	29-Jul-13	28-Dec-13	04-Sep-13 A	29-Jan-14							
	1107.13750	Stage 3 TTMS & Modify Site Access with Drop Kerbs	11	29-Jul-13	17-Aug-13	04-Sep-13 A	16-Sep-13 A							
	1107.13760	Stage 4 TTMS & Install Traffic Line Marking	2	18-Aug-13	19-Aug-13	17-Sep-13 A	18-Sep-13 A							
	1107.13770	Stage 5 TTMS & Install Hoarding & Entrance Gate, Works Area W1A, B ready for use	24	20-Aug-13	16-Sep-13	19-Sep-13 A	19-Oct-13							
	1107.13780	Site Setup of Foundation Removal Plant (PROVISIONAL, To be Confirmed)	6	17-Sep-13	24-Sep-13	21-Oct-13	26-Oct-13							
	1107.13790	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	12	25-Sep-13	09-Oct-13	28-Oct-13	09-Nov-13							
	1107.13800	Remove Pile Caps (PROVISIONAL, To be Confirmed)	18	10-Oct-13	31-Oct-13	11-Nov-13	30-Nov-13							
	1107.13810	Remove Abandoned Raft Footing Stage 1 (Southern Half) (PROVISIONAL, To be Confirmed)	48	01-Nov-13	28-Dec-13	02-Dec-13	29-Jan-14							
Ground Treatment			163	11-May-13	27-Jan-14	15-Jul-13 A	27-Jan-14							
Jet Grouting Treatment for KAT TBM Launch Shaft			132	11-May-13	02-Jan-14	02-Aug-13 A	09-Jan-14							09
	1107.12950	Submission & Approval of Method Statement	42	11-May-13	02-Jul-13	02-Aug-13 A	19-Sep-13 A							
	1107.12970	Site Clearance Plant set up	3	04-Oct-13	07-Oct-13	11-Oct-13	15-Oct-13							
	1107.12980	Trial pit for Locating Underground Utilities	6	08-Oct-13	15-Oct-13	16-Oct-13	22-Oct-13							
	1107.12990	Jet Grouting (228 nos) Average 5 Columns per day with 2 machines	50	16-Oct-13	12-Dec-13	23-Oct-13	19-Dec-13							
	1107.13000	Demobilise	3	13-Dec-13	16-Dec-13	20-Dec-13	23-Dec-13							
	1107.13010	Curing of Grout	21	13-Dec-13	02-Jan-14	20-Dec-13	09-Jan-14							
Jet Grouting Treatment for Cross Passage 3			103	14-Aug-13	23-Dec-13	29-Aug-13 A	02-Jan-14							02-Jan-
	1107.13040	Obtain Approval from SLG	26	14-Aug-13	12-Sep-13	29-Aug-13 A	28-Sep-13 A							
	1107.13050	Install Stage 1 TTMS	6	17-Dec-13	23-Dec-13	24-Dec-13	02-Jan-14							Install S
Jet Grouting Treatment for Cross Passage 1			72	26-Jul-13	21-Oct-13	26-Jul-13 A	21-Oct-13							21-Oct-13, Jet Grouting Treatment for Cross Passage 1
	1107.13239	Design of Grouting	72	26-Jul-13	21-Oct-13	26-Jul-13 A	21-Oct-13							
Pressure Grouting Treatment to Pier Z5 Foundation			146	15-Jul-13	07-Jan-14	15-Jul-13 A	07-Jan-14							07-
	1107.13299	Design of Grouting	72	15-Jul-13	08-Oct-13	15-Jul-13 A	08-Oct-13							
	1107.13310	Site Clearance Plant set up	12	16-Sep-13	30-Sep-13	16-Sep-13 A	30-Sep-13 A							
	1107.13320	Trial pit for Locating Underground Utilities	6	02-Oct-13	08-Oct-13	02-Oct-13	08-Oct-13							
	1107.13330	Pressure Grouting (148 nos) Average 2 Points per day	74	09-Oct-13	07-Jan-14	09-Oct-13	07-Jan-14							Pre
Pressure Grouting Treatment for DIH TBM Retrieval Shaft			111	13-Sep-13	27-Jan-14	13-Sep-13 A	27-Jan-14							



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									Sep	Oct	Nov	Dec	Jan
	1107.13389	Design of Grouting	66	13-Sep-13	02-Dec-13	13-Sep-13 A	02-Dec-13						Design of Grouting
	1107.13410	Site Clearance Plant set up	6	09-Nov-13	15-Nov-13	09-Nov-13	15-Nov-13						Site Clearance Plant set up
	1107.13420	Trial pit for Locating Underground Utilities	6	16-Nov-13	22-Nov-13	16-Nov-13	22-Nov-13						Trial pit for Locating Underground Utilities
	1107.13430	Pressure Grouting UP Track (181 nos) Average 4 Points/day with 2 machines	45	03-Dec-13	27-Jan-14	03-Dec-13	27-Jan-14						
Production of Pre - Cast Tunnel Lining			166	29-Jun-13	16-Jan-14	29-Jun-13 A	16-Jan-14						
Procurement of SFRC Fibres			163	29-Jun-13	28-Dec-13	29-Jun-13 A	13-Jan-14						
	1107.18800	Design of Concrete Mix	77	29-Jun-13	28-Sep-13	29-Jun-13 A	12-Oct-13						Design of Concrete Mix
	1107.18810	Cast Test Cube Samples	3	30-Sep-13	03-Oct-13	15-Oct-13	17-Oct-13						Cast Test Cube Samples
	1107.18820	Cast Life Size Samples	14	04-Oct-13	21-Oct-13	18-Oct-13	02-Nov-13						Cast Life Size Samples
	1107.18830	28 Day curing of First batch of Test Samples	28	04-Oct-13	31-Oct-13	18-Oct-13	14-Nov-13						28 Day curing of First batch of Test Samples
	1107.18840	28 Day curing of Last batch of Test Samples	28	22-Oct-13	18-Nov-13	03-Nov-13	30-Nov-13						28 Day curing of Last batch of Test Samples
	1107.18850	Cube Sample Testing	12	01-Nov-13	14-Nov-13	15-Nov-13	28-Nov-13						Cube Sample Testing
	1107.18855	Acceptance of Concrete Mix Design by MTR	12	15-Nov-13	28-Nov-13	29-Nov-13	12-Dec-13						Acceptance of Concrete Mix Design by MTR
	1107.18860	Life Size Sample Testing	24	29-Nov-13	28-Dec-13	13-Dec-13	13-Jan-14						Life Size Sample Testing
Production of Segments			126	16-Aug-13	16-Jan-14	16-Aug-13 A	16-Jan-14						
	1107.14682	Mould Fabrication - Manufacture	60	16-Aug-13	28-Oct-13	16-Aug-13 A	28-Oct-13						Mould Fabrication - Manufacture
	1107.14683	Moulds Assembly	24	29-Oct-13	25-Nov-13	29-Oct-13	25-Nov-13						Moulds Assembly
	1107.14684	Moulds Inspection & Painting	18	26-Nov-13	16-Dec-13	26-Nov-13	16-Dec-13						Moulds Inspection & Painting
	1107.14690	Moulds Transportation to Site	24	17-Dec-13	16-Jan-14	17-Dec-13	16-Jan-14						Moulds Transportation to Site
Cost Centre D - KAT Cut & Cover Tunnels			173	05-Jul-13	22-Jan-14	05-Jul-13 A	29-Jan-14						
Design Submissions			148	05-Jul-13	30-Dec-13	05-Jul-13 A	30-Dec-13						
Temporary Works			73	05-Jul-13	28-Sep-13	05-Jul-13 A	28-Sep-13 A						
Temporary Sheet Pile Wall & ELS for C&C Tunnels			12	14-Sep-13	28-Sep-13	14-Sep-13 A	28-Sep-13 A						
	1107.14950	C&C Tunnels ELS - Issue of Working Drawings	12	14-Sep-13	28-Sep-13	14-Sep-13 A	28-Sep-13 A						C&C Tunnels ELS - Issue of Working Drawings
Submission & Testing of GFRP			45	05-Jul-13	26-Aug-13	05-Jul-13 A	26-Aug-13 A						
	1107.18900	Submission of GFRP Literature & Samples to MTR	6	05-Jul-13	11-Jul-13	05-Jul-13 A	11-Jul-13 A						Submission of GFRP Literature & Samples to MTR
	1107.18910	Testing of GFRP Material	12	12-Jul-13	25-Jul-13	12-Jul-13 A	25-Jul-13 A						Testing of GFRP Material
	1107.18920	Order & Delivery of GFRP Material to Site	45	05-Jul-13	26-Aug-13	05-Jul-13 A	26-Aug-13 A						Order & Delivery of GFRP Material to Site
Cut & Tunnels Permanent Works			138	17-Jul-13	30-Dec-13	17-Jul-13 A	30-Dec-13						
	1107.15090	C&C Tunnels - MTR & ICE Review	12	17-Jul-13	30-Jul-13	17-Jul-13 A	30-Jul-13 A						C&C Tunnels - MTR & ICE Review
	1107.15110	C&C Tunnels - Detail Drawings	78	31-Jul-13	01-Nov-13	31-Jul-13 A	01-Nov-13						C&C Tunnels - Detail Drawings
	1107.15120	C&C Tunnels - Review & Comments from BD	48	02-Nov-13	30-Dec-13	02-Nov-13	30-Dec-13						C&C Tunnels - Review & Comments from BD
Site Enabling Works for C&C Tunnels			54	08-Oct-13	10-Dec-13	06-Nov-13	10-Jan-14						
Demolition of Abandoned Drainage			54	08-Oct-13	10-Dec-13	06-Nov-13	10-Jan-14						
	1107.15140	UU Detection & CCTV Survey	12	08-Oct-13	22-Oct-13	06-Nov-13	19-Nov-13						UU Detection & CCTV Survey
	1107.15150	Trail Pit to Locate Drain	6	23-Oct-13	29-Oct-13	20-Nov-13	26-Nov-13						Trail Pit to Locate Drain
	1107.15160	Excavation to Expose Drain to be Demolished	6	30-Oct-13	05-Nov-13	27-Nov-13	03-Dec-13						Excavation to Expose Drain to be Demolished



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MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme
No 007 DD 01OCT2013

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									Sep	Oct	Nov	Dec	Jan
	1107.15170	Submit Findings to DSD & Confirm Scope of Works	12	06-Nov-13	19-Nov-13	04-Dec-13	17-Dec-13						Submit Findings to
	1107.15180	Demolish Drains & Reprovision of Inlet	18	20-Nov-13	10-Dec-13	18-Dec-13	10-Jan-14						D
	Diaphragm Walls			74	19-Aug-13	19-Nov-13	29-Aug-13 A	26-Nov-13					26-Nov-13, Diaphragm Walls
	TBM Launch Shafts			74	19-Aug-13	19-Nov-13	29-Aug-13 A	26-Nov-13					26-Nov-13, TBM Launch Shafts
	2 Grabs Combination Team			41	19-Aug-13	10-Oct-13	29-Aug-13 A	18-Oct-13					18-Oct-13, 2 Grabs Combination Team
	1107.15570	MG07 Temp D-Wall Panel 26 Rebar & Concrete	2	24-Aug-13	26-Aug-13	31-Aug-13 A	02-Sep-13 A						Temp D-Wall Panel 26 Rebar & Concrete
	1107.15580	HG10 Temp D-Wall Panel 16 Excavation & Rebar Cage Fabrication	3	26-Aug-13	28-Aug-13	02-Sep-13 A	04-Sep-13 A						Temp D-Wall Panel 16 Excavation & Rebar Cage Fabrication
	1107.15590	MG08 Temp D-Wall Panel 04 Excavation & Rebar Cage Fabrication	6	19-Aug-13	24-Aug-13	29-Aug-13 A	04-Sep-13 A						Temp D-Wall Panel 04 Excavation & Rebar Cage Fabrication
	1107.15600	HG09 Temp D-Wall Panel 11 Rebar & Concrete	2	27-Aug-13	28-Aug-13	03-Sep-13 A	04-Sep-13 A						Temp D-Wall Panel 11 Rebar & Concrete
	1107.15610	HG10 Temp D-Wall Panel 16 Rebar & Concrete	2	29-Aug-13	30-Aug-13	05-Sep-13 A	06-Sep-13 A						Temp D-Wall Panel 16 Rebar & Concrete
	1107.15620	HG11 Temp D-Wall Panel 13 Excavation (GFRP) & Rebar Cage Fabrication	3	29-Aug-13	31-Aug-13	05-Sep-13 A	07-Sep-13 A						Temp D-Wall Panel 13 Excavation (GFRP) & Rebar Cage Fabrication
	1107.15630	MG08 Temp D-Wall Panel 04 Rebar & Concrete	2	31-Aug-13	02-Sep-13	07-Sep-13 A	09-Sep-13 A						Temp D-Wall Panel 04 Rebar & Concrete
	1107.15640	HG12 Temp D-Wall Panel 09 Excavation (GFRP) & Rebar Cage Fabrication	3	02-Sep-13	04-Sep-13	09-Sep-13 A	11-Sep-13 A						Temp D-Wall Panel 09 Excavation (GFRP) & Rebar Cage Fabrication
	1107.15650	MG09 Temp D-Wall Panel 06 Excavation & Rebar Cage Fabrication	6	26-Aug-13	31-Aug-13	05-Sep-13 A	11-Sep-13 A						Temp D-Wall Panel 06 Excavation & Rebar Cage Fabrication
	1107.15660	HG11 Temp D-Wall Panel 13 Rebar & Concrete (GFRP)	2	03-Sep-13	04-Sep-13	10-Sep-13 A	11-Sep-13 A						Temp D-Wall Panel 13 Rebar & Concrete (GFRP)
	1107.15670	HG12 Temp D-Wall Panel 09 Rebar & Concrete (GFRP)	2	05-Sep-13	06-Sep-13	12-Sep-13 A	13-Sep-13 A						Temp D-Wall Panel 09 Rebar & Concrete (GFRP)
	1107.15680	HG13 Temp D-Wall Panel 14 Excavation (GFRP) & Rebar Cage Fabrication	3	05-Sep-13	07-Sep-13	12-Sep-13 A	14-Sep-13 A						Temp D-Wall Panel 14 Excavation (GFRP) & Rebar Cage Fabrication
	1107.15690	MG09 Temp D-Wall Panel 06 Rebar & Concrete	2	07-Sep-13	09-Sep-13	14-Sep-13 A	16-Sep-13 A						Temp D-Wall Panel 06 Rebar & Concrete
	1107.15700	HG14 Temp D-Wall Panel 10 Excavation (GFRP) & Rebar Cage Fabrication	3	09-Sep-13	11-Sep-13	16-Sep-13 A	18-Sep-13 A						Temp D-Wall Panel 10 Excavation (GFRP) & Rebar Cage Fabrication
	1107.15710	MG10 Temp D-Wall Panel 02 Excavation & Rebar Cage Fabrication	6	02-Sep-13	07-Sep-13	12-Sep-13 A	18-Sep-13 A						Temp D-Wall Panel 02 Excavation & Rebar Cage Fabrication
	1107.15720	HG13 Temp D-Wall Panel 14 Rebar & Concrete (GFRP)	2	10-Sep-13	11-Sep-13	17-Sep-13 A	18-Sep-13 A						Temp D-Wall Panel 14 Rebar & Concrete (GFRP)
	1107.15730	HG14 Temp D-Wall Panel 10 Rebar & Concrete (GFRP)	2	12-Sep-13	13-Sep-13	19-Sep-13 A	21-Sep-13 A						Temp D-Wall Panel 10 Rebar & Concrete (GFRP)
	1107.15740	HG15 Temp D-Wall Panel 05 Excavation & Rebar Cage Fabrication	3	12-Sep-13	14-Sep-13	19-Sep-13 A	23-Sep-13 A						Temp D-Wall Panel 05 Excavation & Rebar Cage Fabrication
	1107.15750	MG10 Temp D-Wall Panel 02 Rebar & Concrete	2	14-Sep-13	16-Sep-13	23-Sep-13 A	24-Sep-13 A						Temp D-Wall Panel 02 Rebar & Concrete
	1107.15760	HG16 Temp D-Wall Panel 07 Excavation & Rebar Cage Fabrication	3	16-Sep-13	18-Sep-13	24-Sep-13 A	26-Sep-13 A						Temp D-Wall Panel 07 Excavation & Rebar Cage Fabrication
	1107.15770	HG15 Temp D-Wall Panel 05 Rebar & Concrete	2	17-Sep-13	18-Sep-13	02-Oct-13	03-Oct-13						Temp D-Wall Panel 05 Rebar & Concrete
	1107.15780	HG16 Temp D-Wall Panel 07 Rebar & Concrete	2	19-Sep-13	21-Sep-13	04-Oct-13	05-Oct-13						Temp D-Wall Panel 07 Rebar & Concrete
	1107.15790	MG11 Temp D-Wall Panel 08 Excavation & Rebar Cage Fabrication	6	24-Sep-13	30-Sep-13	30-Sep-13 A	08-Oct-13						Temp D-Wall Panel 08 Excavation & Rebar Cage Fabrication
	1107.15800	MG11 Temp D-Wall Panel 08 Rebar & Concrete	2	02-Oct-13	03-Oct-13	09-Oct-13	10-Oct-13						Temp D-Wall Panel 08 Rebar & Concrete
	1107.15810	Installation of King Posts (2 nos)	6	04-Oct-13	10-Oct-13	11-Oct-13	18-Oct-13						Installation of King Posts (2 nos)
	Temporary Muck Pit			39	04-Oct-13	19-Nov-13	11-Oct-13	26-Nov-13					26-Nov-13, Temporary Muck Pit
	1107.19430	Sheet Pile Installation for Muck Pit Temp Cofferdam 450m2@50m2/d	9	04-Oct-13	15-Oct-13	11-Oct-13	22-Oct-13						Sheet Pile Installation for Muck Pit Temp Cofferdam 450m2
	1107.19440	Install Strut S1	3	16-Oct-13	18-Oct-13	23-Oct-13	25-Oct-13						Install Strut S1
	1107.19450	Excavate to Strut S2 Level	5	19-Oct-13	24-Oct-13	26-Oct-13	31-Oct-13						Excavate to Strut S2 Level
	1107.19460	Install Strut S2	6	25-Oct-13	31-Oct-13	01-Nov-13	07-Nov-13						Install Strut S2
	1107.19470	Excavate to Foundation Level	5	01-Nov-13	06-Nov-13	08-Nov-13	13-Nov-13						Excavate to Foundation Level
	1107.19480	Muck Pit Base Slab	3	07-Nov-13	09-Nov-13	14-Nov-13	16-Nov-13						Muck Pit Base Slab

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									Sep	Oct	Nov	Dec	Jan					
	1107.19490	Remove Strut S2	2	11-Nov-13	12-Nov-13	18-Nov-13	19-Nov-13											
	1107.19500	Muck Pit Structure	6	13-Nov-13	19-Nov-13	20-Nov-13	26-Nov-13											
Sheet Piling			126	30-Jul-13	22-Jan-14	29-Aug-13 A	29-Jan-14											
	1107.15850	Sheet Pile Installation in Strech SD & 1108INT(58m)	56	30-Jul-13	07-Oct-13	29-Aug-13 A	05-Nov-13											
	1107.15860	Sheet Pile Installation in Strech ND & Removal of Any Left in Foundations (58m)	56	08-Aug-13	17-Oct-13	29-Aug-13 A	05-Nov-13											
	1107.15869	Dwall Plant Removal & Site Clearance at Pipe Bridge Area	4	04-Oct-13	08-Oct-13	11-Oct-13	16-Oct-13											
	1107.15870	Sheet Pile Installation in Diversion Pipe Bridge Location Strech SA & NA (44m) 2 gangs	22	18-Oct-13	12-Nov-13	06-Nov-13	30-Nov-13											
	1107.15878	Sheet Pile Installation in Strech NB (37m)	37	13-Nov-13	27-Dec-13	02-Dec-13	16-Jan-14											
	1107.15890	King Posts Installation for Diversion Bridge	27	09-Oct-13	09-Nov-13	17-Oct-13	16-Nov-13											
	1107.15900	King Posts Installation for ELS	60	11-Nov-13	22-Jan-14	18-Nov-13	29-Jan-14											
Pump Tests			60	24-Aug-13	29-Oct-13	29-Aug-13 A	09-Nov-13											
Launch Shafts			60	24-Aug-13	29-Oct-13	29-Aug-13 A	09-Nov-13											
	1107.15910	Install Groundwater pumps 4 nos	20	24-Aug-13	16-Sep-13	29-Aug-13 A	16-Oct-13											
	1107.15920	Install Groundwater Monitoring Points 4 nos	16	24-Aug-13	11-Sep-13	29-Aug-13 A	16-Oct-13											
	1107.15930	Pump Test - First Drawdown	5	04-Oct-13	09-Oct-13	17-Oct-13	22-Oct-13											
	1107.15940	Pump Test - Remedial Grouting (if required)	5	10-Oct-13	16-Oct-13	23-Oct-13	28-Oct-13											
	1107.15950	Pump Test - 2nd Drawdown	8	17-Oct-13	25-Oct-13	29-Oct-13	06-Nov-13											
	1107.15960	Pump Test - Analysis & Approval of Report	3	26-Oct-13	29-Oct-13	07-Nov-13	09-Nov-13											
Excavation & C&C Tunnel Structure			35	11-Nov-13	20-Dec-13	18-Nov-13	30-Dec-13											
Launch Shafts - Pre- TBM Works			35	11-Nov-13	20-Dec-13	18-Nov-13	30-Dec-13											
	1107.16030	Excavate to Strut S1 Level	12	11-Nov-13	23-Nov-13	18-Nov-13	30-Nov-13											
	1107.16040	Install Strut S1	6	25-Nov-13	30-Nov-13	02-Dec-13	07-Dec-13											
	1107.16050	Excavate to Strut S2 Level	11	02-Dec-13	13-Dec-13	09-Dec-13	20-Dec-13											
	1107.16060	Install Strut S2	6	14-Dec-13	20-Dec-13	21-Dec-13	30-Dec-13											
Cost Centre F3 - Utilities Protection / Diversion			90	19-Aug-13	04-Dec-13	02-Oct-13	18-Jan-14											
Diversion/ Replacement of WaterMains at Choi Hung Road			90	19-Aug-13	04-Dec-13	02-Oct-13	18-Jan-14											
	1107.17540	Stage 1 TTMS - Utilities Scanning & CCTV	6	19-Aug-13	24-Aug-13	02-Oct-13*	08-Oct-13											
	1107.17550	Stage 2 TTMS - Trail Pit no. 1	12	26-Aug-13	07-Sep-13	09-Oct-13	23-Oct-13											
	1107.17560	Stage 3 TTMS - Trail Pit no. 2	12	09-Sep-13	23-Sep-13	24-Oct-13	06-Nov-13											
	1107.17570	Stage 4 TTMS - Trail Pit no. 3	12	24-Sep-13	08-Oct-13	07-Nov-13	20-Nov-13											
	1107.17580	Stage 5A TTMS - 1st 20m of Pipe Laying	24	09-Oct-13	06-Nov-13	21-Nov-13	18-Dec-13											
	1107.17590	Stage 5B TTMS - 2nd 20m of Pipe Laying	24	07-Nov-13	04-Dec-13	19-Dec-13	18-Jan-14											
Cost Centre F4 - Landscaping			78	19-Jun-13	18-Sep-13	19-Jun-13 A	23-Oct-13											
	1107.17751	Transplant & Fell Trees	78	19-Jun-13	18-Sep-13	19-Jun-13 A	23-Oct-13											
Cost Centre G CEDD Entrusted Works			150	18-Jul-13	03-Jan-14	18-Jul-13 A	15-Jan-14											
Demolition & Diversion of Nullah 2			150	18-Jul-13	03-Jan-14	18-Jul-13 A	15-Jan-14											
	1107.17820	Submission to DSD	12	18-Jul-13	31-Jul-13	18-Jul-13 A	31-Jul-13 A											



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P_1107_ not	Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference	2013				2014	
									Sep	Oct	Nov	Dec	Jan	
	1107.19350	Approval of Design	24	01-Aug-13	28-Aug-13	01-Aug-13 A	08-Oct-13			Approval of Design				
Pipe Bridge Over Cofferdam			36	13-Nov-13	24-Dec-13	02-Dec-13	15-Jan-14							
	1107.17830	Pile Caps for Diversion Bridge	18	13-Nov-13	03-Dec-13	02-Dec-13	21-Dec-13							
	1107.17840	Structural Steel works - Bridge	18	04-Dec-13	24-Dec-13	23-Dec-13	15-Jan-14							
Downstream Section Pipes			84	29-Aug-13	07-Dec-13	02-Oct-13	11-Jan-14							
	1107.17970	Excavation to Base level	34	29-Aug-13	09-Oct-13	02-Oct-13	11-Nov-13							
	1107.17980	Install 3 nos. Conc. Drainage Pipes	50	10-Oct-13	07-Dec-13	12-Nov-13	11-Jan-14							
Mid Section Chamber At Bend			20	09-Dec-13	03-Jan-14	10-Dec-13	04-Jan-14							
	1107.19360	Sheet Pile Installation for Channels (80m) 2 gangs	20	09-Dec-13	03-Jan-14	10-Dec-13	04-Jan-14							



Data Date 01-Oct-13

Page 6 of 6

SCL1107 M-3MR-007

Printed 07-Oct-13 15:59

MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

No 007 DD 01OCT2013

Date	Revision	Checked	Approved
03-Oct-13	0	KCL	KCL

**APPENDIX B
ACTION AND LIMIT LEVELS**

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

Regular Dust Monitoring Location	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾	Block 1, Rhythm Garden	160.4	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ is carried out by Environmental Team of SCL Works Contract 1106.

Construction Noise

Regular Construction Noise Monitoring Location⁽¹⁾	Description	Time Period	Action Level	Limit Level
NMS-CA-4 ⁽¹⁾⁽⁵⁾ / NMS-CA-3 ⁽²⁾⁽⁵⁾	Block 1, Rhythm Garden (north-eastern façade)	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
NMS-CA-5 ⁽¹⁾⁽³⁾⁽⁵⁾ / NMS-CA-2 ⁽²⁾⁽³⁾⁽⁵⁾	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) ⁽⁴⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.
- (5) Noise monitoring on Block 1, Rhythm Garden are carried out by Environmental Team of SCL Works Contract 1106.

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0004

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 5-Sep-13 Next Due Date: 4-Nov-13
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	297.5	Pressure, Pa (mmHg)	759.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	25-Dec-13				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.44	58.52	7.4	2.72
2	8.7	2.95	50.31	5.3	2.30
3	7.4	2.72	46.44	4.6	2.15
4	4.5	2.12	36.32	2.8	1.67
5	2.9	1.70	29.25	1.7	1.30

By Linear Regression of Y on X

Slope, mw = 0.0478 Intercept, bw = -0.0820

Correlation coefficient* = 0.9996

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.89

Remarks: _____

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

Date: 5/9/13
 Date: 5 September 2013



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149	0.9957	0.6896	0.8851
0.9925	0.9693	2.0010	0.9915	0.9683	1.2517
0.9903	1.0858	2.2372	0.9893	1.0847	1.3995
0.9893	1.1345	2.3464	0.9883	1.1334	1.4678
0.9840	1.3666	2.8299	0.9830	1.3652	1.7702
Qstd slope (m) =		2.09107	Qa slope (m) =		1.30939
intercept (b) =		-0.02838	intercept (b) =		-0.01775
coefficient (r) =		0.99996	coefficient (r) =		0.99996
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

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

TEST REPORT

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

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/130830/3
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/130919/3
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels
Impact Air Quality and Noise Monitoring Schedule for October 2013**

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

Air Quality Monitoring Station

DMS-4(1)/DMS-3(2): - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4(1)/NMS-CA-3(2): - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5(1)/NMS-CA-2(2): - Block 1, Rhythm Garden (northern façade)

Remarks:

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

(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

**Shatin to Central Link – Contract 1106 Diamond Hill Station
Tentative Impact Air Quality and Noise Monitoring Schedule for November 2013**

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

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

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

Appendix E - 24-hour TSP Monitoring Results

Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

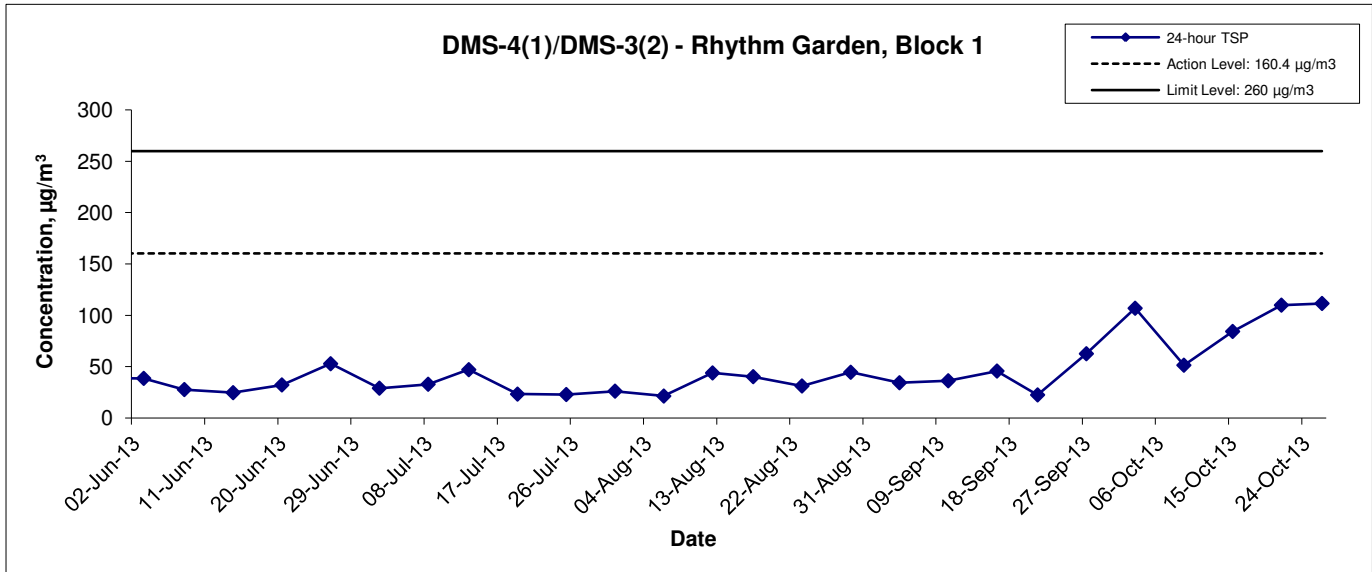
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
3-Oct-13	09:00	Sunny	298.4	763.2	3.7344	3.9224	0.1880	1673.9	1697.9	24.0	1.22	1.22	1.22	1758.8	106.9
9-Oct-13	09:00	Sunny	299.9	759.9	3.5810	3.6709	0.0899	1697.9	1721.9	24.0	1.21	1.21	1.21	1748.1	51.4
15-Oct-13	09:00	Sunny	299.7	762.8	3.7715	3.9192	0.1477	1721.9	1745.9	24.0	1.22	1.22	1.22	1751.9	84.3
21-Oct-13	09:00	Sunny	296.4	764.9	3.7722	3.9660	0.1938	1745.9	1769.9	24.0	1.22	1.22	1.22	1763.5	109.9
26-Oct-13	09:00	Sunny	294.3	767.5	3.7456	3.9433	0.1977	1769.9	1793.9	24.0	1.23	1.23	1.23	1772.4	111.5

Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Min	51.4
Max	111.5
Average	92.8

24-hour TSP Concentration Levels



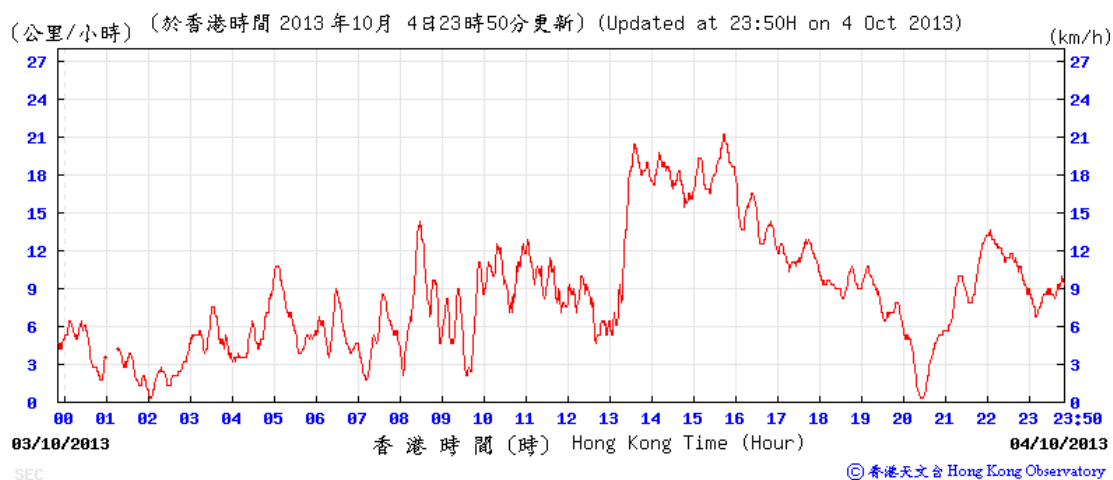
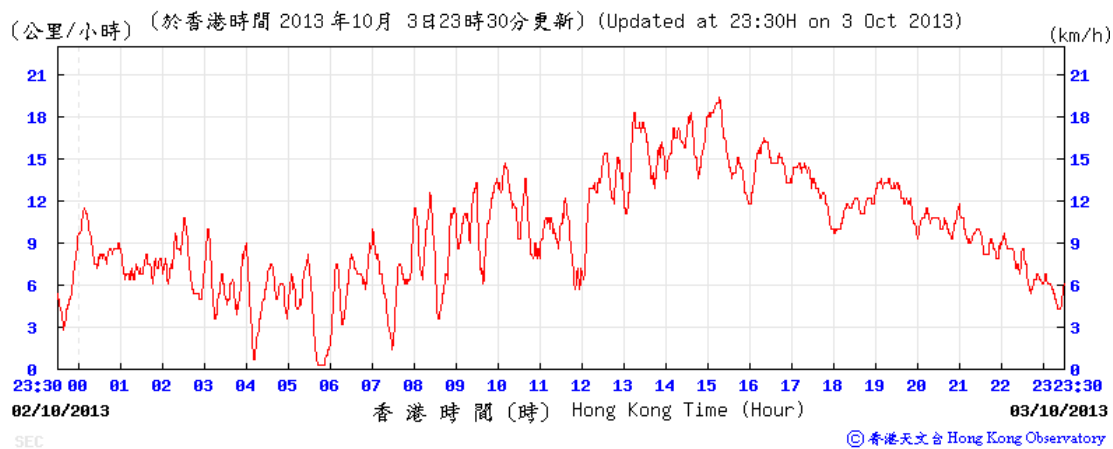
Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13018	
	Date Oct 13	Appendix E	

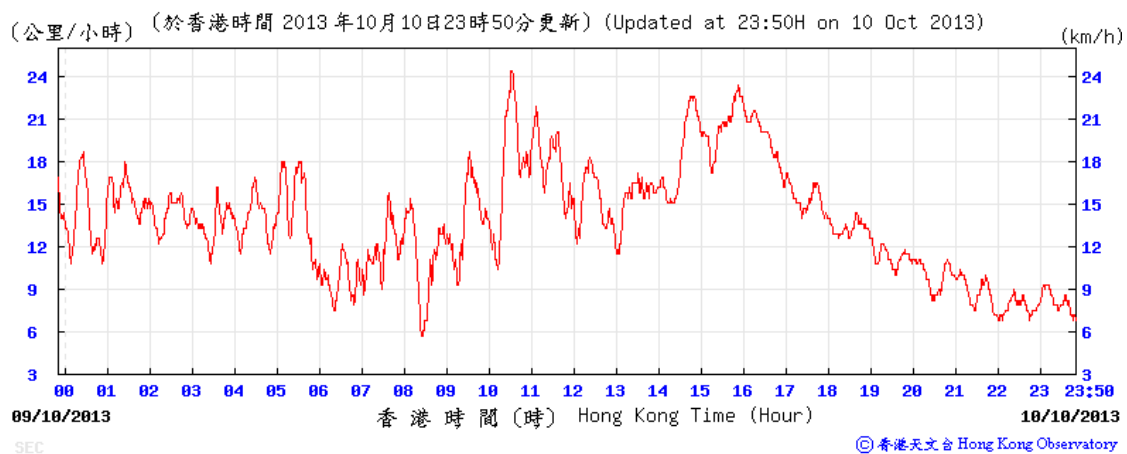
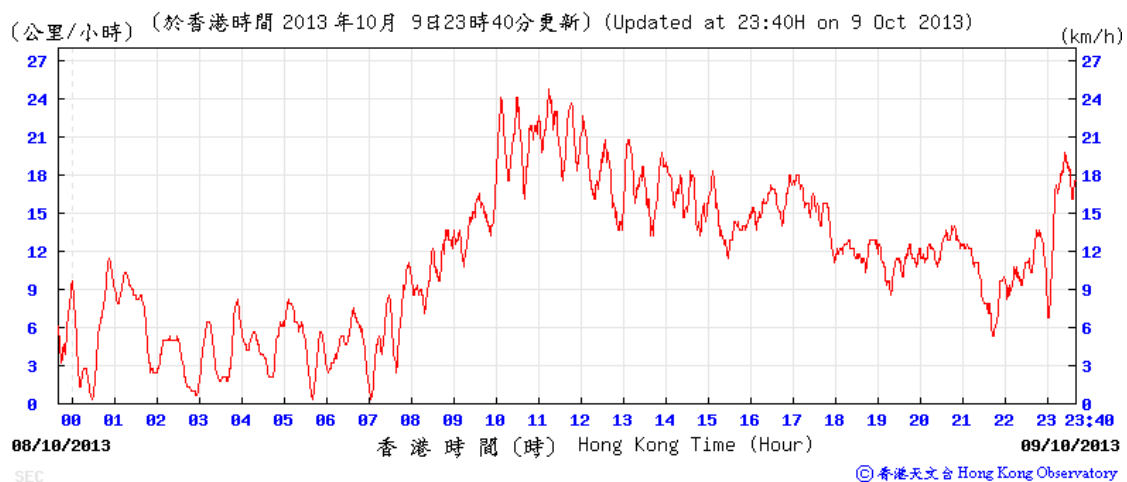
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3-4 October 2013



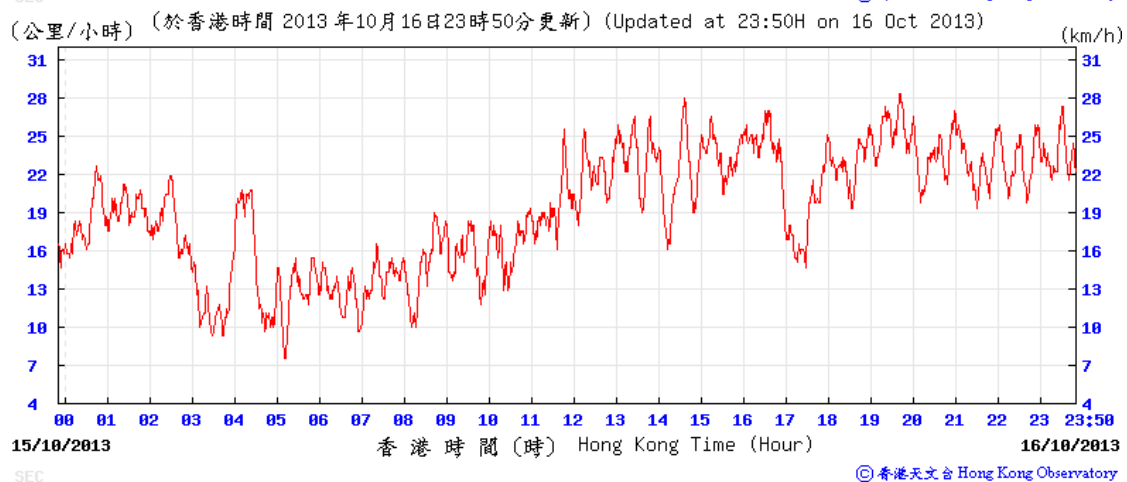
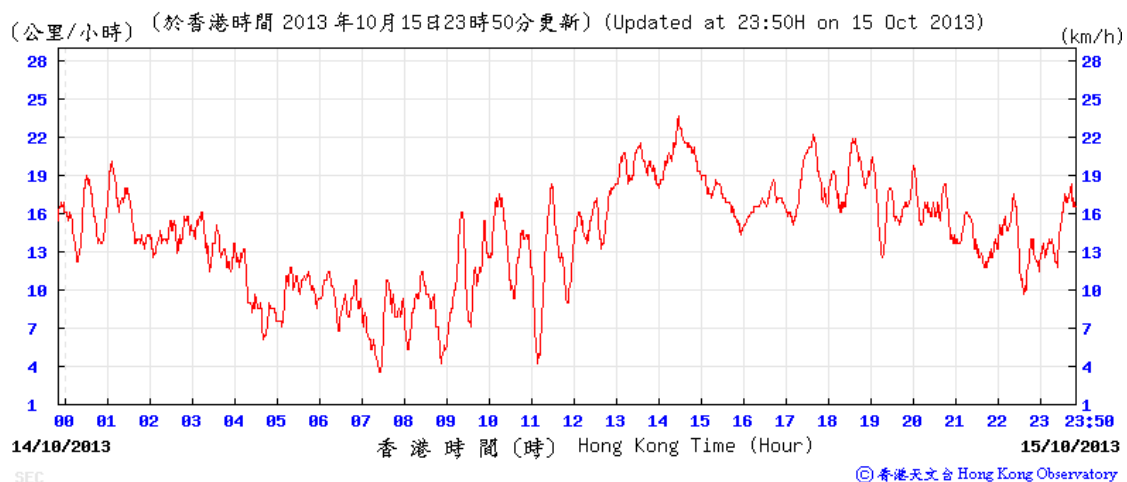
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

9-10 October 2013



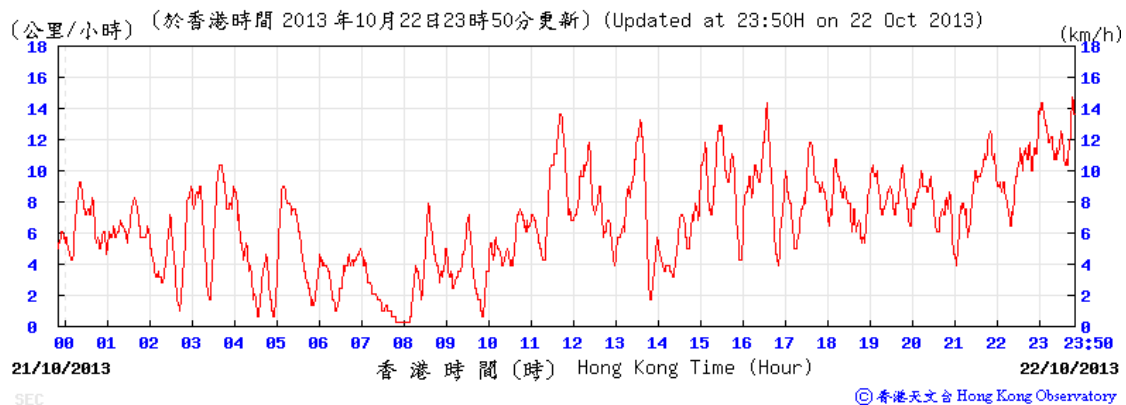
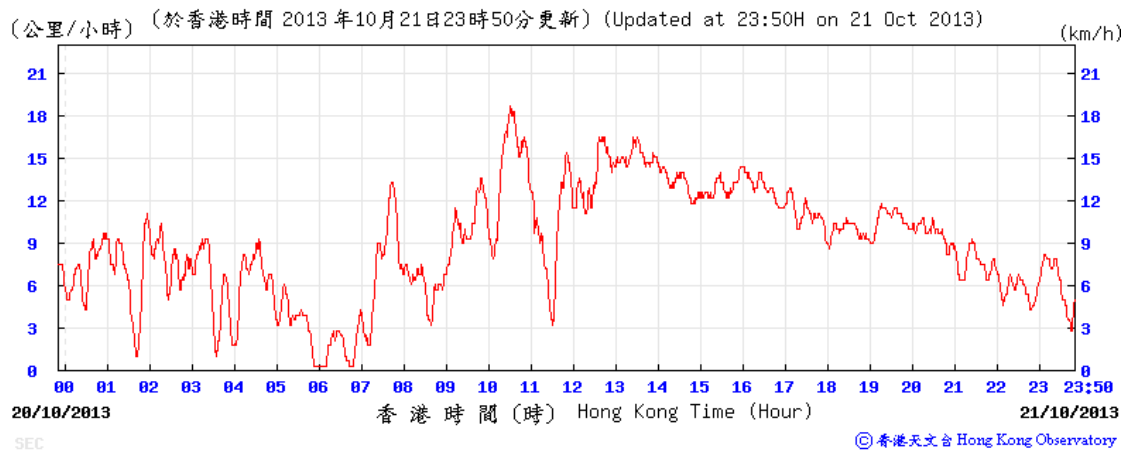
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

15-16 October 2013



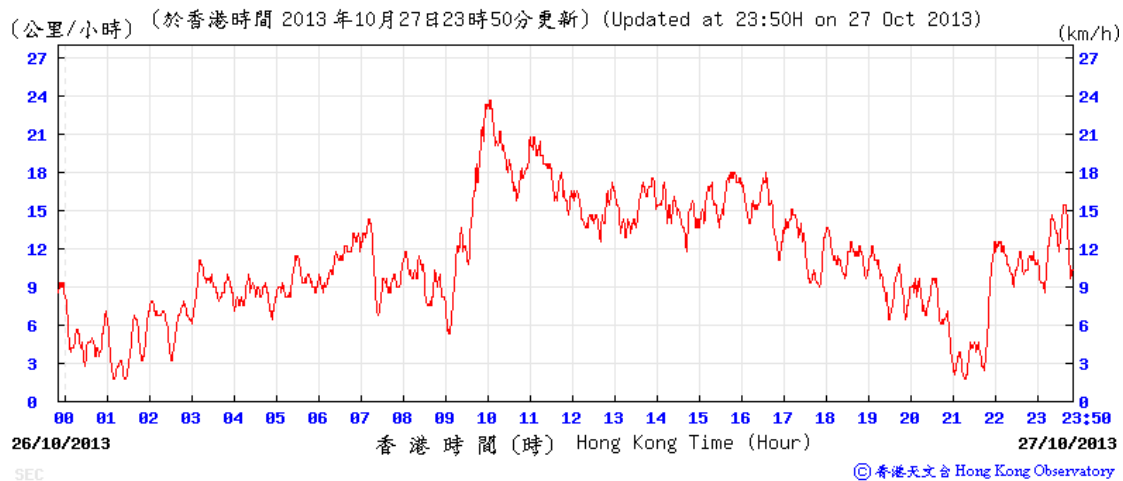
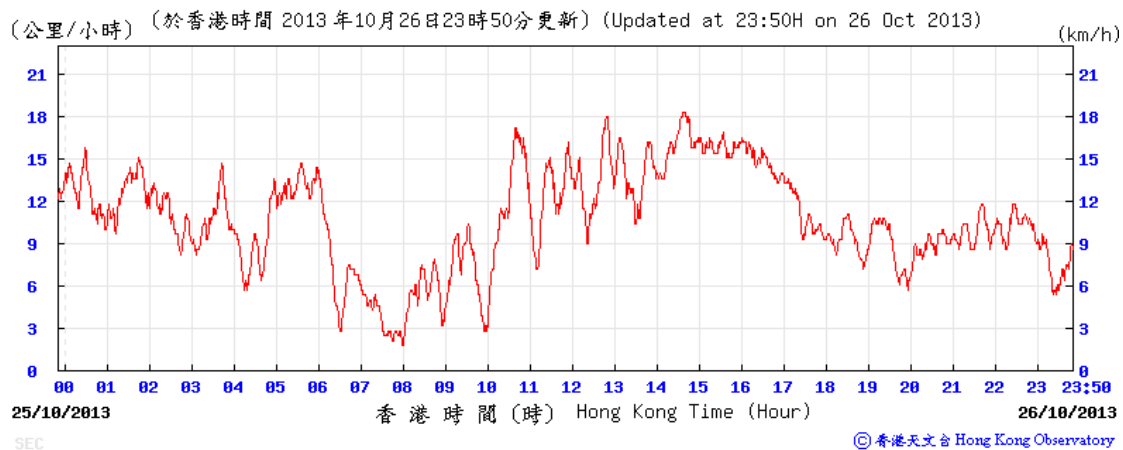
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 October 2013



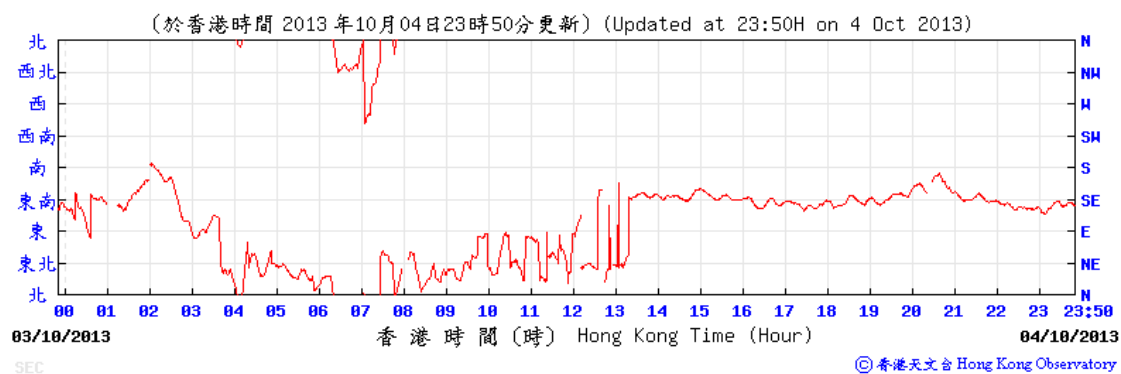
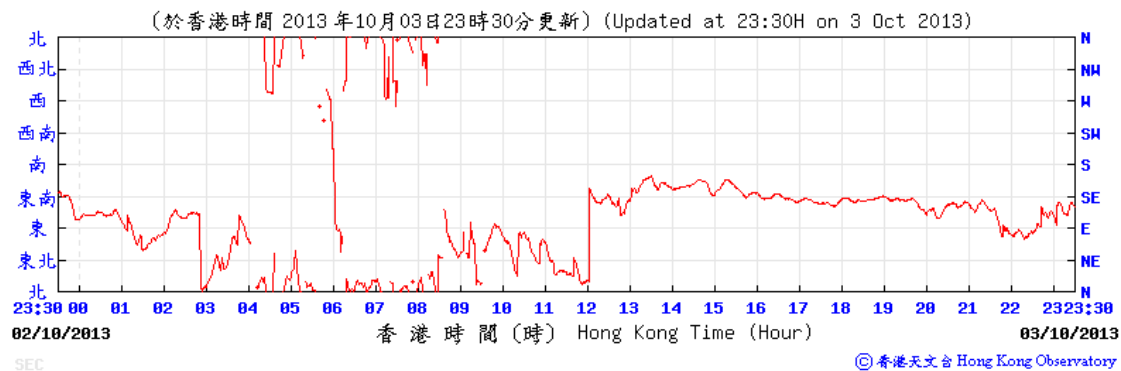
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

26-27 October 2013



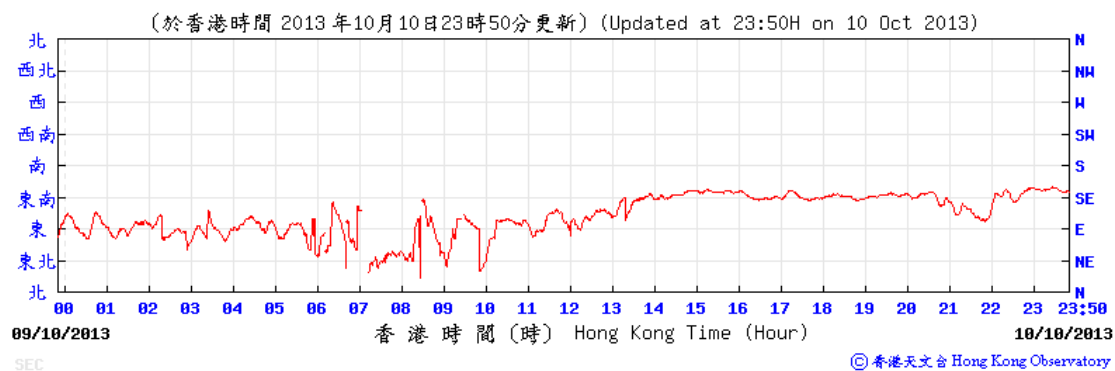
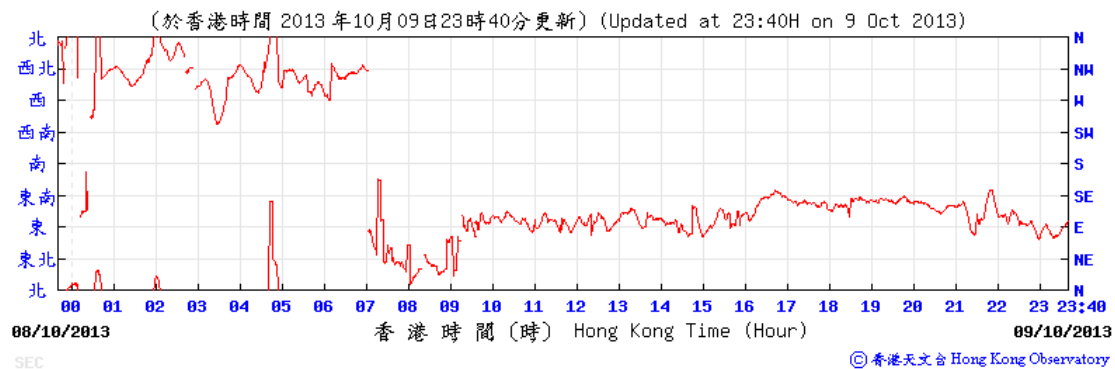
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3-4 October 2013



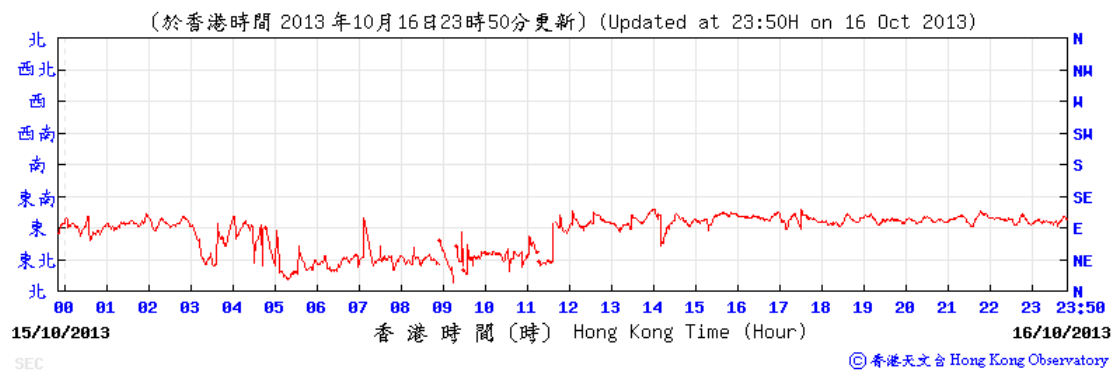
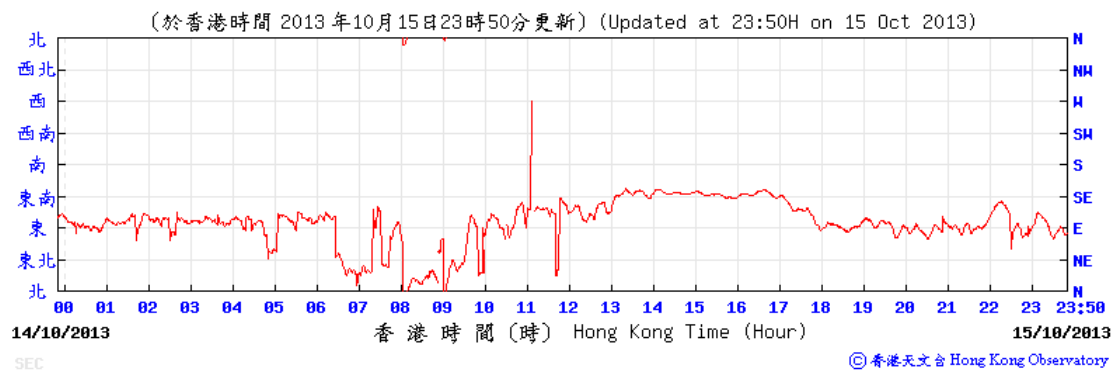
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

9-10 October 2013



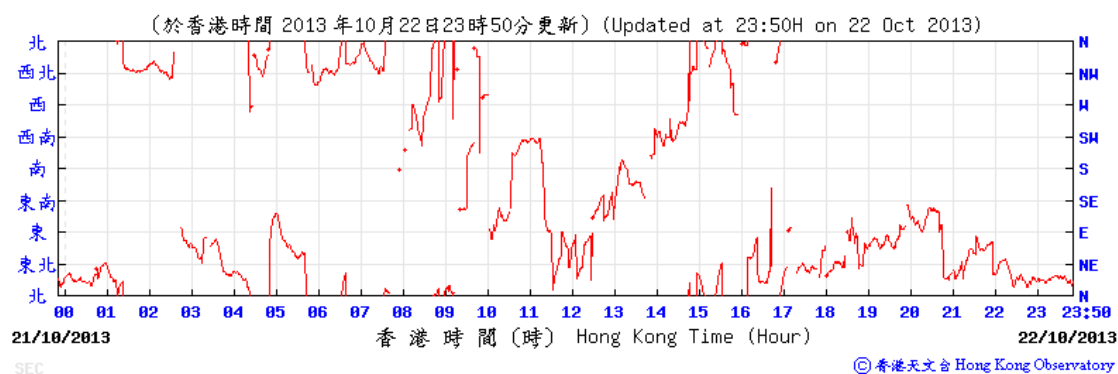
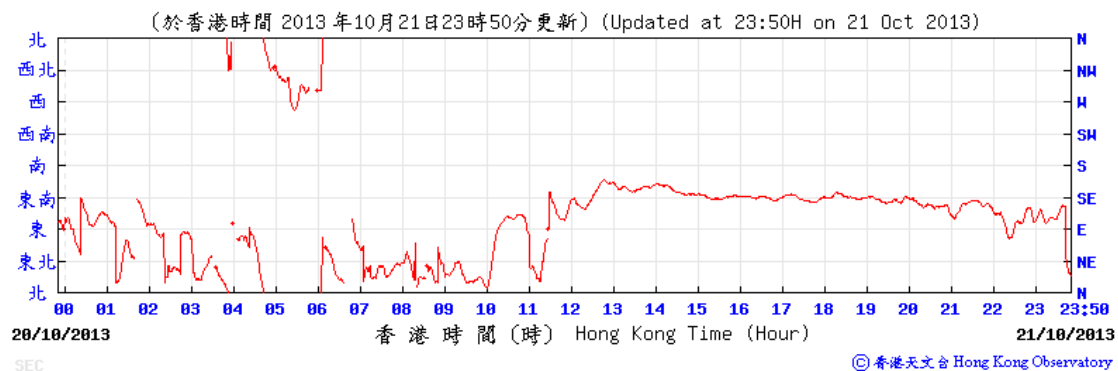
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

15-16 October 2013



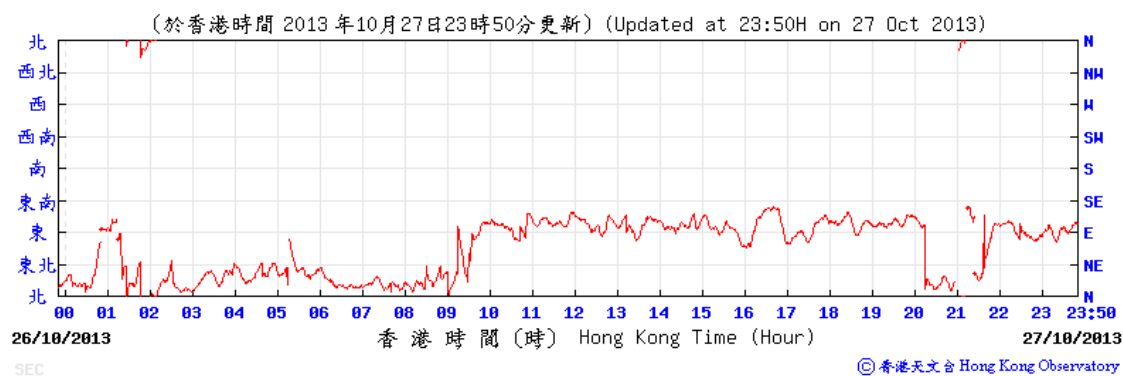
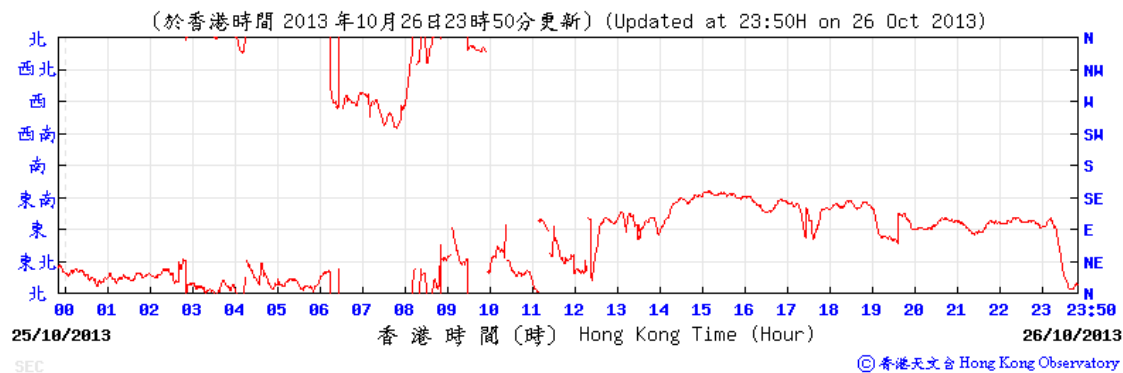
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 October 2013



Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

26-27 October 2013



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

Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Oct-13	Sunny	10:45	73.6	74.8	72.1	73.4	71	69.7
		10:50	73.4	74.6	72.1			
		10:55	73.4	74.6	72.2			
		11:00	73.4	74.6	72.0			
		11:05	73.3	74.6	71.8			
		11:10	73.2	74.5	71.6			
10-Oct-13	Sunny	11:20	73.2	74.5	71.5	73.0	71	68.7
		11:25	73.1	74.5	71.3			
		11:30	72.8	74.2	71.3			
		11:35	73.0	74.3	71.4			
		11:40	73.0	74.4	71.2			
		11:45	73.1	74.5	71.5			
16-Oct-13	Sunny	10:12	71.5	72.6	70.3	71.9	71	64.6
		10:17	71.4	71.9	70.7			
		10:22	71.8	72.8	70.7			
		10:27	72.0	73.2	70.5			
		10:32	72.3	73.4	71.1			
		10:37	72.3	73.3	71.0			
22-Oct-13	Sunny	13:10	71.2	72.3	70.0	71.5	71	61.9
		13:15	71.4	72.5	70.2			
		13:20	72.0	73.1	71.2			
		13:25	71.6	72.8	70.9			
		13:30	71.4	72.5	70.2			
		13:35	71.4	72.5	70.4			
28-Oct-13	Sunny	13:20	73.5	74.7	72.3	73.8	71	70.6
		13:25	74.2	75.5	72.4			
		13:30	73.8	75.0	72.2			
		13:35	73.6	74.8	72.2			
		13:40	73.5	74.9	71.9			
		13:45	74.2	75.4	73.0			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

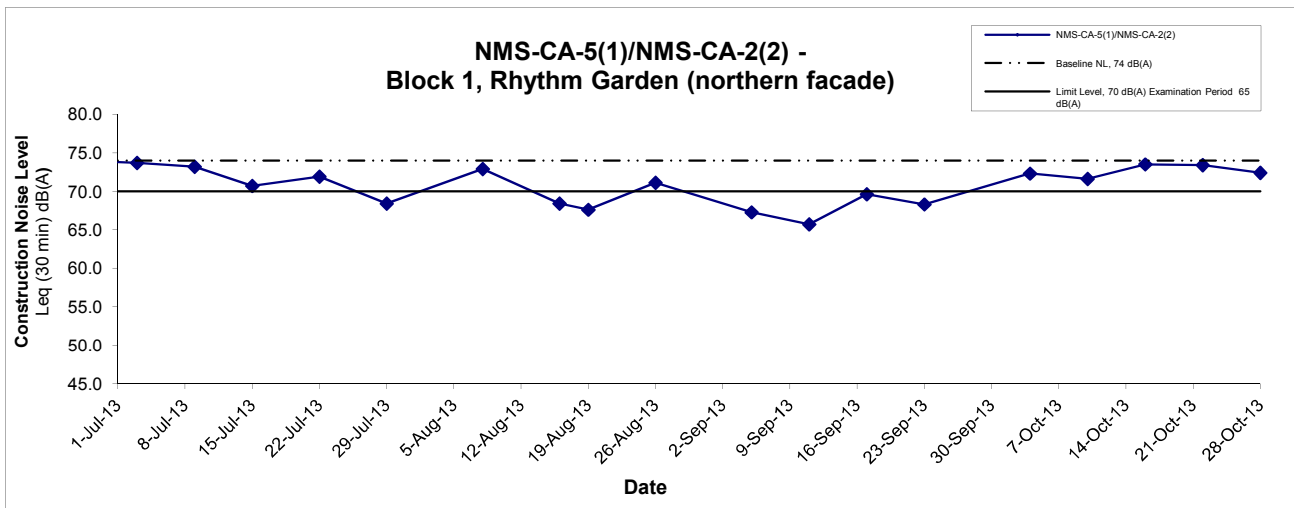
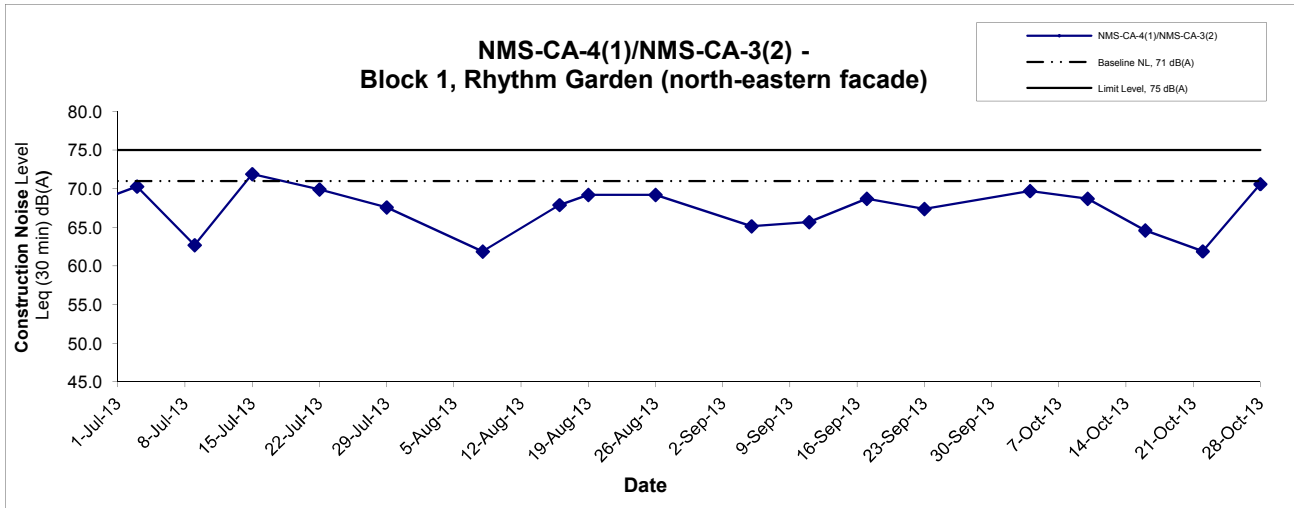
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Oct-13	Sunny	09:35	72.3	73.3	71.1	72.3	74	72.3 Measured ≤ Baseline Level
		09:40	72.2	73.3	71.0			
		09:45	72.1	73.1	71.0			
		09:50	72.3	73.5	71.1			
		09:55	72.4	73.6	71.1			
		10:00	72.2	73.3	71.1			
10-Oct-13	Sunny	10:45	71.7	72.8	70.3	71.6	74	71.6 Measured ≤ Baseline Level
		10:50	71.5	72.6	70.1			
		10:55	71.6	72.8	70.2			
		11:00	71.5	72.7	70.1			
		11:05	71.2	72.4	70.0			
		11:10	71.8	73.0	70.4			
16-Oct-13	Sunny	10:43	73.6	74.8	72.1	73.5	74	73.5 Measured ≤ Baseline Level
		10:48	73.5	74.7	72.1			
		10:53	73.4	74.8	72.0			
		10:58	73.1	74.3	71.5			
		11:03	73.7	74.8	72.3			
		11:08	73.4	74.7	72.0			
22-Oct-13	Sunny	13:41	73.6	74.8	72.0	73.4	74	73.4 Measured ≤ Baseline Level
		13:46	73.4	74.7	72.0			
		13:51	73.4	74.6	72.0			
		13:56	73.4	74.6	72.1			
		14:01	73.3	74.5	72.1			
		14:06	73.1	74.3	71.6			
28-Oct-13	Sunny	13:17	72.3	73.5	71.1	72.4	74	72.4 Measured ≤ Baseline Level
		13:22	72.3	73.5	71.0			
		13:27	72.5	73.7	71.2			
		13:32	72.3	73.4	71.1			
		13:37	72.3	73.4	71.0			
		13:42	72.6	73.7	71.4			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Noise Levels



Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) In case of Measured Level \leq Baseline Level, only Measured Level is presented on the graphical presentation.

Title Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Oct 13	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: October 2013

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*

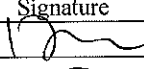

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131004
Date	4 October 2013(Friday)
Time	9:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
131004-R03	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> • Avoid discharge of muddy water to discharge point. 	B5
131004-R01	<p><i>Part C – Landscape & Visual</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none"> • Cover the dusty stockpile properly by impervious sheet. 	D6
131004-R02	<p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> • Properly maintain and provide the noise barrier to mechanical equipment. <p><i>Part F – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part G – Permits/Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	E5
131004-F04	<p><i>Part H - Others</i></p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:130927), follow up actions are needed to be reviewed for items 130927-R03. 	

	Name	Signature	Date
Recorded by	Johnny Fung		4 October 2013
Checked by	Dr. Priscilla Choy		4 October 2013

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*

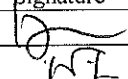
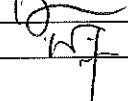
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131011
Date	11 October 2013(Friday)
Time	9:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
131011-R02	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> • Provide sand bag bunds to existing drainage to avoid potential silty water discharge in future. 	B5
131011-R01	<p><i>Part C – Landscape & Visual</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none"> • Cover the dusty aggregate and material by impervious sheets. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part F – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part G – Permits/Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:131004), follow up actions are needed to be reviewed for items 131004-R03. 	D6

	Name	Signature	Date
Recorded by	Johnny Fung		11 October 2013
Checked by	Dr. Priscilla Choy		11 October 2013

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*

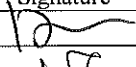

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131018
Date	18 October 2013(Friday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
131018-O02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Silty waste was observed discharged out of site at the U-channel. The Contractor is reminded to provide more sand bug bunds. 	B6
131018-O01	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
131018-R06	<p>Part D – Air Quality</p> <ul style="list-style-type: none"> Dusty stockpile should be covered by impervious sheets or provided with water spray facility to avoid dust generation. Cover the exposed slope properly with tarpaulin sheets. 	D6 D6
131018-O03	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> To provide noise barrier to the drill rigs near Rhythm Garden. 	E7
131018-O04	<p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Drip tray should be provided to chemical containers on paved ground to avoid chemical leakage. 	F10
131018-R05	<ul style="list-style-type: none"> Clear the stagnant water in the chemical waste storage tank. 	F10
	<p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131011), follow up actions are needed to be reviewed for items 131011-R01 and 131011-R02. 	

	Name	Signature	Date
Recorded by	Johnny Fung		18 October 2013
Checked by	Dr. Priscilla Choy		18 October 2013

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*

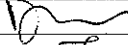

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131025
Date	25 October 2013(Friday)
Time	9:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
131025-R01 131025-O03	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Clear the sediments accumulated in the U-channel to avoid discharge out of site. Muddy water observed deposited in the drainage. The Contractor is reminded to remove the muddy water as soon as possible to prevent discharge out of site. <p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	B1, 7 B3, 5, 6
131025-R02	<p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> Clear the stagnant water in the drip tray near the silo tanks. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131011 & 131018), all environmental deficiency was observed improved/rectified by the Contractor. 	F10

	Name	Signature	Date
Recorded by	Johnny Fung		25 October 2013
Checked by	Dr. Priscilla Choy		25 October 2013

APPENDIX I
EVENT AND ACTION PLANS

Appendix I - Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

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

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

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

Appendix I - Event and Action Plan for Landscape and Visual during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	IEC	ER	CONTRACTOR
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Landscape & Visual (Construction Phase)</i>								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A
								^
								^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</p> <ul style="list-style-type: none"> The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 						^
Table 6.9	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB 	<p>Minimize the visual and landscape impact of the Project during construction phase</p>	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006 	<p>N/A</p> <p>N/A</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		TCW No 3/2006.						
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	*
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 L/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.6	D3	<ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the 	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	* ^ ^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>pedestrian barriers, fencing or traffic cones.</p> <ul style="list-style-type: none"> • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place 						N/A
								N/A
								N/A
								^
								^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be sprayed with water or a dust suppression chemical continuously;</p> <ul style="list-style-type: none"> • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		fabric filter or equivalent air pollution control system; and <ul style="list-style-type: none"> • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; 	Control construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^ ^ ^ N/A

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 						^ N/A
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	N/A
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	*
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			noise					
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	*

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is 						<p style="text-align: center;">*</p> <p style="text-align: center;">N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the 						<p style="text-align: center;">*</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">*</p> <p style="text-align: center;">*</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>drainage system and storm runoff being directed into foul sewers</p> <ul style="list-style-type: none"> • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after 						<p>^</p> <p>^</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices. 						^ N/A ^ *
S10.7.1	W2	<p><u>Tunneling Works</u></p> <ul style="list-style-type: none"> • Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge • The wastewater with a high concentration of SS should be treated 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance 1/94 • ProPECC PN • TM-water • TM-EIAO 	^ N/A N/A

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>(e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.</p> <ul style="list-style-type: none"> Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 						N/A
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water 	^
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> Proper storage and handling facilities should be provided; All the tanks, containers, storage area should be bunded and 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	* *

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>the locations should be locked as far as possible from the sensitive watercourse and stormwater drains;</p> <ul style="list-style-type: none"> • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 						^ N/A
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</p> <ul style="list-style-type: none"> • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, 					<p>Regulation</p> <ul style="list-style-type: none"> • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	<p>^</p> <p>^</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		under approval from the EPD.						

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- * Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

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

CW - SELI Joint Venture

Name of Department: MTRC

Contract No.:1107

Monthly Summary Waste Flow Table for 2013

Year	Estimated Quantities of Inert C&D Materials (in '000m ³)										Estimated Quantities of C&D Wastes									
	Total Quantity Generated		Suitable for Recycled Aggregates		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m ³)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
January																				
February																				
March	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
April	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.000
June	1.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.800	0.000	0.000	1.780	0.100	0.000	0.000	0.000	0.000	0.000	0.080	0.030
July	1.800	0.880	0.000	0.000	0.000	0.000	0.000	0.255	1.800	0.625	0.000	0.100	0.100	0.000	0.100	0.000	0.000	0.000	0.080	0.035
August	1.800	2.465	0.000	0.000	0.000	0.000	0.000	2.455	1.800	0.010	0.000	0.000	0.100	0.137	0.000	0.000	0.000	0.000	0.100	0.025
September	1.800	1.790	0.000	0.000	0.000	0.000	0.000	1.760	1.800	0.030	1.000	12.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.040
October	1.000	1.850	0.000	0.000	0.000	0.000	0.000	1.440	1.000	0.410	1.000	0.000	0.100	0.061	0.000	0.000	0.000	0.000	0.100	0.060
November	5.500		0.000		0.000		0.000		5.500		0.000		0.100		0.000		0.100		0.100	
December	5.500		0.000		0.000		0.000		5.500		0.000		0.100		0.100		0.000		0.100	
Total	19.300	6.985	0.000	0.000	0.000	0.000	0.000	5.910	19.300	1.075	2.000	13.880	0.700	0.198	0.200	0.000	0.100	0.000	0.740	0.190

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - (3) The quantities of C&D Materials, in m³, was calculated by multiplying the no. of truck with the volume of truck, which is 5m³.

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

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

Cumulative Complaint Log

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

Cumulative Log for Notifications of Summons

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

Cumulative Log for Successful Prosecutions

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

Appendix H

**5th Monthly EM&A Report for Works Contract 1112 –
Hung Hom Station and Stabling Sidings**



5th Monthly EM&A Report for October 2013

Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings

November 2013

Project/Deliverable No.	7076187 D07/01
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	5 th Monthly EM&A Report for October 2013
Report Date	November 2013
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	November 2013	Winnie MA	Vivian CHAN	Alexi BHANJA
1.1 (Final)	November 2013	Winnie MA	Vivian CHAN	Alexi BHANJA

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EXECUTIVE SUMMARY

Introduction

The construction works of MTRC Shatin to Central Link Works Contract 1112- Hung Hom Station and Stabling Sidings (the Project) comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW).

Construction works of the Project commenced on 3 June 2013. This is the 5th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 October 2013 in accordance with the EM&A manual.

During the reporting month, the following activity took place for the Project:

- Diaphragm wall construction at HUH
- Initial excavation at HUH

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 23 October 2013. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 4, 10, 16, 22 and 28 October 2013. No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

Noise Quality Monitoring

Construction airborne noise monitoring can be referred to the Monthly EM&A Report for Contract 1111.

Waste Management

As advised by the Contractor, 39,870 kg of general refuse was generated from the Project and disposed of at NENT landfill. 120,180 kg of metals, 630 kg of paper/cardboard packaging, 8,280 kg of asphalt and 2,040 kg of plastics were recycled from the Project. A total of 4,036m³ inert construction demolition (C&D) materials were generated from the Project, where 3,259m³ was disposed of at TM38 Public Fill and 777m³ was disposed of at Kwun Tong Line Extension Works Contract 1001 Barging Point. No chemical waste or was generated during the reporting month.

Environmental Auditing

A total of 5 weekly environmental site audits were conducted on 3, 10, 17, 24 and 31 October 2013. The IEC joint site audit was undertaken on 17 October 2013.

Compliant, Notification of Summons and Successful Prosecution

No complaint in relation to the environmental issues was recorded during the reporting period.

No summons or prosecution related to the environmental issues were received in the reporting period.

Future Key Issues

Major site activities for the coming reporting month will include:

- Underpinning at HHS and HUH
- Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building
- Bored piling for diversion of Cheong Wan Road Viaduct and South Transformer Room & Accommodation
- Set up of small scale mobile batching machinery and equipment (MBME) under the HUH podium
- Diaphragm wall construction at HUH

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

1 INTRODUCTION

1.1 Project Background

1.1.1 The Shatin to Central Link (SCL) is a designated project (DP) under the Environmental Impact Assessment Ordinance (EIAO). For the purposes of the Environmental Impact Assessment (EIA), five EIA studies have been conducted to cover different sections of the SCL. These are Tai Wai to Hung Hom Section (SCL (TAW-HUH)), Mong Kok East to Hung Hom Section (SCL (MKK-HUH)), Hung Hom to Admiralty Section (SCL (HUH-ADM)), Protection Works at Causeway Bay Typhoon Shelter and Stabling Sidings at Hung Hom Freight Yard (SCL (HHS)).

1.1.2 Three EIA reports are of relevance to Works Contract 1112 (the Project), namely EIA for SCL (TAW-HUH) (Register No. AEIAR-167/2012), EIA for SCL (MKK-HUH) (Register No. AEIAR-165/2012) and EIA for SCL (HHS) (Register No. AEIAR-164/2012). These were submitted and subsequently approved with conditions by the Environmental Protection Department (EPD) on 17 February 2012. Two Environmental Permits (EPs), Environmental Permit No. EP-437/2012 for SCL (MKK-HUH) and Environmental Permit No. EP-438/2012 for SCL (TAW-HUH) were subsequently obtained on 22 March 2012. A recent application for variation of the EP for SCL (TAW-HUH) was approved and a varied EP (EP No. EP-438/2012/D) was issued by Director of Environmental Protection (DEP) on 13 September 2013.

1.1.3 Construction of the SCL has been divided into a number of works contracts. This Works Contract 1112 was awarded to Leighton Contractors (Asia) Limited (the Contractor) in March 2013. Leighton has engaged SMEC Asia Limited as the Environmental Team under the EIAO for Works Contract 1112.

1.2 Purpose of the Report

1.2.1 This is the 5th EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 October 2013.

1.3 Report Structure

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Parameters
- 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 General Site Description

2.1.1 The works under Works Contract 1112 comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW). The major permanent works under Works Contract 1112 generally comprise the following:

- New HUH integrated with the existing HUH station, with associated entrances, ventilation facilities, plant rooms, other ancillary facilities, and ABWF works.
- Modification of the existing HUH station to allow interchange between Existing East Rail Line and SCL(TAW-HUH), and between SCL(MKK-HUH) and SCL(TAW-HUH) comprising alteration and addition works at podium level, mid-level, and platform level.
- Running tunnels of the SCL(TAW-HUH) at the south and north ends of the new HUH to the existing stub tunnel of Existing West Rail and interface with Works Contract 1111.
- Running tunnels of the SCL(MKK-HUH) at the south and north ends of the new HUH to the proposed North Ventilation Building and interface with Works Contract 1111.
- Extensive underpinning and modification of the existing podium structure of HUH and the Hong Kong Coliseum, and associated protection works.
- Diversion, modification and dismantling of existing building services associated with underpinning and modification of existing structures.
- Demolition and clearance of the majority of the existing Hung Hom Freight Terminal infrastructure.
- Protection, diversion, and modification of utilities and services.
- Launching and retrieval track connecting the SCL(TAW-HUH) to HHS from the turnout close to WRL at the south and interface with Works Contract 1111 at the north.
- CLP Transformer Building.
- Demolition of the existing International Mail Centre adjacent to Salisbury Road, the MTR Freight Operations Building within the southern end of the Hung Hom Freight Terminal, and other ancillary buildings.
- Reconstruction of Cheong Wan Road Viaduct.
- Civil, BS and ABWF provisions for designated and interfacing contracts.
- Landscape works.
- Modification to various parts of existing disused Freight Yard structure for provision of HHS, comprising alteration and addition works at underground level, ground level, mezzanine level and podium level including new

accommodation and plant areas and stabling and associated track provisions connecting to the interface with Works Contract 1111.

- Extensive underpinning of the podium structures above the existing disused Freight Yard for provision of HHS and its associated works.
- Construct part of the shunting track.
- Construct the emergency track and its associated works which connect the stabling siding to the mainline which run parallel with the northern approach of HUH.
- Construct the semi-enclosed noise enclosure and its associated works over the entire HHS north fan area.

2.1.2 The works area for the Works Contract 1112 is shown in **Appendix A**.

2.2 Construction Programme and Activities

2.2.1 The summary of construction programme is presented in **Appendix B**.

2.2.2 The major construction activities carried out by the Contractor in the reporting period are summarized as below:

- Diaphragm wall construction at HUH
- Initial excavation at HUH

2.3 Project Organisation

2.3.1 The project organization structure is presented in **Appendix C**. The contact names and numbers for key personnel of the Project are summarized in **Table 2-1**.

Table 2-1 Contact Information of Key Personnel

Company	Position	Name	Telephone	Fax
MTR	Construction Manager	Mr Patrick CHENG	3127 6203	3127 6422
	SCL Project Environmental Team Leader	Mr Richard KWAN	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Mr Fredrick LEONG	2859 1739	2540 1580
Leighton	Environmental Manager	Mr Kevin HARMAN	3973 0270	2356 9355
SMEC	ET Leader	Ms Vivian CHAN	3995 8140	3995 8101

2.4 Status of Environmental Licences, Notification and Permits

2.4.1 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2-2**.

Table 2-2 Status of Environmental Licenses, Notification and Permits

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
Environmental Permit				
EP-437/2012	22 Mar 2012	-	Valid	EP for SCL (MKK-HUH)
EP-438/2012/D	13 Sep 2013	-	Valid	EP for SCL (TAW-HUH)
Construction Noise Permit				
GW-RE0564-13	5 Jun 2013	30 Nov 2013	Valid	For erection or dismantling of scaffolding, and handling of scaffolding material
GW-RE0846-13	11 Aug 2013	03 Nov 2013	Valid	Cable inspection with CLP
GW-RE0853-13	10 Aug 2013	18 Sep 2013	Valid until cancellation on 18 Sep 2013 ^[Note 1]	Bentonite recirculation for diaphragm wall
GW-RE0948-13	26 Sep 2013	09 Nov 2013	Valid	Delivery of heavy vehicles
GW-RE0985-13	16 Sep 2013	15 Oct 2013	Valid until cancellation on 15 Oct 2013	Water main modification at mid-level walkway
GW-RE1007-13	21 Sep 2013	12 Mar 2014	Valid	Bentonite recirculation for D-wall & Building Services System Modification Work
GW-RE1026-13	01 Oct 2013	30 Dec 2013	Valid	Relocation of overhead line mast A0370
GW-RE1060-13	30 Sep 2013	01 Mar 2014	Valid	Traverser area hoarding erection
GW-RE1085-13	10 Oct 2013	30 Nov 2013	Valid	Piping Installation at mid-level walkway

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
GW-RE1102-13	16 Oct 2013	15 Nov 2013	Valid	Water Main Modification at Mid-Level Walkway
GW-RE1108-13	21 Oct 2013	21 Dec 2013	Valid	Steel cage installation and fixing
Wastewater Discharge License				
WT00015983-2013	28 Jun 2013	30 Jun 2018	Valid	-
Chemical Waste Producer Registration				
5213-213-L2603-03	28 Jun 2013	-	Valid	-
Billing Account for Construction Waste Disposal				
7017179	27 Mar 2013	-	Active Account	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
357078	18 Mar 2013	-	Notified	-

Note:

1. CNP cancellation was notified by the Contractor on 4 November 2013.

3 ENVIRONMENTAL MONITORING PARAMETERS

3.1 Landscape and Visual Impact Monitoring

3.1.1 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period.

3.2 Air Quality Monitoring

Parameter, Frequency and Duration

3.2.1 In accordance with the EM&A Manual, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required throughout the construction period. The monitoring parameters and frequency are provided in **Table 3-1**.

Table 3-1 Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
1-hour TSP	3 times in every 6 days when one documented valid complaint is received
24-hour TSP ^[1]	Once per 6 days

Note:

1. 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Location

3.2.2 One air quality monitoring station was set up at the location in accordance with the approved EM&A Manuals. The location of the construction dust monitoring stations is summarised in **Table 3-2** and shown in **Appendix D**.

Table 3-2 Air Quality Monitoring Location

ID	Location
AM2 ^[1]	Harbourfront Horizon ^[2]

Note:

1. Different IDs were used in various EM&A Manuals for dust monitoring location at Harbourfront Horizon, DMS-12 was used in EM&A Manual for SCL(TAW-HUH), AM2 were used in EM&A Manual and EIA report for SCL(MKK-HUH), and DMS-1 Works Contract 1112 were used in EM&A Manual and EIA report for HHS. For ease of future reference, AM2 will be adopted for EM&A reporting for Works Contract 1112 when referring to this monitoring location.
2. Air quality monitoring location at Harbourfront Horizon is the same as monitoring station CD6a as proposed in the EM&A Manual for "Kwun Tong Line Extension (KTE)". Access to Harbourfront Horizon was rejected by the owner during preparation for baseline monitoring for the KTE in early 2011. A representative monitoring location at the adjacent Finger Pier, at about 25m from Harbourfront Horizon, was adopted as an alternative monitoring location for

KTE. This monitoring location is considered the most appropriate alternative monitoring location for AM2 and have been adopted for dust monitoring for Contract 1112.

Monitoring Equipment

3.2.3 The air quality monitoring was performed using High Volume Sampler (HVS). The HVS meets all the requirements of the EM&A Manual. Detail of the HVS used in air quality monitoring is provided in **Table 3-3**.

Table 3-3 Air Quality Monitoring Equipment

Equipment	Brand and Model	Serial Number
High Volume Sampler	GS-2310 Accu-vol	694-0665
Calibration Kit	Tisch (TE-5025A)	1941

3.2.4 The HVS were calibrated in every six months interval using calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration certificate of the calibration kit and the calibration spreadsheet of the HVS is provided in **Appendix E**.

Monitoring Procedures

3.2.5 Specifications of HVS are as follow:

- i. 0.6 - 1.7m³ per minute adjustable flow range
- ii. Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation
- iii. Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation
- iv. Capable of providing a minimum exposed area of 406cm²
- v. Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period
- vi. Equipped with a shelter to protect the filter and sampler
- vii. Incorporated with an electronic mass flow rate controller or other equivalent devices
- viii. Equipped with a flow recorder for continuous monitoring
- ix. Provided with a peaked roof inlet
- x. Incorporated with a manometer
- xi. Able to hold and seal the filter paper to the sampler housing at horizontal position
- xii. Easily changeable filter and
- xiii. Capable of operating continuously for a 24-hour period.

3.2.6 Preparation of Filter Papers

- i. Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
- ii. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not

variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than ± 5 %. A convenient working RH was 40%.

- iii. All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

3.2.7 Field Monitoring

- i. The power supply was checked to ensure the HVS works properly.
- ii. The filter holder and the area surrounding the filter were cleaned.
- iii. The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- iv. The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- v. The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
- vi. Then the shelter lid was closed and was secured with the aluminium strip.
- vii. The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- viii. A new flow rate record sheet was set into the flow recorder.
- ix. On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around $1.3 \text{ m}^3/\text{min}$, and complied with the range specified in the EM&A Manual (i.e. $0.6\text{-}1.7 \text{ m}^3/\text{min}$).
- x. The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
- xi. The initial elapsed time was recorded.
- xii. At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
- xiii. The final elapsed time was recorded.
- xiv. The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- xv. It was then placed in a clean plastic envelope and sealed.
- xvi. All monitoring information was recorded on a standard data sheet.
- xvii. Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

Wind Data Monitoring

- 3.2.8 Average wind data (wind speed and direction) at the King's Park meteorological station during the monitoring period were obtained from the Hong Kong Observatory (HKO) and presented in **Appendix F**.

Monitoring Schedule

- 3.2.9 The schedule for environmental monitoring in October 2013 is provided in **Appendix G**.

3.3 Construction Noise Monitoring

- 3.3.1 In accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS), construction noise monitoring is required at No. 234-238 Chatham Road North (originally proposed as Wing Fung Building in the approved EM&A Manuals).

- 3.3.2 Construction airborne noise monitoring requirement details at No. 234-238 Chatham Road North (NM2) can be referred to the Monthly EM&A Report for Contract 1111.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 All environmental mitigation measures and requirements as stated in EIA Reports, Environmental Permits and EM&A Manuals are implemented. The implementation status of the environmental mitigation measures for this Works Contract during the reporting period is summarized in *Appendix H*.
- 4.1.2 Submissions to EPD during construction stage had been made in accordance with the EP requirements. A summary of EP submission requirements and their status is presented in *Table 4-1*.

Table 4-1 Summary of Status of Required Submission under EP

Required Submission	Environmental Permit	Date of Submission	Status
EP Condition 3.4 - Monthly Environmental Monitoring & Audit (EM&A) Report	EP-437/2012	15 October 2013	Submitted
	EP-438/2012/D	15 October 2013	Submitted

5 MONITORING RESULTS

5.1 Landscape and Visual

- 5.1.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 23 October 2013. All necessary mitigation measures have been implemented by the Contractor.
- 5.1.2 The Event and Action Plan for Landscape and Visual Impact Monitoring is provided in *Appendix I*.

5.2 Air Quality Monitoring

- 5.2.1 The monitoring results for 24-hour TSP are summarized in *Table 5-1*. Detailed air quality monitoring results are presented in *Appendix J*.

Table 5-1 Summary of 24-hour TSP Monitoring Results

ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM2	95.9	68.1-119.4	182	260

- 5.2.2 No Action and Limit Level exceedance was recorded in the reporting month.
- 5.2.3 The Event and Action Plan is provided in *Appendix I*.

5.3 Regular Construction Noise Monitoring

- 5.3.1 Construction airborne noise monitoring results in the reporting month can be referred to the Monthly EM&A Report for Contract 1111.

5.4 Waste Management

- 5.4.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 39,870 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 4,036m³ inert construction demolition (C&D) materials was generated from the Project, where 3,259m³ was disposed of at TM38 Public Fill and 777m³ was disposed of at KTE1001 Barging Point. 120,180 kg metals, 630kg paper/cardboard packaging, 8,280 kg asphalt and 2,040kg plastics were collected by recycling contractor in the reporting month. No chemical waste was generated and collected by licenced contractor in the reporting period. The waste flow table is presented in *Appendix K*.
- 5.4.2 A billing account for construction waste disposal has been approved and a trip ticket system was implemented to record the waste generated from the Project in the reporting month.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Weekly site audits were conducted by the ET and attended by the ER and the Contractor to monitor the timely implementation of proper environmental management practices and mitigation measures at the site. 5 site audits were carried out on 3, 10, 17, 24 and 31 October 2013 during the reporting month. Representative of the IEC joined the site inspection on 17 October 2013. A summary of the implementation schedule of environmental mitigation measures is provided in **Appendix H**.
- 6.1.2 Four site inspections were conducted by EPD during the reporting month on 3, 8, 9 and 17 October 2013 respectively. No adverse comment was provided by EPD during the inspections in this reporting month.
- 6.1.3 During the weekly site inspections, no non-conformance was identified. Details of observations recorded during site inspection are summarized in **Table 6-1**.

Table 6-1 Observations and Recommendations of Site Audits

Parameters	Description	Works Area	Observation Date	Status
Landscape and Visual	A tree was observed without erection of fence and a designated no intrusion zone and works being conducted nearby the tree. The Contractor was reminded to designate a no instruction zone for trees to be retained or transplanted.	NAT	17 October 2013	The item was rectified by the Contractor on 24 October 2013.
Air Quality	Stockpiles were observed not fully covered. The Contractor should provide impervious sheet at stockpile to prevent dust generation.	NAT	19, 26 September 2013	The item was rectified by the Contractor on 03 October 2013.
	Vehicle was observed exiting the site at Gate 3 without thorough wheel washing. The Contractor should provide training to the workers to enhance their awareness of the need to wash the wheels thoroughly before leaving the site to prevent wind erosion of dust in the public area.	Gate 3	31 October 2013	The item will be followed-up in next month.
Noise	N/A	N/A	N/A	N/A
Water Quality	Surface runoff from wheel washing facilities at Gate 3 was observed flowing out of the site without proper collection and treatment. The Contractor should provide sufficient facilities to collect surface runoff for treatment prior to discharge.	Gate 3	31 October 2013	The item will be followed-up in next month.

Parameters	Description	Works Area	Observation Date	Status
Waste/ Chemicals Management	Oil stain and oil spillage was observed beside machineries. The Contractor should clear the oil stain. Mitigation measures and training should be provided to prevent recurrence.	NAT	26 September 2013	The item was rectified by the Contractor on 03 October 2013.
		HUH	17 October 2013	The item was rectified by the Contractor on 24 October 2013.
		SAT	17 October 2013	The item was rectified by the Contractor on 24 October 2013.
		HHS	24 October 2013	The item was rectified by the Contractor on 31 October 2013.
		SAT	24 October 2013	The item was rectified by the Contractor on 31 October 2013.
	Secondary containment was not provided for chemical containers. The Contractor should provide secondary containment for chemical containers.	HUH	26 September 2013 03 October 2013	The item was rectified by the Contractor on 10 October 2013.
		HHS	10 October 2013	The item was rectified by the Contractor on 17 October 2013.
		HUH	17 October 2013	The item was rectified by the Contractor on 24 October 2013.
		HHS	24 October 2013	The item was rectified by the Contractor on 31 October 2013.
	Permits/ License	N/A	N/A	N/A

Note:

1. HUH: Hung Hom Station
2. HHS: Hung Hom Stabling Sidings
3. NAT: North Approach Tunnels
4. SAT: South Approach Tunnels
5. N/A: Not Applicable

6.1.4 Follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period. Inspection for follow-up actions that are outstanding in the reporting month will be carried out in following inspections, until the corresponding action has been undertaken by the Contractor.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

7.3.1 No environmental related complaint was reported during the reporting month.

7.3.2 Cumulative statistics on environmental complaints is provided in *Appendix L*.

7.4 Summary of Environmental Summons and Successful Prosecution

7.4.1 No summon was received during the reporting month.

7.4.2 The cumulative statistics on notification of summons and successful prosecutions is provided in *Appendix L*.

8 FUTURE KEY ISSUES

8.1 Construction Programme for Next Month

8.1.1 The construction programme for the upcoming month is provided in *Appendix B* and the key issues to be considered in the upcoming months include:

- Underpinning at HHS and HUH
- Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building
- Bored piling for diversion of Cheong Wan Road Viaduct and South Transformer Room & Accommodation
- Set up of small scale mobile batching machinery and equipment (MBME) under the HUH podium
- Diaphragm wall construction at HUH

8.2 Key Issues for the Coming Months

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

8.3 Monitoring Schedule for Next Month

8.3.1 The tentative schedule for environmental monitoring in November 2013 is provided in *Appendix G*.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 The construction phase of the Project was commenced on 3 June 2013. The EM&A programme has been implemented to include air quality monitoring and environmental site audits. This is the 5th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 October 2013.
- 9.1.2 5 nos. of 24-hour TSP monitoring were carried out in the reporting month.
- 9.1.3 No exceedance of the Action and Limit Levels of air quality monitoring was recorded at the designated monitoring stations during reporting period.
- 9.1.4 Two landscape and visual monitoring and four environmental site audits were conducted in the reporting month. Recommendations on remedial actions were provided to the Contractor for deficiencies identified during the site audits.
- 9.1.5 There was no environmental complaint, prosecution or notification of summons received.
- 9.1.6 The ET will keep track on the EM&A programme to ensure the compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

9.2 Recommendations

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

Landscape and Visual impact:

- Provide durable, rigid fences and designate a “no intrusion zone” for retained trees.

Air Quality Impact

- Provide impervious sheeting for dusty stockpiles to avoid dust generation.
- Provide thorough wheel washing to all vehicles exiting the site to prevent construction dust generation at nearby road surfaces.

Water Quality Impact

- Provide appropriate and sufficient water collection and treatment facilities at the wheel washing facilities to prevent polluted surface runoff generated from wheel washing practise to enter the public drains.

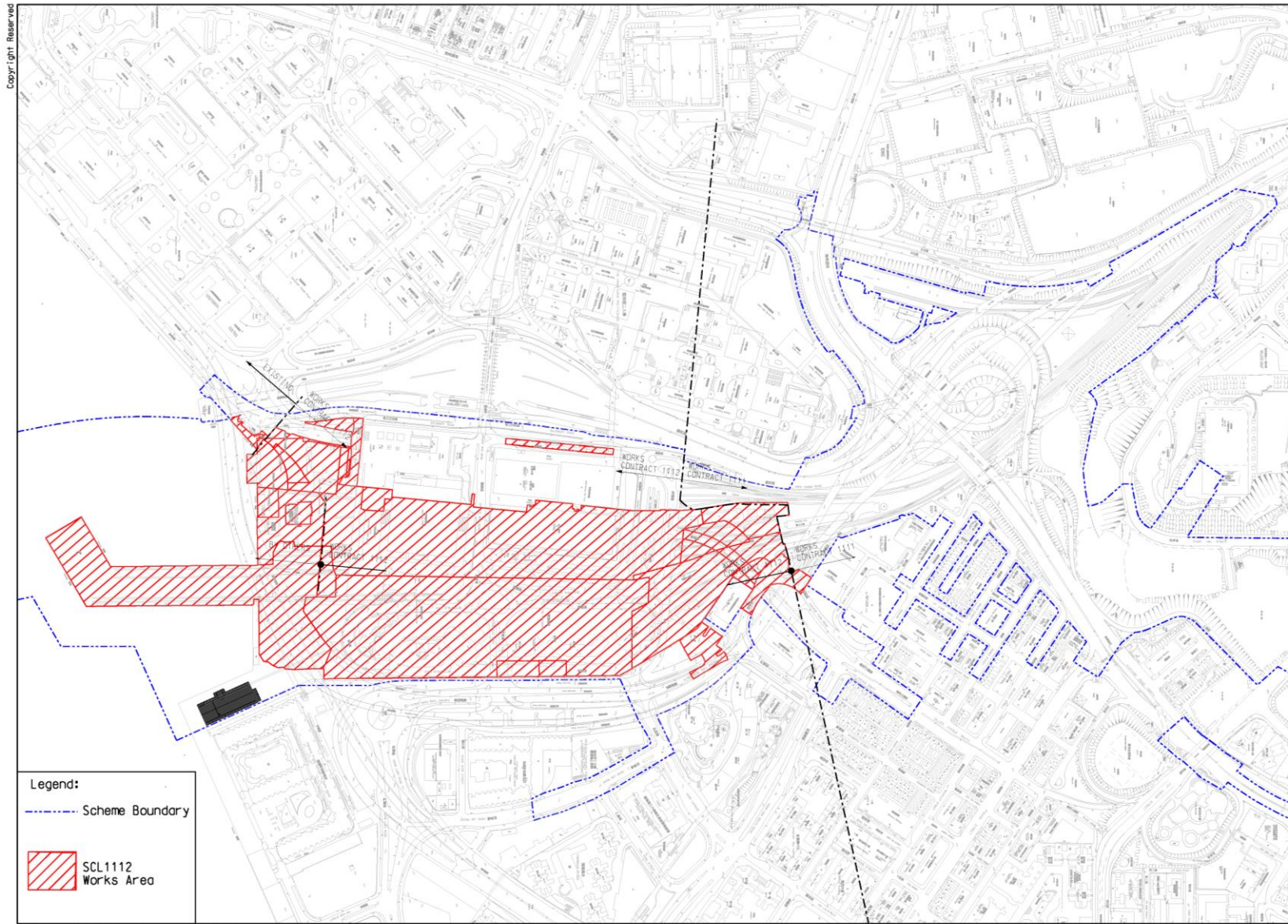
Chemical and Waste Management

- Provide drip trays to chemical containers and plants to avoid potential land contamination.

- Properly maintain plant/equipment and enhance training to prevent oil spillage during oil refilling process.

APPENDIX A

Project Works Boundary



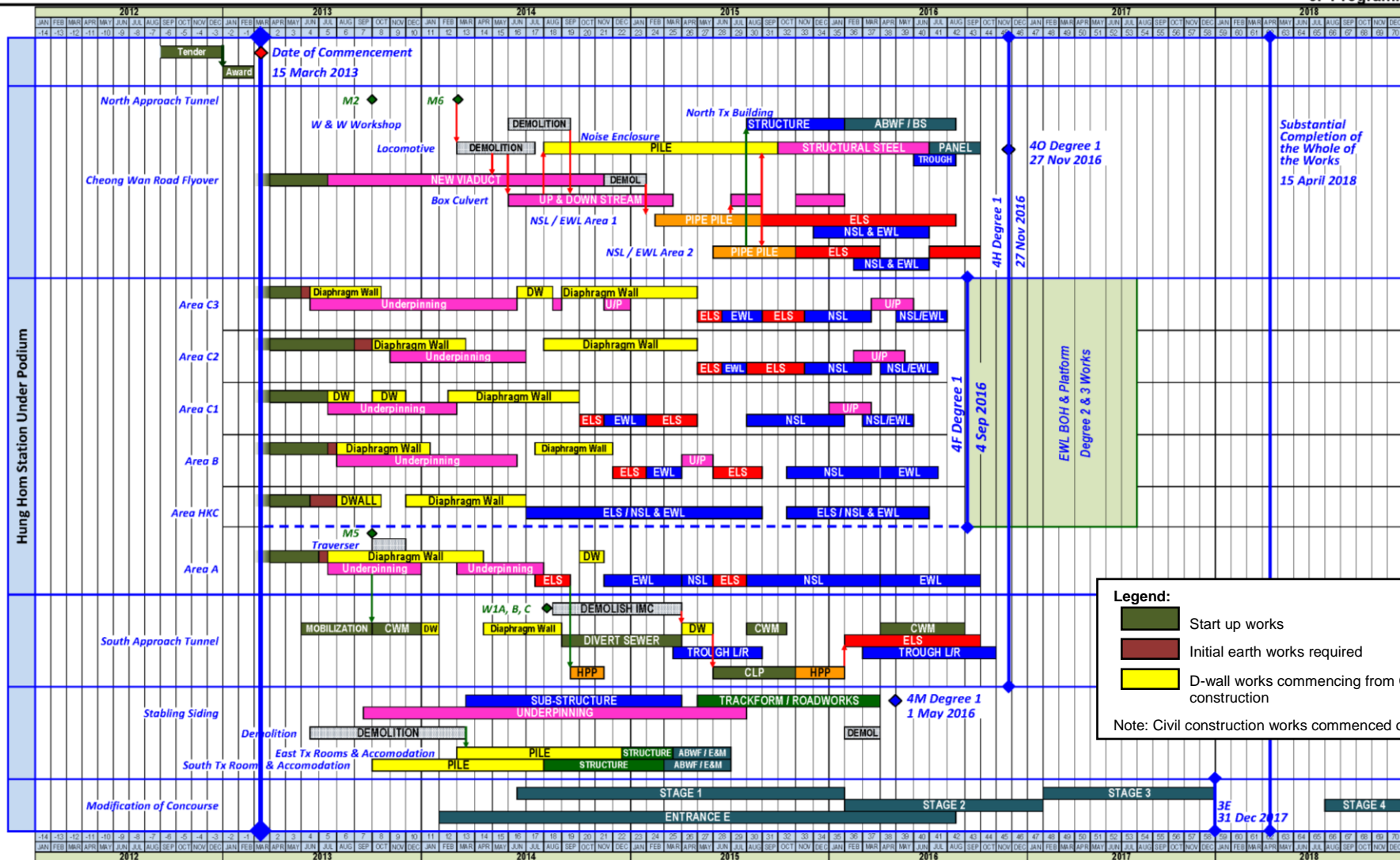
C:\SCL1112\To Albert\Basemap_TATICNP.dgn

03-Jul-13 1:4000(A3) CKL / ALBERT / TAT / HKW / SHEK

APPENDIX B

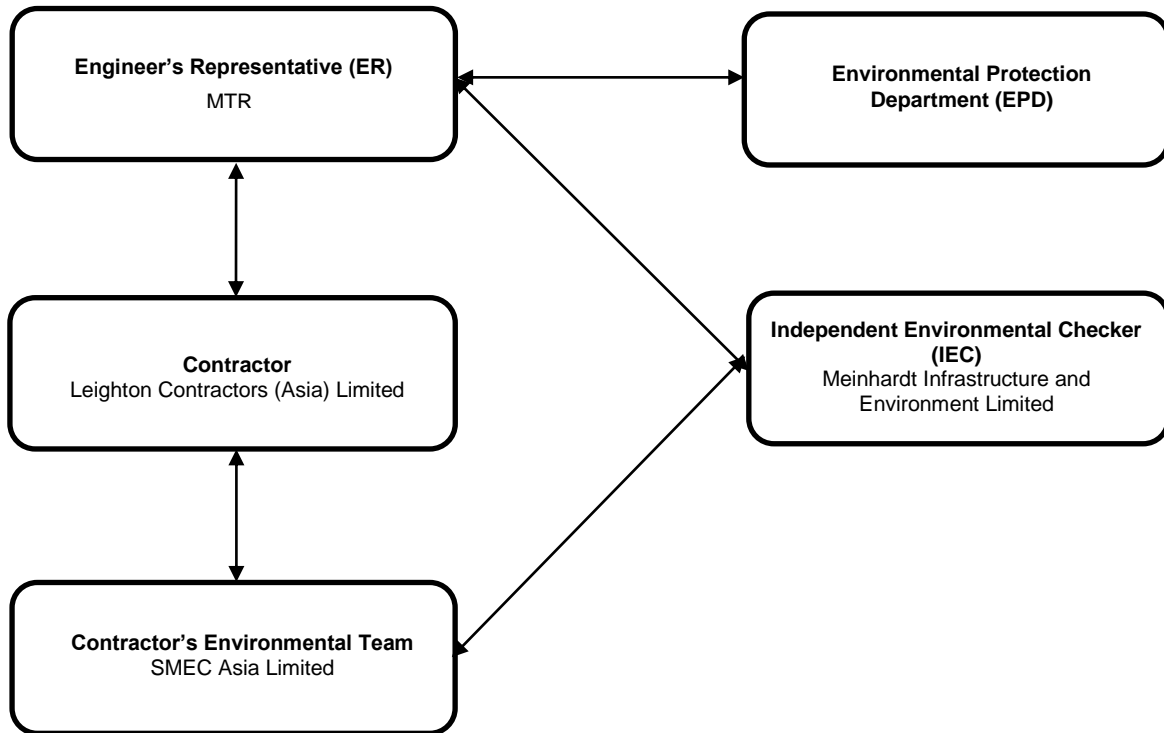
Construction Programme

3. Programme



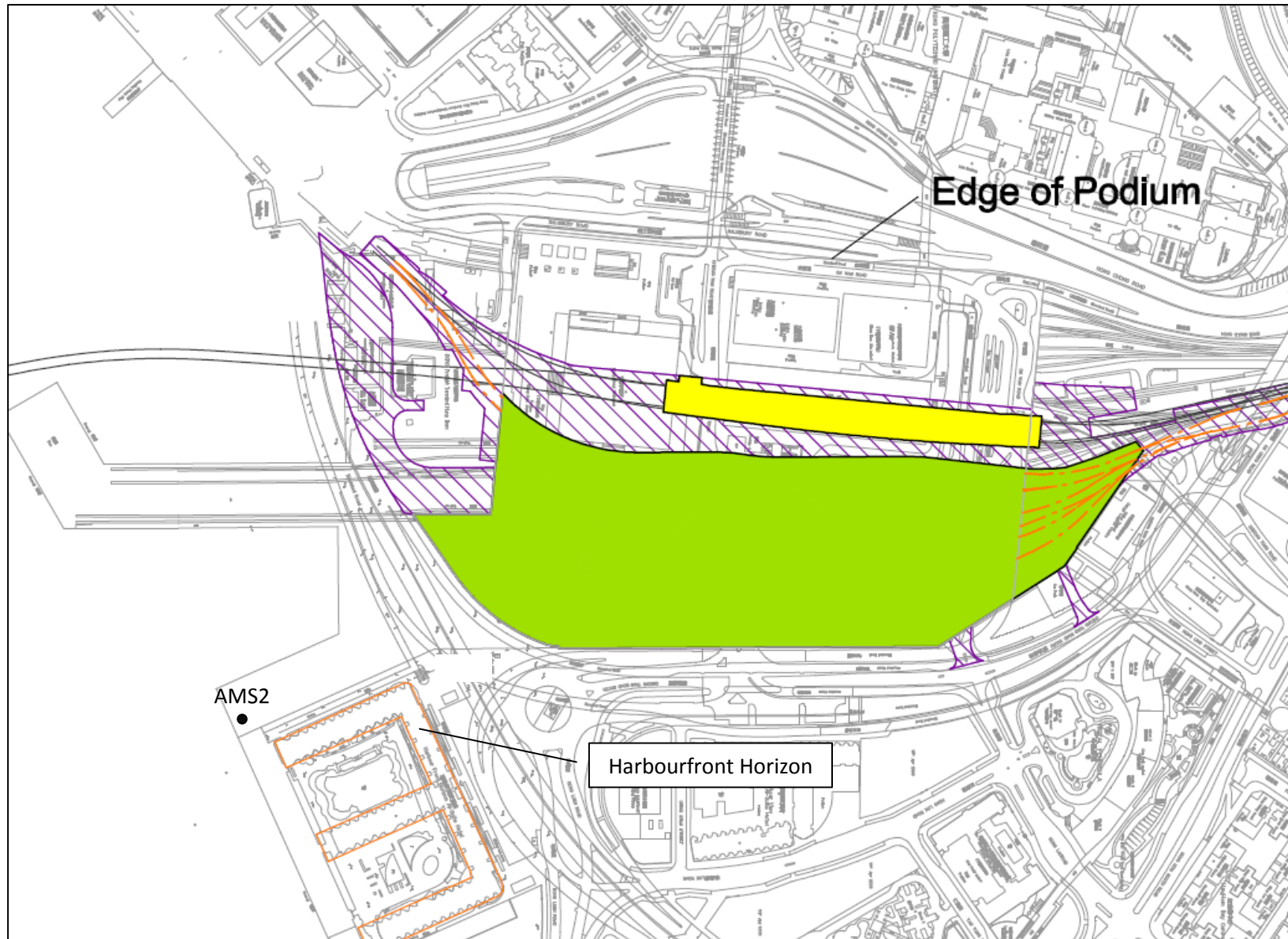
APPENDIX C

Project Organisation for Environmental Works



APPENDIX D

Location of Air Quality Monitoring Station



APPENDIX E

Calibration Certificates for Monitoring Equipment

TSP Sampler Calibration

SITE	
Location: Hung Hom	Calibration Date: August 5, 2013
Sampler: Hunghom MTR TSP	Next Calibration Date: October 5, 2013
Serial No 694-0665	Tech: Sam Wong

CONDITIONS			
Barometric Pressure (in Hg):	39.75	Corrected Pressure (mm Hg):	1010
Temperature (deg F):	85	Temperature (deg K):	302
Average Press. (in Hg):	39.75	Corrected Average (mm Hg):	1010
Average Temp. (deg F):	85	Average Temp. (deg K):	302

CALIBRATION ORIFICE			
Make: Tisch	Qstd Slope:	2.11662	
Model: TE-5025A	Qstd Intercept:	-0.01714	
Serial#: 1941	Date Certified:	April 9, 2013	

CALIBRATIONS						
Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	11.80	1.865	58.0	66.36	Slope =	37.1259
2	10.40	1.751	54.0	61.78	Intercept =	-3.3968
3	8.00	1.537	46.0	52.63	Corr. coeff.=	0.9989
4	5.40	1.264	38.0	43.48		
5	3.40	1.005	30.0	34.32	# of Observations:	5

Calculations

$$Qstd = 1/m[\text{sqrt}(H2O (Pa/Pstd) (Tstd/Ta)) - b]$$

$$IC = I[\text{sqrt}(Pa/Pstd) (Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:

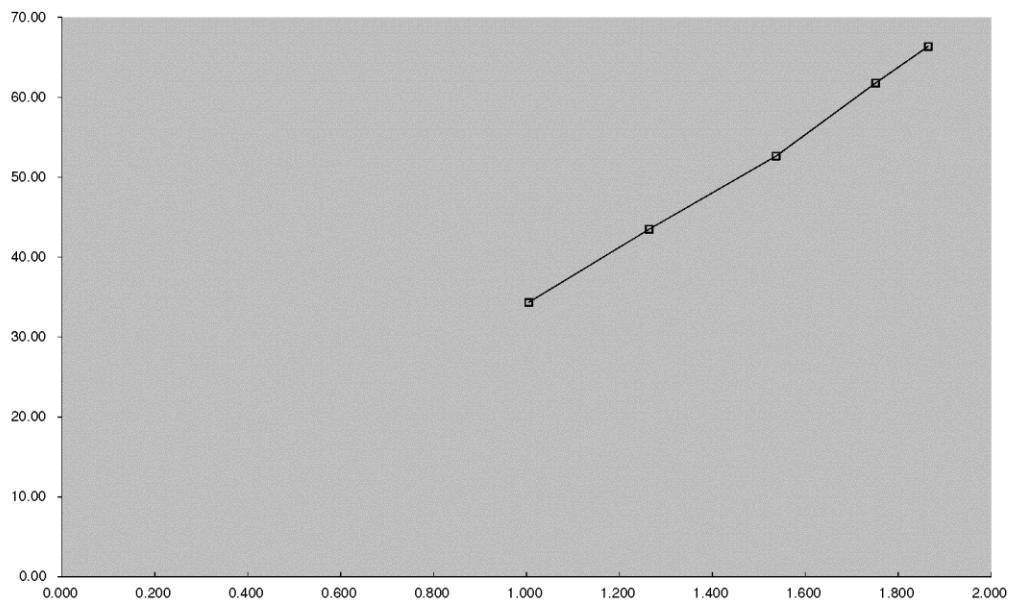
$$1/m((I) [\text{sqrt}(298/Tav) (Pav/760)] - b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure

Reviewer: Sam Wong

Signature: 

Date: August 5, 2013



TSP Sampler Calibration

SITE	
Location: Hung Hom	Calibration Date: October 5, 2013
Sampler: Hunghom MTR TSP	Next Calibration Date: December 5, 2013
Serial No 694-0665	Tech: Sam Wong

CONDITIONS			
Barometric Pressure (in Hg):	39.80	Corrected Pressure (mm Hg):	1011
Temperature (deg F):	77	Temperature (deg K):	298
Average Press. (in Hg):	39.80	Corrected Average (mm Hg):	1011
Average Temp. (deg F):	77	Average Temp. (deg K):	298

CALIBRATION ORIFICE			
Make: Tisch	Qstd Slope:	2.11662	
Model: TE-5025A	Qstd Intercept:	-0.01714	
Serial#: 1941	Date Certified:	April 9, 2013	

CALIBRATIONS						
Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	11.80	1.880	58.0	66.89	Slope =	35.8107
2	10.40	1.765	54.0	62.28	Intercept =	-0.9306
3	7.80	1.530	46.0	53.05	Corr. coeff.=	0.9993
4	5.20	1.251	38.0	43.83		
5	3.20	0.983	30.0	34.60	# of Observations:	5

Calculations

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd) (Tstd/Ta)) - b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd) (Tstd/Ta)]$$

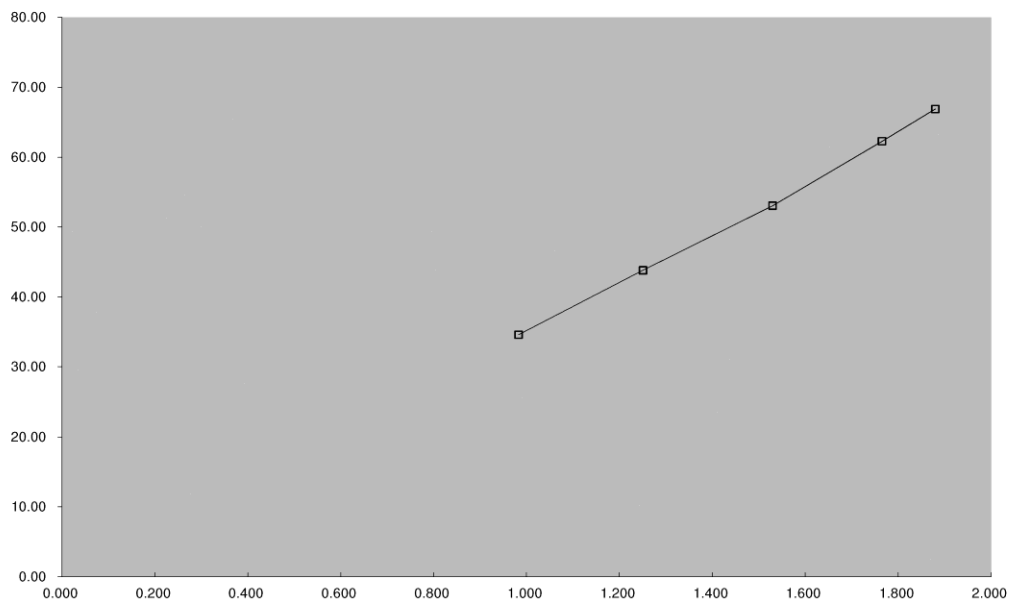
Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:
 $1/m((I) [\text{Sqrt}(298/Tav) (Pav/760)] - b)$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure

Reviewer: Sam Wong

Signature: 

Date: October 5, 2013





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AIR POLLUTION MONITORING EQUIPMENT
 ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 09, 2013 Rootsmeter S/N 0438320 Ta (K) - 296
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4710	3.3	2.00
2	NA	NA	1.00	1.0370	6.4	4.00
3	NA	NA	1.00	0.9270	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9916	0.6741	1.4113	0.9956	0.6768	0.8874
0.9874	0.9521	1.9959	0.9914	0.9560	1.2549
0.9854	1.0630	2.2315	0.9894	1.0673	1.4030
0.9843	1.1134	2.3405	0.9883	1.1180	1.4715
0.9790	1.3410	2.8227	0.9829	1.3465	1.7747
Qstd slope (m) = 2.11662			Qa slope (m) = 1.32539		
intercept (b) = -0.01714			intercept (b) = -0.01078		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

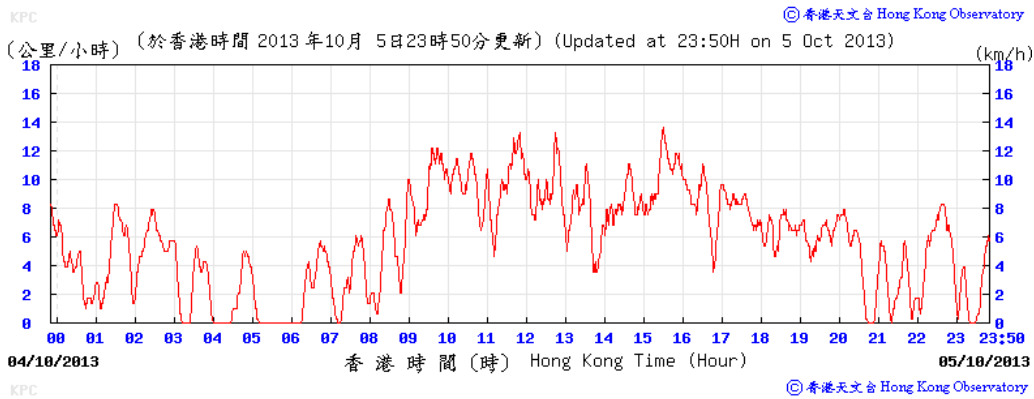
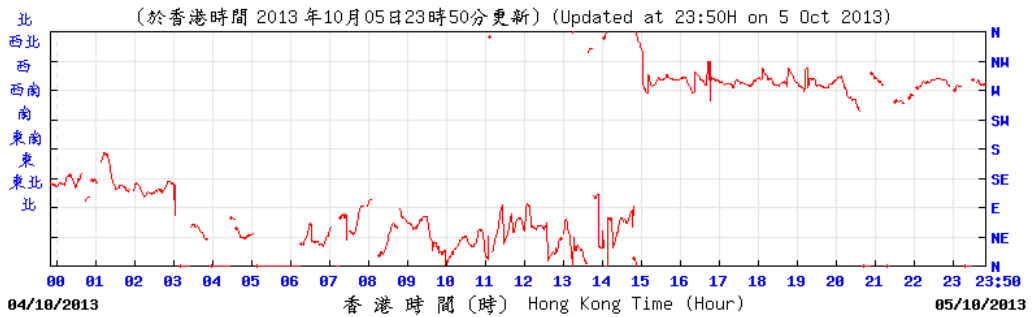
$$Qstd = 1/m \{ [\text{SQRT}(H2O(Pa/760)(298/Ta))] - b \}$$

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

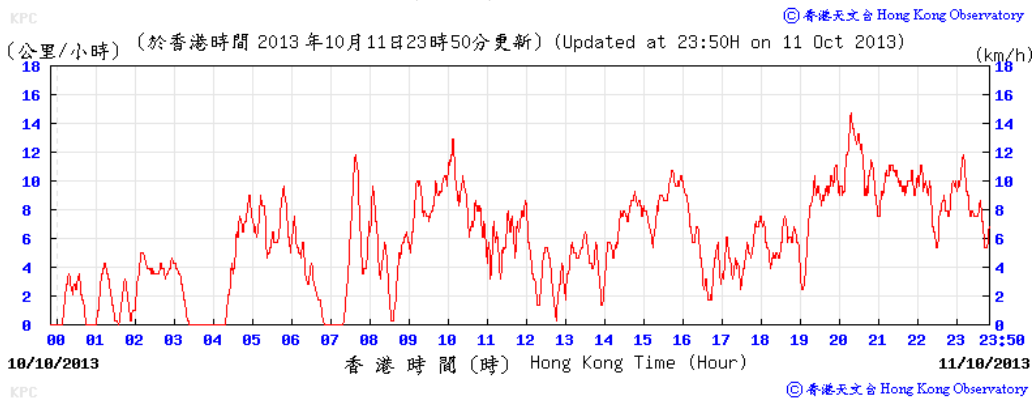
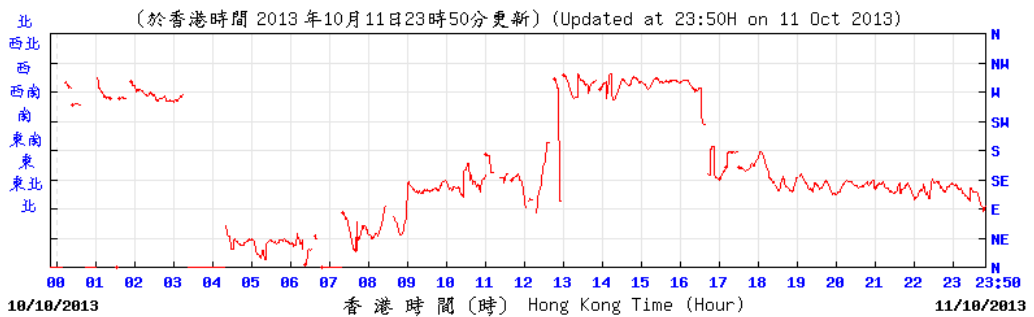
Appendix F

Wind Data

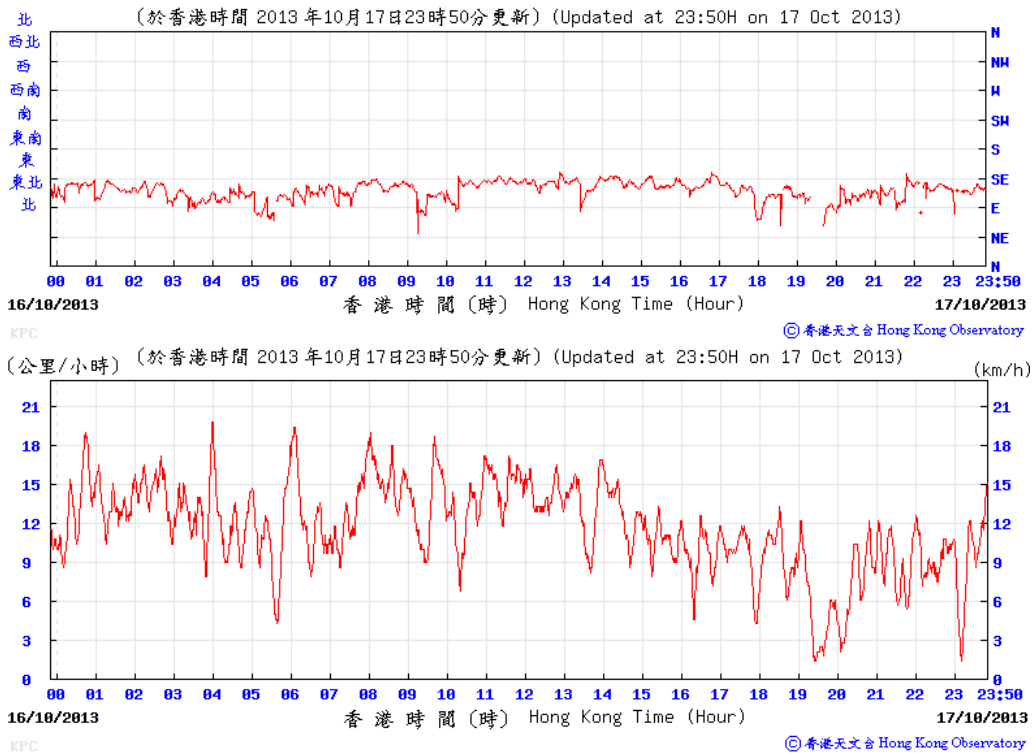
4 October 2013



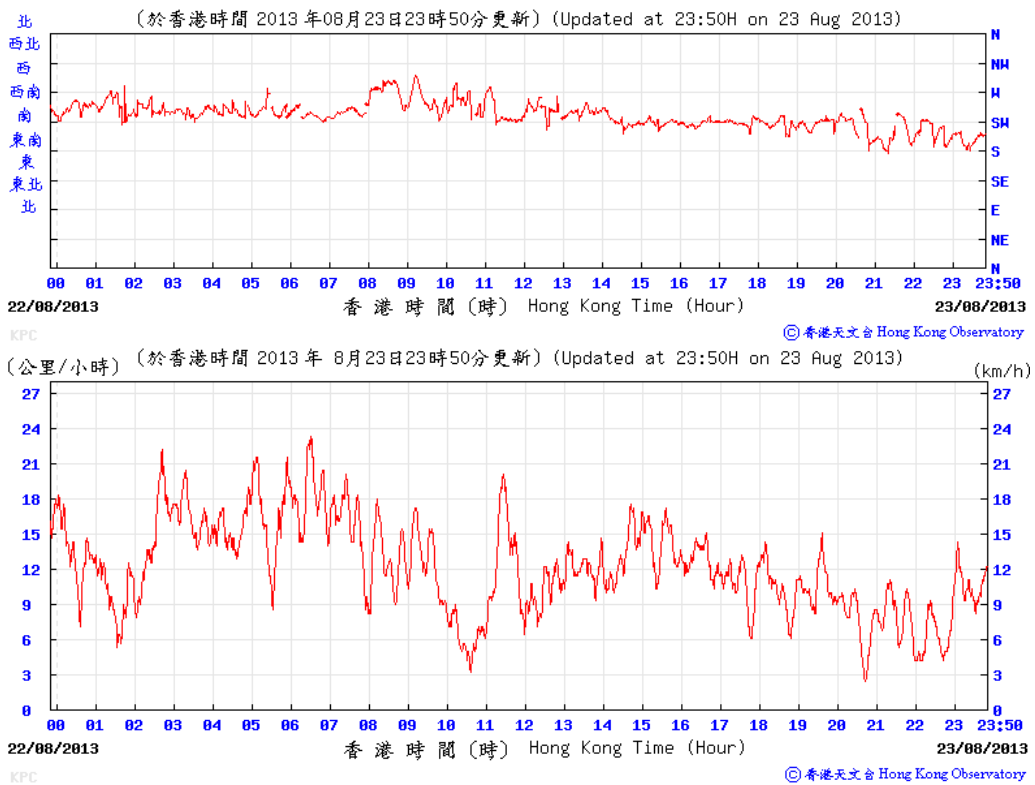
10 October 2013



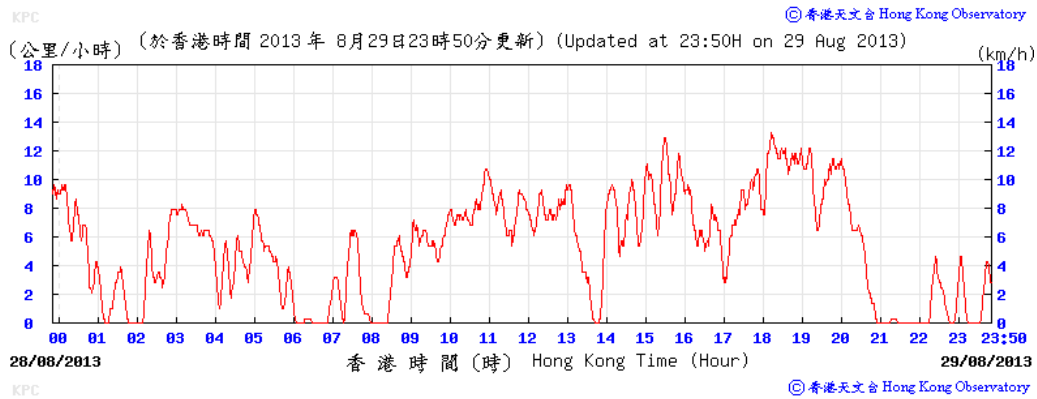
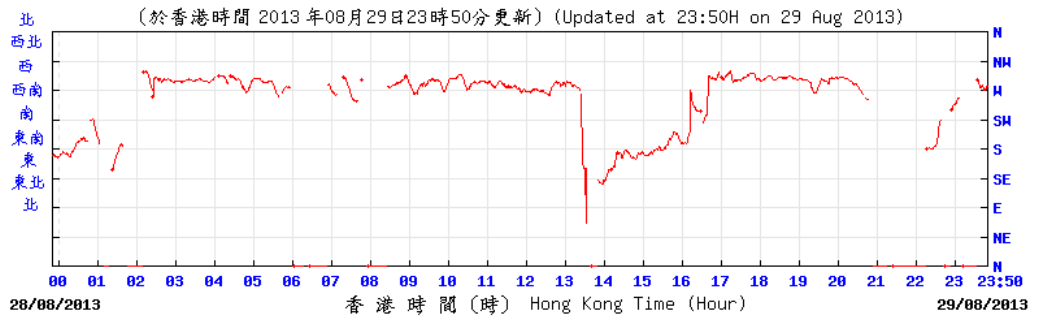
16 October 2013



22 October 2013



28 October 2013



Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in October 2013

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

Environmental Monitoring Schedule for SCL1112 in November 2013

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

APPENDIX H

Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Landscape & Visual (Construction Phase)							
S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of existing soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil will be re-used where possible for new planting areas within the project. The construction programme will consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up onsite as necessary. <p><u>No-intrusion zone</u></p> <ul style="list-style-type: none"> To maximise protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor will closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of retained trees</u></p> <ul style="list-style-type: none"> All retained trees will be recorded photographically at the commencement of the contract, and carefully protected during the construction period. The contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor’s works sites. 	Minimise visual and landscape impact	Contractor	Within project site	Construction Stage	EIAO-TM	^ * ^ ^
S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3	<p><u>Decorative hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding will be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the site, give control on the height and disposition/ arrangement of all facilities on the works site to minimise visual impact to adjacent VSRs. <p><u>Tree transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works will be transplanted where possible and 	Minimise the visual and landscape impact of the Project during construction phase	Contractor	Within project site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	practicable. Tree transplanting proposal including final location for transplanted trees will be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
Construction Dust Impact							
S7.6.5 of Ref. 1; S7.6.6 of Ref. 3	The contractor will follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	Air Pollution Control Ordinance (APCO) To control the dust impact to meet HKAQO and EIAO-TM criteria	^
S5.20, S5.21, S5.50 and Table 5.4 of Ref. 2	<p>Barging Facility:</p> <ul style="list-style-type: none"> Unloading of spoils to barge – the unloading process should be undertaken within a 3-sided screen with top tipping hall. Water spraying and flexible dust curtains should be provided at the discharge point for dust suppression. Transportation of the spoil from the construction sites to the Barging Point – watering once along all 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 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 1.7L/m² to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. Vehicles leaving the barging facilities – vehicles would be required to pass through the wheel washing facilities to be provided at site exit. 	To minimize the construction dust impacts to the nearby sensitive receivers	Contractor	Barging point at Hung Hom Freight Pier	Construction stage	APCO	N/A N/A N/A

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
S7.6.5 of Ref. 1; S5.50 of Ref. 2; S7.6.6 of Ref. 3	Mitigation measures in form of regular watering under a good site practice will be adopted. Watering once per hour on exposed worksites and haul road will be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but will be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency.	Minimise dust impact at the nearby sensitive receivers	Contractor	Active works areas, exposed areas and paved haul roads	Construction stage	APCO To control the dust impact to meet HKAQO and EIAO-TM criteria	^
S7.6.5 of Ref. 1; S5.51 of Ref. 2; S7.6.6 of Ref. 3	<ul style="list-style-type: none"> Any excavated or stockpile of dusty material will be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading. Any dusty materials remaining after a stockpile is removed will be wetted and cleared from the surface of roads. A stockpile of dusty material will not be extend beyond the pedestrian barriers, fencing or traffic cones. The load of dusty materials on a vehicle leaving a construction site will be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle. Where practicable, vehicle washing facilities with high pressure water jet will be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point will be paved with concrete, bituminous materials or hardcore. When there are open excavation and reinstatement works, hoarding of not less than 2.4m high will be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice will also be adopted by the contractor to ensure the conditions of the hoardings are properly maintained in construction period. The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit will be kept clear of dusty materials. Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously. 	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO Air Pollution Control (Construction Dust) Regulation To control the dust impact to meet HKAQO and EIAO-TM criteria	* ^ ^ ^ ^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<ul style="list-style-type: none"> Any area that involves demolition activities will be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet. Where scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground floor level of the building, or a canopy will be provided from the first floor level up to the highest level of the scaffolding. Any skip hoist for material transport will be totally enclosed by impervious sheeting. Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) will be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. Cement or dry PFA delivered in bulk will be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed. Loading, unloading, transfer, handling or storage of bulk cement or dry PFA will be carried out in a totally enclosed system or facility, and any vent or exhaust will be fitted with an effective fabric filter or equivalent air pollution control system. Exposed earth will be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						^ N/A ^ ^ ^ ^ ^
S7.6.5 of Ref. 1; S5.57 of Ref. 2; S7.6.6 of Ref. 3	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Harbourfront Horizon	Construction stage	EIAO-TM APCO	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Construction Airborne Noise							
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	Implement the following good site practices: <ul style="list-style-type: none"> Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction programme. Machines and plant (such as trucks, cranes) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum. Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs. Silencers or mufflers on construction equipment will be properly fitted and maintained during the construction works. Mobile plant will be sited as far away from NSRs as possible and practicable. Material stockpiles, mobile container site office and other structures will be effectively utilised, where practicable, to screen noise from onsite construction activities. 	Control construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^ ^ ^ ^ ^ ^
S8.3.6 of Ref. 1; S6.68 of Ref. 2; S8.5.6 of Ref. 3	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings will be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.64 – 6.67 and Table 6.20 of Ref. 2; S8.5.6 of Ref. 3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.62 – 6.63 and Table 6.19 of Ref. 2; S8.5.6 of Ref. 3	The following quiet PME should be used: <ul style="list-style-type: none"> Asphalt Paver (SWL=101dB(A)) Backhoe (SWL=106dB(A)) Backhoe with Hydraulic Breaker (SWL=110dB(A)) Concrete lorry mixer (SWL=96dB(A)) Concrete mixer truck (SWL=96dB(A)) Concrete Pump (SWL=106dB(A)) Concrete Pump Truck (SWL=106dB(A)) 	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<ul style="list-style-type: none"> • Crane, mobile (SWL=94dB(A)) • Crawler Crane (SWL=102dB(A)) • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A)) • Roller (SWL = 101dB(A)) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A)) 						
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Implement noise monitoring under EM&A programme.	Monitoring of construction noise impact	Contractor	Wing Fung Building	Construction stage as required by IEC	TM-EIA	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Water Quality (Construction Phase)							
S10.7.1 of Ref. 1; S8.41 – 8.39 and S8.50 of Ref. 2; S10.7.1 of Ref. 3	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, EPD, 1994 (ProPECC PN1/94), construction phase mitigation measures will include the following:</p> <p><u>Construction runoff and site drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment, perimeter cut-off drains to direct off-site water around the site will be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers will be provided onsite to direct stormwater to silt removal facilities. The design of the temporary onsite drainage system will be undertaken by the contractor prior to commencement of construction. The dikes or embankments for flood protection will be implemented around the boundaries of earthwork areas. Temporary ditches will be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps will be incorporated in the permanent drainage channels to enhance deposition rates. The design of silt removal facilities will be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps will be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5m³/s the basin would be 150m³. Detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of works. All exposed earth areas will be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces will be covered by tarpaulin or other means. All drainage facilities and erosion and sediment control structures will be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit will be removed regularly and disposed of by spreading evenly 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	Water Pollution Control Ordinance (WPCO) ProPECC PN1/94 EIAO-TM TM-Water Technical Memorandum on Effluent Discharge Standard (TM-DSS)	^ # ^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>over stable, vegetated areas.</p> <ul style="list-style-type: none"> Measures will be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they will be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations will be discharged into storm drains via silt removal facilities. Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ will be covered with tarpaulin or similar fabric during rainstorms. Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) will always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention will be paid to the control of silty surface runoff during storms, especially areas near steep slopes. All vehicles and plant will be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities will be provided at every construction site exit where practicable. Wash-water will have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road will be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. Oil interceptors will be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors will be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage 						<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>#</p> <p>^</p>

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	<p>system after accidental spillage. A bypass will be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas will be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. All the earth works involving will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt Best Management Practices. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
<p>S10.7.1 of Ref. 1; S10.7.1 of Ref. 3</p>	<p><u>Tunnelling works</u></p> <ul style="list-style-type: none"> Cut-and-cover/ open-cut tunnelling work will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge will pass through sedimentation tanks prior to off-site discharge. The wastewater with a high concentration of SS will be treated (eg, by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It will be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) will be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 will be adhered to in the handling and disposal of bentonite slurries. 	<p>To minimize construction water quality impact from tunnelling works</p>	<p>Contractor</p>	<p>All tunnelling portion</p>	<p>Construction stage</p>	<p>WPCO ProPECC PN1/94 EIAO-TM TM-Water</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

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S8.68 of Ref. 2; S10.7.1 of Ref. 1	<p><u>Operation of Barging Facilities</u> The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Mitigation measures as outlined for control of <i>construction runoff and site drainage</i> provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate. 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	N/A N/A N/A N/A N/A
S8.51 – 8.52 of Ref. 2	<p><u>Bentonite Slurries:</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. 	To minimize water quality impact from bentonite slurries	Contractor	All works area	Construction stage	WPCO TM-EIA	^ ^
S8.53 – 8.54 of Ref. 2	<p><u>Wastewater from Building Construction:</u></p> <ul style="list-style-type: none"> Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of 	To minimize water quality impact from building construction	Contractor	All construction sites where practicable	Construction stage	WPCO EIAO-TM	^ N/A

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	<p>settleable solids in a silt removal facility, and pH adjustment as washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office of EPD.</p>						
S8.62 of Ref. 2	<p><u>Excavation Activities:</u></p> <ul style="list-style-type: none"> The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimise the potential for dust emission, increased siltation and contamination of runoff. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from water environment so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. 	To minimize water quality impact from excavation activities	Contractor	All excavation works areas	Construction stage	WPCO EIAO-TM	^
S8.63 of Ref. 2	<p><u>Diaphragm Wall</u></p> <ul style="list-style-type: none"> The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment. Proper handling of bentonite slurries used in diaphragm wall construction should be adopted. 	To minimize water quality impact from diaphragm walling	Contractor	All diaphragm walling works areas	Construction stage	WPCO EIAO-TM	^
S8.60 – 8.61 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Sewage effluent</u></p> <p>Portable chemical toilets are recommended for handling the construction sewage generated by the workforce. A licensed contractor will be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	WPCO TM-Water	^

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S8.64 of Ref. 2; S10.7.1 of Ref. 3	<u>Groundwater seepage</u> As some proposed works areas at Hung Hom are near Victoria Harbour, high ground water level regime due to both tidal effects and rainwater infiltration is anticipated. Appropriate measures will be deployed to minimise the intrusion of groundwater into excavation works areas. In case seepage of groundwater occurs, groundwater will be pumped out from the works areas and discharged into the storm system via silt removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	^
S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	<u>Accidental spillage</u> To prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	* ^ ^ ^
S8.72 of Ref.2	Regular site inspections should be undertaken to inspect the construction activities and works areas	To ensure the recommended water quality mitigation measures are properly implemented	Contractor	All construction sites	Construction stage	EIAO-TM WPCO ProPECC PN 1/94 TM-DSS WDO	^

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Waste Management (Construction Phase)							
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	<p><u>Onsite sorting of C&D material</u></p> <p>Geological assessment will be carried out by competent persons onsite during excavation to identify materials which are not suitable to use as aggregate in structural concrete (eg, volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock will be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator will also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities will be submitted by the Contractors for the Engineer to review and agree. In addition, site records will also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) ref: 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc will also be explored.</p>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	DEVB TC(W) ref. 6/2010	^
S11.5.1 of Ref.1; S9.72 – 9.74 of Ref. 2; S11.5.1 of Ref.3	<p><u>Construction and demolition material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. Carry out onsite sorting. Make provisions in the Contract documents to allow and promote The use of recycled aggregates where appropriate. Adopt 'selective demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible. Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. Implement an enhanced Waste Management Plan similar to ETWBTC (Works) ref 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. will be avoided. The 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^ ^ ^ ^ ^ ^

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	contractor will propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation.						
S11.5.1 of Ref.1; S9.73 of Ref. 2; S11.5.1 of Ref.3	<u>C&D waste</u> <ul style="list-style-type: none"> Standard formwork or pre-fabrication will be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works will be considered. Use of wooden hoardings will not be used, as in other projects. Metal hoarding will be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The contractor will recycle as much of the C&D materials as possible onsite. Public fill and C&D waste will be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites will be considered for such segregation and storage. 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^
S11.5.1 of Ref.1; S9.100-9.102 of Ref.2; S11.5.1 of Ref. 3	<u>General refuse</u> <ul style="list-style-type: none"> General refuse generated onsite will be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector will be employed by the contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans will be often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit will be provided if feasible. Office wastes will be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme will be considered by the contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	^ ^ ^

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S11.5.1 of Ref.1; S9.84 – 9.93 of Ref. 2	<p><u>Land-based sediment</u></p> <ul style="list-style-type: none"> The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. The Project Proponent should agree in advance with MFC of CEDD on the site allocation. Subject to the final decision by MFC, Type 1 sediments are typically disposed to South Cheung Chau and/or East of Ninepin as open sea disposal while Type 2 sediments are disposed to East Sha Chau as confined marine disposal. Sampling and Testing Plan(s) should be prepared in accordance with ETWB TC(W) No. 34/2002. Site investigation, based on the Sediment Sampling and Testing Plan(s), should be carried out in order to confirm the disposal arrangements for the proposed excavated sediments. A Sediment Quality Report (SQR) should then be submitted to EPD for agreement prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal. The excavated sediments is expected to be loaded onto the dumping trucks and transferred to the barging point where the sediments would be transported via barge to the existing designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments. Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should 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 should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be 	To ensure the sediment is handled and disposed of in a least impacted way and in accordance to the statutory	Contractor	All construction sites	Construction stage	ETWB TC(W) NO. 34/2002 Dumping at Sea Ordinance (DASO) APCO WPCO	N/A N/A N/A N/A N/A

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	<p>collected and discharged according to the Water Pollution Control Ordinance (WPCO).</p> <ul style="list-style-type: none"> In order to minimize the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments should be wetted during excavation / material handling and should be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge should 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 should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In order to minimize the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 						<p>^</p> <p>N/A</p> <p>N/A</p>
S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3	<p><u>Chemical waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, will be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes will be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes will be clearly labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	<p>^</p> <p>^</p> <p>^</p>

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	and be arranged so that incompatible materials are adequately separated. <ul style="list-style-type: none"> Disposal of chemical waste will be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						^
S9.98 – 9.99 of Ref 2	<u>Asbestos wastes</u> <ul style="list-style-type: none"> All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste. Collection, transportation and disposal of asbestos waste will follow the trip-ticket system. Licensed asbestos waste collectors will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. The Project Proponent should notify to EPD in advance for disposal of asbestos waste. After processing the notification, EPD will issue specific instructions and directions for disposal. The waste producer must strictly follow these directions 	To ensure the asbestos wastes are handled and disposed of in accordance with the statutory requirements	Contractor	All construction sites	Construction stage	Code of practice on the Handling, Transportation and Disposal of Asbestos Waste	N/A N/A

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Land Contamination							
S10.24 – 10.34 of Ref 2	<p><u>Precautionary measures</u></p> <ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process should involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination. 	To act as a general precautionary measure to screen soils for the presence of contamination during construction	Contractor	All construction sites	Construction stage	<p>“Guidance Note for Contaminated Land Assessment and Remediation”</p> <p>“Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management”</p>	<p>^</p> <p>^</p>
S10.35 of Ref 2	<ul style="list-style-type: none"> Potential remediation of contaminated soil If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/disposal records (including trip tickets), confirmatory sampling results and photographs should be included in the RR. No construction work should be carried out prior to endorsement of the RR by EPD. In order to minimise environmental impacts arising from the handling of potentially contaminated materials, the following environmental precautionary measures are recommended to be utilised during the course of any required site remediation: Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material is needed after excavation; 	To remediate contaminated soil	Contractor	All construction sites	Construction stage	<p>“Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair /Dismantling Workshop”</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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	<ul style="list-style-type: none"> If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal Protective Equipment Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet conditions; Speed control for the trucks carrying coVehicle wheel and body washing facilities at the site's exit points should be established and used; and contaminated materials should be enforced; Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control should be implemented and complied with relevant regulations and guidelines. 						N/A ^ ^ ^
S10.36 of Ref 2	The Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations should be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures should be implemented as far as possible: Set up a list of safety measures for site workers. Provide written information and training on safety for site workers. Keep a log-book and plan showing the contaminated zones and clean zones. Maintain a hygienic working environment. Avoid dust generation. Provide face and respiratory protection gear to site workers. Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers. Provide first aid training and materials to site workers.	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	All construction sites	Site remediation and prior to construction phase	"Guidance Note for Contaminated Land Assessment and Remediation" "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management" "Occupation Safety and Health Ordinance (Chapter 509)"	^

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EM&A Project							
S14.2 – 14.4 of Ref. 1; S13.2 – 13.4 of Ref. 3 1.	<ul style="list-style-type: none"> An Environmental Team needs to be employed as per this EM&A Manual. Prepare a systematic EMP to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in this EM&A Manual are fully complied with. 	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 EIAO-TM	^

Remark for Status:

^ Compliance of mitigation measure
 + Non-compliance but rectified by the contractor
 N/A Not Applicable

X Non-compliance of mitigation measure
 * Recommendation was made during site audit but improved/rectified by the contractor
 # Recommendation was made during site audit and improvement/rectification not yet completed by the contractor

Notes:

Ref. 1 – EIA Report for SCL (TAW-HUH)
 Ref. 2 – EIA Report for SCL (MKK-HUH)
 Ref. 3 – EIA Report for SCL (HHS)

This EMIS contains only those requirements that are relevant to Works Contract 1112 in terms of:

- EM&A required under Works Contract 1112
- Who to implement the measures – the Contractor (Leighton)
- The location of the measures – within and in the vicinity of the Works Contract 1112 Site Boundary
- When to implement the measures – during the design and construction

APPENDIX I

Event and Action Plan

Event and Action Plan for Landscape and Visual Impact Monitoring

Event	ET	IEC	ER	Contractor
Action level				
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the contractor's working method 3. Discuss with the ET, ER and the contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source 2. Inform the contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the contractor 2. In consultation with the ET and IEC, agree with the contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Event and Action Plan for Air Quality

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

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

Note:

ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

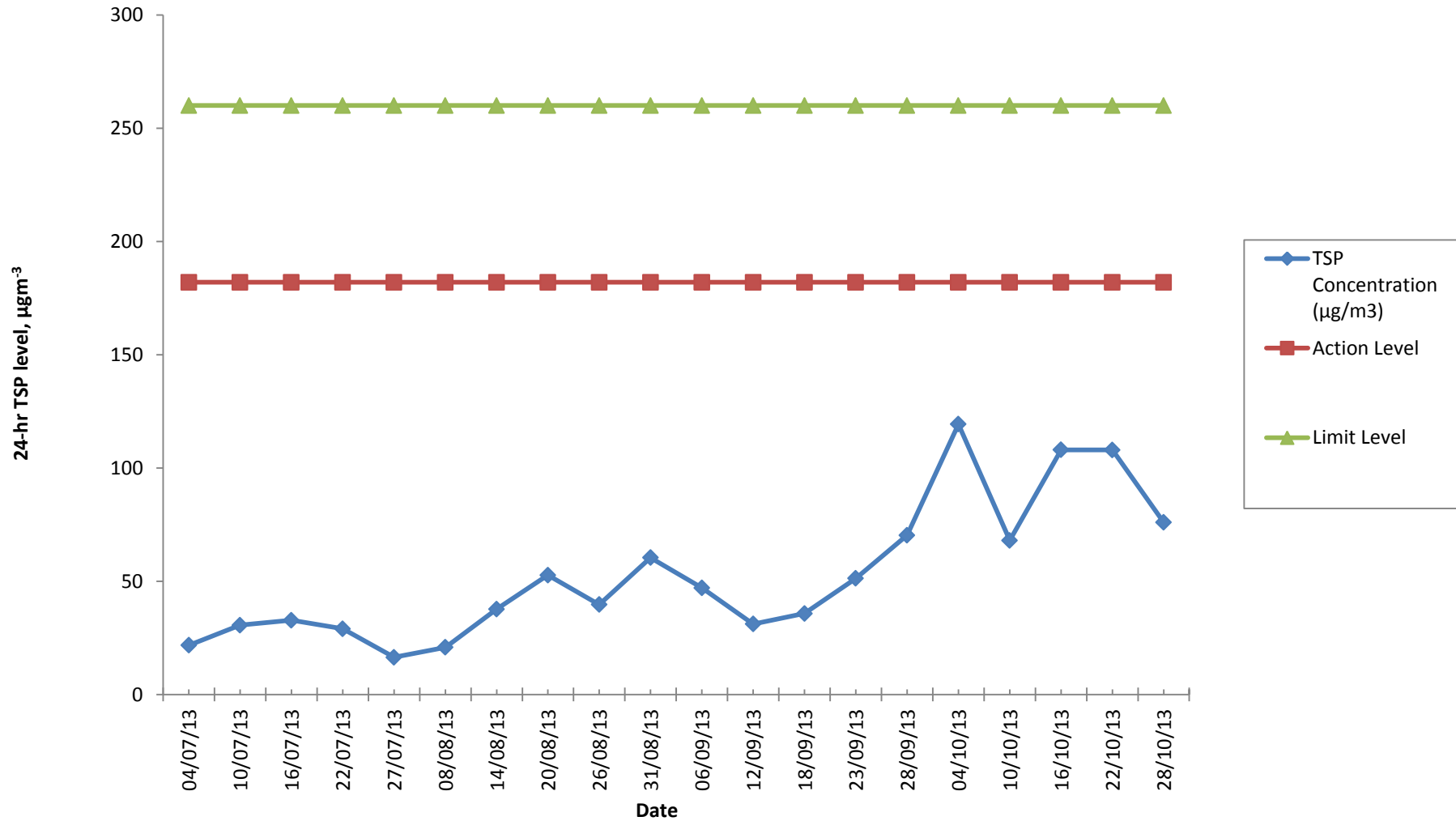
APPENDIX J

Monitoring Results and their Graphical Presentations

Air Quality Monitoring Results for AM2

Sampling Date	Wt. of paper (g)				Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather	Reference
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
04/10/13	026023	2.7276	2.9223	0.1947	10149.06	10173.06	24	40	40	40	1631.05	119.3709	Hazy	-
10/10/13	026024	2.7199	2.8309	0.1110	10173.06	10197.06	24	40	40	40	1631.05	68.0543	Hazy	-
16/10/13	026025	2.7255	2.9017	0.1762	10197.06	10221.06	24	40	40	40	1631.05	108.0286	Sunny	-
22/10/13	026026	2.7246	2.9007	0.1761	10221.06	10245.06	24	40	40	40	1631.05	107.9672	Sunny	-
28/10/13	026027	2.7221	2.8460	0.1239	10245.06	10269.06	24	40	40	40	1631.05	75.9633	Hazy	-

Construction Dust Monitoring Results for AM2 (Harbourfront Horizon)



APPENDIX K

Waste Flow Table

Waste Flow Table													
Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of non-inert C&D Wastes Generated Monthly					
	Generated		Disposed					Recycled				Disposed	
	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/cardboard packaging	Asphalt	Plastics	Chemical Waste	General Refuse ^[Note 2]
Unit	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)
Jun-13	0	0	0	0	0	0	0	137.301	0	0	0	0	6.55
Jul-13	0.361	0	0	0	0	0	0.361	365.335	0	0	0	0	16.87
Aug-13	1.6809	0	0	0	0.0479	0	1.633	69.979	0.253	0	0	0	12.67
Sep-13	3.389	0	0	0	0.196	0	3.193	131.175	0.223	0	0.46	0	16.25
Oct-13	4.036	0	0	0	0.777	0	3.259	120.18	0.63	8.28	2.04	0	39.87
Nov-13													
Dec-13													
TOTAL	9.4669	0	0	0	1.0209	0	8.446	823.97	1.106	8.28	2.5	0	92.21

Note:

1. Assume the density of fill is 2 ton/m³.
2. Refuses disposed of at NENT landfill.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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

Appendix I

**5th Monthly EM&A Report for Works Contract 1108 –
Kai Tak Station and Associated Tunnels**

MTR Corporation Limited

**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report

[Period from 1 to 31 October 2013]

Works Contract 1108 –Kai Tak Station and
Associated Tunnels

(October 2013)

Certified by: Goldie Fung 

Position: Environmental Team Leader

Date: 8 Nov 2013

Kaden – Chun Wo Joint Venture (KCJV)

Shatin to Central Link –

Contract 1108

Kai Tak Station and Associated Tunnels

Monthly Environmental Monitoring & Auditing Report for

October 2013

The Contents of this report have been certified by:



Ms. Goldie Fung
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Executive Summary

This is the fifth monthly Environmental Monitoring and Audit (EM&A) Report for **MTR Shatin to Central Link (SCL) Works Contract 1108 – Kai Tak Station and Associated Tunnels**. The project commenced on 17th June 2013. This report documents the finding of EM&A Works conducted from 1st October 2013 to 31st October 2013.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Installation of sheetpile cutoff wall
- Installation of dewatering well
- Installation of ground monitoring instrumentation
- Advance excavation to +3.5mPD
- Breaking of concrete pavement and material stockpile on site
- Area2 & Area 3 Stage 1 pumping test
- Additional boreholes and CPT for ground investigation works.
- Downstream decking to break down

Variation in Construction Method

No variation in construction method from the proposed construction programme was noted in this reporting month.

Environmental Monitoring and Audit Progress

Culture Heritage

As tunneling works have not commenced, no audit for the Lung Tsun Stone Bridge and Former Kowloon City Pier was conducted during the reporting month.

Landscape and Visual

The implementation of landscape and visual mitigation measures was inspected during the weekly environmental site inspection. Most of the necessary mitigation measures have been implemented. Details of the audit findings and implementation status are presented in Section 6.

Waste Management

According to Contractor's waste flow data, 17,151 m³ of inert C&D materials were generated during this reporting month and were disposed to the receiving facility of Contract 1108A. 114 m³ of non-inert C&D waste were generated and disposed at landfill site.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 2nd, 7th, 15th, 22nd and 29th October 2013. The representative of the IEC joined the site inspection on 7th October 2013. Details of the audit findings and implementation status are presented in Section 6.

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

No breaches of Action and Limits levels, non-compliance event, environmental complaint, notification of summons and successful prosecution against the Project were received in this reporting month.

Future Key Issues

The major construction works to be undertaken in the next reporting month include:

- Continue installation of sheetpile cutoff wall
- Continue advance excavation to +3.5mPD and preparation of subsequent excavation down to -3.5mPD
- Continue installation of dewatering well and ground monitoring instrumentation
- Continue pumping test
- CPT for ground investigation works
- Shotcreting trail review
- Complete safety platform for coring of middle wall and start coring

1 Introduction

The Environmental Team (ET), Environmental Pioneers & Solutions Limited (EPSL), was appointed by Kaden – Chun Wo Joint Venture (KCJV) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1108 – Kai Tak Station and Associated Tunnels (the Project). The project commenced on 17th June 2013.

1.1 Purpose of the Report

This is the fifth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st October 2013 to 31st October 2013.

1.2 Structure of the Report

The structure of the report is as follow:

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

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

Section 3: Environmental Monitoring Requirement - summarises the monitoring requirements and environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

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

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

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

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

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

Section 9: Conclusions and Recommendations

2 Project Information

2.1 Background

The Shatin to Central Link – Tai Wai to Hung Hom Section (SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic East-West rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1108 covers the construction of Kai Tak Station (KAT) and the section of tunnel between KAT and Sung Wong Toi Station (SUW) plus a short section of tunnel from KAT towards Diamond Hill Station (DIH). This construction contract was awarded to Kaden - Chun Wo Joint Venture (KCJV) in April 2013.

2.2 General Site Description

The works area includes work sites in the Kai Tak New Development Area. The construction of tunnel will employ cut & cover method. The alignment and works area for the Project is shown in **Appendix A**.

2.3 Construction Programme and Activities

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

- Installation of sheetpile cutoff wall
- Installation of dewatering well
- Installation of ground monitoring instrumentation
- Advance excavation to +3.5mPD
- Breaking of concrete pavement and material stockpile on site
- Area2 & Area 3 Stage 1 pumping test
- Additional boreholes and CPT for ground investigation works.
- Downstream decking to break down

2.4 Project Organization

The project organization chart and contact details are shown in **Appendix C**.

2.5 Status of Environmental Licences, Notification and Permits

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

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref. Number 359540	16/05/2013	N/A	Valid
Waste Disposal (Charges for Disposal of Construction Waste) Regulation			
Billing Account No. 7017544	07/06/2013	N/A	Valid
Construction Noise Permit for the Carrying Out of Percussive Piling			
PP-RE0026-13	02/07/2013	01/09/2013	Superseded by PP-RE0039-13
PP-RE0039-13	02/09/2013	28/02/2014	Valid
Construction Noise Permit for General Works			
GW-RE0720-13	12/07/2013	08/01/2014	Valid
GW-RE0998-13	23/09/2013	15/03/2014	Valid
Effluent Discharge License			
WT00016451-2013	26/08/2013	31/08/2018	Valid
Registration of Chemical Waste Producer			
WPN 5213-286-K3069-01	09/07/2013	N/A	Valid

2.6 Summary of EM&A Requirements

The EM&A programme under Works Contract 1108 require regular environmental site audits. The EM&A requirements are described in the following sections, including:

- Weekly inspection for Cultural Heritage;
- Weekly inspection for Landscape and Visual;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

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

3 Environmental Monitoring Requirements

3.1 Culture Heritage

In accordance with the EM&A Manual, a buffer zone shall be maintained between both Lung Tsun Stone Bridge and Former Kowloon City Pier and SCL (TAW-HUH) works sites during the tunneling work. For Lung Tsun Stone Bridge, a horizontal distance of 25m between the bridge and the buffer boundary shall be maintained. For Former Kowloon City Pier, a vertical buffer distance of 1.8 – 2.2m from the top of the tunnel shall be maintained. The layout of the buffer zone was attached in **Appendix D**. No at-grade construction activities shall be allowed within the buffer zone. Audit shall be conducted on a weekly basis throughout the construction period for the mined tunnel within the horizontal buffer zone.

3.2 Landscape and Visual

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

The event/action plan for Landscape and Visual during Construction Stage is attached in **Appendix E**.

4 Implementation Status on Environmental Protection Requirements

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Forth Monthly EM&A Report	15 th October 2013

5 Monitoring Results

5.1 Cultural Heritage

As tunneling works have not been commenced, no audit was conducted during the reporting month.

5.2 Landscape and Visual

Inspections of the implementation of landscape and visual mitigation measures were conducted on weekly basis. The observations and recommendations made during the audit sessions are summarized in Table 6.1.

5.3 Waste Management

With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 5.1. The inert C&D materials were disposed to the Contract 1108A receiving facility. The general refuse was disposed to designated landfill site. No steel metals, paper/cardboard packaging and plastics were generated during this reporting month. Detail of waste management data is presented in **Appendix F**.

Table 5.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
October 2013	17,151m ³	114 m ³	0 kg	0 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel metal generated from the Project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

6 Environmental Site Inspection

6.1 Site Audit

Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 2nd, 7th, 15th, 22nd and 29th October 2013. The representative of the IEC joined the site inspection on 7th October 2013. The details of observations during site audit can refer to Table 6.1.

EPD conducted a site inspection on 9th October 2013. EPD has reminded the Contractor to enhance water spraying during concrete breaking and prior loading of excavated material to reduce dust impact.

6.2 Implementation Status of Environmental Mitigation Measures

According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. Updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix G**.

During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in Table 6.1.

Table 6.1 Summary results of site inspections findings

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Noise	15 Oct 13	No noise mitigation measure was provided for the concrete breaking work at area 3.	Contractor was recommended to wrap the breaker tip with sound absorbing material to reduce the noise impact.	The breaker tips were wrapped with sound absorbing material for the concrete breaking work.	22 Oct 13	/
Air Quality	16 Sep 13	No dust suppression measure was observed for the concrete breaking works at Area 3.	Contractor was advised to provide water spraying during concrete breaking to reduce the dust impact.	Frontline staff was assigned to perform water spraying during concrete breaking to suppress dust.	22 Oct 13	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
	16 Sep 13	Some stockpiles of excavated material were not covered properly	Contractor was reminded to cover the stockpile entirely with impervious material.	Most of the earth stockpiles were covered by tarpaulin to prevent erosion and dust generation. Water spraying was provided by water spraying truck for uncovered area of the stockpiles, which were still being piled up at the time of inspection	29 Oct 13	/
	2 Oct 13	The site condition was observed to be dry and dusty. Dust was observed when construction vehicles passed through the haul road.	Contractor was advised to provide more frequent water spraying to maintain the haul road to be wet and prevent generation of dust.	Water spraying on-site was enhanced. Three water spraying trucks were employed to provide water spraying on planned routes. The surface of the site was generally wet	22 Oct 13	/
	7 Oct 13	Cement bags were observed inside a waste container without dust preventive measures.	Contractor was advised to cover the container entirely with impervious material to avoid fugitive dust emission.	The cement bags inside the waste container were removed.	15 Oct 13	/
	15 Oct 13	Dust suppression measure was missing for loading earthy material.	Contractor was advised to provide water spraying prior to any loading, unloading or transfer of earthy material to reduce dust generation.	Frontline staff was assigned to perform water spraying prior loading of dusty material to suppress dust.	22 Oct 13	/
	29 Oct 13	The cement production area was not properly covered.	Contractor was advised to cover the area with impervious sheeting on top and 3 sides to avoid fugitive dust emission.	Follow up actions will be reported in next month.	N/A	/
	29 Oct 13	Dust was observed during transfer of earthy material.	Contractor was reminded to provide water spraying prior loading and unloading of dusty material for dust prevention.	Follow up actions will be reported in next month.	N/A	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
	29 Oct 13	The work site of Area 1 & Area 2 was dry.	Contractor was advised to provide water spraying to maintain the site surface wet. Contractor was suggested to regularly review the route plan of the water spraying trucks for more efficient watering.	Follow up actions will be reported in next month.	N/A	/
Water Quality	25 Jun 13	Muddy surface runoff entered into an existing channel was observed.	Contractor was reminded to block the remaining sections of channel as soon as possible.	During the inspection on 18 Jul 13, the section of channel near the buffer zone was blocked by sandbags. Rectification for other sections is still in progress. Inspection on the water quality of downstream of Kai Tak Nullah is ongoing. No muddy water was observed being discharged from the site.	N/A	/
	30 Aug 13	The outlets of some drip trays on site were not properly plugged and water leakage was observed.	Contractor was reminded to properly plug the outlets to avoid land contamination in case of leakage.	The outlet of the drip tray at Area 3 was plugged.	2 Oct 13	/
	24 Sep 13	Drip tray was missing for some oil/chemical containers.	Contractor was reminded to provide drip tray underneath oil/chemical containers for storing leaked oil.	The oil/chemical containers without drip trays were removed.	2 Oct 13	/
	24 Sep 13	Silty water was observed to be generated from the nullah deck removal work.	Contractor was reminded to provide preventive measures to avoid runoff of silty water entering into the nullah.	The nullah deck removal work was completed and no possible source of runoff discharge was observed.	22 Oct 13	/
	7 Oct 13	Chemical containers were placed on bared ground without secondary containment.	Contractor was advised to relocate the chemical containers to the designated chemical waste storage cabinet. Contractor was reminded to provide drip tray for chemical material and waste if temporary storage on active working area is	Follow up actions will be reported in next month.	N/A	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
			necessary.			
	22 Oct 13	An oil drum was observed on bared ground at Area 3.	Contractor was advised to provide drip tray for the oil drum to avoid land contamination.	Follow up actions will be reported in next month.	N/A	/
	29 Oct 13	Some chemical and oil drums were observed to be placed on bared ground without secondary containments at Area 2 & 3.	Contractor was advised to provide drip tray for the temporary storage of the chemical/oil to avoid land contamination. Contractor was reminded to relocate the used containers to the designated chemical waste storage cabinet for proper housekeeping.	Follow up actions will be reported in next month.	N/A	/
	29 Oct 13	Broken sandbags were observed near the nullah.	Contractor was suggested to remove the sandbags and the sand on ground for proper housekeeping and prevent polluting the nullah.	Follow up actions will be reported in next month.	N/A	/
	29 Oct 13	Some grit and broken concrete generated from concrete deck removal work was observed near the nullah.	Contractor was reminded to remove the grit to prevent dropping of the grit into the nullah and to maintain the free flow of the nullah.	Follow up actions will be reported in next month.	N/A	/
	29 Oct 13	Although wheel washing was provided by frontline staff, the haul road at the site exit leading to 1108A site was observed to be muddy.	Contractor was suggested to enhance vehicle washing to avoid mud deposition to the haul road and maintain the site exit clear of dusty material.	Follow up actions will be reported in next month.	N/A	/
Waste / Chemical Management	N/A	N/A	N/A	N/A	N/A	/
Cultural Heritage	N/A	N/A	N/A	N/A	N/A	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Landscape and Visual	N/A	N/A	N/A	N/A	N/A	/
Permits/ Licenses	N/A	N/A	N/A	N/A	N/A	/

7 Environmental Non-Conformance

7.1 Summary of Environmental Exceedances

No breaches of Action and Limit levels was recorded in the reporting month.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

No environmental project-related complaint was received in the reporting month.

7.4 Summary of Environmental Summon and Successful Prosecution

There was no successful environmental prosecution or notification of summons received since the Project commencement.

The Cumulative Log for environmental exceedance, non-compliance, complaint and summon and successful prosecution since the commencement of the Project is presented in **Appendix H**.

8 Future Key Issues

The major construction activities in the coming month will include:

- Continue installation of sheetpile cutoff wall
- Continue advance excavation to +3.5mPD and preparation of subsequent excavation down to -3.5mPD
- Continue installation of dewatering well and ground monitoring instrumentation
- Continue pumping test
- CPT for ground investigation works
- Shotcreting trail review
- Complete safety platform for coring of middle wall and start coring

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise and waste management. The Contractor has been reminded to properly implement dust and construction noise control measures as well as proper waste management in order to minimize the potential environmental impacts due to the construction works of the Project.

9 Conclusions and Recommendations

9.1 Conclusions

This is the fifth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st October 2013 to 31st October 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/D.

5 nos. of environmental site inspections were carried out in this reporting month. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

No exceedances, non-compliance event, complaint and summons/prosecution was received during the reporting period.

The ET will keep tracking of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures.

9.2 Recommendations

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

Dust Impact

- Enhance regular water spraying of the site to reduce the dust impact
- Provide effective dust suppression measure for dust generating activities, i.e. concrete breaking, loading and unloading of dusty material, cement production
- Cover dusty stockpiles entirely with impervious material to avoid dust generation

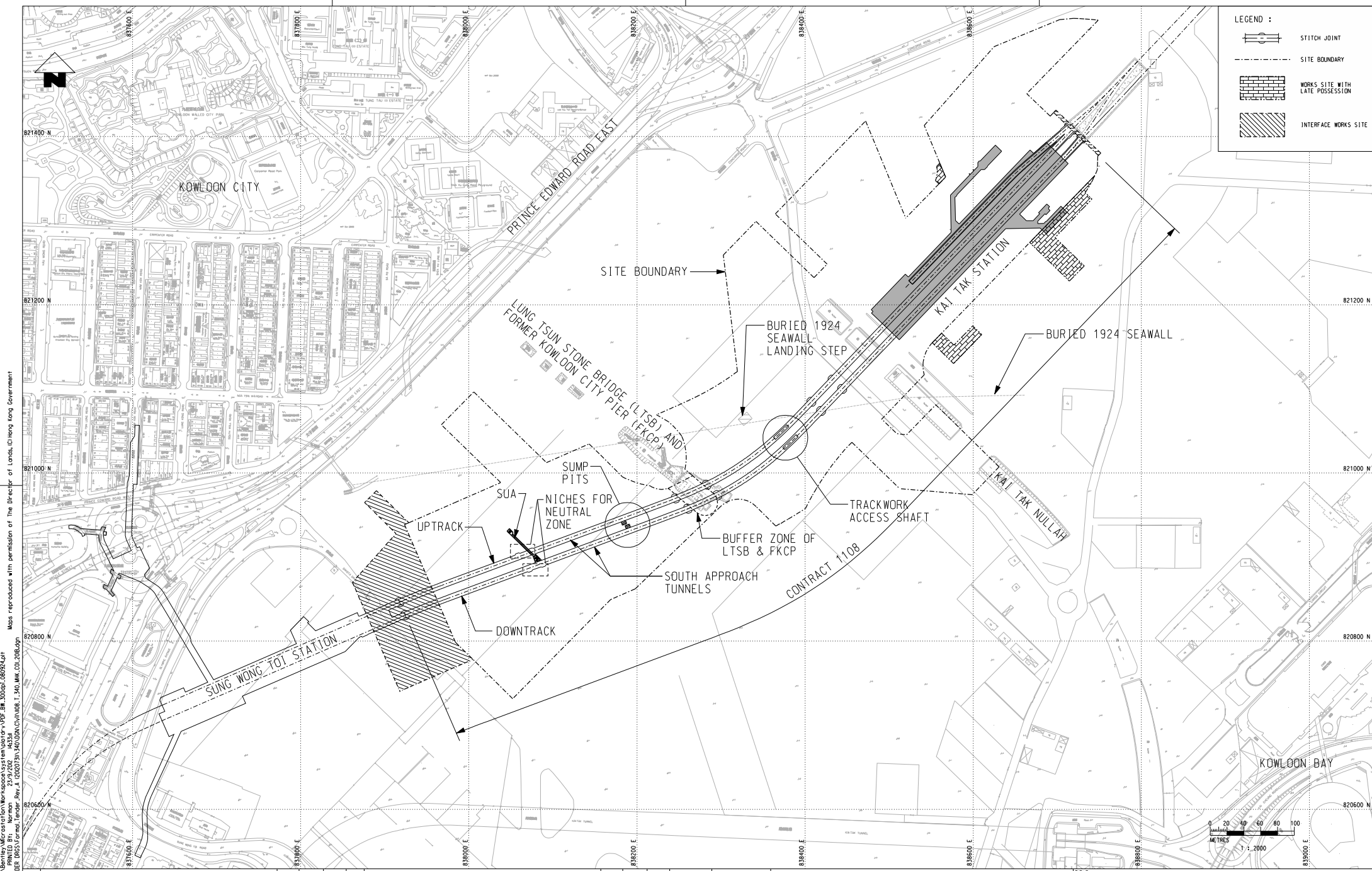
Noise Impact

- Wrap the breaker tip with sound absorbing materials to reduce noise impact

Water Quality Impact

- Provide preventive measure to avoid discharge of surface runoff
- Provide drip trays with adequate capacity for fuel-powered equipment and fuel/chemical containers to prevent accidental spillage
- Check and plug the outlets of drip trays to avoid chemical leakage
- Remove any waste and grits near the nullah to avoid blocking of the nullah

Appendix A – Site Location Plan



LEGEND :

- STITCH JOINT
- SITE BOUNDARY
- WORKS SITE WITH LATE POSSESSION
- INTERFACE WORKS SITE

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 K103A/CADD/ TENDER/ DMS/ Form/ Tender/ Rev. A/ (2020)730_340/00N/CIV/00B.T_340.MHK.C01.2018.dgn

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 K103A/CADD/ TENDER/ DMS/ Form/ Tender/ Rev. A/ (2020)730_340/00N/CIV/00B.T_340.MHK.C01.2018.dgn

PLOT DATE: FILENAME:

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
B	ISSUE FOR TENDER	CC	31AUG12	FK	CC	31JAN12	FK		
A	ISSUE FOR TENDER	CC	31JAN12	FK	CC	31JAN12	FK		

DRWN	TWY	DESIGNED	CC	CHECKED	NN	APPROVED	FK	DATE	31JAN12
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SHATIN TO CENTRAL LINK

MEINHARDT in association with
 Aedas, Mott MacDonald, MVA, DLS,
 Wilkinson Murry, Evans & Peck, AA

ORIGINATOR
 CADD REF. 1108_T_340_MHK_C01_2018.dgn

TITLE
 CONTRACT 1108
 KAI TAK STATION AND ASSOCIATED TUNNELS
 GENERAL CIVIL WORKS
 LOCATION PLAN

SCALE: 1:2000 @ A1
 DRAWING NO. 1108/T/340/MHK/C01/201
 REV. B

Appendix B – Construction Programme

Activity ID	Activity Name	Activity % Complete	Start	Finish	October					November					December				January				February
					7	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27	03	
					30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27	03
Contract 1108 Kai Tak Station and Associated Tunnels																							
Contractual Dates and Project Key Dates																							
Contractual Dates																							
01108.CD1-COMM	Date for Commencement (25-Apr-13)	0%	31-Oct-13																				
IPS Milestone Dates																							
Cost Centre A - Preliminaries																							
01108.MSA01	A1 - Complete haul/access road, Access for Interface/Designated/CEDD Contractor to KTBarging Facility (WN. 22/13, 02-Jun	100%		02-Jun-13 A																			
01108.MSA02	A2-Approval of Submissions:EMP(G5.1.10),QP(G9.2.1),MC(G12.1.1),SS(G12.11.1),SARMP(P25.3.1),DSCP(AppQ) WN28	100%		14-Jul-13 A																			
01108.MSA03	A3 - Approval of Preliminary Master Programme, Time Chainage Programme, Health & Safety Plan, (WK.No.37/13, 15-Sep	100%		17-Oct-13 A																			
Cost Centre B - Kai Tak Station, Entrances and Adits																							
01108.MSB01	B1 - Pump test completed, accepted by Engineer & ready for open cut excavation of KAT station (Week No.36/13, 8-Sep-1	100%		22-Oct-13 A																			
01108.MSB02	B2 - Complete 30% of open cut excavation of KAT station (Week No. 45/13, 10-Nov-13)	0%		07-Jan-14																			
01108.MSB03	B3 - Complete 50% of open cut excavation of KAT station (Week No. 11/14, 16-Mar-14)	0%		24-Jan-14																			
Cost Centre C - South Approach Tunnel																							
01108.MSC01	C1 - Pump test completed, accepted by Engineer & ready for open cut excavation (Week No. 38/13, 22-Sep-13)	0%		21-Dec-13																			
Programme Data																							
Interface with Contract 1107																							
01108.PD4-IF1107.1	Contract 1107 Provide access to Contract 1108 at interface area for ELS Works (Week No. 52/13, 29-Dec-13)	0%	30-Dec-13*																				
Schedule of Access & Vacate Dates for Works Areas																							
Possession Dates																							
Works Areas																							
01108.ACWA1	Works Area 1108.A1 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACWA2	Works Area 1108.A2 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACWA3	Works Area 1108.A3 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACWA4	Works Area 1108.A4 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW01	Works Area 1108.W1 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW10	Works Area 1108.W10 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW11	Works Area 1108.W11 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW12	Works Area 1108.W12 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW13	Works Area 1108.W13 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW01a	Works Area 1108.W1 a (Week No. 52/13)	0%	29-Dec-13*																				
01108.ACW02	Works Area 1108.W2 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW04	Works Area 1108.W4 (04-Jan-16)	100%	15-Jul-13 A																				
01108.ACW07	Works Area 1108.W7 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW08	Works Area 1108.W8 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
01108.ACW09	Works Area 1108.W9 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A																				
A - Preliminaries																							
General Submission																							
Contractor Submission and Engineer's Approval																							
01108.GEN.3302	Approval period for Sub-contract Management Plan	100%	21-Aug-13 A	17-Sep-13 A																			
01108.GEN.1212	Contractor's Submission Schedule - Approval period	100%	16-May-13 A	16-May-13 A																			
01108.GEN.1211	Contractor's Submission Schedule - Prepare and submit for approval [G512.11.1]	100%	16-May-13 A	03-Jun-13 A																			
01108.GEN.0205	ER review of submitted supervision plan, risk assessment report, risk mgmt. plan & contingency plan	100%	07-Aug-13 A	17-Sep-13 A																			
01108.GEN.0721	Methods of Construction - Prepare & submit for approval [P7.3.21-Tunnel & TW Design; P7.3.31 Cofferdams]	100%	26-Jul-13 A	22-Aug-13 A																			
01108.GEN.0722	Methods of Construction for Tunnel - Engineer's Approval & Contracts 1107 & 1109's Reviews	100%	22-Aug-13 A	22-Aug-13 A																			
01108.GEN.0204	Prepare & submit supervision plan, risk assess.report, risk mgmt.plan & contingency plan to Engineer for agreement [P2.7]	100%	02-Jul-13 A	30-Aug-13 A																			
01108.GEN.0706	Prepare, check by ICE and submit ELS design	100%	02-Jul-13 A	30-Aug-13 A																			
01108.GEN.0708	Schedule of Design of Permanent Works - Prepare, submit for Approval [P7.2, ref. Approval process App. Z]	100%	11-Jun-13 A	19-Jun-13 A																			
01108.GEN.3301	Sub-contract Management Plan [PS33.1, Appendix S, Cl.S1.1]	100%	20-Jul-13 A	21-Aug-13 A																			
01108.GEN.0705	Submission of proposed ICE [P7.5.1, ref. P7.3.3, App. AP]	100%	31-Jul-13 A	13-Aug-13 A																			
01108.GEN.0206	Submit agreed supervision plan, risk assessment report, risk mgmt.plan & contingency plan to BD for acceptance [P2.7]	100%	21-Jun-13 A	02-Jul-13 A																			
Quality Assurance Requirements																							
01108.QAR.0130	Implement quality requirements in accordance with ASPs	50%	09-Jul-13 A	04-Apr-14																			
01108.QAR.0040	Quality Plan - Approval period	100%	12-Jul-13 A	12-Jul-13 A																			
01108.QAR.0030	Quality Plan - Prepare and submit for approval [G9.2.1]	100%	10-Jun-13 A	12-Jul-13 A																			
Safety and Environmental Requirements																							
Safety and Environmental Management																							
01108.SER.1705	Approval period for EMP; WMP; NMP; AQMP	100%	17-Sep-13 A	17-Sep-13 A																			
01108.SER.2244	Approval period for Proposal for Water Pollution Control Measures and Proposed Monitoring	100%	30-Aug-13 A	30-Aug-13 A																			
01108.SER.3605	Approval period for Sub-contractor's Safety and Environmental Improvement Incentive Scheme	100%	29-Jul-13 A	29-Jul-13 A																			
01108.SER.1511	Environmental Management Plan - Approval period	100%	07-Aug-13 A	07-Aug-13 A																			
01108.SER.1510	Environmental Management Plan - Prepare and submit for approval [G55.1.10]	100%	22-May-13 A	07-Aug-13 A																			
01108.SER.MSA05	Implement Safety and Environmental Management	60%	09-Jul-13 A	03-Jan-14																			
01108.SER.3604	Sub-contractor's Safety and Environmental Improvement Incentive Scheme [PS36.4]	100%	19-Jul-13 A	29-Jul-13 A																			

▲ Milestone
 ▲ Critical Milestone
 ■ Critical Remaining Work
 ■ Remaining Work
 ■ Remaining Level of Effort
 — Primary Baseline
 ■ Actual Work

Contract 1108

Kai Tak Station and Associated Tunnels

3-Month Rolling Programme (October 2013)



Activity ID	Activity Name	Activity % Complete	Start	Finish	October					November					December					January			February
					7	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27	03	
Sheet Piles																							
Water Cut-off Wall at NW Side																							
01108.OCT.SP9185w	Ch 99080~99185 Sheet piling, 238 nr - 120 x 18.5m, 25 x 20m, 93 x 21.5m (4720m, 312t, total)	96%	12-Sep-13 A	28-Nov-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.OCT.SP9258w	Ch 99185~99258 Sheet piling, 382nr - 340 x 12.5m, 42 x 15m (4880m, 323t, total)	96%	12-Sep-13 A	29-Nov-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.OCT.SP9080w	Point G to Ch 99080 Sheet piling, 192 nr x 21.5m (4128m, 273t, total)	78%	23-Aug-13 A	27-Nov-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.OCT.SP9081w	Point J to Point D Sheet piling, 136 nr x 21.5m (2924m, 193t, total)	96%	12-Sep-13 A	21-Nov-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
Water Cut-off Wall at SE Side																							
01108.OCT.SP9185e	Ch 99080~99185 Sheet piling, 238 nr x 12.5m (2975m, 197t, total)	100%	11-Sep-13 A	24-Sep-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.OCT.SP9258e	Ch 99185~99258 Sheet piling, 188 nr x 12.5m (2350m, 155t, total)	100%	11-Sep-13 A	24-Sep-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.OCT.SP9080e	To Ch 99080 Sheet piling, 316 nr - 215 x 12.5, 37 x 15m, 64 x 18.5m (4427m, 293t, total)	100%	16-Aug-13 A	03-Sep-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
Water Cut-off Wall Enclosure at C11 09																							
01108.OCT.SP9258	At Ch 99258 Sheet piling, 230 nr x 12.5m (2875m, 190t, total)	100%	03-Oct-13 A	25-Oct-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
C1.2.3 Excavation CH 98975 to CH 99217																							
General Site Clearance																							
01108.OCT.EX0010	Construct drainage protection system	0%	21-Nov-13	06-Dec-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.OCT.EX0015	General clearance & trim existing ground by +3.5mPD	0%	07-Dec-13	13-Feb-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
C2 Mined Tunnels (U=41m; D=39m)																							
Preliminaries																							
Ground Investigation, Instrumentation & Monitoring																							
01108.MT.IM00000	Instrumentation - Install & monitor, GS markers 5 nr; VM, 2 nr; HIN, 2 nr; etc	0%	07-Jan-14	06-Feb-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
C2.1 Excavation																							
C2.1.2 Temporary Works and ELS																							
Design, Temporary Works Design, Approval, Fabrication & Installation of Tunnel Formwork																							
01108.MIT.DN07.1.3	MIT Shaft ELS - Design - No-adverse-comment by RDO/BD/ GEO	0%	16-Dec-13	06-Jan-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.1.1	MIT Shaft ELS - Design, ICE & Submit to MTRC for review	100%	15-Aug-13 A	17-Sep-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.1.2	MIT Shaft ELS - Revision, if required, & Submit to RDO/BD/ GEO	0%	17-Sep-13 A	14-Dec-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.2.1	MIT Temporary Support - Design & Method statement, ICE & Submit to MTRC for review	100%	01-Aug-13 A	04-Oct-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.2.3	MIT Temporary Support - No-adverse-comment by RDO/BD/ GEO	0%	21-Dec-13	17-Jan-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.2.2	MIT Temporary Support - Revision, if required, & Submit to RDO/BD/ GEO	0%	04-Oct-13 A	20-Dec-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.3.1	Tunnel formwork design - Design, ICE and submission	0%	30-Nov-13	14-Jan-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.MIT.DN07.3.3	Tunnel formwork design - No adverse comment	0%	15-Jan-14	28-Feb-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
C3 Cut and Cover Tunnels (U=297m; D=307m)																							
Preliminaries																							
General Items																							
01108.CCT.HR0020	Condition survey, incl. utility survey	100%	01-Jul-13 A	30-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.HR0010	Erection of hoarding and haul road	100%	01-Jul-13 A	30-Jul-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.HR0030	Relocate existing haul road	100%	01-Aug-13 A	30-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.HR0040	Trail trench for existing seawall	100%	01-Aug-13 A	30-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
Ground Investigation, Instrumentation & Monitoring																							
01108.CCT.GO8-00	Ground investigation - Boreholes BH8, 9, 10, 10a, 10b, 11 & 12, 7 nr.	100%	01-Aug-13 A	30-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.IM00000	Instrumentation - Install & monitor, GS markers 8+11nr & 3 nr on structure; VM, 3 nr; PZ, 8 nr	100%	02-Jul-13 A	30-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
C3.2 Excavation CH 98650 to CH 98866 and CH 98907 to CH 98975																							
C3.2.2 Temporary Works and ELS																							
Temporary Works Design & Approval																							
01108.CCT.DN05.1a.1	CCT Cofferdam (CH 98650 to 98750) for KTND - Design, ICE & Submit to MTRC for review	100%	30-Jul-13 A	30-Jul-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.1a.3	CCT Cofferdam (CH 98650 to 98750) for KTND - No-adverse-comment by RDO/BD/ GEO	0%	30-Jul-13 A	08-Nov-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.1a.2	CCT Cofferdam (CH 98650 to 98750) for KTND - Revision, if required, & Submit to RDO/BD/ GEO	100%	30-Jul-13 A	30-Jul-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.2.3	CCT ELS (CH 98750 to 98976) - Design No-adverse-comment by RDO/BD/ GEO	0%	23-Dec-13	17-Jan-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.2.2	CCT ELS (CH 98750 to 98976) - Design Revision, if required, & Submit to RDO/BD/ GEO	0%	22-Nov-13	21-Dec-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.2.1	CCT ELS (CH 98750 to 98976) - Design, ICE & Submit to MTRC for review	0%	25-Jul-13 A	21-Nov-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.1b.1	CCT ELS/ Hydraulic (CH 98650 to 98750) - Design, ICE & Submit to MTRC for review	100%	30-Jul-13 A	30-Jul-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.1b.3	CCT ELS/ Hydraulic (CH 98650 to 98750) - No-adverse-comment by RDO/BD/ GEO	0%	20-Aug-13 A	09-Dec-13	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DN05.1b.2	CCT ELS/ Hydraulic (CH 98650 to 98750) - Revision, if required, & Submit to RDO/BD/ GEO	100%	30-Jul-13 A	20-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
Dewatering and Observation Wells																							
01108.CCT.DW0030	Install dewatering wells, 51 nos. and observation wells, 10nr (4 Rigs) (CH 98636 to 98846)	100%	29-Aug-13 A	16-Sep-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DW0040	Pumping tests (CH 98650 to 98750)	100%	17-Oct-13 A	24-Oct-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.DW40	Pumping tests (CH 98750 to 98846)	0%	16-Jan-14	08-Feb-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
Sheet Piles																							
Partial Open Cut																							
01108.CCT.SP0010a	Pre-bored existing seawall for sheet piling, 2 x ~30m horizontal run	100%	02-Jul-13 A	30-Aug-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.SP0020	Sheet piling as cut-off walls, 2 x 525nr x 12mL, 2 x 6300m total (2 rigs)	100%	30-Jul-13 A	28-Sep-13 A	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
Full Height Cofferdam																							
01108.CCT.SP010	N.of FKCP-Sht. piling, M3~Q3~Q3a, FSP V Type C1- 51nr x 34.2mL (1733m to tal) & FSP VI Type B- 42nr x 34.2mL(1434m t	0%	18-Jan-14	04-Feb-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
01108.CCT.SP110	S.of FKCP-Sht. piling, H4~F4~D4', FSP V Type C2- 36nr x 33.2m (1191m total) & FSP IV Type D1- 68nr x 33.2m (2241m tot	0%	18-Jan-14	04-Feb-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]
C3.2.3 Earthworks																							
Partial Open Cut																							
Open Cut from Existing Ground Level to -3.5mPD																							
01108.CCT.EX8657c	CH 98650~98671 Excavation to -3.5mPD, 5586 m3	0%	24-Dec-13	06-Jan-14	[Actual Work]					[Actual Work]					[Actual Work]					[Actual Work]			[Actual Work]

▲ Milestone
 ▲ Critical Milestone
 [Pink Bar] Critical Remaining Work
 [Green Bar] Remaining Work
 [Blue Bar] Remaining Level of Effort

[Green Line] Primary Baseline
 [Blue Bar] Actual Work

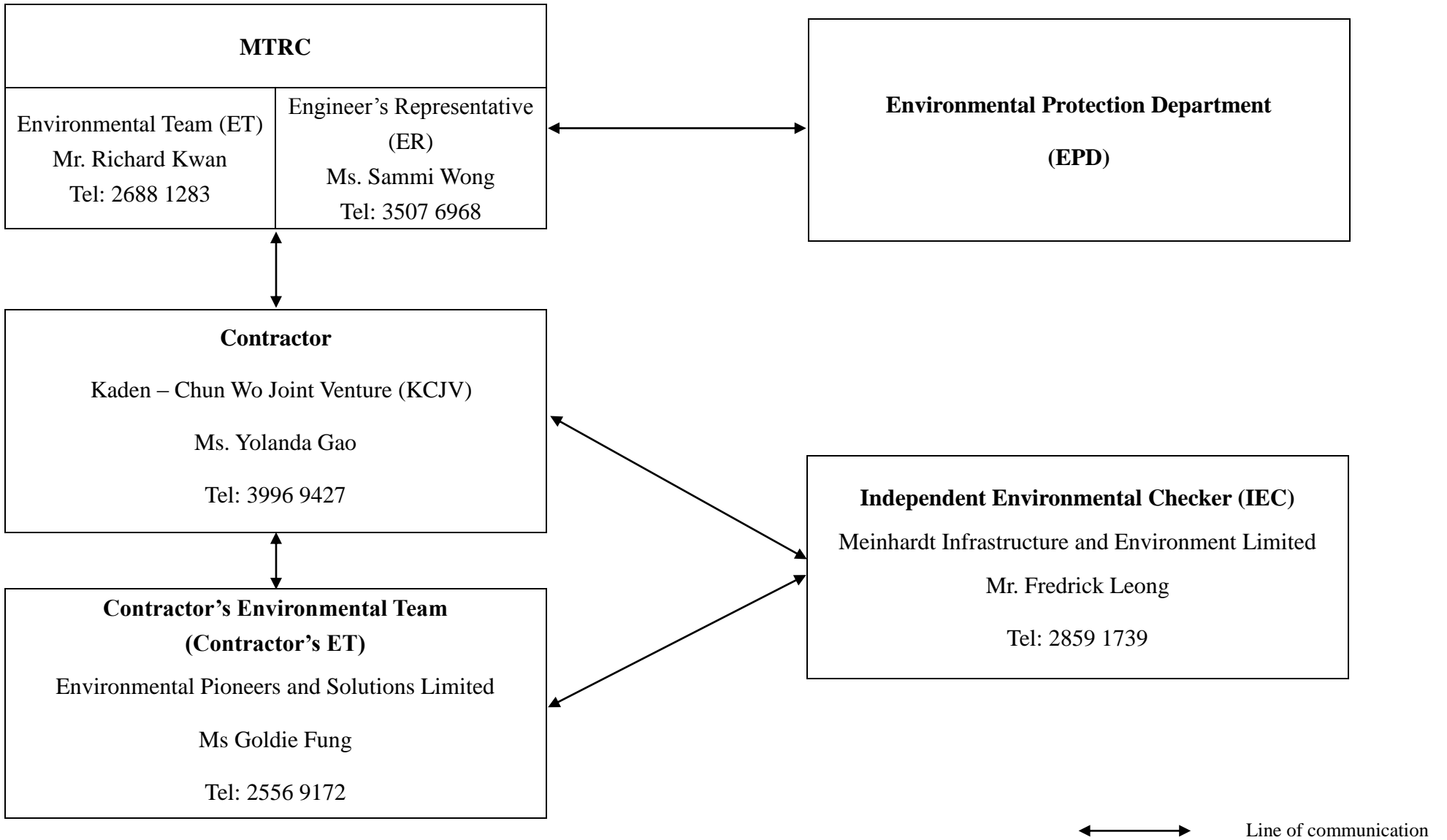
Contract 1108

Kai Tak Station and Associated Tunnels

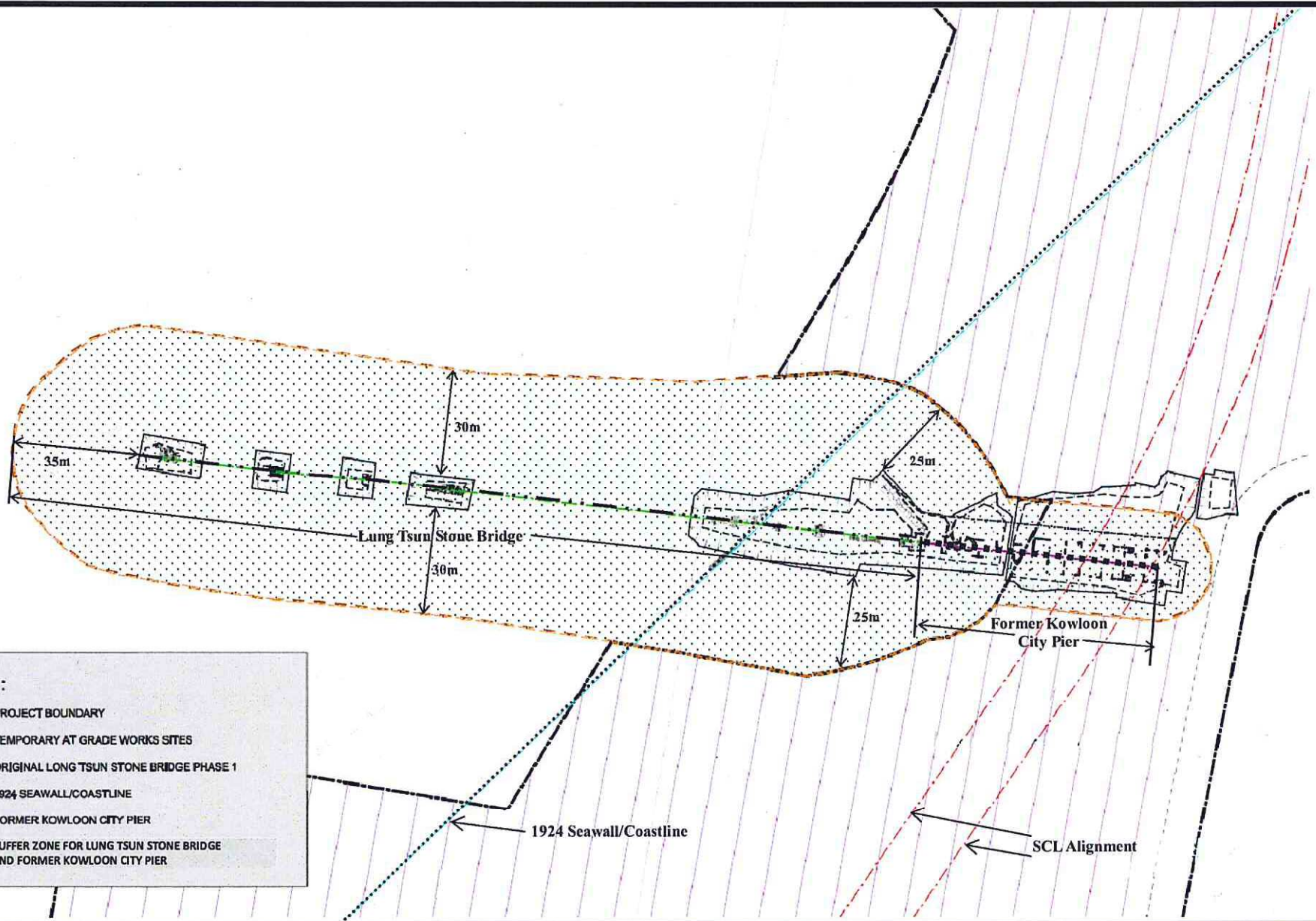
3-Month Rolling Programme (October 2013)

Kaden – Chun Wo Joint Venture

Appendix C –Project Organization Chart & Contact Details



***Appendix D – Buffer Zone for Lung Tsun Stone Bridge & Former
Kowloon City Pier***



LEGEND :

- PROJECT BOUNDARY
- TEMPORARY AT GRADE WORKS SITES
- ORIGINAL LONG TSUN STONE BRIDGE PHASE 1
- 1924 SEAWALL/COASTLINE
- FORMER KOWLOON CITY PIER
- BUFFER ZONE FOR LUNG TSUN STONE BRIDGE AND FORMER KOWLOON CITY PIER

Project Title 工程名稱	Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section(TAW-HUH) 沙田至中環綫 - 大圍至紅磡段	Environmental Permit No.: EP-438/2012/D 環境許可證編號：EP-438/2012/D	
Figure 6 圖六	Buffer Zone from the Boundary of Lung Tsun Stone Bridge 龍津石橋界線之緩衝區 [This figure was prepared based on Figure 4.3 of the SCL(TAW-HUH) EIA Report (No.: AEIAR-167/2012)] [本圖是根據沙田至中環綫-大圍至紅磡段環境影響評估報告(編號: AEIAR-167/2012)中圖 4.3 編制]		



***Appendix E – Event/Action Plan for landscape & Visual During
Construction Stage***

Event / Action Plan for Landscape and Visual during Construction Stage

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1) Inform the Contractor, the IEC and the ER 2) Discuss remedial actions with the IEC, the ER and the Contractor 3) Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1) Check inspection report 2) Check the Contractor's working method 3) Discuss with the ET, ER and the Contractor on possible remedial measures 4) Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1) Confirm receipt of notification of non-conformity in writing 2) Review and agree on the remedial measures proposed by the Contractor 3) Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1) Identify Source and investigate the non-conformity 2) Implement remedial measures 3) Amend working methods agreed with the ER as appropriate 4) Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1) Identify Source 2) Inform the Contractor, the IEC and the ER 3) Increase inspection frequency 4) Discuss remedial actions with the IEC, the ER and the Contractor 5) Monitor remedial actions until rectification has been completed 6) If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1) Check inspection report 2) Check the Contractor's working method 3) Discuss with the ET and the Contractor on possible remedial measures 4) Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1) Notify the Contractor 2) In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3) Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1) Identify Source and investigate the non-conformity 2) Implement remedial measures 3) Amend working methods agreed with the ER as appropriate 4) Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Appendix F – Waste Flow Table

Monthly Summary Waste Flow Table for 2013 (year)

Month	<u>Actual Quantities of Inert C&D Materials Generated Monthly</u>						<u>Actual Quantities of Non-inert C&D Wastes Generated Monthly</u>				
	Total Quantity Generated	Hard Rocks & Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals	Paper / cardboard packaging	Plastics	Chemical Waste	Others (general refuse)
					1108A*	CEDD#					
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	--	--	--	--	--	--	--	--	--	--	--
Feb	--	--	--	--	--	--	--	--	--	--	--
Mar	--	--	--	--	--	--	--	--	--	--	--
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
June	0.376	0	0	0	0.376	0	0	0	0	0	0
Sub-total	0.376	0	0	0	0.376	0	0	0	0	0	0
July	7.256	0	0	0	7.256	0	0	0	0	0	2.370
Aug	22.400	0	0	0	22.400	0	0	0	0	0	0.018
Sept	19.754	0	0	0	19.754	0	0	0	0	0	0.024
Oct	17.151	0	0	0	17.151	0	0	0	0	0	0.114
Nov											
Dec											
Total	66.937	0	0	0	66.937		0	0	0	0	2.526

***Appendix G – Updated Environmental Mitigation Implementation
Schedule***

Environmental Mitigation Implementation Schedule –SCL Contract 1108 (Kai Tak Station and Associated Tunnels)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
<i>Cultural Heritage Impact (Construction and Operational Phase)</i>							
S4.9	CH4	Maintain a buffer distance as shown in Appendix D . A 1.8-2.2m vertical separation distance shall be maintained between the top of tunnel and the piles of the Former Kowloon City Pier.	Reserve sufficient area for necessary archaeological conservation and display works for Lung Tsun Stone Bridge in the future. Avoid direct impact on the Lung Tsun Stone Bridge and the Former Kowloon City Pier.	MTR Corporation Contractor	Lung Tsun Stone Bridge & Former Kowloon City Pier.	During the Construction of the tunnel section at Kai Tak	✓
<i>Landscape & Visual (Construction Phase)</i>							
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, 					
S6.12	LV12	<p><u>Decorative Hoarding</u></p> <p>Erection of decorative screen during construction stage to screen</p>	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context</p> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 				construction stage	
Air Quality (Construction Phase)							
/	A1	<p><u>Emission from Vehicles and Plants</u></p> <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		powered by ultra low sulphur diesel fuel (ULSD).					
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	✓
Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 L/m ² to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	*
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>pedestrian barriers, fencing or traffic cones.</p> <ul style="list-style-type: none"> • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
<i>Construction Noise (Airborne)</i>							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	Contractor	All construction sites	Construction stage	*
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy	Reduce the construction noise	Contractor	All construction sites	Construction	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	levels at low-level zone of NSRs through partial screening.			stage	
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	*
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	✓
Water Quality (Construction Phase)							
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> Adopt best management practices 					
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	N/A
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</p>					
S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated; the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers.</p> <ul style="list-style-type: none"> If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. 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 substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	*
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<p>On-site sorting of C&D material</p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>from ended up at concrete batching plants and be turned into concrete for structural use Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</p>					
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt ‘Selective Demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>that the disposal of C&D materials are properly documented and verified; and</p> <ul style="list-style-type: none"> Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 					
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</p>					
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	✓
S11.5.1	WM6	<u>Land-based and Marine-based Sediment</u>	To control pollution due to	Contractor	Within Project Site	Construction	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. 	marine sediment		Area	Stage	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m³ capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, 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 at the disposal site, thereby fulfil confined mud disposal. 					
S11.5.1	WM7	<u>Chemical Waste</u> <ul style="list-style-type: none"> • Chemical waste that is produced, as defined by Schedule 1 of the 	Control the chemical waste and ensure proper storage,	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</p> <ul style="list-style-type: none"> • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary 	handling and disposal.				

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		storage containers; or be to a reuser of the waste, under approval from the EPD.					
<i>EM&A Project</i>							
S14.2 – 14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	✓

Remarks :

- ✓ Compliance of mitigation measure
- X Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor
- * Recommendation was made during site audit but improved/rectified by the contractor.
- N/A Not Applicable

***Appendix H – Cumulative Log for Environmental Exceedance,
Complaints, Notification of Summons and Successful Prosecutions***

Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
June 2013	0	0	0	0
July 2013	0	0	0	0
August 2013	0	0	0	0
September 2013	0	0	0	0
October 2013	0	0	0	0
Total	0	0	0	0

Appendix J

**1st Monthly EM&A Report for Works Contract 1102 –
Hin Keng Station and Approach Structures**

MTR Corporation Limited

**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 1

[Period from 1 to 31 October 2013]

Works Contract 1102 –
Hin Keng Station and Approach Structures

(November 2013)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 12th November 2013

Penta-Ocean Construction Co. Ltd.


**Shatin to Central Link –
Contract 1102
Hin Keng Station and Approach
Structures**

**Monthly Environmental Monitoring
and Audit Report**

(Version 2.0)

October 2013

Approved By



(Contractor's Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 1st monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Shatin to Central Link (SCL) Works Contract 1102 – Hin Keng Station and Approach Structures. This report documents the findings of EM&A Works conducted from 1 to 31 October 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Underground utilities detection works;
 - Site clearance at Hin Tin Playground;
 - Hoarding erection; and
 - Tree transplantation.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below and the monitoring works were undertaken by Contractor ET of Works Contract SCL 1103:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
Noise Monitoring Station ID
 - NMS-CA-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 5 times
- Construction Dust (24-hour TSP) Monitoring
Dust Monitoring Station ID
 - DMS-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 5 times

Remarks:

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

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 260.1 m³ of inert C&D materials were generated from the Project and were sent to Tseung Kwan O Area 137 Fill Bank during the reporting month. No non-recyclable non-inert C&D materials but 19.9 m³ general refuse were disposed of at NENT Landfill. No chemical wastes, steel material, plastics and paper/cardboard packaging was generated and collected by the recycler during this reporting month.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 25 October 2013. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 3, 8, 15, 25 and 29 October 2013. The representative of the IEC joined the site inspection on 25 October 2013. Details of the audit findings and implementation status are presented in Section 6.

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

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

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - Hoarding erection works;
 - Tree transplantation works;
 - Underground utilities detection works; and
 - Pre-drilling works.

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Penta-Ocean Construction Co.Ltd. (POC) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1102 – Hin Keng Station and Approach Structures (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 1st EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 October 2013.

Structure of the Report

1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1102 covers the construction of SCL Hin Keng Station (HIK Station) and its approach structures. This construction contract was awarded to Penta-Ocean Construction Co. Ltd. (POC) in July 2013 and the EM&A programme was commenced on 1st October 2013.

General Site Description

- 2.3 For Works Contract 1102, the works area for the HIK Station is located next to Hin Keng Estate and Che Kung Miu Road. The alignment and works area for the Works Contract 1102 are shown in **Figure 1**.

Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
- Underground utilities detection works;
 - Site clearance at Hin Tin Playground;
 - Hoarding erection; and
 - Tree transplantation.

Project Organisation

- 2.5 The project organizational chart and contact details are shown in **Figure 2**.

Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in October 2013 are presented in **Table 2.1**.

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/D	13/9/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Reference No: 362534	29/7/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
A/C No.: 7017900	02/8/2013	N/A	Valid
Registration of Chemical Waste Producer			
Registration No. 5218-759-P1057-03	3/9/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00016803-2013	4/9/2013	30/9/2018	Valid
Construction Noise Permit (CNP)			
GW-RN0502-13	16/9/2013	18/12/2013	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1102 requires regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring station. The construction noise monitoring location is listed in **Table 3.1** and shown in **Figure 3**.

Table 3.1 Regular Construction Noise Monitoring Station

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-1 ⁽¹⁾	C.U.H.K.A.A Thomas Cheung School	Façade

Note (1): NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual by the Contractor Environmental Team of Works Contract SCL 1103. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The construction noise was monitored at the frequency and duration stated in **Table 3.2**.

Table 3.2 Construction Noise Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring	Throughout the construction period	L_{eq} (30min)	Once per week

- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays while L_{10} and L_{90} were also recorded as supplementary reference information for data auditing.

Monitoring Equipment, Maintenance, Calibration and Procedures

- 3.4 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 4.2 of SCL 1103 monthly EM&A report.

Action & Limit Level for Construction Noise Monitoring

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

Continuous Noise Monitoring

- 3.6 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1102.

Regular Construction Dust Monitoring

- 3.7 The proposed dust monitoring station for the construction phase of the Project, as recommended in the approved EM&A Manual, is listed in **Table 3.3** and shown in **Figure 4**.

Table 3.3 Dust Monitoring Station

Regular Dust Monitoring Location	Description
DMS-1 ⁽¹⁾	C.U.H.K.A.A. Thomas Cheung School

Note (1): ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Monitoring Parameter and Frequency

- 3.8 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring station in accordance with the requirements stipulated in the EM&A Manual. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring ⁽¹⁾	Throughout the construction period	24-hour TSP ⁽²⁾	Once per 6 days

Note:

- (1) 1- hour TSP shall be conducted when one documented valid complaint is received.
 (2) 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Equipment, Maintenance, Calibration and Procedures

- 3.9 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 3.2 of SCL 1103 monthly EM&A report.

Action and Limit Levels for Dust Monitoring

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

Landscape and Visual

- 3.11 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix E**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix F**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
N/A	N/A	N/A

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 5 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays during the reporting period by ET of SCL 1103. No exceedance of the limit level was recorded at designated monitoring station.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The detailed noise monitoring results together with their graphical presentations are presented in Appendix H of SCL 1103 monthly EM&A report.

Table 5.1 Summary Table of Construction Noise Monitoring Results

Parameter	Minimum Leq(30min), dB(A)	Maximum Leq(30min), dB(A)	Action Level	Limit Level, Leq(30min), dB(A)
Noise	58.2	59.5	When one documented complaint is received	70/65 ⁽¹⁾

Remarks:

- (1) For normal day-time working hours, the noise criteria is 70dB(A) and 65 dB(A) for normal teaching period and examination periods respectively..

- 5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

- 5.5 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring station of the reporting period by ET of Works Contract SCL 1103. The monitoring results together with their graphical presentations are presented in Appendix E of SCL 1103 monthly EM&A report and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP	17.1	102.3	55.8	148.7	260

- 5.6 Wind monitoring data obtained from Kai Tak Meteorological Station of Hong Kong Observatory is shown in Appendix F of SCL 1103 monthly EM&A report.
- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. No chemical waste, steel material, plastics, paper/cardboard packaging was generated during this reporting month. Details of waste management data is presented in **Appendix G**.

Table 5.3 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/ cardboard	Plastics			Metals		
October 2013	260.1 m ³	19.9 m ³	0 kg	0 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.						

Landscape and Visual

5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 25 October 2013. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix D**.
- 6.2 Site audits were conducted on 3, 8, 15, 25 and 29 October 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 25 October 2013. No EPD site inspection was conducted during the reporting month. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	3 Oct 2013	Exposed slope should be covered by tarpaulin to reduce the generation of runoff during rainstorm.	The exposed slope was covered by tarpaulin on 8 Oct 2013.
	3 Oct 2013	<u>Reminder:</u> Access to sedimentation tank should be provided for regular maintenance and inspection.	The access to sedimentation tank was provided on 25 Oct 2013.
	8 Oct 2013	<u>Reminder:</u> Gullies should be surrounded by sand bags to prevent any surface runoff getting in it.	Sand bags were provided to surround the gullies next the work area on 15 Oct 2013.
	8 Oct 2013	<u>Reminder:</u> Access to sedimentation tank should be provided for regular maintenance and inspection.	The access to sedimentation tank was provided on 25 Oct 2013.
	15 Oct 2013	<u>Reminder:</u> Access to sedimentation facilities should be provided for regular maintenance and inspection.	The access to sedimentation tank was provided on 25 Oct 2013.
	25 Oct 2013	<u>Reminder:</u> To provide precautionary measures to prevent site runoff leak from U-channel.	Sand bags were provided in the U-channel as precautionary measures on 29 Oct 2013.
	29 Oct 2013	<u>Reminder:</u> The gully under the pre-drill machine should be surrounded by sand bags and silty water, if any, should be prevented from entering the gully.	Follow up actions will be reported in next month.
<i>Noise</i>	--	--	--

Parameters	Date	Observations and Recommendations	Follow-up
<i>Landscape and Visual</i>	3 Oct 2013	To remove the metal fencing and other materials in the tree protection zone for better tree protection.	The metal fencing and other materials were removed from the tree protection zone 8 Oct 2013.
	15 Oct 2013	To remove the construction materials from tree protection area.	The identified metal part was cleared from Tree T1577 by the Contactor on 25 Oct 2013.
	25 Oct 2013	The stockpile and construction materials placed next to tree should be removed for better tree protection and tree protection fence should be provided for new work areas.	The stockpile and construction materials were removed by the Contractor and the erecting of the tree protection fence was in progress.
	29 Oct 2013	<u>Reminder:</u> The setting up of hoarding next to new possession area was in progress. The Contractor was reminded to keep up the set up.	Follow up actions will be reported in next month.
<i>Air Quality</i>	8 Oct 2013	To enhance water spraying for unpaved area to reduce dust generation in dry season.	Water spray was observed at the site entrance and part of the site area during the site inspection. The Contractor was reminded to increase the coverage of the water spraying as recorded as item 131015-R02.
	15 Oct 2013	<u>Reminder:</u> To increase the coverage of water spraying to suppress dust generation.	Water spraying was on-going onsite and recorded as a reminder on 25 Oct 2013.
	25 Oct 2013	<u>Reminder:</u> To enhance water spraying for unpaved area to reduce dust generation in dry days.	Unpaved area with water sprayed was observed on 29 Oct 2013.
	29 Oct 2013	<u>Reminder:</u> Water spraying should be enhanced to reduce dust generation at new possession area.	Follow up actions will be reported in next month.
<i>Waste / Chemical Management</i>	8 Oct 2013	To properly store the construction waste at designated area.	The identified construction waste was cleared by the Contactor on 15 Oct 2013.
	25 Oct 2013	<u>Reminder:</u> To plug the drain-hole of identified drip tray to prevent chemical leakage, if any.	The drain-hole was plugged was on 29 Oct 2013.
<i>Permits/ Licenses</i>	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- Hoarding erection works;
- Tree transplantation works;
- Underground utilities detection works; and
- Pre-drilling works.

Key Issues in the Next Month

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

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement, excavated materials and soil erosion in dry days;
- Control of silty surface runoff;
- Preservation and protection of retained and transplanted trees; and
- Implementation of mitigation measures for noise nuisance from construction works.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at in the next reporting period is presented in Appendix K of SCL 1103 monthly EM&A report. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 October 2013 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

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

Water Quality

- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times;
- It is recommended particular attention should be paid to the control of silty surface runoff. Stockpiles of materials that are likely to generate silty surface runoff should be covered by impervious sheets whenever practicable; and
- Slurry on the haul road should be cleared regularly to reduce the runoff generation.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.

Landscape and Visual

- "No-intrusion zone" should be established and maintained for existing trees as far as practicable. The Contractor is reminded to closely monitor and restrict the site working staff from entering the erected "no-intrusion zone" for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection.

Air Quality

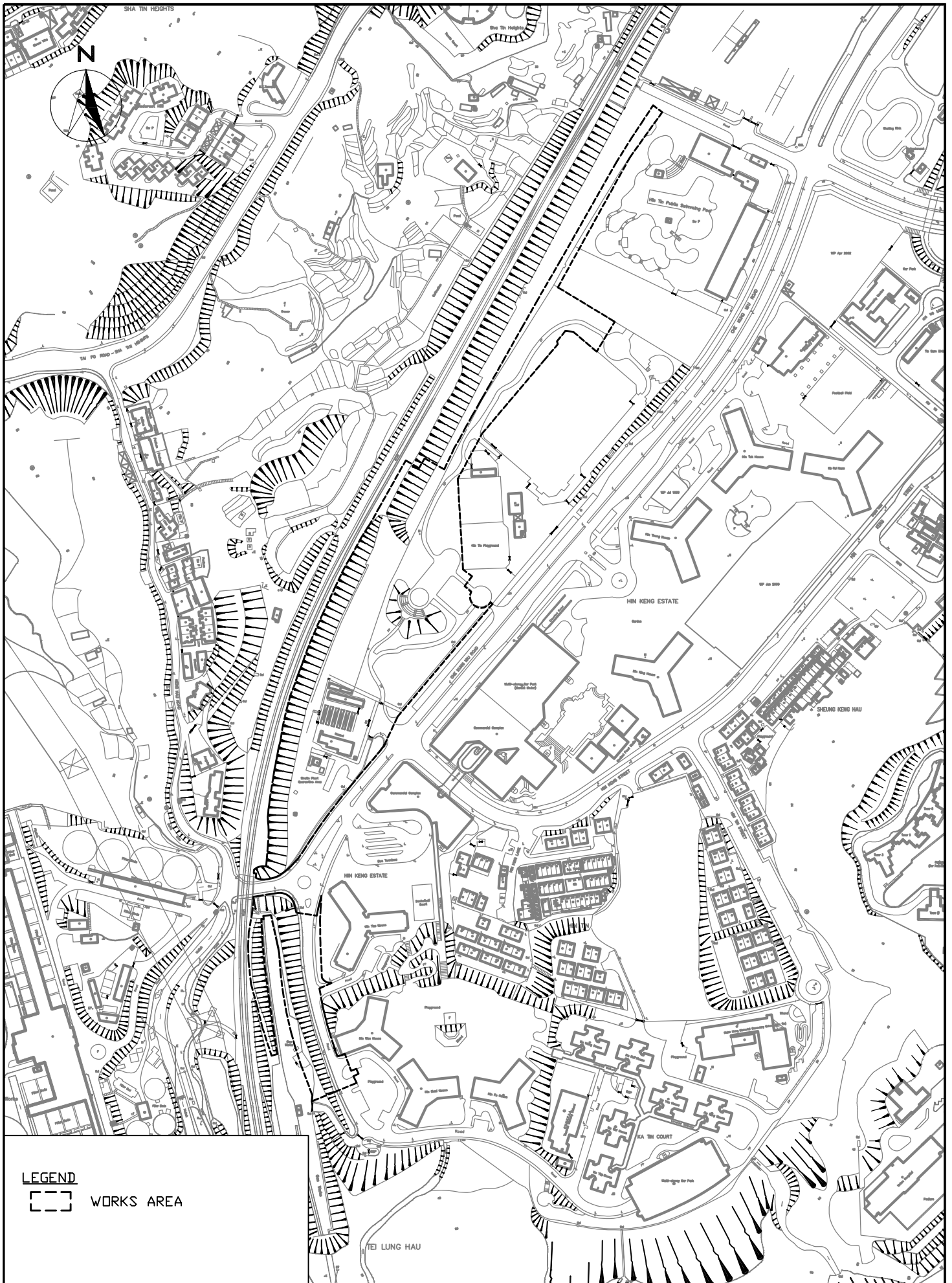
- Regular water spraying on site is reminded to be implemented as per EP requirement.
- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the

excavation or unloading.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained;
- On-site sorting of materials are advised to be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal whenever practicable; and
- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works.

FIGURES



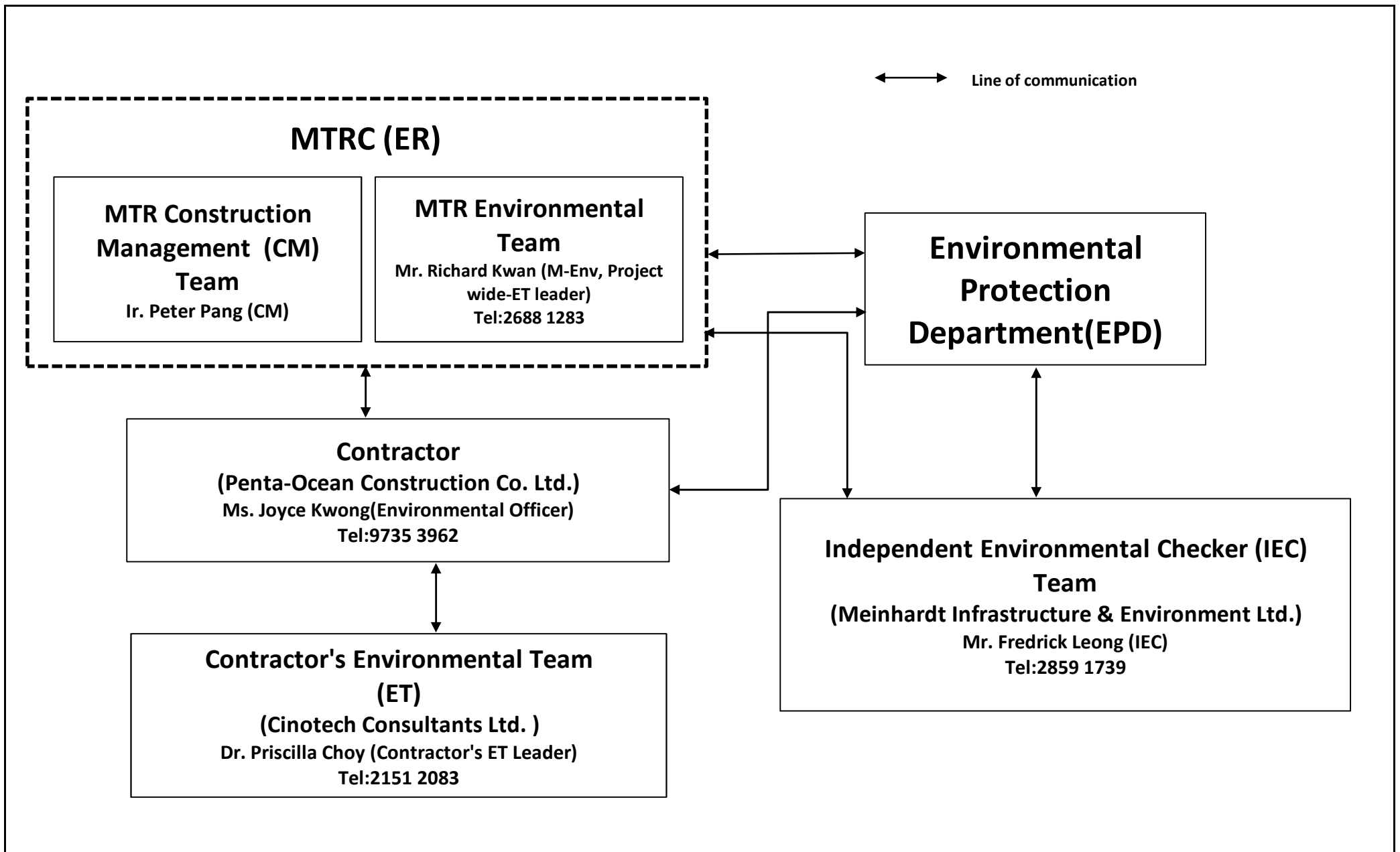
LEGEND

 WORKS AREA

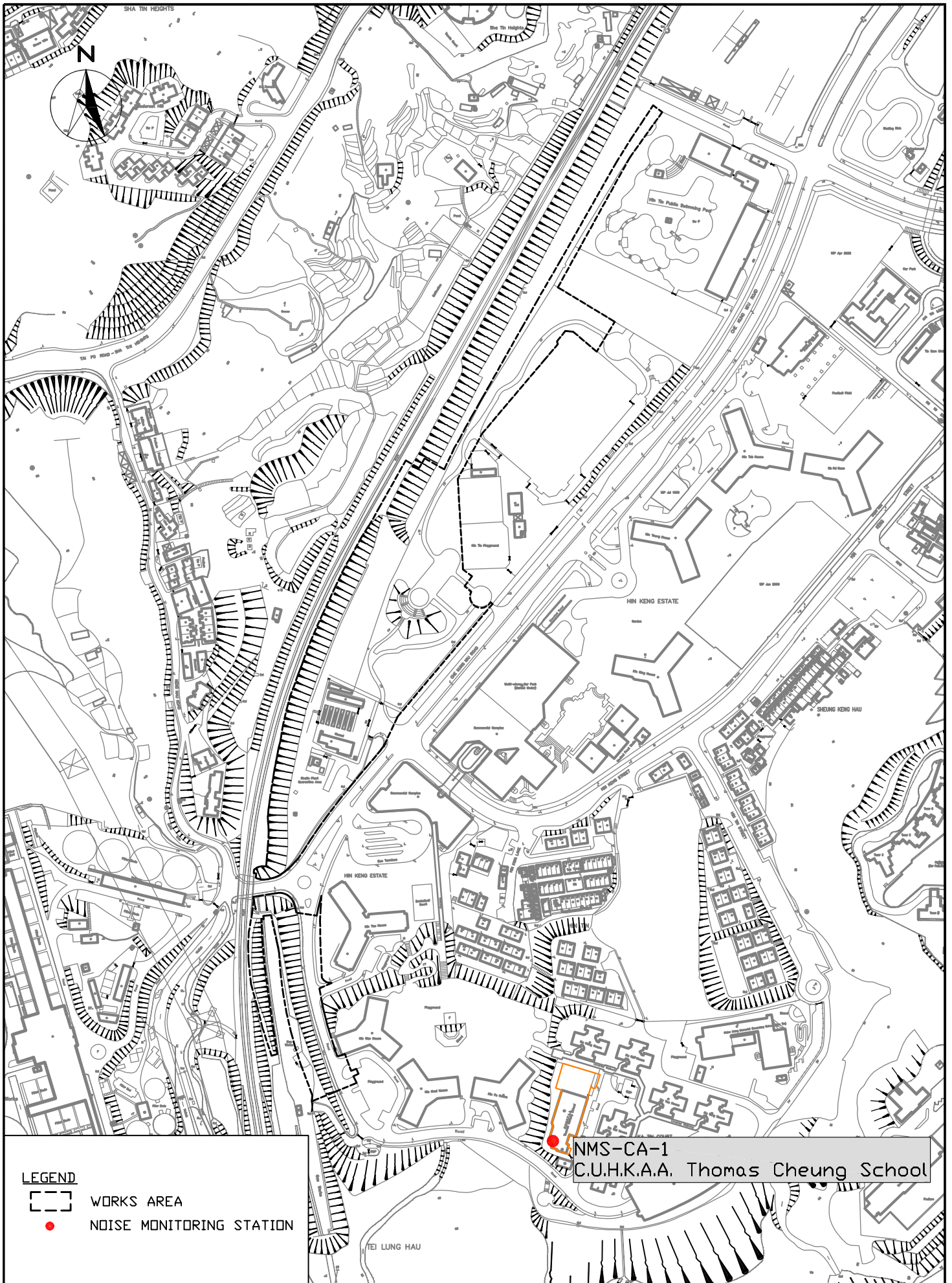


SCL CONTRACT 1102
 THE SHATIN TO CENTRAL LINK -
 HIN KENG STATION AND APPROACH STRUCTURES
**SITE LAYOUT PLAN OF
 WORKS CONTRACT 1102**

SCALE	1:10000@A4	DATE	NOV 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 1
		REV	-



Title SCL Contract 1102 The Shatin to Central Link - Hin Keng Station and Approach Structures Organization Chart and Key Contact of the Project	Scale	N.T.S	Project No.	MA13040	
	Date	Oct-13	Figure	2	



LEGEND

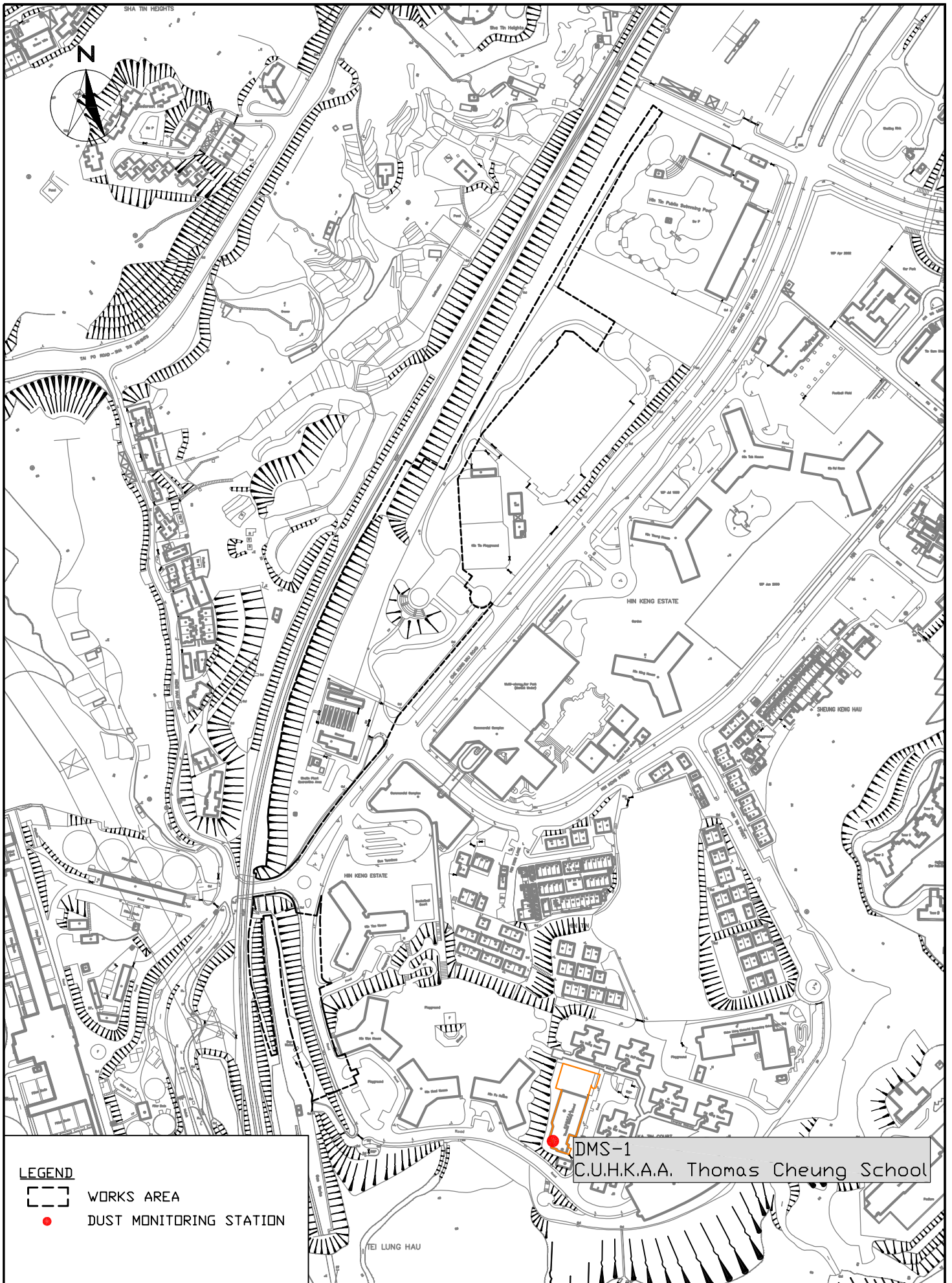
- WORKS AREA
- NOISE MONITORING STATION

NMS-CA-1
C.U.H.K.A.A. Thomas Cheung School





SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
LOCATION OF NOISE MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 3
		REV	-



DMS-1
C.U.H.K.A.A. Thomas Cheung School

LEGEND

-  WORKS AREA
-  DUST MONITORING STATION



SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
LOCATION OF DUST MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 4
		REV	-

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Activity ID	Activity Name	Planned Start	Planned Finish	Actual Start	Actual Finish	Original Duration	Remaining Duration	October 2013					November 2013				December 2013				January 2014						
								29	06	13	20	27	03	10	17	24	01	08	15	22	29	05	12	19	26		
PROJECT DATES		15-Jul-13	15-Jul-13	15-Jul-13	15-Jul-13	0	0																				
Contract Commencement		15-Jul-13	15-Jul-13	15-Jul-13	15-Jul-13	0	0																				
AT-GRADE BOX		26-Sep-13	18-Jan-14	26-Sep-13		94	86																				
Initial Works		26-Sep-13	31-Oct-13	26-Sep-13		29	21																				
Haul Road Construction		29-Oct-13	02-Jan-14			54	54																				
Temporary Piling Platform		29-Oct-13	18-Jan-14			68	68																				
Pre-drilling		29-Oct-13	21-Dec-13			47	47																				
King Post Construction		03-Jan-14	18-Jan-14			14	14																				
HIN KENG VIADUCT		13-Sep-13	07-Feb-14	13-Sep-13		113	95																				
Initial Works		13-Sep-13	11-Jan-14	13-Sep-13		98	80																				
Sub-Structure		15-Oct-13	07-Feb-14			89	89																				
Pre-drilling		15-Oct-13	18-Jan-14			80	80																				
Bored Pile Construction		15-Nov-13	07-Feb-14			62	62																				
NTSAMC & SPQS		24-Oct-13	02-Apr-14			127	127																				
Initial Works		24-Oct-13	02-Apr-14			127	127																				
Demolition		30-Dec-13	01-Mar-14			45	45																				
HIN KENG STATION		26-Aug-13	12-Apr-14	26-Aug-13		183	149																				
Initial Works		26-Aug-13	27-Dec-13	26-Aug-13		102	68																				
Sub-Structure		15-Oct-13	12-Apr-14			143	143																				
Pre-drilling		15-Oct-13	21-Feb-14			101	101																				
Pre-bored H-Pile Construction		23-Jan-14	12-Apr-14			60	60																				
Demolition		02-Jan-14	22-Jan-14			18	18																				
MA ON SHAN LINE & TAIL TRACK		21-Sep-13	05-May-14	21-Sep-13		176	164																				
Temporary Overhead Line Mast		26-Sep-13	14-Dec-13	26-Sep-13		67	59																				
R.C. Platform		16-Dec-13	21-Feb-14			48	48																				
Initial Works		16-Dec-13	21-Feb-14			48	48																				
Retaining Wall RW7		21-Sep-13	13-Mar-14	21-Sep-13		136	124																				
Initial Works		02-Jan-14	13-Mar-14			53	53																				
Plate Load Test		21-Sep-13	18-Oct-13	21-Sep-13		22	10																				
Structural Works		16-Jan-14	10-Feb-14			14	14																				
Noise Barrier Minipile		19-Oct-13	25-Feb-14			100	100																				
Initial Works		19-Oct-13	25-Feb-14			100	100																				
Noise Barrier Construction		02-Jan-14	05-May-14			63	63																				
Miscellaneous Item in Operation Area		16-Jan-14	06-Mar-14			24	24																				
Elevated Evacuation Walkway		16-Jan-14	06-Mar-14			24	24																				

Remaining Level of Effort WBS Summa...
 Actual Work
 Remaining Work
 Critical Remaining Work
 Milestone
 Summary



SHATIN TO CENTRAL LINK CONTRACT 1102
 HIN KENG STATION AND APPROACH STRUCTURES
 3-MONTHS ROLLING PROGRAMME (OCT 2013 - JAN 2014)

Date	Revision	Checked	Approved
22-Oct-13	3MR (Nov 2013 - Feb 2014)	Co	WC

**APPENDIX B
ACTION AND LIMIT LEVELS**

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

Regular Dust Monitoring Station	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-1 ⁽¹⁾⁽²⁾	C.U.H.K.A.A. Thomas Cheung School	148.7	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Dust monitoring is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Station	Description	Time Period	Action Level	Limit Level
NMS-CA-1 ⁽¹⁾⁽²⁾	C.U.H.K.A.A Thomas Cheung School	0700-1900 hrs on normal weekdays	When one documented complaint is received	65 / 70 dB(A) ⁽³⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Construction Noise monitoring is carried out by Environmental Team of SCL Works Contract 1103.
 (3) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

**APPENDIX C
SUMMARY OF EXCEEDANCE**

APPENDIX C – SUMMARY OF EXCEEDANCE

Reporting Month: October 2013

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

**APPENDIX D
SITE AUDIT SUMMARY**

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*

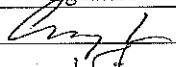

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131003
Date	3 October 2013 (Thursday)
Time	09:10 – 11:10

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

Ref. No.	Remarks/Observations	Related Item No.
131003-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Exposed slope should be covered by tarpaulin to reduce the generation of runoff during rainstorm. 	A 9
131003-R03	<ul style="list-style-type: none"> Access to sedimentation tank should be provided for regular maintenance and inspection. 	A 7
131003-002	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> To remove the metal fencing and other materials in the tree protection zone for better tree protection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I - Others</p> <ul style="list-style-type: none"> N/A 	D 3

	Name	Signature	Date
Recorded by	Gary Lau		3 October 2013
Checked by	Dr. Priscilla Choy		3 October 2013

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*

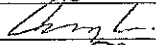

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131008
Date	8 October 2013 (Tuesday)
Time	09:10 – 11:10

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

Ref. No.	Remarks/Observations	Related Item No.
131008-R03	Part B – Water Quality	A 11
131008-R04	<ul style="list-style-type: none"> Gullies should be surrounded by sand bags to prevent any surface runoff getting in it. Access to sedimentation tank should be provided for regular maintenance and inspection. 	A 7
	Part C – Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	Part D – Landscape & Visual	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
131008-O02	Part E – Air Quality	E 5
	<ul style="list-style-type: none"> To enhance water spraying for unpaved area to reduce dust generation in dry season. 	
	Part F – Construction Noise Impact	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
131008-O01	Part G – Waste/Chemical Management	G 1iv
	<ul style="list-style-type: none"> To properly store the construction waste at designated area. 	
	Part H – Permits/Licenses	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	Part I - Others	
	<ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131003), item 131003-R03 was found outstanding and will be followed up during the next site inspection. 	

	Name	Signature	Date
Recorded by	Gary Lau		8 October 2013
Checked by	Dr. Priscilla Choy		8 October 2013

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*

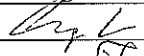
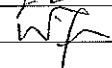
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131015
Date	15 October 2013 (Tuesday)
Time	09:00 – 10:45

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

Ref. No.	Remarks/Observations	Related Item No.
131015-R03	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> Access to sedimentation facilities should be provided for regular maintenance and inspection. 	B 7
131015-O01	<p><i>Part C – Ecology</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part D – Landscape & Visual</i></p> <ul style="list-style-type: none"> To remove the construction materials from tree protection area. 	D 3
131015-R02	<p><i>Part E – Air Quality</i></p> <ul style="list-style-type: none"> To increase the coverage of water spraying to suppress dust generation. <p><i>Part F – Construction Noise Impact</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part G – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part H – Permits/Licenses</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part I – Others</i></p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131008), item 131008-R04 was found outstanding and will be followed up during the next site inspection. 	E 5

	Name	Signature	Date
Recorded by	Gary Lau		15 October 2013
Checked by	Dr. Priscilla Choy		15 October 2013

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131025
Date	25 October 2013 (Tuesday)
Time	15:00 – 17:00

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

Ref. No.	Remarks/Observations	Related Item No.
131025-R04	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> To provide precautionary measures to prevent site runoff leak from U-channel. 	B 7
131025-O01	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> The stockpile and construction materials placed next to tree should be removed for better tree protection and tree protection fence should be protected for new work areas. 	D 3
131015-R03	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> To enhance water spraying for unpaved area to reduce dust generation in dry days. 	E 5
131025-R02	<p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> To plug the drain-hole of identified drip tray to prevent chemical leakage, if any. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131015), item 131015-R02 was found outstanding and will be followed up during the next site inspection. 	G 10

	Name	Signature	Date
Recorded by	Gary Lau		25 October 2013
Checked by	Dr. Priscilla Choy		25 October 2013

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131029
Date	29 October 2013 (Tuesday)
Time	09:10 – 10:40

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

Ref. No.	Remarks/Observations	Related Item No.
131029-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> The gully under the pre-drill machine should be surrounded by sand bags and silty water, if any, should be prevented from entering the gully. 	B 7
131029-R03	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> The setting up of hoarding next to new possession area was in progress. The Contractor was reminded to keep up the set up. 	D 4
131029-R02	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> Water spraying should be enhanced to reduce dust generation at new possession area. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:131025), all environmental deficiencies have been rectified/improved by the Contractor. 	E 5

	Name	Signature	Date
Recorded by	Gary Lau		29 October 2013
Checked by	Dr. Priscilla Choy		29 October 2013

**APPENDIX E
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)								
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimise ecological impacts	Contractor	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	<ul style="list-style-type: none"> • AFCD's requirements • EIAO • Country Parks Ordinance 	^
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; • Avoidance of soil storage against trees or close to 	Minimise ecological impacts	Contractor	All construction sites	During construction	<ul style="list-style-type: none"> • ProPECC PN 1/94 	^
								N/A

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		<p>waterbodies in particular the Tei Lung Hau stream;</p> <ul style="list-style-type: none"> • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 						N/A ^ ^
S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> • Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream and good site practices. 	<ul style="list-style-type: none"> • Avoid indirect water impact to any wetland habitats or wetland fauna • Minimize the drawdown of water table 	Contractor	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	^
<i>Landscape & Visual (Construction Phase)</i>								
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	TM-EIAO	^

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		<p>ground, gathering ground and mixing ground may be set up on-site as necessary.</p> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual nointrusion zone. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, 						<p style="text-align: center;">*</p> <p style="text-align: center;">*</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D2	<ul style="list-style-type: none"> • Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are 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 1.8 L/m² to achieve the dust removal efficiency 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	*
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^ ^

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		<ul style="list-style-type: none"> • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p>

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		<ul style="list-style-type: none"> • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^

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S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	• TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	*

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		<p>erosion and sedimentation control facilities implemented.</p> <p>Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. <p>Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p> <ul style="list-style-type: none"> • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains 						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p>

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		<p>via silt removal facilities.</p> <ul style="list-style-type: none"> • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction 						<p>^</p> <p>*</p> <p>^</p> <p>^</p>

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		<p>site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed 						<p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<p>areas during the wet season (April to September) as far as practicable.</p> <ul style="list-style-type: none"> Adopt best management practices 						^
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water 	^
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	* ^

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Waste Management (Construction Waste)								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored. 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> DEVB TC(W) No. 6/2010 	^

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S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	<p>Contractor</p>	<p>All construction sites</p>	<p>Construction stage</p>	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005 	<p>^</p> <p>*</p>
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the 	<p>Minimize production of the general refuse and avoid odour, pest and litter impacts</p>	<p>Contractor</p>	<p>All construction sites</p>	<p>Construction stage</p>	<ul style="list-style-type: none"> Waste Disposal Ordinance 	<p>^</p> <p>^</p>

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		<p>Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p> <ul style="list-style-type: none"> • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction Stage	<ul style="list-style-type: none"> • Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	<p style="text-align: center;">*</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>regulation.</p> <ul style="list-style-type: none"> • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Land Contamination								
S12.12	LC2	<u>Re-sampling at NTSAMC</u> <ul style="list-style-type: none"> • The soil re-sampling and analysis of cyanide (free) at Site L1 (NT South Animal Centre) should be conducted after the site is resumed and handed over to the Project Proponent. • Following the completion of re-sampling and lab testing works of this site, a second Supplementary CAR and Supplementary RAP (if contamination is confirmed) shall be prepared and submitted to EPD for agreement. • Supplementary Remediation Report (RR) shall also be prepared and submitted to EPD for endorsement prior to the commencement of any construction/ development works at Site L1 (NT South Animal Centre) 	To analyse cyanide (free) at Site L1 (NT South Animal Centre)	Contractor	Site L1 (NT South Animal Centre)	After the site is resumed and handed over to the Project Proponent	<ul style="list-style-type: none"> • Practice Guide (PG) for Investigation and Remediation of Contaminated Land • GN/GM for land contamination • Risk-Based Remediation Goals 	^ ^ ^
Hazard to Life								
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction	MTRC/ Contractor	-	Construction and		^(Installation in Progress)

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			workers and passengers			operation phases		
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (cooperation of various parties/departments required. For the operational phase the emergency plan should also include adequate procedures for controlling the tunnel ventilation system and stopping of the SCL train traffic in order to prevent the trains moving into the affected areas.)	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation phases		^

APPENDIX F
EVENT AND ACTION PLANS

Appendix F - Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

LIMIT LEVEL

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

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 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, Contractor 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1102 ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

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

Name of Contractor: Penta-Ocean Construction Co. Ltd.

Monthly Summary Waste Flow Table 2013 (Year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public (See Note 1)	Disposed as Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0	0	0
Aug	0.006	0	0	0	0	0.006	0	0	0	0	0
Sept	1.1288	0	0	0	1.0657	0.0631	0	0	0	0	0.0147
Oct	0.2601	0	0	0	0.2601	0	0	0	0	0	0.0199
Nov											
Dec											
Total	1.3949	0	0	0	1.3258	0.0691		0	0	0	0.0346

Note: (1) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.

**APPENDIX H
CUMULATIVE LOG FOR COMPLAINTS,
NOTIFICATIONS OF SUMMONS AND
SUCCESSFUL PROSECUTIONS**

Appendix H - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions**Cumulative Complaint Log**

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
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Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
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Cumulative Log for Successful Prosecutions

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