

MTR Corporation Limited

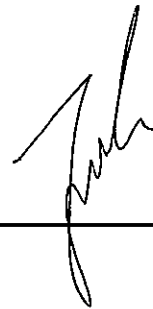
**Shatin to Central Link –
Tai Wai to Hung Hom Section and
Mong Kok East to Hung Hom Section**

Monthly EM&A Report No. 11

[Period from 1 to 31 July 2013]

(August 2013)

Verified by: Fredrick Leong



Position: Independent Environmental Checker

Date: 14 August 2013

MTR Corporation Limited

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Tai Wai to Hung Hom Section and
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(August 2013)

Certified by: Richard Kwan



Position: Environmental Team Leader

Date: 14 Aug 2013

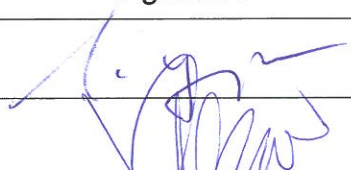
MTR Corporation Limited

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. 11

[Period from 1 to 31 July 2013]

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Version:

A

Date: 13 August 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/C) was issued by Director of Environmental Protection (DEP) on 30 April 2013.

1.2 Project Programme

- 1.2.1 Nine 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)
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)
1109	Stations and Tunnels of Kowloon City Section	September 2012	Samsung-Hsin Chong JV (SHJV)	ERM-Hong Kong Limited (ERM)
1111	Hung Hom North Approach Tunnels	January 2013	Gammon-Kaden SCL1111 JV	AECOM Asia Co. Ltd.

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
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 eleventh EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ET during the period from 1 to 31 July 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/C. 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/C
1103	Hin Keng to Diamond Hill Tunnels	EP-438/2012/C
1106	Diamond Hill Station	EP-438/2012/C
1107	Diamond Hill to Kai Tak Tunnels	EP-438/2012/C
1108	Kai Tak Station and Associated Tunnels	EP-438/2012/C
1108A	Kai Tak Barging Point Facilities	EP-438/2012/C
1109	Stations and Tunnels of Kowloon City Section	EP-438/2012/C
1111	Hung Hom North Approach Tunnels	EP-437/2012 & EP-438/2012/C
1112	Hung Hom Station and Stabling Sidings	EP-437/2012 & EP-438/2012/C

- 2.1.2 The EM&A Reports for Works Contracts 1108A, 1109, 1101, 1111, 1103, 1106, 1107, 1112 and 1108 prepared by the respective Contractor's ETs are provided in **Appendices A to I**, 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
1101	Tai Wai Mei Tin Road	• Construction of noise cover over the viaduct at Tai Wai Mei Tin Road.
1102 ⁽¹⁾	N/A	N/A
1103	Diamond Hill Area	• Diaphragm Wall Construction.
	Hin Keng Area	• Pipe Piling; and • Ground Investigation.

Works Contract	Site	Construction Activities
	Fung Tak Area	<ul style="list-style-type: none"> • Utilities Diversion; • Ground Investigation; • Hoarding Erection; and • Platform Construction.
	Ma Chai Hang Area	<ul style="list-style-type: none"> • Site Formation; • Jogging Path Diversion; • Ground Investigation; • Tree Transplant and Removal; • Hoarding Erection; and • Platform Construction.
1106	Diamond Hill Station Area	<ul style="list-style-type: none"> • D-wall construction; • Archaeological survey-cum-excavation; • Underpinning works of the Old Pillbox; and • Pre-drilling work.
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; and • Preparation works for site access and drainage.
1108	Kai Tak Station (Area 3)	<ul style="list-style-type: none"> • General site clearance and removal of existing stockpile; • Cut-off sheetpiling works commenced; • Dewatering wall drilling commenced; • Additional boreholes drilling and piezometer installation; and • Construction of temporary haul road near Gate 1.
	Cut & Cover Area (Area 2)	<ul style="list-style-type: none"> • General site clearance was completed; • Trial excavation for existing old seawall; and • 6 nos. of additional piezometers were completed in this area.
	Open Cut Area (Area 1)	<ul style="list-style-type: none"> • Breaking up of existing concrete pavement; and • All at-grade settlement markers were completed in this area.
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"> • SUW Playground – Pre-bored H pilling; • Nam Kok Road – Installation of pipe pile and construction of grout curtain; and • TKW Station – Archaeological survey, construction of grout curtain, sheet pile and

Works Contract	Site	Construction Activities
		bored pile, and installation of socket steel H-piling.
1111	Mong Kok Freight Terminal	<ul style="list-style-type: none"> • ABWF & E&M works.
	Hung Hom Area	<ul style="list-style-type: none"> • Drain / sewage pipe construction, ABWF & E&M works; • Excavation work, man hole and drainage construction, RC structure construction, slope work, geological investigation; • Hoarding erection, cross track duct construction, cable trough installation, cable hanger; • Trial pit, tree transplant and tree felling, site formation, sheet piling, OHL portals erection; and • Pre-drilling, close loop, pipe piling, hoarding re-alignment, site office setup.
1112	Hong Hom (HUH and HHS) Works Area	<ul style="list-style-type: none"> • Site clearance and set up at HUH; • D-wall construction at HUH; • Equipment mobilization at HUH; • Ground investigation works at HUH; • Underpinning at HUH; • Initial excavation at HUH; and • Demolition of building services system at HUH.

Note:

(1) Construction works under the contract have not yet commenced

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 I**.
- 2.1.5 The monitoring results indicated that no exceedance of the Action/Limit Levels of 24-hr TSP, and construction noise due to the Project construction was recorded during the reporting period. Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 29 and 30 July 2013 during the reporting month. Investigation reports of the exceedances are under process. It will be reported during next reporting period.
- 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 ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

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⁽⁶⁾					
Works Contract 1102⁽¹⁾					
Works Contract 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	4.8 – 40.3	148.7	260	No
DMS-2	Price Memorial Catholic Primary School	2.2 – 25.9	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home ⁽²⁾	4.4 – 21.9	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	22.9 – 47.1	160.4	260	No
Works Contract 1108⁽⁶⁾					
Works Contract 1108A⁽⁶⁾					
Works Contract 1109					
DMS-6	Katherine Building ⁽³⁾	68 - 81	156.8	260	No
DMS-7	Parc 22 ⁽⁴⁾	69 - 85	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	73 – 93	152.2	260	No
DMS-9	No. 26 Kowloon City Road ⁽⁵⁾	75 - 90	160.9	260	No
DMS-10	Chat Ma Mansion	77 - 88	170.4	260	No
Works Contract 1111					
AM1 ⁽⁷⁾	No. 234 – 238 Chatham Road North ⁽⁸⁾	22.6 – 45.0	183.9	260	No
Works Contract 1112					
AM2	Finger Pier ⁽⁹⁾	16.4 – 32.8	182	260	No

Note:

- (1) Construction works under the contract have not yet commenced
- (2) Alternative monitoring location to Shek On House
- (3) Alternative monitoring location to Prosperity House
- (4) Alternative monitoring location to Skytower Tower 2
- (5) Alternative monitoring location to Lucky Building
- (6) No TSP monitoring is required under this contract
- (7) AM1 named as HUH-1-3 in SCL(TAW-HUH) and SCL(HHS) EIA Reports.
- (8) Alternative monitoring location to Wing Fung Building
- (9) Alternative monitoring location to Harbourfront Horizon

N/A Not applicable

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 ⁽⁸⁾		
Works Contract 1101⁽⁷⁾						
Works Contract 1102⁽¹⁾						
Works Contract 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	58.4 – 59.8	57.0	52.8 – 56.6	70 (65 during examination period)	No
NMS-CA-2	Price Memorial Catholic Primary School	67.2 – 68.6	66.0	61.0 – 65.1	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽²⁾	67.2 – 69.5	73.0	< baseline	75	No
Works Contract 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	67.6 – 74.5	71.0	< baseline – 71.9	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽³⁾	68.4 – 73.7	74.0	< baseline	70 (65 during examination period)	No
Works Contract 1108⁽⁷⁾						
Works Contract 1108A⁽⁷⁾						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road ⁽⁴⁾	63.0 – 64.7	76.1	< baseline	75	No
NMS-CA-7	Skytower Tower 2	67.3 – 68.7	70.0	< baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	74.5 – 77.0	75.4	< baseline – 71.9	70 (65 during examination period)	No
NMS-CA-9	Kong Yiu Mansion ⁽⁵⁾	71.1 – 73.3	69.2	66.6 – 71.2	75	No
NMS-CA-10	Chat Ma Mansion	76.3 – 77.5	76.6	< baseline – 70.2	75	No
Works Contract 1111						
NM1	Carmel Secondary School (South Block)	64.3 – 69.4	68.0	< baseline – 67.7	70 (65 during examination period)	No
NM2	No. 234 – 238 Chatham Road North ⁽⁶⁾	68.4 – 75.3	79.0	< baseline	75	No
Works Contract 1112⁽⁷⁾						

Note:

- (1) Construction works under the contract have not yet commenced.
- (2) Alternative monitoring location to Shek On House.
- (3) Alternative monitoring location to Canossa Primary School (San Po Kong).
- (4) Alternative monitoring location to Prosperity House.
- (5) Alternative monitoring location to Lucky Building.
- (6) Alternative monitoring location to Wing Fung Building.
- (7) No construction noise monitoring is required under this contract.
- (8) The measured noise levels are corrected against the corresponding baseline noise levels.

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 ⁽⁴⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽³⁾		
Works Contract 1101⁽²⁾							
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)	(5)	(5)	(5)	66 ⁽⁸⁾	(5)
Works Contract 1103 & 1106							
DIH-9-1 ⁽²⁾	Shek On Building	N/A	N/A	N/A	N/A	N/A	N/A
DIH-13-1 ⁽²⁾	Canossa Primary School	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1106 & 1107							
DIH-14-1 ⁽²⁾	Rhythm Garden Block 2	N/A	N/A	N/A	N/A	N/A	N/A
DIH-14-5 ⁽²⁾	Rhythm Garden Block 1	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1103, 1106 & 1107							
DIH-14-4 ⁽²⁾	Canossa Primary School (San Po Kong)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1108⁽²⁾							
Works Contract 1108A⁽²⁾							
Works Contract 1109							
TKW-1-1 ⁽²⁾	Parc 22	N/A	N/A	N/A	N/A	N/A	N/A
TKW-2-2 ⁽²⁾	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)	(5)	(5)	(5)	80	(5)
MTW-12-3	Lucky Mansion	MTW-12-3 (Lucky Mansion)	(5)	(5)	(5)	80	(5)
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	MTW-12-4 (352-354 Ma Tau Wai Rd (East Façade))	(5)	(5)	(5)	80	(5)
MTW-12-4-1	352-354 Ma Tau Wai Rd (North Façade)	MTW-12-4-1(A) (59 Maidstone Road)	(5)	(5)	(5)	82	(5)

NSR ID	NSR Description Continuous Noise Monitoring Location		Noise Level (L _{Aeq,30mins} , dB(A))			Action/Limit Level ⁽⁴⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽³⁾		
MTW-12-10	Lucky Building (South Façade)	MTW-12-10 Lucky Building (South Façade)	(5)	(5)	(5)	84	(5)
MTW-12-10-1	Lucky Building (East Façade)	MTW-12-10-1 Lucky Building (East Façade)	(5)	(5)	(5)	80	(5)
MTW-12-11	Jing Ming Building	MTW-12-11 Jing Ming Building	(5)	(5)	(5)	81	(5)
MTW-16-1	SKH Good Shepherd Primary School	MTW-16-1 SKH Good Shepherd Primary School	74.0– 84.0	75.4	59.1 – 83.4	78	(10)(11)
MTW-18-2 ⁽⁹⁾	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 ⁽²⁾	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)	(5)	(5)	(5)	69 ⁽⁸⁾	(5)
HH2 ⁽⁷⁾	Wing Fung Building	NM2 No. 234-238 Chatham Road North ⁽⁶⁾	(5)	(5)	(5)	77	(5)
Works Contract 1112⁽²⁾							

Note:

- (1) Construction works under the contract have yet to commence.
 - (2) No continuous noise monitoring is required under this contract.
 - (3) Measured noise level (above the baseline noise level) was corrected against the corresponding baseline level.
 - (4) Reference to the predicted maximum noise level as contained in the corresponding CNMMP.
 - (5) According to the CNMMP and CNMP, continuous noise monitoring is not required during this reporting month.
 - (6) Alternative monitoring location to Wing Fung Building.
 - (7) HH2 named as HUH-1-3 in SCL (TAW-HUH) and SCL(HHS) EIA Reports.
 - (8) Action/Limit level will only be applicable during the examination period.
 - (9) 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.
 - (10) According to the Event and Action Plan of the CNMP, exceedance is only confirmed if there are two consecutive exceedances of the Action/Limit Level.
 - (11) Investigation is being conducted to identify the cause of the exceedance.
- 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 ⁽¹⁾	N/A	N/A	N/A	N/A	N/A	N/A
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

Note:

(1) Construction works under the contract have not yet commenced

N/A Not applicable

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/C 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/C

EP Condition (EP-438/2012/C)	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)
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)
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)
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)

EP Condition (EP-438/2012/C)	Submission	Submission date
		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)
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	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

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 Submission Schedule	19 Dec 2012
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)
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) 26 Apr 2013 (3 rd submission)

EP Condition (EP-437/2012)	Submission	Submission date
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	14 Feb 2013 14 Mar 2013 12 Apr 2013 14 May 2013 14 Jun 2013 12 Jul 2013

Appendix A

**11th 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. 11

[Period from 1 to 31 July 2013]

Works Contract 1108A – Kai Tak Barging Point
Facilities

(August 2013)

Certified by: 
Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 9th August 2013

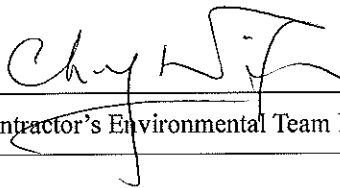
Concentric – Hong Kong River Joint Venture

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

**Monthly Environmental
Monitoring and Audit Report
for July 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 11th 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 July 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. 10 m³ of inert C&D materials and 5 m³ of non-inert C&D materials were generated during the reporting period. 10 kg of chemical wastes 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; and
 - Marine transportation of received spoil to receptor sites.

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 11th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 July to 31 July 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**.

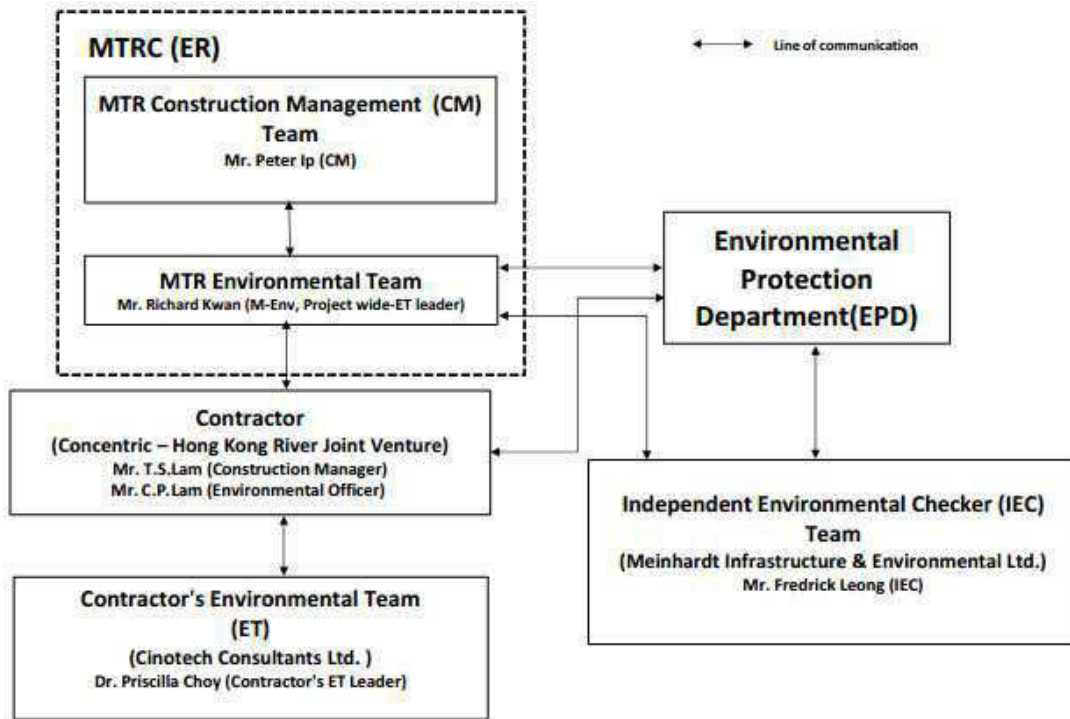
Construction Programme and Activities

- 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.
- 2.10 An updated Environmental Permit (EP) (EP No. EP-438/2012/C) was granted on 30 April 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	N/A	Valid
Construction Noise Permit (CNP)			
GW-RE0754-012	24/09/2012	23/03/2013	Expired
GW-RE0272-13	26/03/2013	23/09/2013	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			
N/A	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 actual 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 (June 2013)	Submitted to EPD on 12 th July 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
July 2013	10 m ³	5 m ³	0 m ³	10 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 The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Ecology

- 5.6 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 C**.
- 6.2 Site audits were conducted on 3, 11, 16, 23 and 30 July 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 11 July 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>	26 June 2013	<u>Reminder:</u> Clear the stagnant water at the hoarding and on the conveyor belt.	The observation was observed to be improved/rectified by the Contractor during the audit session on 3 July 2013.
	3 July 2013	<u>Reminder:</u> Rain water should be cleared to avoid accumulation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 July 2013.
	11 July 2013	<u>Reminder:</u> Provide impervious sheeting between tipping hall and barging point to prevent sand and mud from entering the sea.	The observation was observed to be improved/rectified by the Contractor during the audit session on 16 July 2013.
	30 July 2013	<u>Reminder:</u> Fill out the uneven surface on the unpaved ground to avoid accumulation of rainwater.	Follow up action will be reported in next reporting period.
	30 July 2013	<u>Reminder:</u> Clear the sand and mud near the drainage to prevent discharge into public drainage.	Follow up action will be reported in next reporting period.
<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>	3 July 2013	<u>Reminder:</u> Stockpile should be covered by impervious sheet to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 July 2013.
	23 July 2013	<u>Reminder:</u> Stockpile should be covered by tarpaulin sheet to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 July 2013.

Parameters	Date	Observations and Recommendations	Follow-up
	23 July 2013	<u>Observation:</u> Windows of tipping hall should be shielded.	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 July 2013.
	30 July 2013	<u>Reminder:</u> Provide water spray on the floating jetty to prevent dust generation.	Follow up action will be reported in next reporting period.
<i>Waste / Chemical Management</i>	18 June 2013	<u>Reminder:</u> Provide drip tray to chemical container at tipping hall No.2.	The observation was observed to be improved/rectified by the Contractor during the audit session on 3 July 2013.
	26 June 2013	<u>Observation:</u> Provide drip tray to chemical container at tipping hall No.2.	The observation was observed to be improved/rectified by the Contractor during the audit session on 3 July 2013.
	11 July 2013	<u>Reminder:</u> Shield the 4 sides of the chemical storing cage by half to avoid leakage of chemicals and allow adequate ventilation for volatile chemicals.	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 July 2013.
	11 July 2013	<u>Observation:</u> Paint container should be removed from the chemical storage area.	The observation was observed to be improved/rectified by the Contractor during the audit session on 23 July 2013.
	16 July 2013	<u>Reminder:</u> Paint containers in the chemical waste storage area should be removed.	The observation was observed to be improved/rectified by the Contractor during the audit session on 23 July 2013.
	16 July 2013	<u>Reminder:</u> Oil stain in drip tray of generator should be cleared properly as chemical waste and avoid direct discharge into drainage system.	The observation was observed to be improved/rectified by the Contractor during the audit session on 23 July 2013.
	23 July 2013	<u>Reminder:</u> Cage storing chemical wastes should be provided with a drip tray with larger capacity.	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 July 2013.
<i>Permits / Licenses</i>	N/A	N/A	N/A

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 handling of C&D material during operation of barging point facilities;
- Potential splashing of spoils into the surrounding seawater when handling/unloading the spoil at the discharge points; and
- Potential water pollution problem due to the discharge of site runoff with the wet season approaching.

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; and
- Marine transportation of received spoil to receptor sites.

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 July 2013 to 31 July 2013 in accordance with EM&A Manual and the requirement under EP-438/2012/C.
- 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.

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.

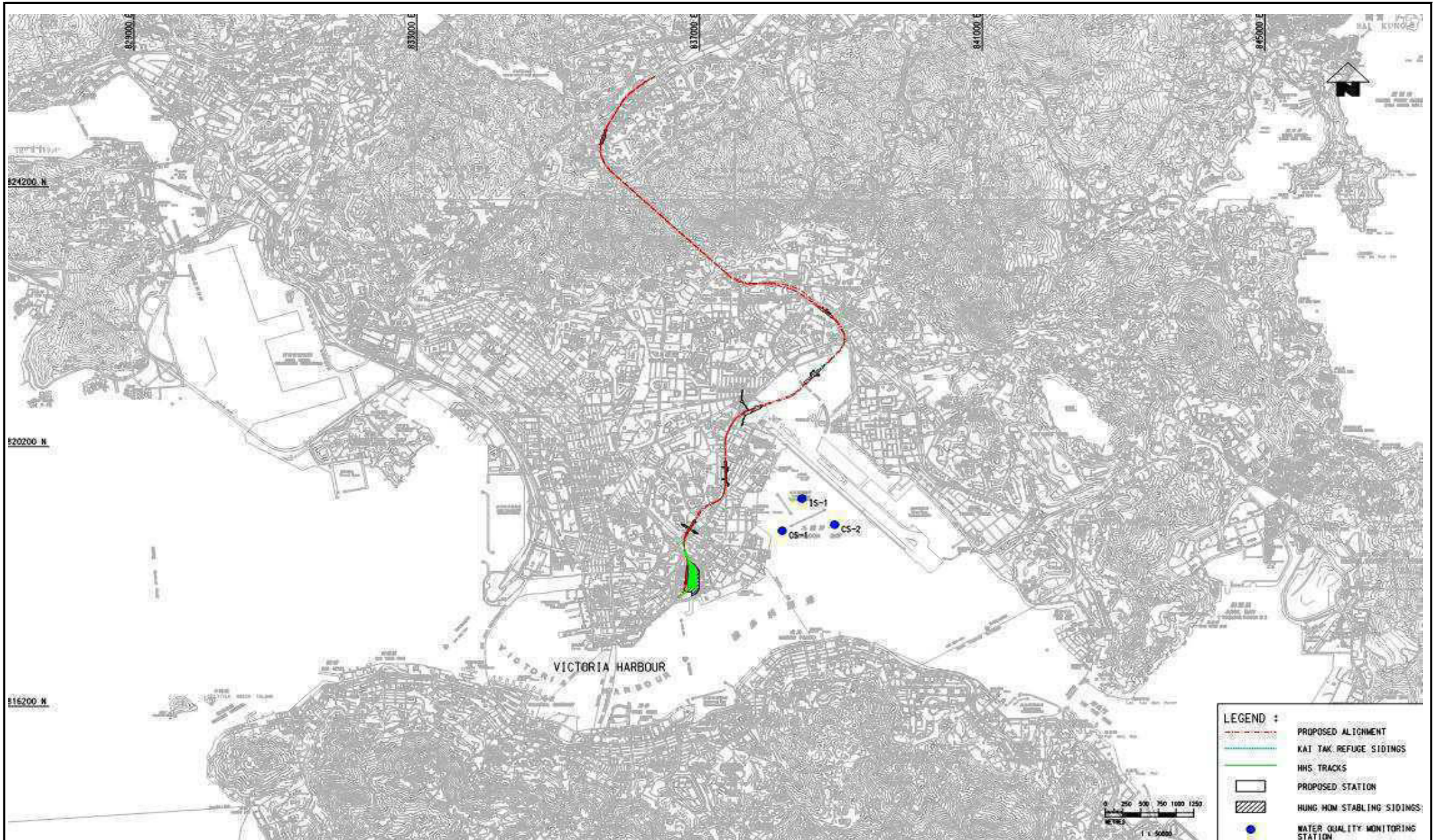
Waste / Chemical Management

- Provide and properly maintain drip trays with adequate capacity for equipment or temporary use of chemicals.
- Chemical wastes should be placed and labeled properly at designated area.

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

Date

Oct-12

Propose

No. MA12028

Figure

2



**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: July 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*

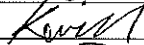

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130703
Date	3 July 2013 (Wednesday)
Time	10:30-11:30

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

Ref. No.	Remarks/Observations	Related Item No.
130703-R02	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none"> • Rain water should be cleared to avoid accumulation. 	B 12
130703-R01	<p><i>Part C - Ecology/Others</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none"> • Stockpile should be covered by impervious sheet to avoid dust generation. <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 - Permit / Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Others</i></p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:130626), all environmental deficiency was observed improved/rectified by the Contractor. 	D 7

	Name	Signature	Date
Recorded by	Kevin Lam		3 July 2013
Checked by	Dr. Priscilla Choy		3 July 2013

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

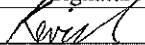

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130711
Date	11 July 2013 (Thursday)
Time	14:30-15:10

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

Ref. No.	Remarks/Observations	Related Item No.
130711-R02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> • Provide impervious sheeting between the tipping hall and the barging point to prevent sand and mud from entering the sea. 	B 27
130711-R01	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
130711-R01	<p>Part D - Air Quality</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
130711-R01	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
130711-R01	<p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> • Shield the 4 sides of the chemical storing cage by half to avoid leakage of chemicals and allow adequate ventilation for volatile chemicals. 	F 2i
130711-O03	<ul style="list-style-type: none"> • Paint container should be removed from the chemical storage area. 	F 2ii
	<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.:130703), all environmental deficiency was observed improved/rectified by the Contractor. 	

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

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

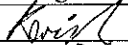

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130716
Date	16 July 2013 (Tuesday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
130716-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/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> Paint containers in the chemical waste storage area should be removed. 	F 2i
130716-R02	<ul style="list-style-type: none"> Oil stain in drip tray of generator should be cleared properly as chemical waste and avoid direct discharge into drainage system. <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.:130711), outstanding item 130711-R01 and 130711-R03 were not rectified and review is necessary in the next site inspection. 	F 8

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

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

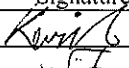

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130723
Date	23 July 2013 (Tuesday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
130723-R01 130723-O03	<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/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"> Stockpile should be covered by tarpaulin sheet to avoid dust generation. Windows of tipping hall should be shielded. 	D 7 D 18
130723-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"> Cage storing chemical wastes should be provided with a drip tray with larger capacity. <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.:130716), outstanding item 130711-R01 was remarked as 130723-R02 and review is necessary in the next site inspection. 	F 9

	Name	Signature	Date
Recorded by	Kevin Lam		23 July 2013
Checked by	Dr. Priscilla Choy		23 July 2013

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

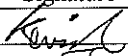

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130730
Date	30 July 2013 (Tuesday)
Time	14:00-15:30

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

Ref. No.	Remarks/Observations	Related Item No.
130730-R01	Part B - Water Quality • Fill out the uneven surface on the unpaved ground to avoid accumulation of rainwater.	B 12
130730-R02	• Clear the sand and mud near the drainage to prevent discharge into public drainage.	B 7
130730-R03	Part C - Ecology/Others • No environmental deficiency was identified during the site inspection. Part D - Air Quality • Provide water spray on the floating jetty to prevent dust generation. Part E - Construction Noise Impact • No environmental deficiency was identified during the site inspection. Part F - Waste/Chemical Management • No environmental deficiency was identified during the site inspection. Part G - Permit / Licenses • No environmental deficiency was identified during the site inspection. Others • Follow-up on previous audit section (Ref. No.:130723), all environmental deficiency was observed improved/rectified by the Contractor.	D 19

	Name	Signature	Date
Recorded by	Kevin Lam		30 July 2013
Checked by	Dr. Priscilla Choy		30 July 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 	Minimise ecological impacts	Contractor	All construction sites	During Construction	• ProPECC PN 1/94	^

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
		stream; <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. 						^ ^ ^ ^
S5.7	E6	<u>Sediment Removal</u> <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	N/A ⁽²⁾ N/A ⁽²⁾
Landscape & Visual (Construction Phase)								
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>	Minimize visual & landscape impact	Contractor	Within Project Site	Constructi on stage	•TM-EIAO	

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"> 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. 						<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"> 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>
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 	^

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							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	Constructi on 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; • 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	Constructi on stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^ * ^ ^

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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; 						<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"> • 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 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 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p>

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		<p>with the material filling line and no overfilling is allowed;</p> <ul style="list-style-type: none"> • 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>
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	• 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 	Minimize dust impact at the	Contractor	Barging Points	Construction	• APCO • To control	*

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		spraying and flexible dust curtains at the discharge point for dust suppression	nearby sensitive receivers			stage	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	• TM-EIA	N/A ⁽¹⁾
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 	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^ ^

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		<p>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, 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. 						<p>^</p> <p>N/A⁽²⁾</p> <p>^</p> <p>N/A⁽²⁾</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	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⁾

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		including air compressor, generators and saw.						
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⁾
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	To minimize water quality impact from construction site runoff	Contractor	All construction sites	Construction stage	• Water Pollution Control	

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		<p>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 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p>

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		<p>rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</p> <ul style="list-style-type: none"> • 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 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 						<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>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</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. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<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>^</p> <p>*</p> <p>N/A⁽²⁾</p> <p>*</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 	^
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u>	To minimize	Contractor	Excavation	Construction	• Water	

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		<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 	<p>groundwater quality impact from contaminated area</p>		<p>areas where contamination is found.</p>	<p>on stage</p>	<p>Pollution Control Ordinance</p> <ul style="list-style-type: none"> • TM-water • TM-EIAO 	<p>N/A⁽¹⁾</p>
								<p>N/A⁽¹⁾</p>

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		<p>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⁾
S10.7.1	W5	<u>Dredging Works</u>	To minimize sediment	Contractor	Kai Tak	Dredging	• Water	

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		<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. 	suspension during dredging		Barging Point during dredging works	period	Pollution Control Ordinance • TM-EIAO	N/A ⁽²⁾ N/A ⁽²⁾ N/A ⁽²⁾ N/A ⁽²⁾
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 transportation; 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	• Water Pollution Control Ordinance • TM-EIA	^ ^

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		<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 	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>

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		Waste) (General) Regulation.						
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	<u>On-site sorting of C&D 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 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	<ul style="list-style-type: none"> DEVB TC(W) No. 6/2010 	N/A ⁽²⁾

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		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 	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>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>^</p>

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		<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 get its approval before implementation 						<p>^</p> <p>^</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 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 	<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
		<p>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>						
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 	<p>Minimize production of the general refuse and avoid odour, pest and litter impacts</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	<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
		<p>provided if feasible.</p> <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	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 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 	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	<ul style="list-style-type: none"> ETWB TCW No. 34/2002 	<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>ensure that no dumping outside the approved location takes place.</p> <p>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;</p> <ul style="list-style-type: none"> • The Contractors shall comply with the conditions in the dumping licence. • 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 						<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>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⁾
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. 	<p>Control the chemical waste and ensure proper storage, handling and disposal.</p>	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 	^ ^

**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 (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 '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	0.055	0.000	0.000	0.000	0.055	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	<0.005	-	-	-	-	-	-	-	-	-	-
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	0.055	0.000	0.000	0.000	0.055	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	-	-	-	-	-	-	-	-	-	-	-
Sept	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
G.Total	0.065	0.000	0.000	0.000	0.065	0.000	0.000	0.000	0.010	0.025	

Remark: * As the inert or non-inert C&D materials generated from this Project in May 2013 was negligible (which is less than 5m³ in volume), no C&D materials were disposed in the reporting month. Such C&D materials will be disposed in the next month and the quantity of materials will be recorded in June 2013.

**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	%	Cal.	2013					2014						
							MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
COMMENCEMENT & COMPLETION																		
Completion of the Works																		
1108ACD01	Letter of Acceptance	0	10AUG12A		100	2												
1108ACD02	Commencement of Contract	0	13AUG12A		100	2												
1108ACD03A	Completion of Specified Parts of the Works	0		10FEB13A	100	2												
1108ACD03C	Completion of Contract	0		28AUG16	0	2												
1108ACD04B	Completion of 1st BPF for Operation	0		10DEC12A	100	2												
Time for Completion																		
1108ACD04A	Completion of Specified Parts of the Works	167	13AUG12A	15FEB13A	100	2												
1108ADC04B	Completion of 1st BPF for Operation	122	13AUG12A	10DEC12A	100	2												
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12A	28AUG16	24	2												
+ Time for Possession of Works Area																		
		52	13AUG12A	03OCT12A	100	2												
Vacation of Works Area																		
1108ACD15V	Vacation of Portion 1108AW5	0		31DEC13*	0	2	Vacation of Portion 1108A.W5											
1108ACD16V	Taking over of Portion 1108AW6 by 1108	0		31MAY13A	100	2	Taking over of Portion 1108A.W6 by 1108											
1108ACD17V	Taking over of Portion 1108AW7 by 1108	0		31MAY13A	100	2	Taking over of Portion 1108A.W7 by 1108											
MILESTONES SCHEDULE																		
Milestones for Cost Centre A																		
1108AMSA30	Satisfactory Imp'l'n of Safety & Env. req'ts.	0		31MAR13A	100	2	Safety & Env. req'ts											
1108AMSA41	Satisfactory Imp'l'n of Quality req'ts.	0		28SEP13	0	2	Satisfactory Imp'l'n of Quality req'ts.											
1108AMSA42	Satisfactory Imp'l'n of Prog. Mgt System	0		28SEP13	0	2	Satisfactory Imp'l'n of Prog. Mgt. System											
Milestones for Cost Centre B																		
1108AMSB20	Complete ALL BPF & Ready for Operation	0		10FEB13A	100	2	Mgt., Maint., & Operation of BPF											
1108AMSB30	Mgt., Maint., & Operation of BPF	0		30JUN13A	100	2	Mgt., Maint., & Operation of BPF											
1108AMSB40	Mgt., Maint., & Operation of BPF	0		28DEC13	0	2	Mgt., Maint., & Operation of BPF											
- EXECUTION OF OPTIONS																		
		43	13AUG12A	10OCT12A	100													
+ Value Engineering Proposals																		
		27	10SEP12A	08OCT12A	100	2												
Cost Centre A																		
Preliminaries																		
1108AA3010	Satisfactory Imp'l'n of Safety & Env. req'ts.	233	13AUG12A	31MAR13A	100	2	Safety & Env. req'ts											
1108AA4010	Satisfactory Imp'l'n of Quality req'ts.	415	13AUG12A	28SEP13	86	2	Satisfactory Imp'l'n of Quality req'ts											
1108AA4020	Satisfactory Imp'l'n of Prog. Mgt System	415	13AUG12A	28SEP13	86	2	Satisfactory Imp'l'n of Prog. Mgt. System											
Cost Centre B																		
+ Kai Tak BPF - Design & Approval																		
		58	13AUG12A	31OCT12A	100													
+ Kai Tak BPF - Works Areas 1108AW1 & W5																		
		319	03OCT12A	17AUG13	95	2												
+ Kai Tak BPF - Works Areas 1108AW2 & W3																		
		42	27SEP12A	18NOV12A	100	2												
+ Kai Tak BPF - Works Areas 1108AW2 & W3 (Option)																		
		74	03SEP12A	15NOV12A	100	2												
+ Kai Tak BPF - Works Areas 1108AW4, W6 & W7																		
		60	24SEP12A	22DEC12A	100	2												
+ Kai Tak BPF - Dredging Area																		
		72	13AUG12A	20NOV12A	100													
Kai Tak BPF - Mgt., Maintenance & Operation																		
1108AB3010	Manage, Maintain & Operate the BPF	152	10DEC12A	30JUN13A	100	2	Manage, Maintain & Operate the BPF											
1108AB4010	Manage, Maintain & Operate the BPF	182	30JUN13A	28DEC13	17	2	Manage, Maintain & Operate the BPF											
1108AB5010	Manage, Maintain & Operate the BPF	182	28DEC13	28JUN14	0	2												

Appendix B

**11th 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. 11

[Period from 1 to 31 July 2013]

Works Contract 1109 - Stations and Tunnels of
Kowloon City Section

(August 2013)

Certified by:  Winnie Ko

Position: Environmental Team Leader

Date: 13 August 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.11

July 2013

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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.11

July 2013

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Date: 13 August 2013

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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 eleventh EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 July to 31 July 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	
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; and
•	Nam Kok Road – Installation of pipe pile and construction of grout curtain.
Works in To Kwa Wan (TKW)	
•	SUW Playground – Pre-bored H piling;
•	TKW Station – Archaeological survey, construction of grout curtain, sheet pile and bored pile, and installation of socket steel H-piling.

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	Throughout the Contract	Permit granted on 30 April 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-S3682-01	Throughout the Contract	-
Site at MTW	5213-242-S3682-02	Throughout the Contract	-
Construction Noise Permit			
- Grout Pump and Generator at TKW/ MTW Garden	GW-RE0160-13	20-Aug-2013	-
- Powered Mechanical Equipment at TKW.	GW-RE0614-13	12-Dec-2013	-
Licence to Excavate and Search for Antiquities	342	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*, comply 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 31 (Serial No. 00320533)
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
	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.

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 Plan (CNMP).

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
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

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level ^(a)	Measurement Period ^(a)
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	Apr 2013 – Dec 2013, May 2014, Aug 2014 – Mar 2016

Note:

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

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

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 foul 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 $\text{m}^3\text{min}^{-1}$, which was within the range specified in the EM&A Manual (i.e. 0.6 – 1.7 $\text{m}^3\text{min}^{-1}$);
- 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 ($\mu\text{g m}^{-3}$) ^(a)	Limit Level ($\mu\text{g m}^{-3}$) ^(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
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).

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 3.4	Tenth Monthly EM&A Report	12 July 2013
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	26 July 2013
Condition 2.10	Continuous Noise Monitoring Plan	26 July 2013

5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 25 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 at NMS-CA-6, NMS-CA-7, NMS-CA-8 and NMS-CA-9.

The noise monitoring results of the measurements carried out at NMS-CA-10 on 2, 8, 19, 25 and 31 July are higher than the daytime construction noise criterion. However, the results are not considered as exceedance because they are either below the baseline level or below the limit level after deducting the baseline noise level.

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

No exceedance of the Action and Limit Levels of regular construction noise due to the Project was recorded during the reporting period.

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. Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 29 and 30 July 2013 during the reporting period. The monitoring results are presented in *Annex I-2*.

5.3 CONSTRUCTION DUST MONITORING

A total of 30 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, μgm^{-3} (a)		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	Average	Range		
DMS-6	74	68 - 81	156.8	260
DMS-7	78	69 - 85	166.7	260
DMS-8	81	73 - 93	152.2	260
DMS-9	80	75 - 90	160.9	260
DMS-10	82	77 - 88	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).

As tunnelling works have not commenced, no vibration monitoring was conducted during the reporting month.

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
July 2013	6,116 m ³	400 kg	58 m ³	63 kg	868 kg	0 kg

Notes:

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

(b) About 6,116 m³ of inert C&D materials were generated from the Project, and sent to 1108A Kai Tai Barging Facilities during the reporting month.

5.6 LANDSCAPE AND VISUAL MITIGATION MEASURES

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2 and 15 July 2013. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

2 July 2013

- No observation was reported during the site inspection.

15 July 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 2, 8, 15, 22 and 29 July 2013. The representative of the IEC joined the site inspection on 8 July 2013. No non-compliance was recorded during the site inspections. Chemical leakage was observed at MTW works area inside the drip tray on 24 June and has been followed during this reporting period. Chemical leakage inside the drip tray at MTW works area had been cleaned as observed during the site inspection on 2 July 2013. Findings and recommendations are summarized as follows:

2 July 2013

- A stock of cement was observed not covered entirely by impervious sheeting at TKW works area. The Contractor was reminded to cover the stock entirely by impervious sheeting. The stock of cement at TKW works area which was observed not entirely covered by impervious sheeting had been removed as observed during the site inspection on 8 July 2013.

8 July 2013

- Dry cement used for absorbing excessive water was observed dusty. The Contractor was reminded to remove the excess cement. Dry cement was sprayed with water immediately during the site inspection on 8 July 2013. The cement becomes solidified after mixing with water.
- Noise barrier has been provided at the hoarding in front of SKH Good Shepherd Primary School. In order to have better protection towards the school, the Contractor was suggested to provide a higher noise barrier to further minimize noise nuisance.
- The Cement mixing facility at To Kwa Wan Works Area was observed without proper enclosure, namely not fully covered on the top and large openings were observed at sides, while works activities for handling cement was undertaking which emitted lots of fugitive dust. The Contractor stopped the works and was reminded to provide a full enclosure to prevent dust generation. The top shelter was closed even there is no cement mixing work as observed during site inspection on 15 July 2013.
- Oil spillage was observed from a mobile crane on unpaved road near Hong Kong Air Cadet Corps and assembly yard of To Kwa Wan Works Area which mixed with logged water and contaminating the mud. Mud trails were generated off the concerned spilled area when other vehicles passed by. The Contractor has immediately instructed workers to arrange for clearing the contaminated area. The Contractor was also reminded to fence off the concerned area. After inspection, the oil leakage was not due to nearby mobile crane, it may due to other sources

such as general vehicle. The oil stained was removed as chemical waste immediately on 8 July 2013.

15 July 2013

- Water pump was observed not enough in MTW works area during rainfall. The Contractor was reminded to provide adequate pumps and sandbags to direct surface run-off. No surface run-off was observed in pedestrian pavements and public area as observed during site inspection on 22 July 2013.
- Drip tray was found not enough for chemical containers in the TKW works area. The Contractor was reminded to provide adequate drip trays in order to prevent leakage. Drip tray had been provided for the chemical containers inside the TKW Works Area as observed during the site inspection on 22 July 2013.

22 July 2013

- Drip tray was found not enough for chemical containers in MTW Works area. The Contractor was reminded to provide adequate drip trays in order to prevent leakage. Drip trays had been provided for the chemical containers in MTW Works areas as observed during the site inspection on 29 July 2013.
- Drip tray was found not enough for chemical containers in TKW Works area. The Contractor was reminded to provide adequate drip trays in order to prevent leakage. Drip trays had been provided for the chemical containers in TKW Works areas as observed during the site inspection on 29 July 2013.

29 July 2013

- No observation was reported during the site inspection.

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.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 29 and 30 July 2013 during the reporting period.

Investigation reports of the exceedances on 29 and 30 July are under process. It will be reported during next reporting period.

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	
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, installation of sheet pile and pier 15 underpinning works; and
•	Nam Kok Road – Installation of pipe pile and grout curtain
Work in To Kwa Wan (TKW)	
•	SUW Playground – Pre-bored H-pile; and
•	TKW Station – Archaeological survey, construction of ground curtain, bored pile and sheet pile, and installation of socket steel H-piling.

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*.

CONCLUSIONS

This 11th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 July 2013 to 31 July 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/C.

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.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 29 and 30 July 2013 during the reporting period. Investigation reports of the exceedances are under process, and therefore it will be reported during next 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 of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures.

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 eleventh monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 July to 31 July 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; and
- Nam Kok Road – Installation of pipe pile and construction of grout curtain.

Works in To Kwa Wan (TKW)

- SUW Playground – Pre-bored H piling; and
 - TKW Station –Archaeological survey, construction of grout curtain, sheet pile and bored pile, and installation of socket steel H-piling.
-

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 *5 times*
 - NMS-CA-7 *5 times*
 - NMS-CA-8 *5 times*
 - NMS-CA-9 *5 times*
 - NMS-CA-10 *5 times*
- Construction dust (24-hour TSP) monitoring
 - DMS-6 *6 times*
 - DMS-7 *6 times*
 - DMS-8 *6 times*
 - DMS-9 *6 times*
 - DMS-10 *6 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).

As tunnelling works have not yet commenced, no vibration monitoring was carried out during the reporting month.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 6,116 m³ of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 868 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 58 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. 400 kg of chemical waste was generated but no steel material was generated during this reporting month. 63 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 2 and 15 July 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 2, 8, 15, 22 and 29 July 2013. The representative of the IEC joined the site inspection on 8 July 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.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 29 and 30 July 2013 during the reporting period. Investigation reports of the exceedance are being prepared, and it will be reported during next reporting period.

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

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)

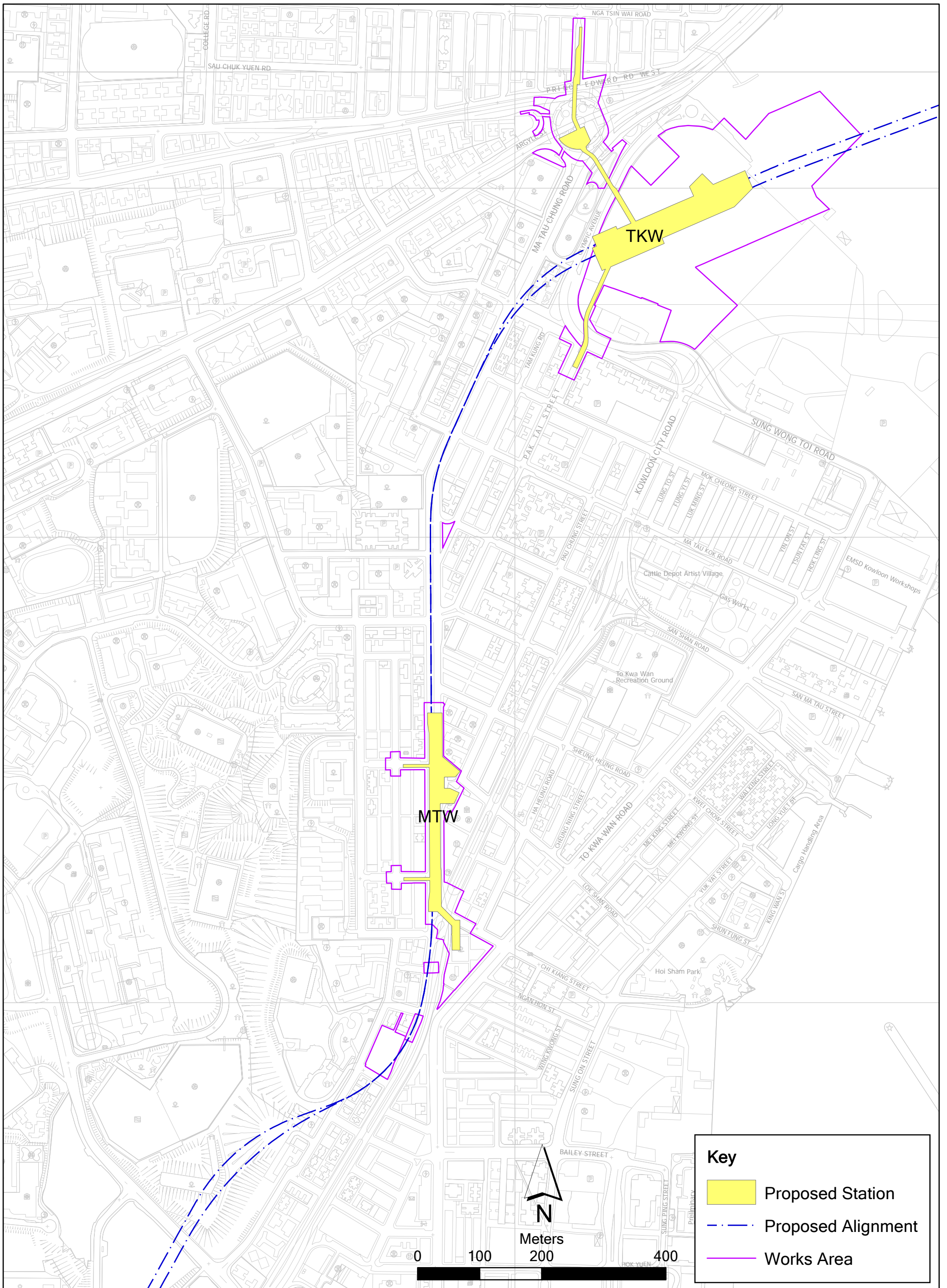
- Along Ma Tau Wai Road - Construction of D-wall panel, pre-drilling for D Wall and trial pits for location of utilities;
 - TKW/MTW Road Garden – Operation of bentonite plant, installation of sheet pile and pier 15 underpinning works; and
 - Nam Kok Road – Installation of pipe pile and grout curtain.
-

Work in To Kwa Wan (TKW)

- SUW Playground – Pre-bored H-pile; and
 - TKW Station –Archaeological survey, construction of ground curtain, bored pile and sheet pile, and installation of socket steel H-piling.
-

Annex A

The Alignment and Works Area for Works Contract



Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

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

Key

- Proposed Station
- Proposed Alignment
- Works Area

**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 - JULY 2013

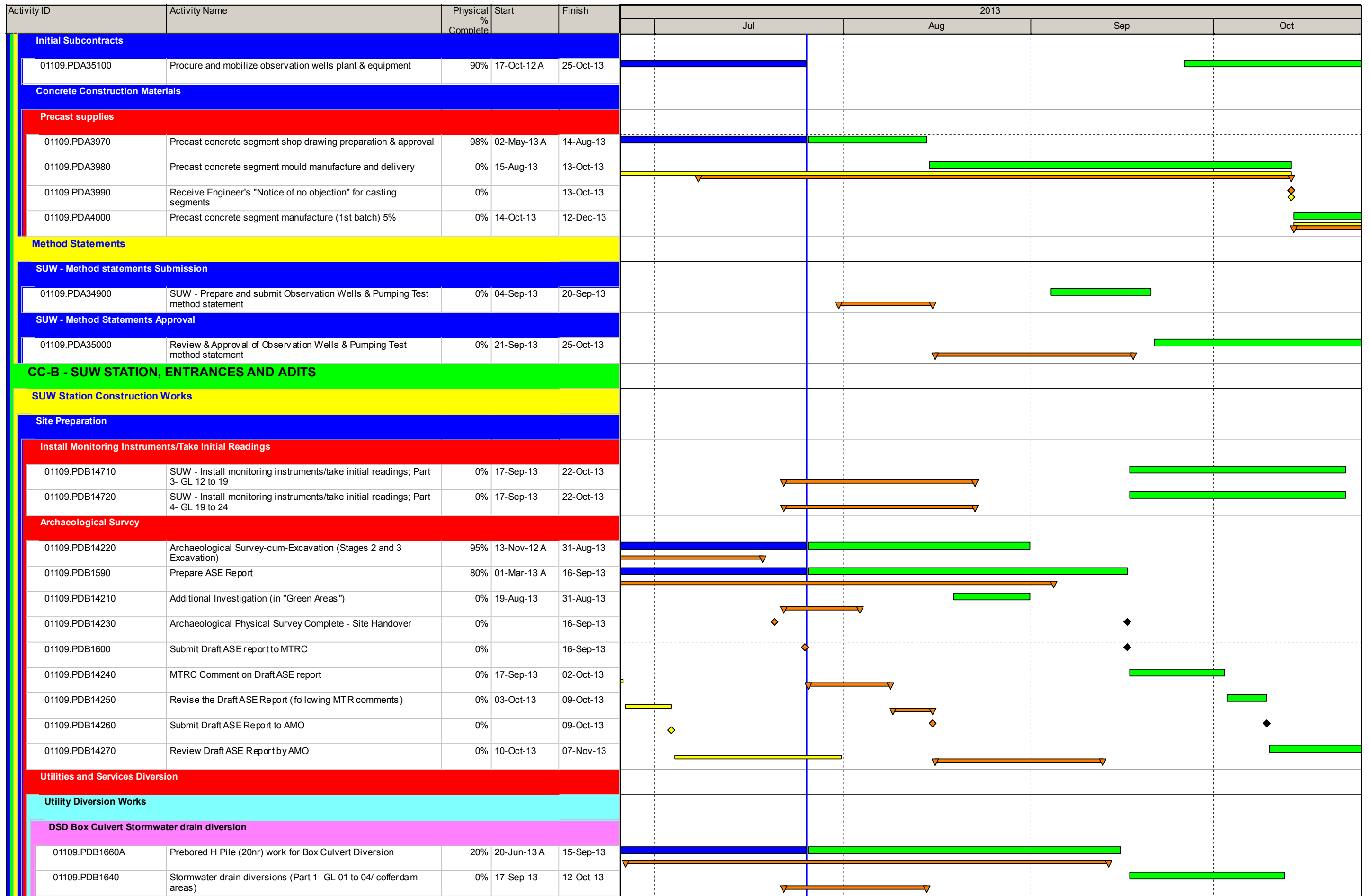
Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Jul	Aug	Sep	Oct
1109 - SUW & TKW Stations and Tunnels JUL13 (UWP R5)								
PROJECT DATES								
Specified Milestone Dates								
CC-A Milestones								
01109.MSA1i	A5 - Engr's confirmation of satisfac implementation of Programming Mangmt Sys (1).(Wk37/13;15Sep13)	0%		15-Sep-13*			◆	
CC-B Milestones								
01109.MSB04ii	B4(ii) - 60% of total numbers of pre-bored H piles complete.(Wk41/13;13Oct13)	0%		13-Sep-13*			◆	◆
01109.MSB03i	B3(i) - Archaeological survey-cum-excavation complete.(Wk24/13;16Jun13)	0%		16-Sep-13*			◆	
01109.MSB04iv	B4(iv)-All Perm Works Material Control Schedules (as per GS CI G4.16.1) approved by the Eng.(Wk41/13;13Oct13)	0%		13-Oct-13*				◆
CC-C Milestones								
01109.MSC04iii	C4(iii)-Cont dwg submission sch. approved for blkwork,glazed&metal	0%		15-Sep-13*			◆	
01109.MSC02	C2-30% by plan length of permanent diaphragm wall complete.(25 Jun 13)	0%		12-Oct-13	◆			◆
CC-D Milestones								
01109.MSD02ii	D2(ii)- Investig.to confirm no exist. piles/obstructions to proposed TBM tunnels comp.&accepted by	0%		26-Sep-13			◆	◆
01109.MSD03	D3-Submission of des.&manufact.data comp; obtain Engr Notice of no objection" for segments (Wk41/13;13Oct13)	0%		13-Oct-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%	22-Oct-13	20-Nov-13				◆
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%	09-Aug-13*	07-Oct-13				◆
01109.PDA1350	SUW - Nam Kok Rd - TTM Stage 1 Phase 2 - Design & Approval by SLG	0%	24-Sep-13	22-Oct-13*				◆
TTMS Gazette Notice								
01109.PDA1440	SUW - Nam Kok Rd - TTM Stage 1 Phase 2 - Gazette Notice	0%	22-Oct-13	21-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	18%	15-May-13 A	26-Sep-13				◆
Procurement								



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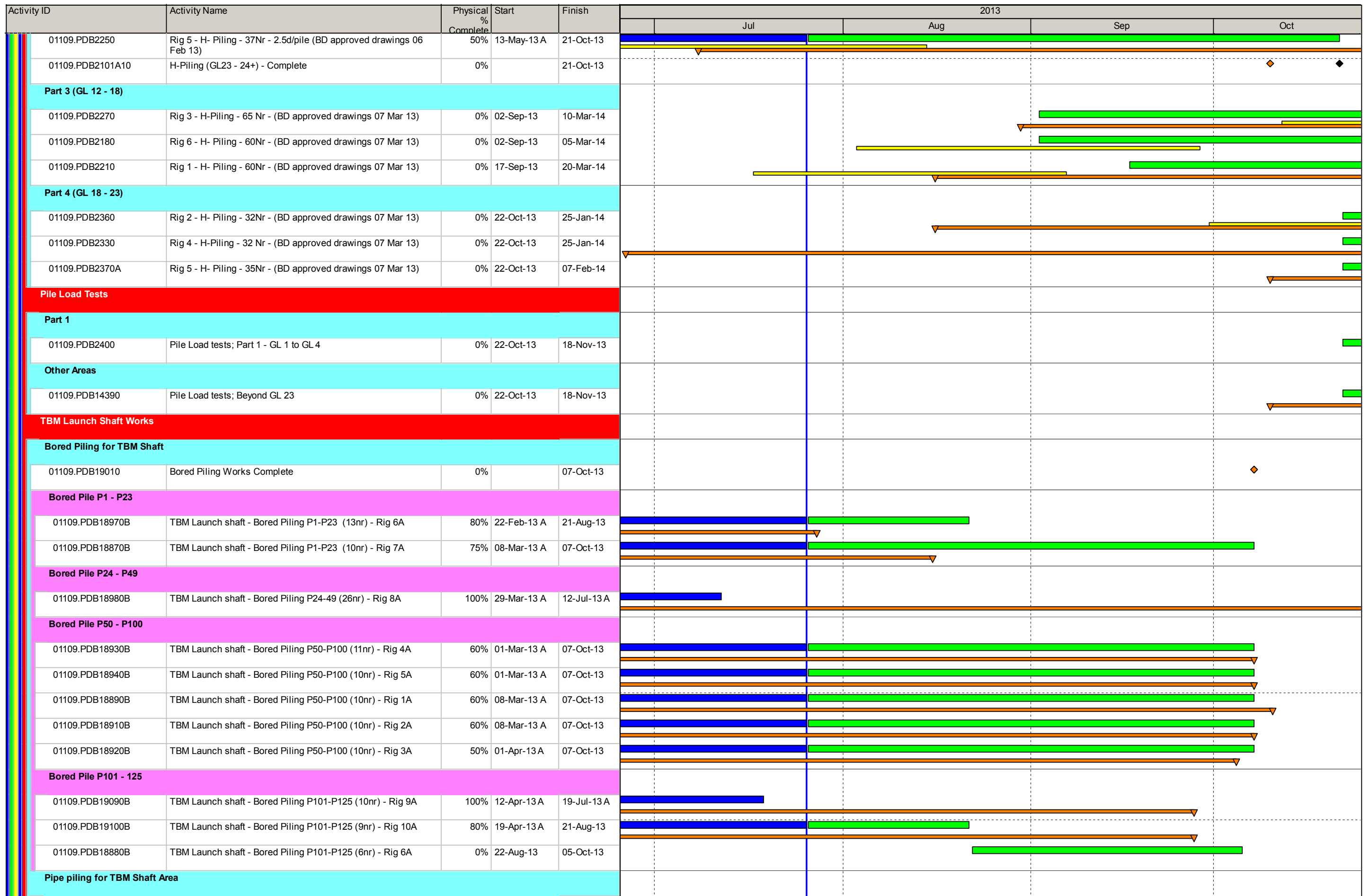
Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Jul	Aug	Sep	Oct
01109.PDB1650	Stormwater drain diversions (Part 2- GL 04 to 12)	0%	15-Oct-13	07-Nov-13				
Fresh water main diversion								
01109.PDB1700	Fresh water mains diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	17-Sep-13	12-Oct-13				
01109.PDB1710	Fresh water mains diversions (Part 2- GL 04 to 12)	0%	15-Oct-13	07-Nov-13				
Salt water main diversion								
01109.PDB1760	Salt water mains diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	17-Sep-13	12-Oct-13				
01109.PDB1770	Salt water mains diversions (Part 2- GL 04 to 12)	0%	15-Oct-13	07-Nov-13				
Electric Cable diversion								
01109.PDB1820	Electric cable diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	15-Oct-13	07-Nov-13				
Telecom cable diversions								
01109.PDB1880	Telecom cable diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	15-Oct-13	07-Nov-13				
Station - Excavation and Foundation								
Pre-drilling Works								
Part 1								
01109.PDB1960	Pre-drilling for station foundation piles (Part 1- GL 1 to 4)	90%	23-Nov-12 A	17-Aug-13				
01109.PDB1970	SI Report & Confirmation of Founding Levels (Part 1 - GL 1 to 4)	90%	02-Jan-13 A	17-Aug-13				
Part 3								
01109.PDB2030	Pre-drilling for station foundation piles (Part 3- GL 12 to 19)	50%	07-Jun-13 A	16-Sep-13				
01109.PDB14350	SI Report & Confirmation of Founding Levels (Part 3 - GL 12 to 19)	0%	17-Sep-13	24-Sep-13				
Part 4								
01109.PDB2060	Pre-drilling for station foundation piles (Part 4- GL 19 to 24)	60%	07-Jun-13 A	23-Aug-13				
01109.PDB14360	SI Report & Confirmation of Founding Levels (Part 4 - GL 19 to 24)	0%	24-Aug-13	30-Aug-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)	70%	22-Jan-13 A	21-Oct-13				
01109.PDB2390	H- Piling; (GL 1 to 4) - Complete	0%		21-Oct-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	31-Aug-13				
01109.PDB2100A	Rig 4 - H-Piling - 65 Nr - (BD approved drawings 07 Mar 13)	70%	30-Jan-13 A	21-Oct-13				
01109.PDB2101A	H-Piling; (GL 4 - 7.5) - Complete	0%		21-Oct-13				
Part 2B (GL 7.5 - 12)								
01109.PDB2370A10	Rig 6 - H- Piling - 37Nr - (BD approved drawings 07 Mar 13)	75%	09-Apr-13 A	31-Aug-13				
01109.PDB2350	Rig 7 - H- Piling - 71Nr - (BD approved drawings 07 Mar 13)	45%	19-Apr-13 A	06-Jan-14				
Other Areas (GL 23 - 24+)								



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Jul	Aug	Sep	Oct
01109.PDB19020	TBM Launch shaft - Gang A - Pipe Piles Zone B1 - P1 to 24 (24nr) 2d/pile	0%	01-Aug-13*	31-Aug-13				
01109.PDB19050	TBM Launch shaft - Gang B - Pipe Piles Zone C - P71 to 93 (23nr) 2d/pile	0%	02-Sep-13	30-Sep-13				
01109.PDB19030	TBM Launch shaft - Gang A - Pipe Piles Zone C - P25 to 47 (23nr) 2d/pile	0%	02-Oct-13	29-Oct-13				
01109.PDB19060	TBM Launch shaft - Gang B - Pipe Piles Zone C - P94 to 117 (24nr) 2d/pile	0%	02-Oct-13	29-Oct-13				
Excavation TBM Shaft Area								
Utility Support /Diversions								
01109.PDB3000	TBM Launch shaft - Excavate & support rising mains in NW corner	100%	12-Apr-13 A	24-Jul-13 A				
Install observation Wells- TBM Shaft								
01109.PDB3010	TBM Launch shaft - Install observation wells	0%	08-Oct-13	31-Oct-13				
Excavation and lateral Support - TBM Shaft								
01109.PDB3070	TBM Launch shaft - Pile testing	0%	08-Oct-13	06-Nov-13				
Earthworks								
Curtain Grout Works								
01109.PDB3480	Grout Curtain complete	0%		17-Oct-13				
North of SUW								
01109.PDB3320A	Grout Curtain; Part 4- GL 20 to 21	100%	13-May-13 A	19-Jul-13 A				
01109.PDB3360A	Grout Curtain; Part 4- GL 21 to 22	0%	19-Jul-13 A	07-Aug-13				
01109.PDB3390A	Grout Curtain; Part 4- GL 22 to 23	0%	26-Jul-13	07-Aug-13				
01109.PDB3210A	Grout Curtain; Part 2- GL 4 to 5	0%	26-Jul-13	07-Aug-13				
01109.PDB3240A	Grout Curtain; Part 3- GL 10 to 11	0%	26-Jul-13	07-Aug-13				
01109.PDB3420A	Grout Curtain; Part 4- GL 23 to 24	0%	08-Aug-13	03-Sep-13				
01109.PDB3450A	Grout Curtain; Part 5- areas beyond GL 24	0%	08-Aug-13	21-Aug-13				
01109.PDB3300A	Grout Curtain; Part 3- GL 11 to 12	0%	22-Aug-13	27-Aug-13				
01109.PDB3250A	Grout Curtain; Part 1- GL 1 to GL 2	0%	22-Aug-13	03-Sep-13				
01109.PDB3380A	Grout Curtain; Part 3- GL 13 to 14	0%	28-Aug-13	03-Sep-13				
01109.PDB3290A	Grout Curtain; Part 2- GL 5 to 6	0%	04-Sep-13	09-Sep-13				
01109.PDB3410A	Grout Curtain; Part 3- GL 14 to 15	0%	04-Sep-13	09-Sep-13				
01109.PDB3310A	Grout Curtain; Part 1- GL 2 to GL 3	0%	10-Sep-13	14-Sep-13				
01109.PDB3440A	Grout Curtain; Part 3- GL 15 to 16	0%	10-Sep-13	14-Sep-13				
01109.PDB3330A	Grout Curtain; Part 2- GL 6 to 7	0%	17-Sep-13	23-Sep-13				
01109.PDB3340A	Grout Curtain; Part 3- GL 12 to 13	0%	17-Sep-13	23-Sep-13				
01109.PDB3460A	Grout Curtain; Part 3- GL 16 to 17	0%	17-Sep-13	23-Sep-13				
01109.PDB3350A	Grout Curtain; Part 1- GL 3 to GL 4	0%	24-Sep-13	28-Sep-13				
01109.PDB3470A	Grout Curtain; Part 3- GL 17 to 18	0%	24-Sep-13	28-Sep-13				



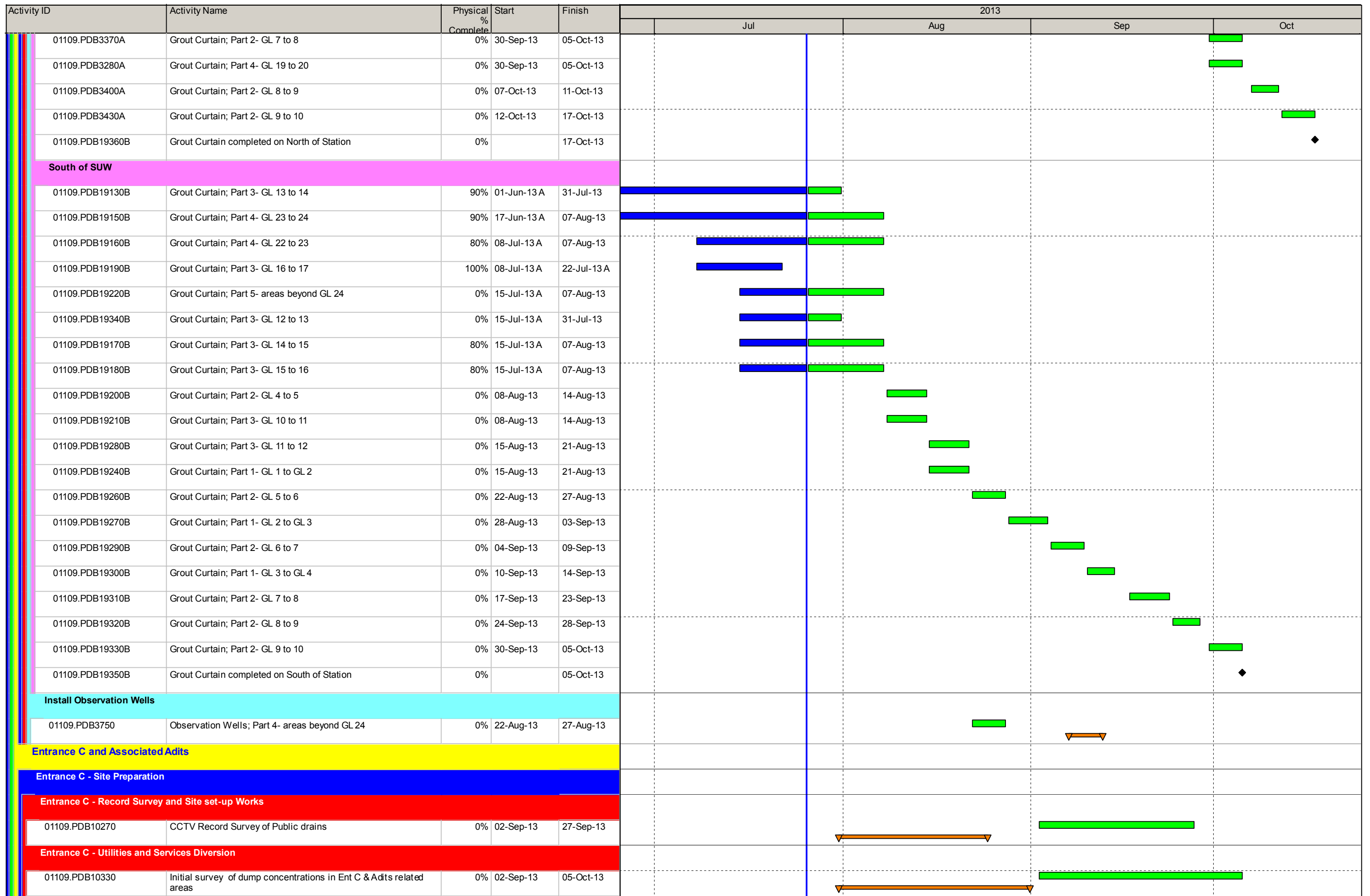
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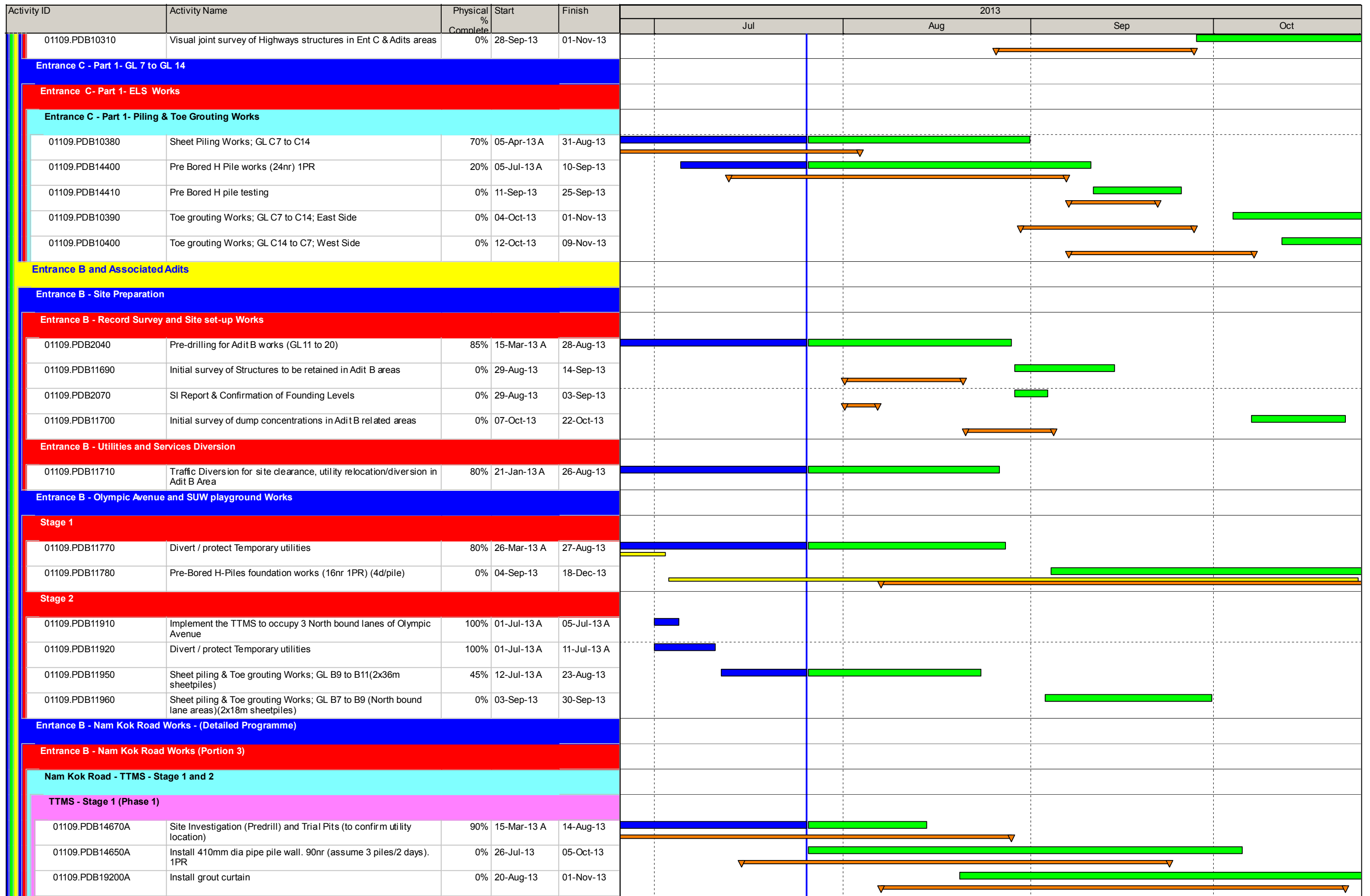
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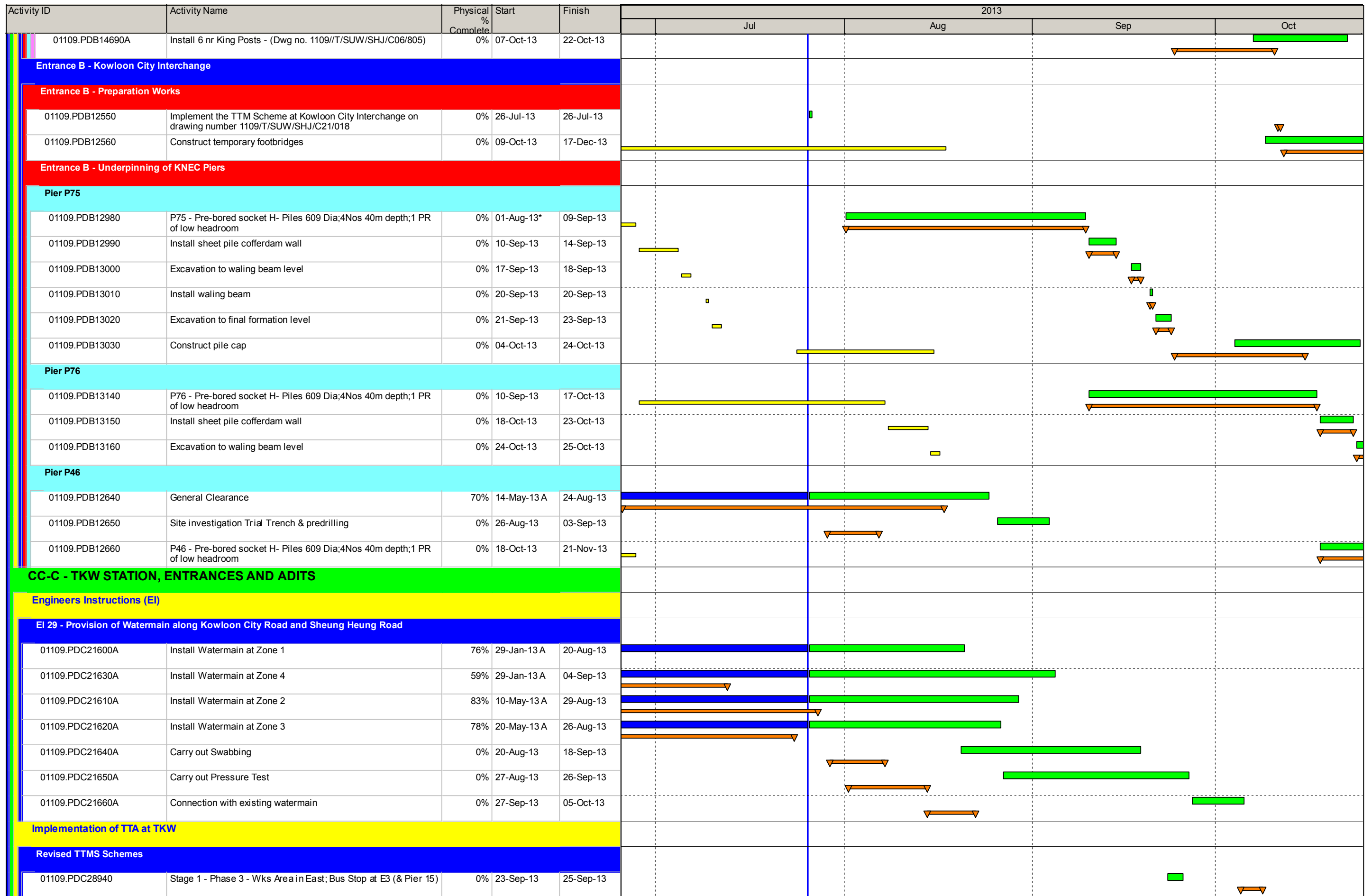
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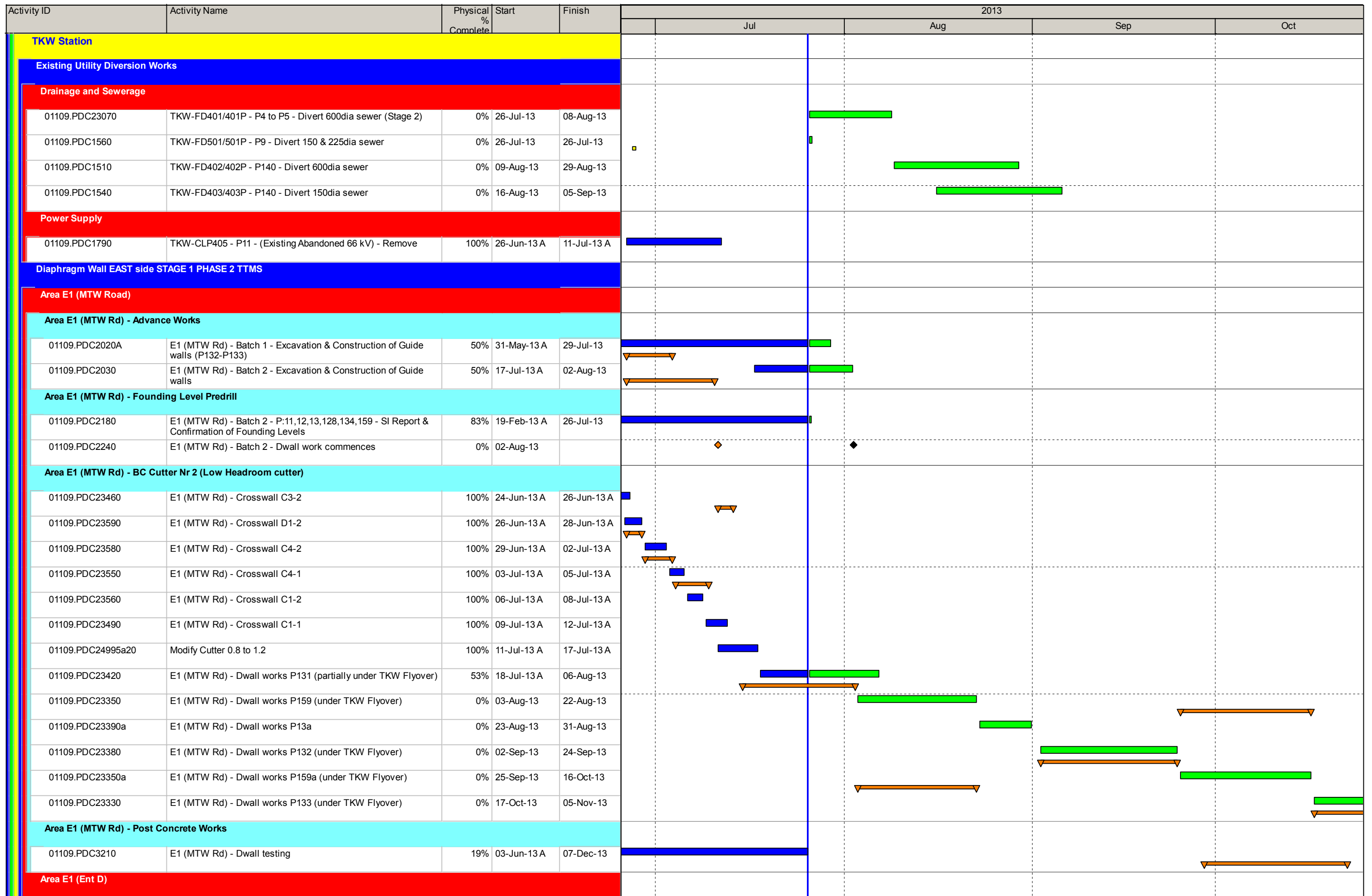
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Jul	Aug	Sep	Oct
Area E1 (Ent D) - Advance Works								
01109.PDC3230	E1 (Ent D) - Batch 1 - Excavation & Construction of Guide Walls	67%	17-Dec-12 A	20-Sep-13				
01109.PDC3250	E1 (Ent D) - Batch 2 - Excavation & Construction of Guide Walls	80%	15-Mar-13 A	18-Sep-13				
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-Aug-13				
01109.PDC3270A	E1 (Ent D) - Batch 2 - P9 Trial pit and Founding Level Predrill	0%	26-Jul-13	17-Aug-13				
Area E1 (Ent D) - BC Cutter Nr 2 (Low Headroom cutter)								
01109.PDC24020	E1 (Ent D) - Dwall works P142 (grab excavation)	0%	26-Jul-13	10-Aug-13				
01109.PDC23870	E1 (Ent D) - Dwall works P6	0%	27-Jul-13	07-Aug-13				
01109.PDC23860	E1 (Ent D) - Dwall works P142	0%	13-Aug-13	27-Aug-13				
Area E1 (Ent D) - Post Concrete Works								
01109.PDC27020	E1 (Ent D) - P143 & P5 - Toe Grouting (Trial grouting)	100%	28-Jun-13 A	19-Jul-13 A				
Area E2/E4/E5								
Area E2/E4/E5 - Advance Works								
01109.PDC4050	E2 - Batch 1 - Excavation & Construction of Guide Walls	80%	14-Feb-13 A	06-Aug-13				
Area E2/E4/E5 - BC Cutter Nr 1								
01109.PDC23650A	E2 - Dwall works P117 (part 2)	100%	10-Jun-13 A	31-Jul-13				
01109.PDC24700	E4 - Dwall works P123	0%	29-Jul-13	26-Aug-13				
01109.PDC23680	E2 - Dwall works P119	0%	22-Aug-13	20-Sep-13				
01109.PDC23630A	E2 - Dwall works P122	0%	16-Sep-13	17-Oct-13				
01109.PDC24995a10	BC Cutter #1 - Modify Cutter 1.2 to 0.8	0%	12-Oct-13	16-Oct-13				
01109.PDC23750	E2 - Crosswall F6-1	0%	17-Oct-13	23-Oct-13				
01109.PDC24070	E3 - Crosswall F13-1	0%	23-Oct-13	29-Oct-13				
Area E2/E4/E5 - BC Cutter Nr 3								
01109.PDC23700A	E2 - Dwall works P120 (part 2)	100%	10-Jun-13 A	27-Jun-13 A				
01109.PDC24710	E4 - Dwall works P124	100%	22-Jun-13 A	06-Jul-13 A				
01109.PDC24760	E5 - Crosswall F9-1	100%	11-Jul-13 A	15-Jul-13 A				
01109.PDC24790	E5 - Crosswall F11-1	100%	19-Jul-13 A	25-Jul-13 A				
01109.PDC23640	E2 - Dwall works P116 (part 1)	0%	31-Jul-13	05-Aug-13				
01109.PDC23640a	E2 - Dwall works P116 (part 2)	0%	06-Aug-13	22-Aug-13				
01109.PDC23620	E2 - Dwall works P115	0%	17-Aug-13	30-Aug-13				
01109.PDC24780	E5 - Crosswall F10-1	0%	27-Aug-13	31-Aug-13				
01109.PDC23660	E2 - Dwall works P118 (part 1)	0%	02-Sep-13	05-Sep-13				
01109.PDC23660a	E2 - Dwall works P118 (part 2)	0%	06-Sep-13	04-Oct-13				



Samsung - Hsin Chong Joint Venture

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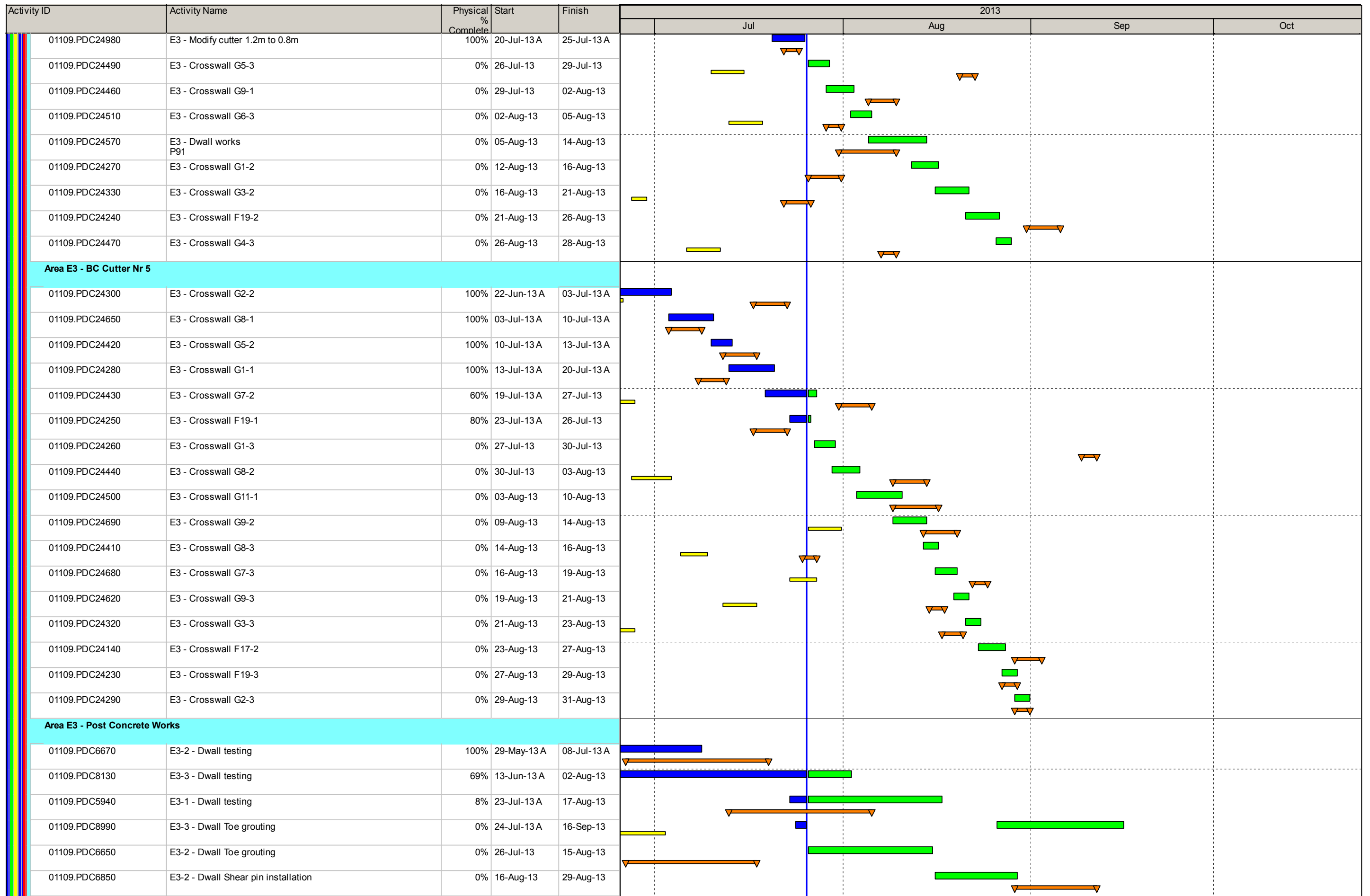
Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Jul	Aug	Sep	Oct
01109.PDC28900A	E4 - Crosswall E1-1	0%	30-Sep-13	05-Oct-13				
01109.PDC24995a	Modify Cutter 1.2 to 0.8	0%	05-Oct-13	10-Oct-13				
01109.PDC24820	E5 - Crosswall F10-2	0%	11-Oct-13	16-Oct-13				
01109.PDC23770	E2 - Crosswall F5-1	0%	16-Oct-13	22-Oct-13				
01109.PDC23720	E2 - Crosswall F1-1	0%	22-Oct-13	29-Oct-13				
Area E2/E4/E5 - BC Cutter Nr 4								
01109.PDC24100	E3 - Crosswall F15-2	0%	29-Aug-13	02-Sep-13				
01109.PDC24130	E3 - Crosswall F16-1	0%	02-Sep-13	06-Sep-13				
01109.PDC24110	E3 - Crosswall F15-1	0%	06-Sep-13	12-Sep-13				
Area E2/E4/E5 - Post Concrete Works								
01109.PDC23090	E4 - Dwall testing	0%	27-Aug-13	19-Sep-13				
01109.PDC8860	E5 - Dwall testing	0%	31-Aug-13	24-Sep-13				
01109.PDC5110	E2 - Dwall testing	0%	06-Sep-13	29-Sep-13				
01109.PDC5080	E2 - Dwall Toe grouting	0%	18-Sep-13	10-Oct-13				
01109.PDC23100	E4 - Dwall Toe grouting	0%	20-Sep-13	26-Sep-13				
01109.PDC23120	E5 - Dwall Toe grouting	0%	25-Sep-13	09-Oct-13				
01109.PDC5220	E2 - Dwall Shear pin installation	0%	09-Oct-13	23-Oct-13				
Area E3								
Area E3 - Advance Works								
01109.PDC6760A	E3-3 - Trial Pits (Batch 2)	75%	23-Mar-13 A	27-Jul-13				
01109.PDC6750A	E3-3 - Excavation and Construction of Guide Walls (P88a,88b,89,90,91,92,93)	29%	27-Mar-13 A	09-Aug-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	27-Jul-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-Jul-13				
Area E3 - BC Cutter Nr 3								
01109.PDC24000	E3 - Dwall works P109	100%	02-Jul-13 A	11-Jul-13 A				
01109.PDC24170	E3 - Crosswall F18-1	100%	15-Jul-13 A	19-Jul-13 A				
01109.PDC24150	E3 - Crosswall F17-1	0%	26-Jul-13	31-Jul-13				
Area E3 - BC Cutter Nr 4								
01109.PDC24050	E3 - Dwall works P105 (modified panel length)	100%	21-Jun-13 A	05-Jul-13 A				
01109.PDC24640	E3 - Crosswall G11-2	100%	28-Jun-13 A	08-Jul-13 A				
01109.PDC24600	E3 - Crosswall G10-3	100%	08-Jul-13 A	12-Jul-13 A				
01109.PDC24480	E3 - Crosswall G10-1	100%	13-Jul-13 A	19-Jul-13 A				
01109.PDC24580	E3 - Crosswall G11-3	100%	18-Jul-13 A	20-Jul-13 A				



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01109.PDC6820	E3-1 - Dwall Toe grouting	0%	17-Aug-13	07-Sep-13				
01109.PDC28950A	E3-2 & E3-3 - Construct Bus Stop in Area E3 (on Temp Decking)	0%	29-Aug-13	21-Sep-13				
01109.PDC6840	E3-1 - Dwall Shear pin installation	0%	31-Aug-13	14-Sep-13				
01109.PDC8090	E3-3 - Dwall Shear pin installation	0%	06-Sep-13	21-Sep-13				
01109.PDC28975A	E3-2 & E3-3 - Bus Stop relocated - Ready for TTMS Stage 1 Phase 3	0%		21-Sep-13				
01109.PDC28960A	E3-2 & E3-3 - Relocate Bus Stop from E6 to E3-2 & E3-3	0%		21-Sep-13				
Area E6								
Area E6 - Advance Works								
01109.PDC8960	E6 - Batch 2 - Excavation and construction of Guide walls	55%	20-Apr-13 A	01-Aug-13				
01109.PDC8980	E6 - Batch 1 - Excavation and construction of Guide walls	67%	01-Jun-13 A	09-Aug-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-Jul-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-Jul-13				
01109.PDC9140	E6 - Batch 1 - P: 75,79,76,78,77,74a - GI Report & Confirmation of Founding Levels	0%	29-Jul-13	05-Aug-13				
Diaphragm Wall W1 to 9 + E6 STAGE 2 ATTMS								
Area E6								
Area E6 - BC Cutter Nr 5								
01109.PDC24880	E6 - Dwall works P86	0%	23-Sep-13	12-Oct-13				
01109.PDC24850	E6 - Dwall works P87	0%	15-Oct-13	28-Oct-13				
Area E6 - BC Cutter Nr 4								
01109.PDC24950	E6 - Dwall works P78	0%	26-Sep-13	17-Oct-13				
01109.PDC24960	E6 - Dwall works P77	0%	18-Oct-13	06-Nov-13				
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION								
Procurement of Specialised Construction Machinery								
Procurement of Specialised Construction Machinery								
Off-site								
01109.PDD1040	TBM Down track SUW to HOM - TBM Manufacture	66%	09-Jan-13 A	05-Nov-13				
01109.PDD1030	STP (Manufacture)	63%	17-Jan-13 A	13-Nov-13				
01109.PDD1050	TBM Up track SUW to HOM - TBM Manufacture	0%	16-Oct-13	11-Aug-14				
Underpinning of EKW Pier 15 and Foundation Removal								
Site Preparation (in exist central reservation)								
01109.PDD3950A	Install Sheet pile wall (stage 1)	100%	27-Jun-13 A	19-Jul-13 A				
01109.PDD2270	Specific Geotechnical monitoring equipment to be installed	0%	26-Jul-13	08-Aug-13				
01109.PDD2267A	Piling Rig Mobilization and Set up	0%	02-Aug-13*	08-Aug-13				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5A, Page 13 of 14
THREE MONTH ROLLING PROGRAMME - JULY 13 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
Printed:03-Aug-13

- Actual Work
- Remaining Work
- Master Programme
- Last Month Update (Jun 2013)
- Milestone
- MP Milestone
- Jun 2013 Milestone

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Jul	Aug	Sep	Oct
01109.PDD2268A	Stage 1 - Pre-Bored H-Pile Work (5nr)	0%	09-Aug-13	01-Nov-13				
TTA Stage 1: Phase 3								
Preparation Works								
01109.PDD2320	Remove abandoned HV Power supply cable	0%	26-Sep-13	30-Sep-13				
01109.PDD2350	Install Western area of 15" Salt Water Main TKW-SW504P incl 2nr manholes S-101 & S-102	0%	26-Sep-13	18-Oct-13				
01109.PDD2370	Install western part of sheet pile cofferdam wall	0%	02-Oct-13	07-Oct-13				
01109.PDD2380	Install remaining part of western sheet pile cofferdam wall	0%	08-Oct-13	11-Oct-13				
01109.PDD2300	Stg 2 - Construct southern pre Bored Socket H Piles 605dia, 4nr 40m depth 1PR Low Headroom	0%	11-Oct-13	01-Nov-13				
01109.PDD2310	Install Eastern area of 15" Salt Water Main TKW-SW504P incl 2nr manholes S-101 & S-102	0%	19-Oct-13	24-Oct-13				
Ground Treatment between TKW and Shansi Street								
01109.PDD2810	Investigate & confirm clearance of existing piles and other obstructions	0%	08-Jul-13 A	30-Sep-13				
01109.PDD2820	Engineer's Approval for Ground Treatment Works	0%	02-Oct-13	16-Oct-13				
01109.PDD2830	Carry out grout trials	0%	17-Oct-13	23-Oct-13				
01109.PDD2840	Approve grout trials	0%	24-Oct-13	06-Nov-13				
To Kwa Wan Ancillary Building								
Site Preparation								
Demolition & Site Clearance								
01109.PDD2880A	TKA - Trench Excavation	25%	19-Jun-13 A	17-Aug-13				
01109.PDD2920	TKA - Install & commission new IPB 600 Gas Main - TKA-GAS101	0%	20-Aug-13	04-Oct-13				
01109.PDD2890	TKA - Install new Salt Water main - TKA-SW101P	0%	05-Oct-13	01-Nov-13				
Excavation and Foundation								
Temporary Works & ELS								
01109.PDD2930	TKA - Design shaft & adit tunnel temporary support	0%	08-Oct-13	23-Jan-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

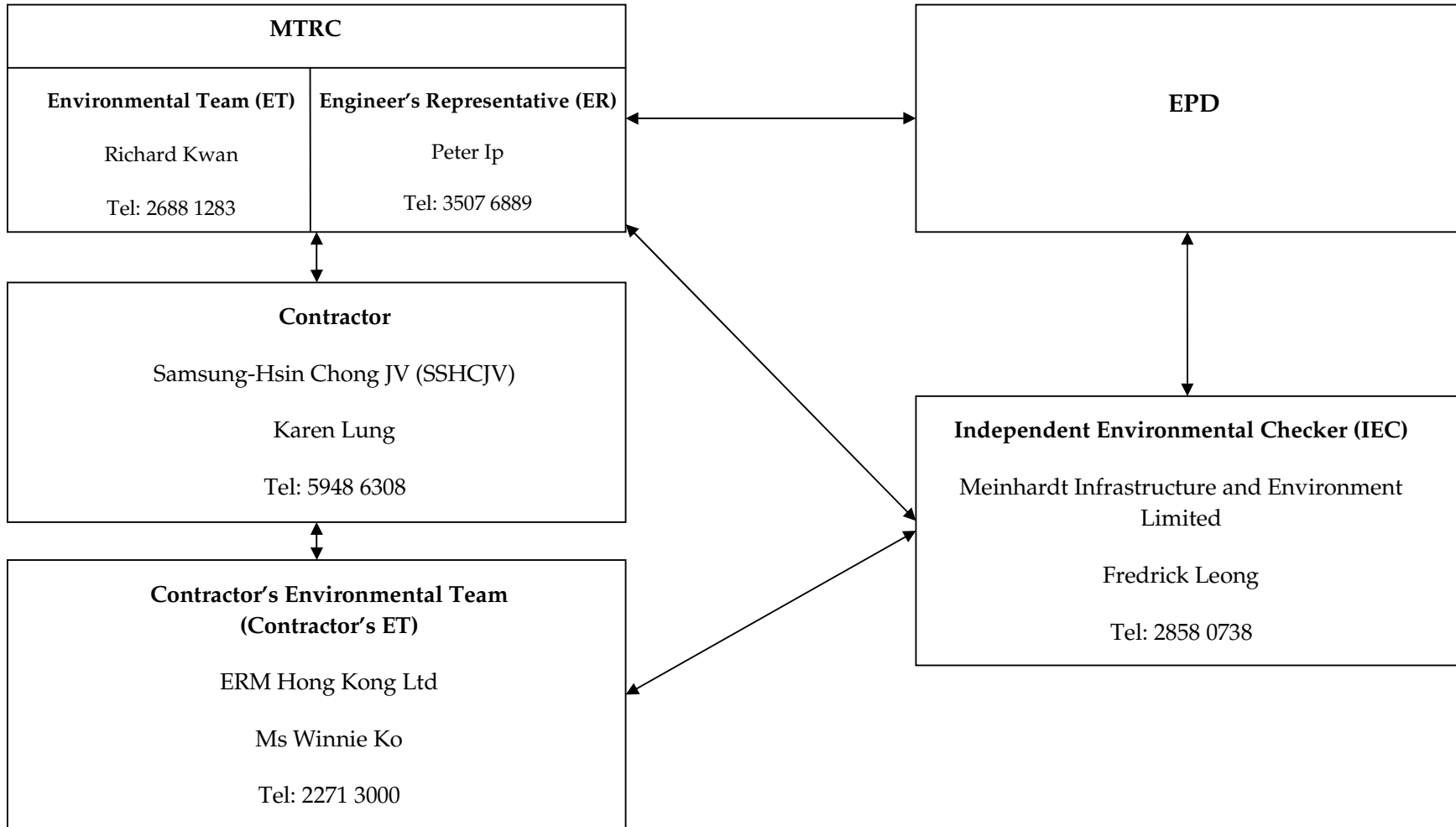
1109-UWP-5A, Page 14 of 14
 THREE MONTH ROLLING PROGRAMME - JULY 13 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:03-Aug-13

- Actual Work
- Remaining Work
- Master Programme
- Last Month Update (Jun 2013)
- Milestone
- MP Milestone
- Jun 2013 Milestone

Annex C

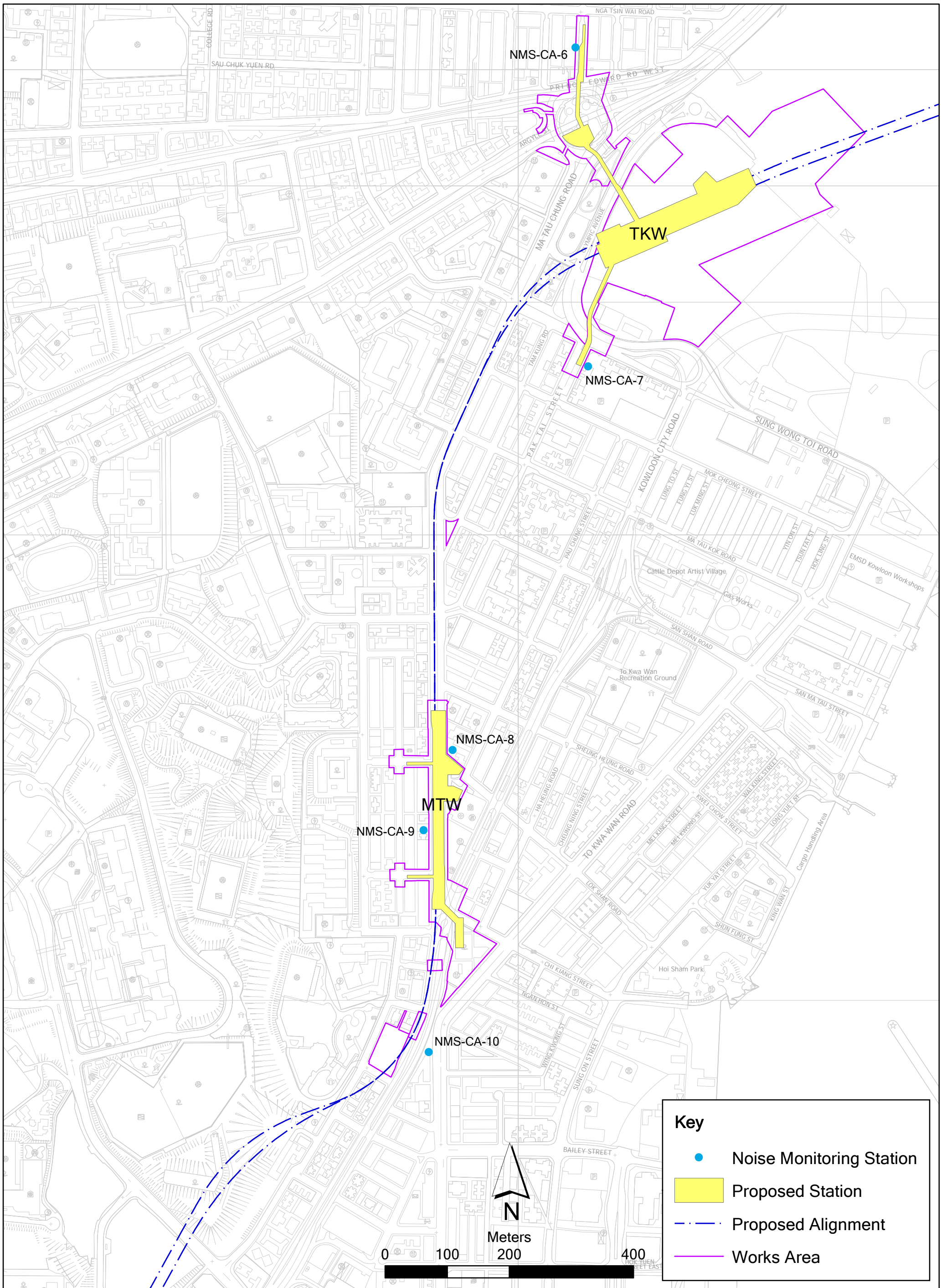
Project Organization Chart and Contact Detail

Annex C Project Organization of SCL Works Contract 1109



Annex D

Locations of Noise and Dust Monitoring Stations



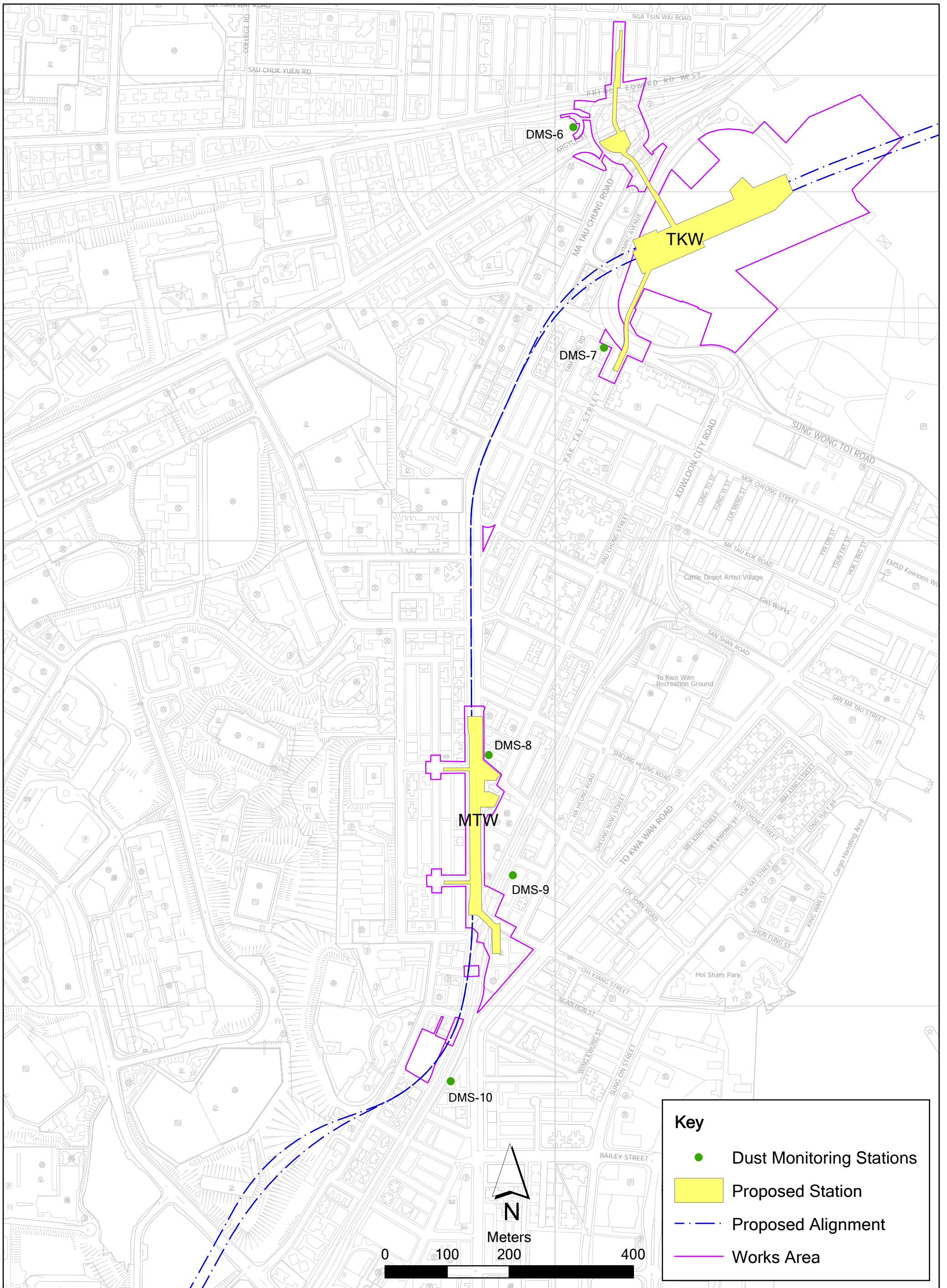
Annex D1

Location of Regular Construction Noise Monitoring Stations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Airborne_Noise_Monitoring_Stations_Annex.mxd
 Date: 07-Nov-2012

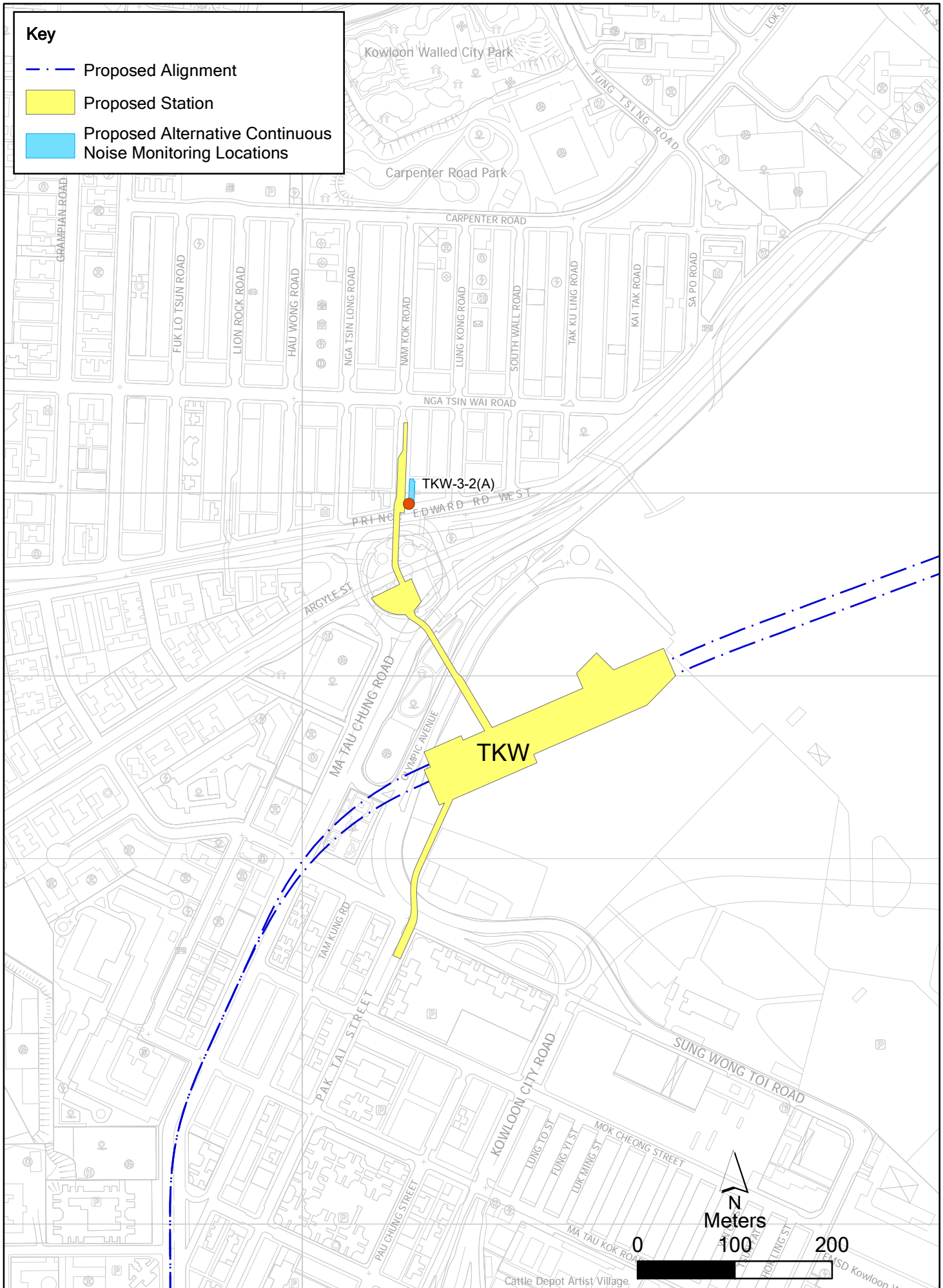
Environmental
 Resources
 Management





Key

- Proposed Alignment
- Proposed Station
- Proposed Alternative Continuous Noise Monitoring Locations



Annex D3

Proposed Continuous Noise Monitoring Locations

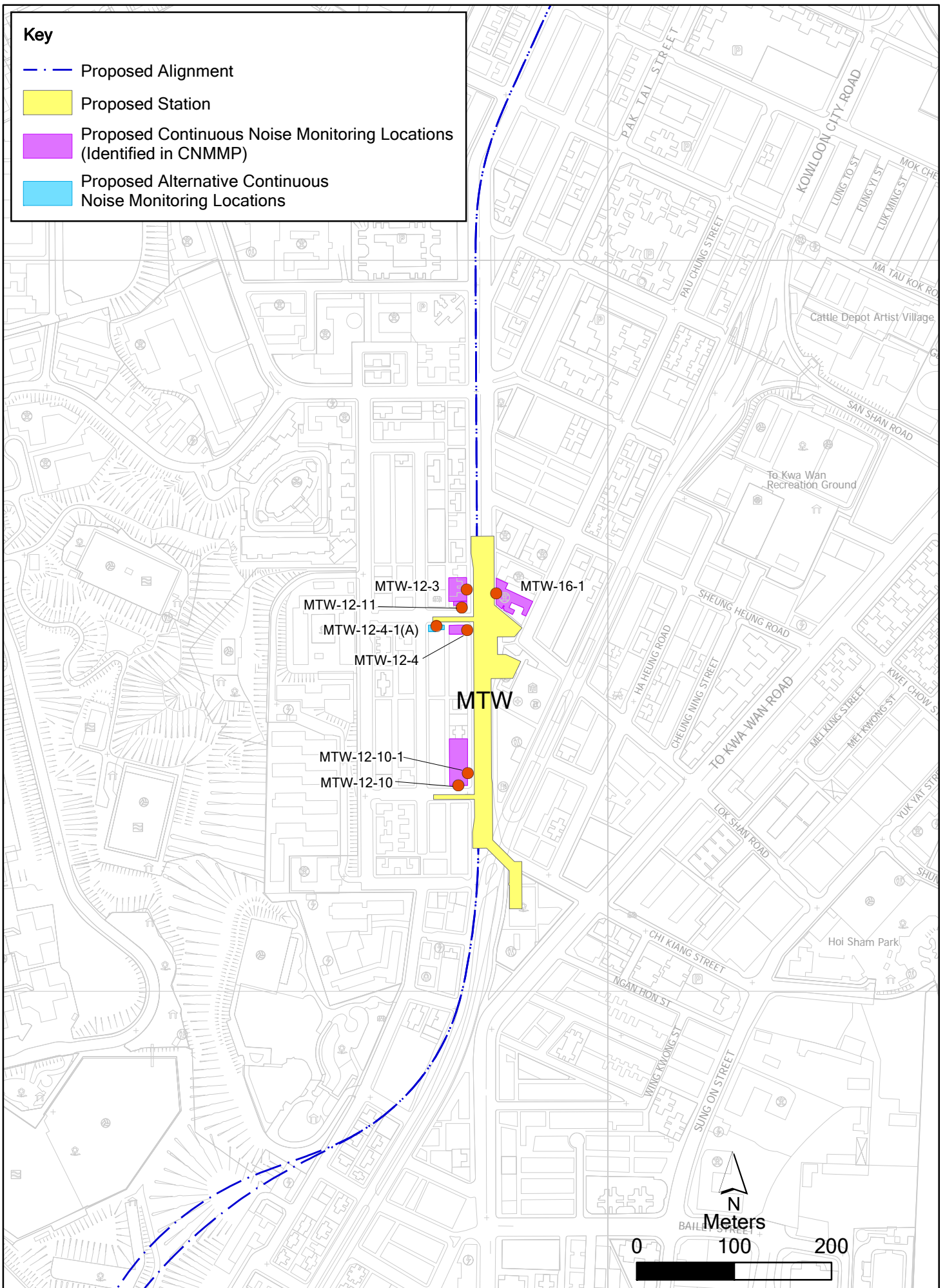
Name: 171181_Annex_Continuous
Noise_Monitoring_Locations_TKW.mxd
Date: 10-Oct-12

**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 : July 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul
	Public Holiday	24-hr TSP Monitoring Noise Monitoring				
07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
					24-hr TSP Monitoring Noise Monitoring	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
				24-hr TSP Monitoring Noise Monitoring		
28-Jul	29-Jul	30-Jul	31-Jul			
			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 : July 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul
	Public Holiday	24-hr TSP Monitoring Noise Monitoring				
07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
					24-hr TSP Monitoring Noise Monitoring	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
				24-hr TSP Monitoring Noise Monitoring		
28-Jul	29-Jul	30-Jul	31-Jul			
			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 : July 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul
	Public Holiday	24-hr TSP Monitoring Noise Monitoring				
07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
					24-hr TSP Monitoring Noise Monitoring	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
				24-hr TSP Monitoring Noise Monitoring		
28-Jul	29-Jul	30-Jul	31-Jul			
			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 : July 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul
	Public Holiday	24-hr TSP Monitoring Noise Monitoring				
07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
					24-hr TSP Monitoring Noise Monitoring	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
				24-hr TSP Monitoring Noise Monitoring		
28-Jul	29-Jul	30-Jul	31-Jul			
			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 : July 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul
	Public Holiday	24-hr TSP Monitoring Noise Monitoring				
07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
					24-hr TSP Monitoring Noise Monitoring	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
				24-hr TSP Monitoring Noise Monitoring		
28-Jul	29-Jul	30-Jul	31-Jul			
			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-6 & NMS-CA-6
Monitoring Month : August 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Aug	02-Aug	03-Aug
04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
		24-hr TSP Monitoring Noise Monitoring				
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
					24-hr TSP Monitoring Noise Monitoring	
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
				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 : August 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Aug	02-Aug	03-Aug
04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
		24-hr TSP Monitoring Noise Monitoring				
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
					24-hr TSP Monitoring Noise Monitoring	
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
				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 : August 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Aug	02-Aug	03-Aug
04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
		24-hr TSP Monitoring Noise Monitoring				
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
					24-hr TSP Monitoring Noise Monitoring	
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
				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 : August 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Aug	02-Aug	03-Aug
04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
		24-hr TSP Monitoring Noise Monitoring				
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
					24-hr TSP Monitoring Noise Monitoring	
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
				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 : August 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Aug	02-Aug	03-Aug
04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
		24-hr TSP Monitoring Noise Monitoring				
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
					24-hr TSP Monitoring Noise Monitoring	
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
				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	Calibrator		
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2323)	8 March 2013	8 September 2013
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2323)	8 March 2013	8 September 2013
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2323)	8 March 2013	8 September 2013
DMS-9	No. 26 Kowloon City Road	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2323)	8 March 2013	8 September 2013
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2323)	8 March 2013	8 September 2013

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)	9 July 2012	9 July 2013
		Rion NC-73 (S/N 10997142)	12 July 2013	12 July 2014
	Sound Level Meter	Rion NL-31 (S/N 00320533)	9 July 2012	9 July 2013
		Rion NL-31 (S/N 00320533)	12 July 2013	12 July 2014
NMS-CA-8, MTW-16-1	Calibrator	Rion NC-73 (S/N 10997142)	9 July 2012	9 July 2013
		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



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
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 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)]			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. : C124011
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1674)

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 : 9 July 2012

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 : L K Yeung

Certified By : 
核證 : K C Lee

Date of Issue : 10 July 2012
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. : C124011
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	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
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	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.990	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.

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

TEST SPECIFICATIONS / 測試規範

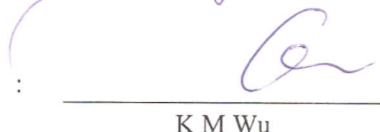
Calibration check

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
簽發日期

15 July 2013

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.

Certificate of Calibration

校正證書

Certificate No. : C124012
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1674)

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00320533
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 ± 2)°C
Line Voltage / 電壓 : ---
Relative Humidity / 相對濕度 : (55 ± 20)%

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 9 July 2012

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 Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : L K Yeung

Certified By : 
核證 : K C Lee

Date of Issue : 10 July 2012
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. : C124012
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 the internal standard (After Adjustment) was performed before the test form 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

- Test procedure : MA101N.

- 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)		
30 - 120	L _A	A	Fast	94.00	1	* 91.6	± 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)		
30 - 120	L _A	A	Fast	94.00	1	94.0	± 0.7

- 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	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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. : C124012
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)		
30 - 120	L _A	A	Fast	94.00	1	94.0	Ref.
			Slow				

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		
20 - 110	L _A	A	Fast	106.00	Continuous	106.0	Ref.
	L _A max				200 ms	105.0	-1.0 ± 1.0
	L _A		Slow		Continuous	106.0	Ref.
	L _A max				500 ms	102.0	-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.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	54.4	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5; -3.0)
					12.5 kHz	90.0	-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.

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所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C124012
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.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	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	88.2	-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)		
20 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
			60 sec.					90	90.0	± 0.5
			5 min.					80	80.0	± 1.0
								70	70.0	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 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)
 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. : C134308
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 Meter
 Manufacturer / 製造商 : Rion
 Model No. / 型號 : NL-31
 Serial No. / 編號 : 00320533
 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 ± 2)°C
 Relative Humidity / 相對濕度 : (55 ± 20)%
 Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 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.

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所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C134308
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 the internal standard (After Adjustment) was performed before the test form 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
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 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)		
30 - 120	L _A	A	Fast	94.00	1	* 92.6	± 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)		
30 - 120	L _A	A	Fast	94.00	1	94.0	± 0.7

- 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	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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. : C134308

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)		
30 - 120	L _A	A	Fast	94.00	1	94.0	Ref.
			Slow			93.9	± 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		
20 - 110	L _A	A	Fast	106.00	Continuous	106.0	Ref.
	L _{Amax}				200 ms	105.0	-1.0 ± 1.0
	L _A		Slow		Continuous	106.0	Ref.
	L _{Amax}				500 ms	102.1	-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.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	54.4	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5; -3.0)
12.5 kHz	90.0	-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.

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所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C134308
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.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	90.8	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	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	88.2	-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)		
20 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
			60 sec.					90	90.0	± 0.5
			5 min.					80	80.0	± 1.0
								70	70.0	± 1.0

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 320128

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 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)
 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所書面批准。

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

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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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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
- △ 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 under storey 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 					

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		<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 					

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		<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> 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
02-Jul-13	11:25	11:55	Fine	64.3	76.1	-(b)	-	Traffic noise	30.0	0.8	NL-31 00320533	NC-73 10997142
08-Jul-13	11:25	11:55	Sunny	63.0	76.1	-(b)	-	Traffic noise	29.0	0.5	NL-31 00320533	NC-73 10997142
19-Jul-13	11:20	11:50	Fine	64.2	76.1	-(b)	-	Traffic noise	27.0	0.5	NL-31 00320533	NC-73 10997142
25-Jul-13	11:20	11:50	Rainy	64.0	76.1	-(b)	-	Traffic noise	25.0	0.5	NL-31 00320533	NC-73 10997142
31-Jul-13	11:28	11:58	Fine	64.7	76.1	-(b)	-	Traffic noise	30.0	0.5	NL-31 00320533	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
02-Jul-13	10:25	10:55	Fine	68.7	70.0	-(b)	-	Traffic noise	30.0	1.9	NL-31 00320533	NC-73 10997142
08-Jul-13	10:27	10:57	Sunny	66.7	70.0	-(b)	-	Traffic noise	29.0	0.5	NL-31 00320533	NC-73 10997142
19-Jul-13	10:20	10:50	Fine	67.6	70.0	-(b)	-	Traffic noise	27.0	0.5	NL-31 00320533	NC-73 10997142
25-Jul-13	10:25	10:55	Rainy	67.3	70.0	-(b)	-	Traffic noise	25.0	0.5	NL-31 00320533	NC-73 10997142
31-Jul-13	10:30	11:00	Fine	68.1	70.0	-(b)	-	Traffic noise	30.0	0.5	NL-31 00320533	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
02-Jul-13	8:35	9:05	Fine	76.7	75.4	70.8	Crane Operation	Traffic noise	30.0	1.1	NL-31 00983400	NC-73 10997142
08-Jul-13	8:40	9:10	Fine	74.5	75.4	-(b)	Crane Operation, backhole	Traffic noise	29.0	0.5	NL-31 00983400	NC-73 10997142
19-Jul-13	8:40	9:10	Fine	77.0	75.4	71.9	Crane Operation, backhole and breaker	Traffic noise	27.0	0.5	NL-31 00983400	NC-73 10997142
25-Jul-13	8:40	9:10	Rainy	76.4	75.4	69.5	Backhole, crane operation, hand held breaker	Traffic noise	25.0	0.5	NL-31 00983400	NC-73 10997142
31-Jul-13	8:45	9:15	Fine	75.0	75.4	-(b)	Backhole, crane operation, hand held breaker	Traffic noise	30.0	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
02-Jul-13	7:55	8:25	Fine	71.1	69.2	66.6	Crane Operation	Traffic noise	30.0	1.0	NL-31 00320533	NC-73 10997142
08-Jul-13	8:00	8:30	Fine	71.1	69.2	66.6	Crane Operation	Traffic noise	29.0	0.5	NL-31 00320533	NC-73 10997142
19-Jul-13	8:00	8:30	Fine	73.3	69.2	71.2	Breaker and Crane Operation	Traffic noise	27.0	0.5	NL-31 00320533	NC-73 10997142
25-Jul-13	8:00	8:30	Rainy	73.3	69.2	71.2	Crane Operation	Traffic noise	25.0	0.5	NL-31 00320533	NC-73 10997142
31-Jul-13	8:00	8:30	Fine	71.9	69.2	68.6	Crane Operation	Traffic noise	30.0	0.8	NL-31 00320533	NC-73 10997142

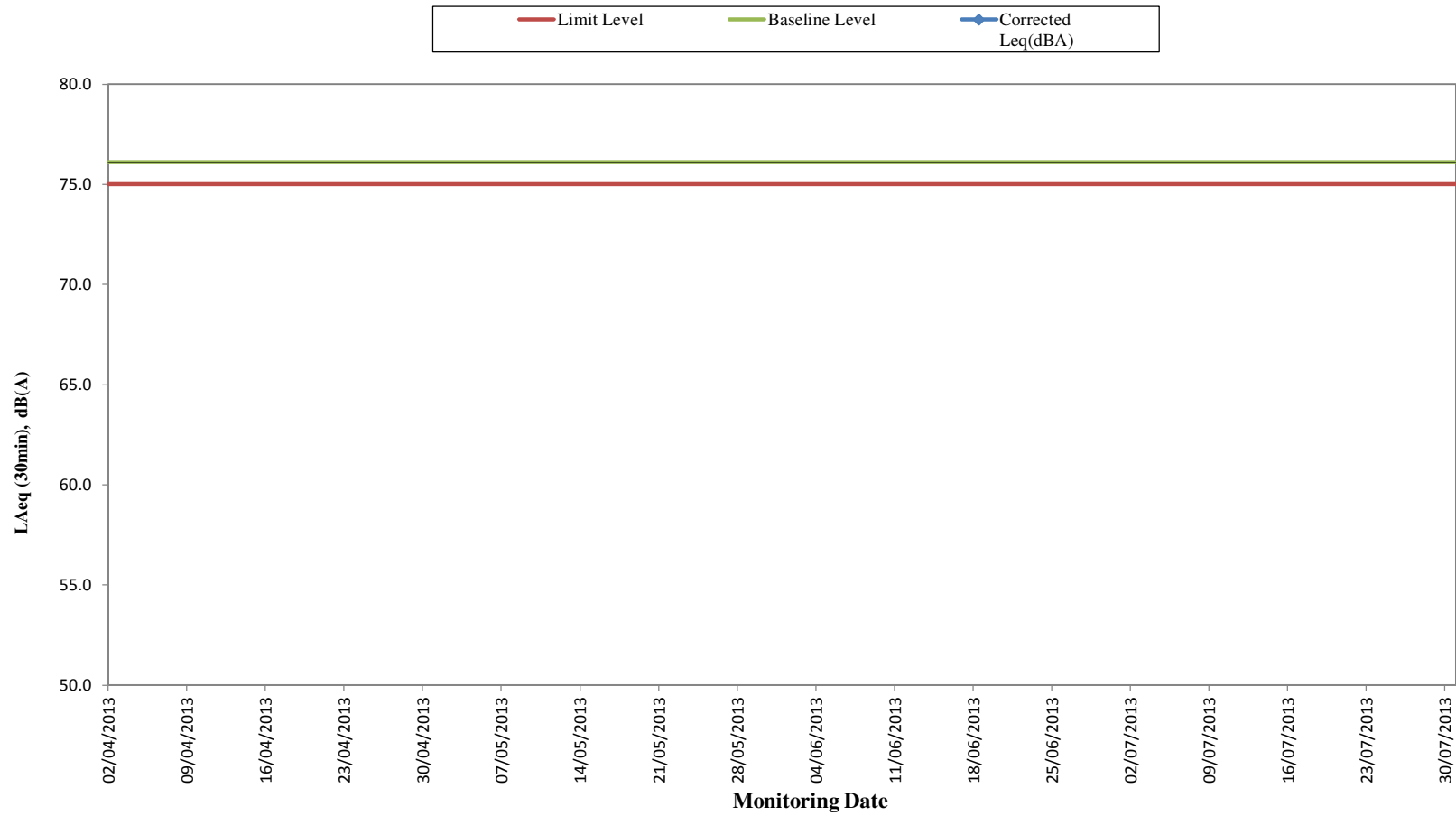
Station NMS-CA-10 Chat Ma Mansion

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
02-Jul-13	9:30	10:00	Fine	76.8	76.6	63.3	Crane operation	Traffic noise	30.0	1.0	NL-31 00320533	NC-73 10997142
08-Jul-13	9:30	10:00	Fine	76.3	76.6	-(b)	Backhole	Traffic noise	29.0	0.5	NL-31 00320533	NC-73 10997142
19-Jul-13	9:22	9:52	Fine	76.8	76.6	63.3	Backhole	Traffic noise	27.0	0.5	NL-31 00320533	NC-73 10997142
25-Jul-13	9:32	10:02	Cloudy	77.5	76.6	70.2	Backhole and Crane Operation	Traffic noise	25.0	0.5	NL-31 00320533	NC-73 10997142
31-Jul-13	9:35	10:05	Fine	76.9	76.6	65.1	Backhole	Traffic noise	30.0	0.5	NL-31 00320533	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-10 on 2, 8, 19, 25 and 31 July 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.

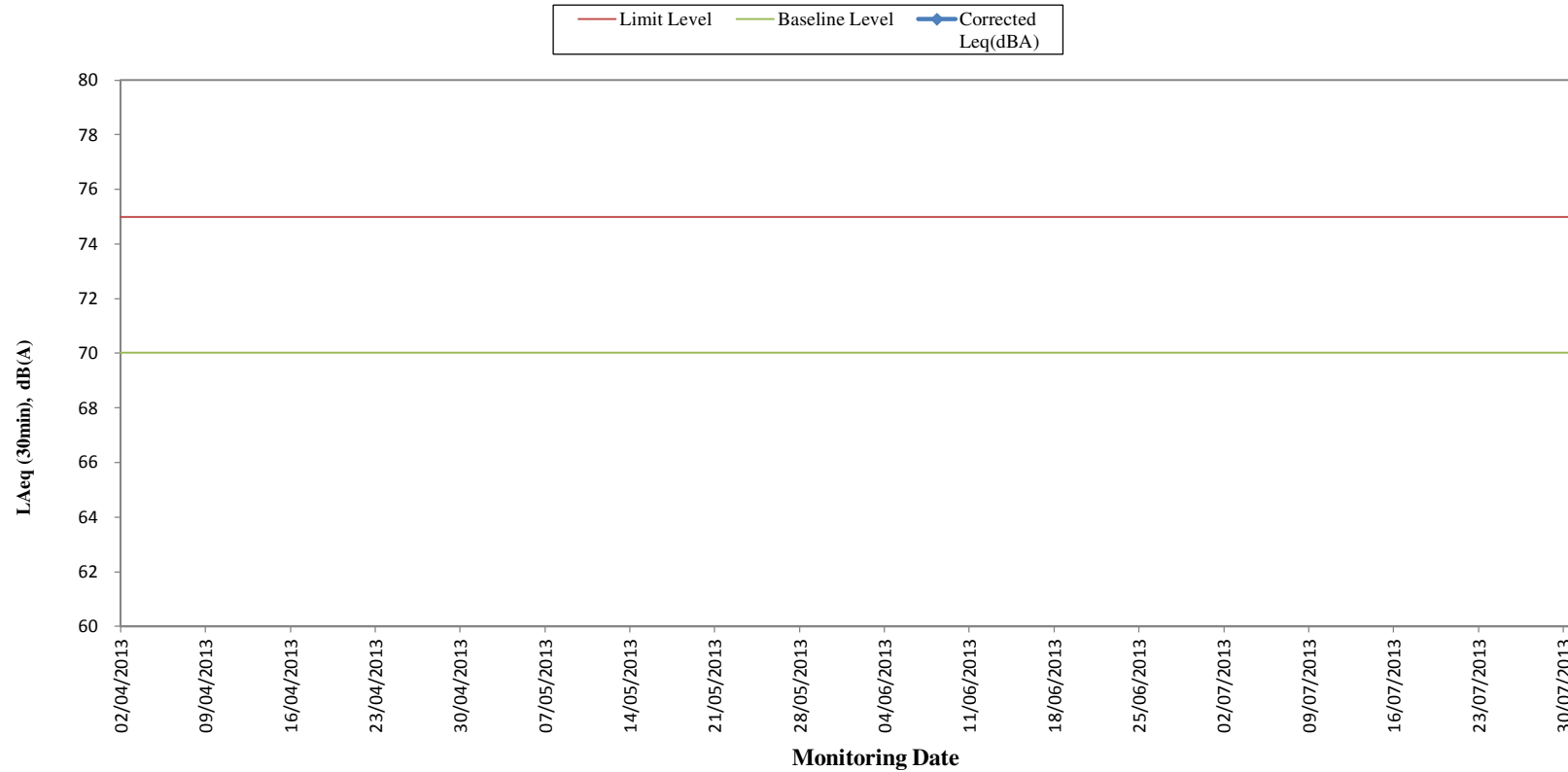
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

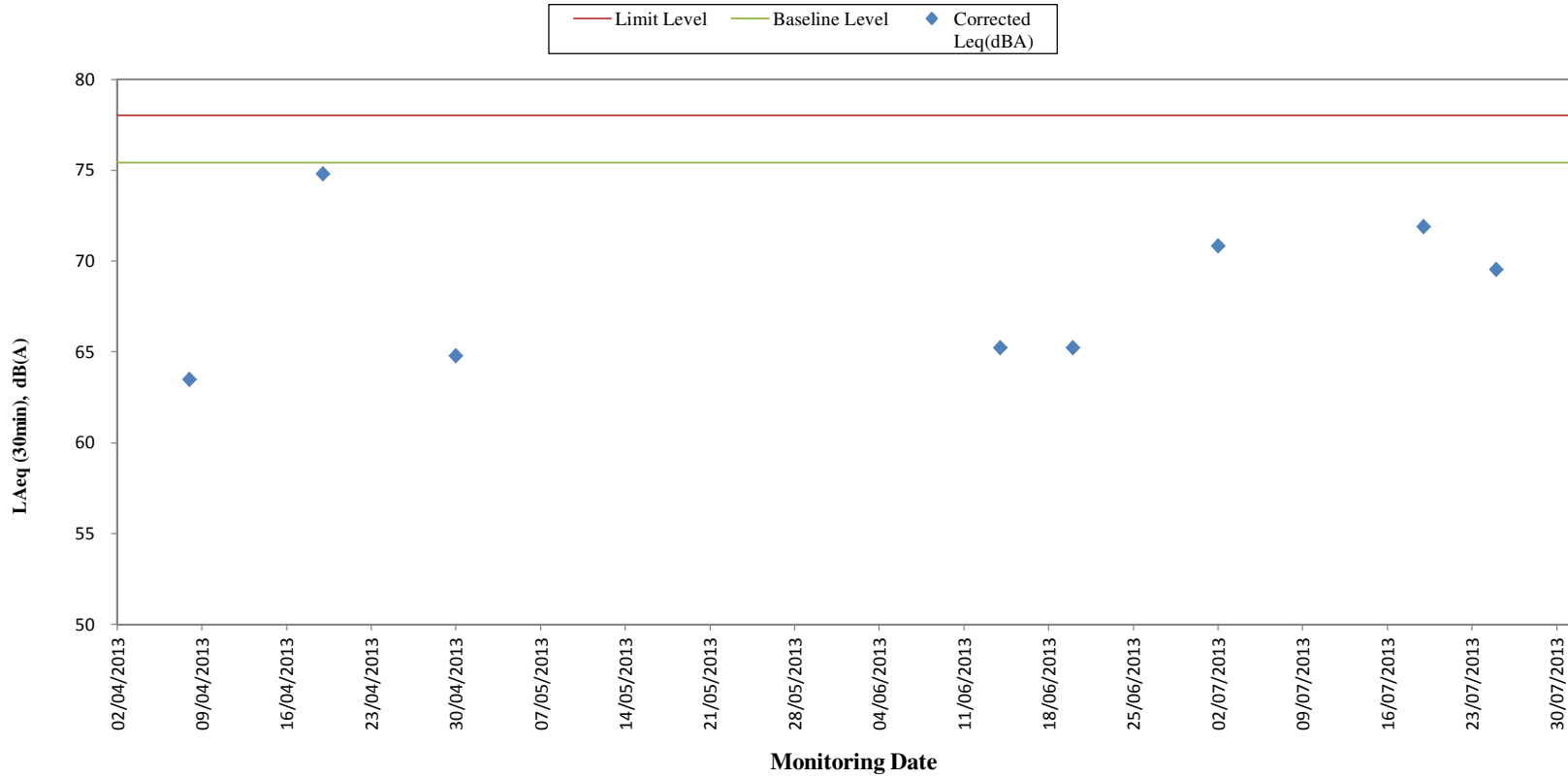
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

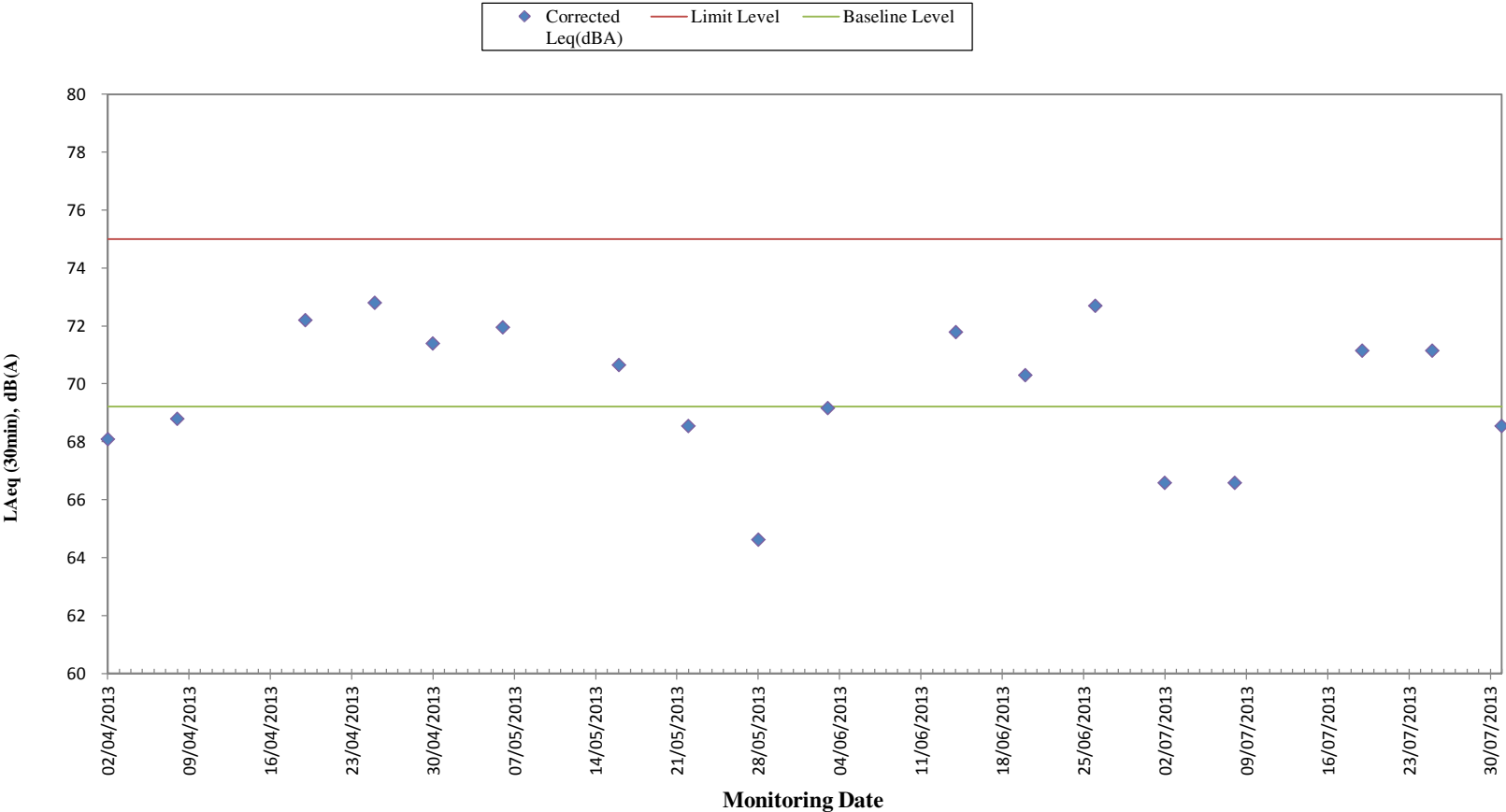
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



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 78dB(A) as continuous noise monitoring was conducted in this period.

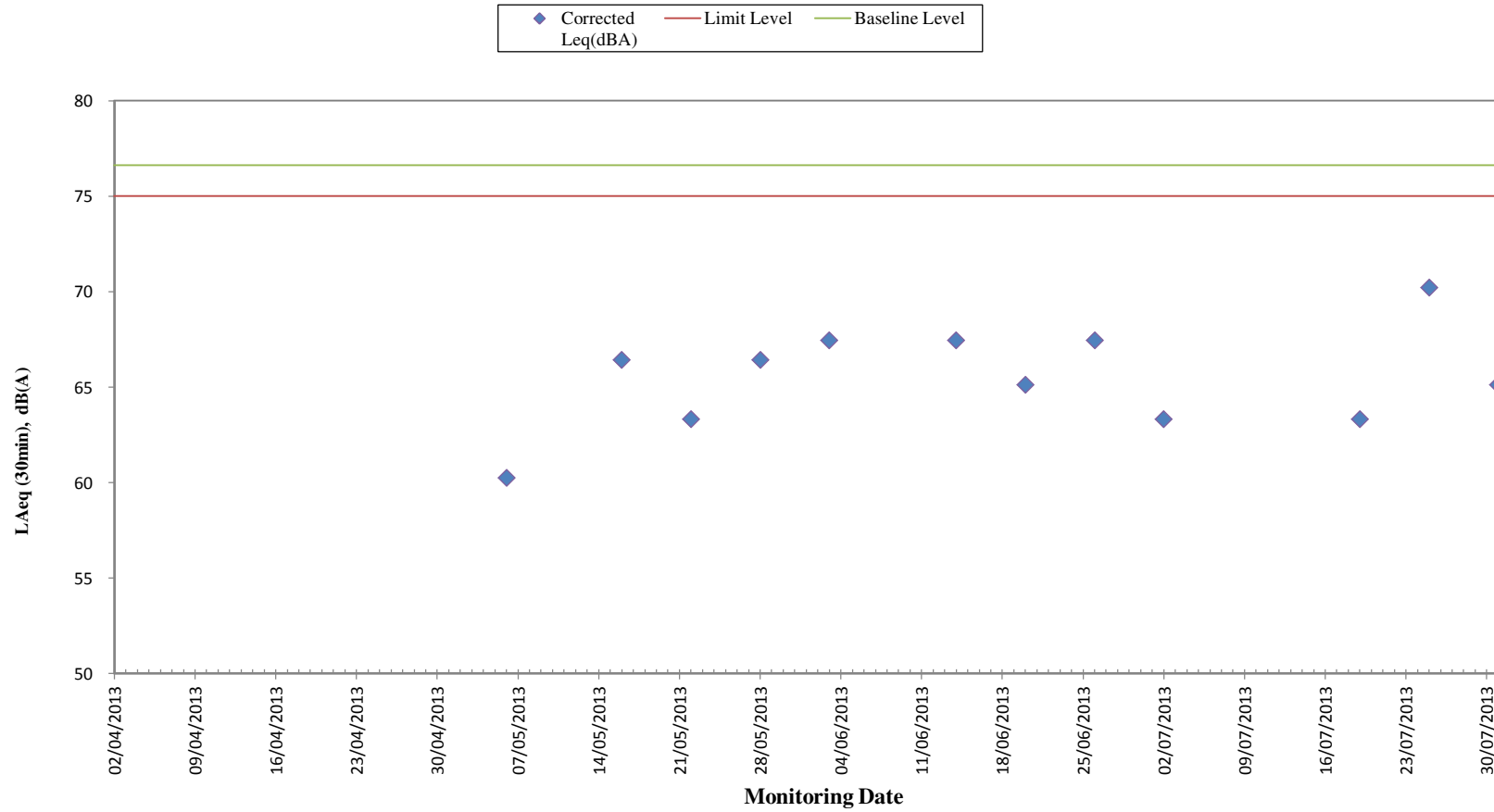
**Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion)
(LAeq, 30min)) for the Past 4 Months**



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	7	2	10	2	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	10	32	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	11	2	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	11	32	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	12	2	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	12	32	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	13	2	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	13	32	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	14	2	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	14	32	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	15	2	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	15	32	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	16	2	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	16	32	80	75.4	78.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	17	2	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	17	32	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	18	2	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	2	18	32	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	7	2	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	7	32	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	8	2	79.2	75.4	76.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	8	32	79.6	75.4	77.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	9	2	79.4	75.4	77.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	9	32	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	10	2	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	10	32	79.2	75.4	76.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	11	2	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	11	32	79.4	75.4	77.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	12	2	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	12	32	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	13	2	79.6	75.4	77.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	13	32	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	14	2	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	14	32	78.7	75.4	76.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	15	2	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	15	32	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	16	2	78.7	75.4	76.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	16	32	78.7	75.4	76.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	17	2	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	17	32	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	18	2	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	3	18	32	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	7	2	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	7	32	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	8	2	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	8	32	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	9	2	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	9	32	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	10	2	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	10	32	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	11	2	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	11	33	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	12	3	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	12	33	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	13	3	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	13	33	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	14	3	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	14	33	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	15	3	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	15	33	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	16	3	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	16	33	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	17	3	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	17	33	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	18	3	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	4	18	33	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	7	3	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	7	33	79.6	75.4	77.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	8	3	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	8	33	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	9	3	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	9	33	78.7	75.4	76.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	10	3	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	10	33	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	11	3	78.5	75.4	75.6	78	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	7	5	11	33	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	12	3	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	12	33	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	13	3	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	13	33	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	14	3	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	14	33	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	15	3	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	15	33	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	16	3	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	16	33	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	17	3	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	17	33	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	18	3	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	5	18	33	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	7	3	74.8	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	7	33	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	8	3	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	8	33	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	9	3	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	9	33	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	10	3	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	10	33	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	11	3	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	11	33	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	12	3	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	12	33	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	13	3	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	13	33	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	14	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	14	33	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	15	3	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	15	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	16	3	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	16	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	17	3	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	17	33	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	18	3	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	6	18	33	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	7	3	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	7	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	8	3	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	8	33	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	9	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	9	33	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	10	3	77.4	75.4	73.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	10	35	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	11	5	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	11	35	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	12	5	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	12	35	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	13	5	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	13	35	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	14	5	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	14	35	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	15	5	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	15	35	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	16	5	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	16	35	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	17	5	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	17	35	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	18	5	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	8	18	35	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	7	5	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	7	35	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	8	5	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	8	35	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	9	5	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	9	35	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	10	5	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	10	35	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	11	5	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	11	35	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	12	5	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	12	35	75.4	75.4	<Baseline Level	78	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	7	9	13	5	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	13	35	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	14	5	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	14	35	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	15	5	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	15	35	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	16	5	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	16	35	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	17	5	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	17	35	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	18	5	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	9	18	35	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	7	5	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	7	35	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	8	5	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	8	35	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	9	5	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	9	35	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	10	5	79.2	75.4	76.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	10	35	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	11	5	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	11	35	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	12	5	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	12	35	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	12	5	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	12	35	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	13	5	78.7	75.4	76.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	13	35	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	14	5	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	14	35	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	15	5	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	15	35	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	16	5	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	16	35	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	17	5	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	17	35	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	18	5	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	10	18	35	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	7	5	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	7	35	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	8	5	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	8	35	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	9	5	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	9	35	79.3	75.4	77.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	10	5	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	10	35	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	11	5	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	11	35	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	12	5	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	12	35	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	13	6	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	13	36	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	14	6	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	14	36	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	15	6	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	15	36	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	16	6	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	16	36	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	17	6	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	17	36	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	18	6	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	11	18	36	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	7	6	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	7	36	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	8	6	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	8	36	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	9	6	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	9	36	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	10	6	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	10	36	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	11	6	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	11	36	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	12	6	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	12	36	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	13	6	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	13	36	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	14	6	76.3	75.4	69.0	78	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	7	12	14	36	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	15	6	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	15	36	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	16	6	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	16	36	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	17	6	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	17	36	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	18	6	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	12	18	36	74.7	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	7	6	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	7	36	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	8	6	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	8	36	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	9	6	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	9	36	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	10	6	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	10	36	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	11	6	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	11	36	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	12	6	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	12	36	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	13	6	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	13	36	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	14	6	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	14	36	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	15	6	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	15	36	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	16	6	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	16	36	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	17	6	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	17	36	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	18	6	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	13	18	36	74.6	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	7	6	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	7	36	79.4	75.4	77.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	8	6	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	8	36	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	9	6	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	9	36	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	10	6	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	10	36	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	11	6	79.7	75.4	77.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	11	36	79.4	75.4	77.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	12	6	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	12	43	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	13	13	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	13	43	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	14	13	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	14	43	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	15	13	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	15	43	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	16	13	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	16	43	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	17	13	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	17	43	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	18	13	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	15	18	43	74.9	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	7	13	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	7	43	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	8	13	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	8	43	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	9	13	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	9	43	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	10	13	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	10	43	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	11	13	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	11	43	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	12	13	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	12	43	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	13	13	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	13	43	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	14	13	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	14	43	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	15	13	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	15	43	78.3	75.4	75.2	78	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	7	16	16	13	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	16	43	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	17	13	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	17	43	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	18	13	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	16	18	43	74.8	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	7	13	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	7	43	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	8	13	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	8	43	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	9	13	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	9	43	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	10	13	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	10	43	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	11	13	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	11	43	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	12	13	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	12	43	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	13	13	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	13	43	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	14	13	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	14	43	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	15	13	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	15	43	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	16	13	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	16	43	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	17	13	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	17	43	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	18	13	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	17	18	43	74.6	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	7	13	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	7	43	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	8	13	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	8	43	79.2	75.4	76.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	9	13	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	9	43	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	10	13	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	10	43	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	11	13	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	11	43	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	12	13	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	12	43	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	13	13	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	13	43	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	14	13	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	14	43	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	15	13	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	16	8	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	16	38	78.8	75.4	76.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	17	8	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	17	38	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	18	8	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	18	18	38	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	7	3	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	7	33	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	8	3	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	8	33	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	9	3	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	9	33	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	10	3	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	10	33	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	11	3	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	11	33	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	12	3	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	12	33	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	13	3	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	13	33	77.4	75.4	73.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	14	3	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	14	33	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	15	3	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	15	33	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	16	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	16	33	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	17	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	17	33	76.3	75.4	69.0	78	N

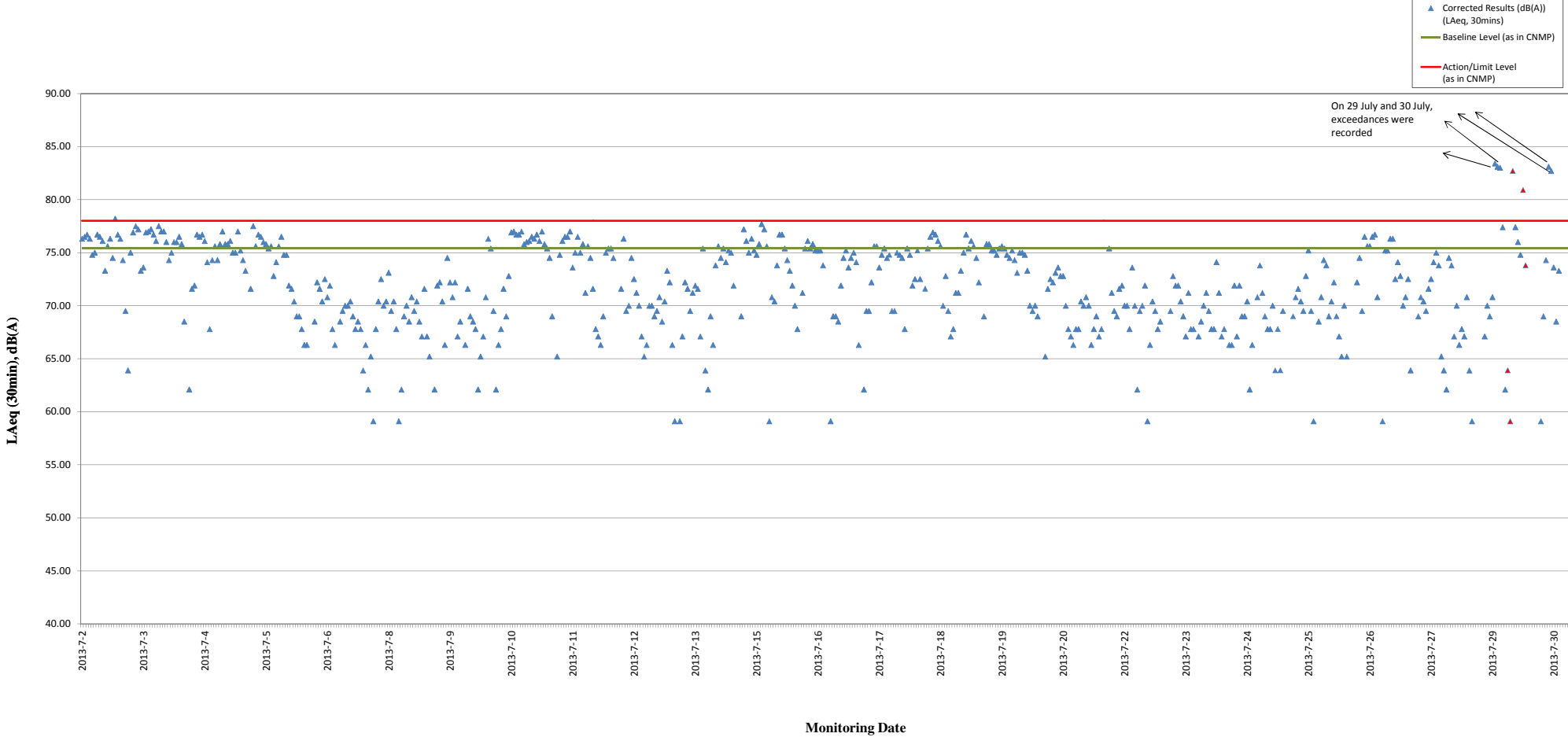
Location ID	Name	Year (YYYY)	Month (MM)	Date (DD)	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	18	3	75.3	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	19	18	33	74.9	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	7	3	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	7	33	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	8	3	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	8	33	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	9	3	77.4	75.4	73.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	9	33	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	10	3	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	10	33	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	11	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	11	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	12	3	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	12	33	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	13	3	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	13	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	14	3	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	14	33	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	15	3	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	15	33	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	16	3	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	16	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	17	3	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	17	33	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	18	3	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	20	18	33	74.7	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	7	3	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	7	33	78.4	75.4	75.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	8	3	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	8	33	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	9	3	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	9	33	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	10	3	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	10	33	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	11	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	11	33	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	12	3	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	12	33	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	13	3	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	13	33	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	14	3	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	14	33	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	15	3	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	15	54	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	16	24	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	16	54	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	17	24	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	17	54	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	18	24	75.3	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	22	18	54	74.5	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	7	4	74.9	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	7	34	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	8	4	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	8	34	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	9	4	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	9	34	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	10	4	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	10	34	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	11	4	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	11	34	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	12	4	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	12	34	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	13	4	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	13	34	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	14	4	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	14	34	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	15	4	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	15	34	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	16	4	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	16	34	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	17	4	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	17	34	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	18	4	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	23	18	34	74.8	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	7	4	75.9	75.4	66.3	78	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	7	24	7	34	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	8	4	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	8	34	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	9	4	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	9	34	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	10	4	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	10	34	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	11	4	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	11	34	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	12	4	75.3	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	12	34	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	13	4	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	13	34	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	14	4	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	14	34	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	15	4	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	15	34	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	16	4	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	16	34	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	17	4	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	17	34	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	18	4	74.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	24	18	34	74	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	7	4	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	7	34	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	8	4	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	8	34	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	9	4	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	9	34	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	10	4	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	10	34	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	11	4	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	11	34	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	12	4	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	12	34	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	13	4	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	13	34	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	14	4	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	14	34	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	15	4	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	15	31	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	16	1	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	16	31	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	17	1	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	17	31	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	18	1	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	18	31	75	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	25	19	1	74.6	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	7	1	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	7	31	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	8	1	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	8	31	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	9	1	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	9	31	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	10	1	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	10	31	79	75.4	76.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	11	1	79.1	75.4	76.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	11	31	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	12	1	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	12	31	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	13	1	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	13	31	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	14	1	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	14	31	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	15	1	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	15	31	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	16	1	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	16	31	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	17	1	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	17	31	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	18	1	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	18	31	74.9	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	26	19	1	74.5	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	7	1	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	7	31	76.7	75.4	70.8	78	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	7	27	8	1	76.6	75.4	70.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	8	31	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	9	1	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	9	31	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	10	1	77.8	75.4	74.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	10	31	78.2	75.4	75.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	11	1	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	11	31	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	12	1	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	12	31	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	13	1	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	13	31	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	14	1	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	14	31	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	15	1	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	15	31	76.1	75.4	67.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	16	1	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	16	31	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	17	1	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	17	31	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	18	1	75.3	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	18	31	75	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	27	19	1	74.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	7	1	74.9	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	7	31	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	8	1	76.5	75.4	70.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	8	31	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	9	1	76.7	75.4	70.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	9	31	84	75.4	83.4	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	10	1	83.8	75.4	83.1	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	10	31	83.7	75.4	83.0	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	11	1	79.5	75.4	77.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	11	31	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	12	1	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	12	31	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	13	43	83.4	75.4	82.7	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	14	13	79.5	75.4	77.4	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	14	43	78.7	75.4	76.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	15	13	78.1	75.4	74.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	15	43	82	75.4	80.9	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	16	13	77.7	75.4	73.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	16	43	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	17	13	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	17	43	75	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	18	13	75	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	29	18	43	74.5	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	7	3	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	7	33	76.3	75.4	69.0	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	8	3	77.9	75.4	74.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	8	33	83.8	75.4	83.1	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	9	3	83.4	75.4	82.7	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	9	33	77.6	75.4	73.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	10	3	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	10	33	77.5	75.4	73.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	11	3	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	11	33	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	12	3	75.1	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	12	33	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	13	3	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	13	33	76.3	75.4	69	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	14	3	78.3	75.4	75.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	14	33	81.4	75.4	80.1	78	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	15	3	76.4	75.4	69.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	15	33	75.9	75.4	66.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	16	3	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	16	33	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	17	3	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	17	33	75.3	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	18	3	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	30	18	33	74.6	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	7	3	74.8	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	7	33	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	8	3	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	8	33	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	9	3	75.6	75.4	62.1	78	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	7	31	9	33	77.2	75.4	72.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	10	3	79.7	75.4	77.7	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	10	33	79.6	75.4	77.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	11	3	79.2	75.4	76.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	11	33	75	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	12	3	74.5	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	12	33	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	13	3	77	75.4	71.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	13	33	78.5	75.4	75.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	14	3	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	14	33	78.6	75.4	75.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	15	3	78.9	75.4	76.3	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	15	33	76.8	75.4	71.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	16	3	77.4	75.4	73.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	16	33	78	75.4	74.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	17	3	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	17	33	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	18	3	75.4	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	7	31	18	33	75.8	75.4	65.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	7	3	74.7	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	7	33	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	8	3	76.5	75.4	70	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	8	33	76.9	75.4	71.6	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	9	3	75.7	75.4	63.9	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	9	33	75.5	75.4	59.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	10	3	77.1	75.4	72.2	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	10	33	77.3	75.4	72.8	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	11	3	76.2	75.4	68.5	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	11	33	75.6	75.4	62.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	12	3	75.2	75.4	<Baseline Level	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	12	33	76	75.4	67.1	78	N
MTW-16-1	SKH Good Shepherd Primary School	2013	8	1	13	3	76.8	75.4	71.2	78	N

Continuous Noise Monitoring at MTW-16-1 (SKH Good Shepherd Primary School) in June 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							
02-Jul-13	11:10	03-Jul-13	11:10	Fine	2.8741	3.0119	11336.30	11360.30	24.00	1.37	1.37	1.37	70	156.8	260	Construction work in progress	0107	7710
08-Jul-13	11:10	09-Jul-13	11:10	Sunny	2.8699	3.0086	11360.30	11384.30	24.00	1.37	1.37	1.37	70	156.8	260	Construction work in progress	0107	7733
13-Jul-13	9:20	14-Jul-13	9:20	Sunny	2.8818	3.0280	11384.30	11408.30	24.00	1.26	1.26	1.26	81	156.8	260	Construction work in progress	0107	7756
19-Jul-13	11:05	20-Jul-13	11:05	Fine	2.8840	3.0069	11408.30	11432.30	24.00	1.26	1.26	1.26	68	156.8	260	Construction work in progress	0107	7795
25-Jul-13	11:05	26-Jul-13	11:05	Rainy	2.8175	2.9607	11432.30	11456.30	24.00	1.26	1.26	1.26	79	156.8	260	Construction work in progress	0107	7842
31-Jul-13	11:15	01-Aug-13	11:15	Fine	2.8166	2.9559	11456.30	11480.30	24.00	1.26	1.26	1.26	77	156.8	260	Construction work in progress	0107	7883
													Minimum	68				
													Average	74				
													Maximum	81				

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							
02-Jul-13	10:15	03-Jul-13	10:15	Fine	2.8972	3.0491	01513.17	01537.17	24.00	1.24	1.24	1.24	85	156.8	260	Construction work in progress	3574	7709
08-Jul-13	10:15	09-Jul-13	10:15	Sunny	2.8700	3.0119	01537.17	01561.17	24.00	1.24	1.24	1.24	79	166.7	260	Construction work in progress	3574	7732
13-Jul-13	9:10	14-Jul-13	9:10	Sunny	2.8989	3.0269	01561.17	01585.17	24.00	1.23	1.23	1.23	72	166.7	260	Construction work in progress	3574	7755
19-Jul-13	10:10	20-Jul-13	10:10	Fine	2.8808	3.0021	01585.17	10609.17	24.00	1.24	1.22	1.22	69	166.7	260	Construction work in progress	3574	7794
25-Jul-13	10:17	26-Jul-13	10:17	Rainy	2.8335	2.9691	01609.17	01633.17	24.00	1.23	1.23	1.23	77	166.7	260	Construction work in progress	3574	7841
31-Jul-13	10:20	01-Aug-13	10:20	Fine	2.8175	2.9662	01633.17	01657.17	24.00	1.23	1.23	1.23	84	166.7	260	Construction work in progress	3574	7882
													Minimum	69				
													Average	78				
													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							
02-Jul-13	8:38	03-Jul-13	8:38	Fine	2.8798	3.0114	01483.11	01507.11	24.00	1.25	1.25	1.25	73	152.2	260	Construction work in progress	3572	7708
08-Jul-13	8:43	09-Jul-13	8:43	Fine	2.8801	3.0256	01507.11	01531.11	24.00	1.25	1.25	1.25	81	152.2	260	Construction work in progress	3572	7730
13-Jul-13	8:50	14-Jul-13	8:50	Sunny	2.8888	3.0331	01531.11	01555.11	24.00	1.23	1.23	1.23	81	152.2	260	Construction work in progress	3572	7754
19-Jul-13	8:43	20-Jul-13	8:43	Fine	2.8690	2.9989	01555.11	1579.11	24.00	1.23	1.23	1.23	73	152.2	260	Construction work in progress	3572	7793
25-Jul-13	8:43	26-Jul-13	8:43	Rainy	2.8117	2.9600	01579.11	01603.11	24.00	1.23	1.23	1.23	84	152.2	260	Construction work in progress	3572	7840
31-Jul-13	8:50	01-Aug-13	8:50	Fine	2.8127	2.9771	01603.11	01627.11	24.00	1.23	1.23	1.23	93	152.2	260	Construction work in progress	3572	7881
													Minimum	73				
													Average	81				
													Maximum	93				

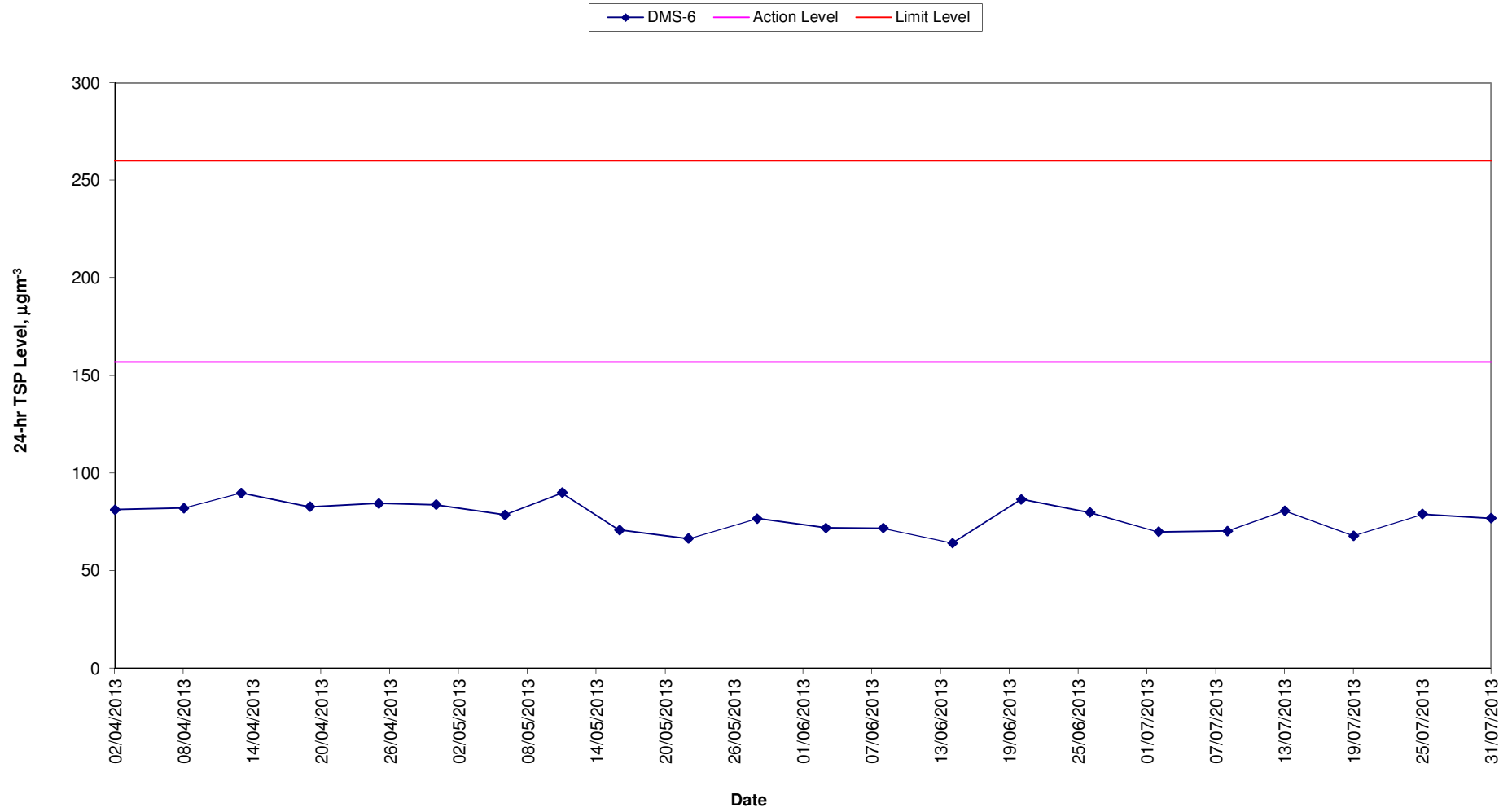
Station DMS-9 No. 26 Kowloon City Road

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							
02-Jul-13	9:17	03-Jul-13	9:17	Fine	2.8813	3.0241	12225.40	12249.40	24.00	1.21	1.21	1.21	82	160.9	260	Construction work in progress	0814	7707
08-Jul-13	8:14	09-Jul-13	8:14	Fine	2.8855	3.0221	12225.40	12249.40	24.00	1.21	1.21	1.21	78	160.9	260	Construction work in progress	0814	7730
13-Jul-13	8:42	14-Jul-13	8:42	Sunny	2.8863	3.0258	12249.40	12273.40	24.00	1.24	1.24	1.24	78	160.9	260	Construction work in progress	0814	7753
19-Jul-13	8:51	20-Jul-13	8:51	Fine	2.8625	3.0015	12273.40	12297.40	24.00	1.24	1.24	1.24	78	160.9	260	Construction work in progress	0814	7792
25-Jul-13	9:22	26-Jul-13	9:22	Rainy	2.8242	2.9577	12297.40	12321.40	24.00	1.24	1.24	1.24	75	160.9	260	Construction work in progress	0814	7839
31-Jul-13	9:23	01-Aug-13	9:23	Fine	2.8069	2.9677	12321.40	12345.40	24.00	1.24	1.24	1.24	90	160.9	260	Construction work in progress	0814	7880
													Minimum	75				
													Average	80				
													Maximum	90				

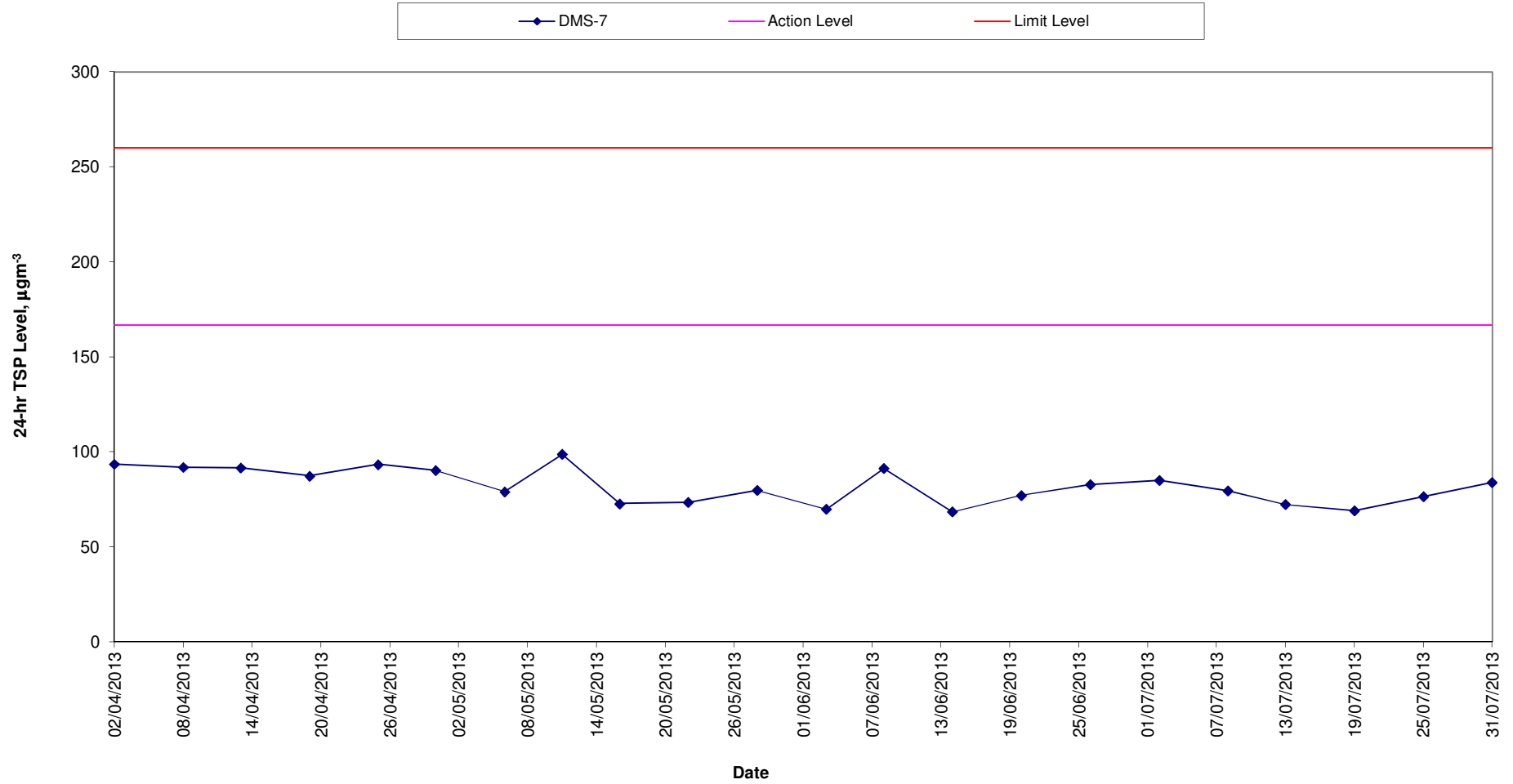
Station DMS-10 Chat Ma Mansion

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							
02-Jul-13	9:33	03-Jul-13	9:33	Fine	2.8813	3.0295	01501.20	01525.20	24.00	1.24	1.24	1.24	83	170.4	260	Construction work in progress	3573	7706
08-Jul-13	9:33	09-Jul-13	9:33	Fine	2.8822	3.0197	01525.20	01549.20	24.00	1.24	1.24	1.24	77	170.4	260	Construction work in progress	3573	7729
13-Jul-13	8:30	14-Jul-13	8:30	Sunny	2.8988	3.0369	01549.20	01573.20	24.00	1.22	1.22	1.22	79	170.4	260	Construction work in progress	3573	7752
19-Jul-13	9:25	20-Jul-13	9:25	Fine	2.8616	3.0115	01573.20	1597.20	24.00	1.22	1.22	1.22	85	170.4	260	Construction work in progress	3573	7791
25-Jul-13	9:35	26-Jul-13	9:35	Rainy	2.8069	2.9609	01597.20	01621.20	24.00	1.22	1.22	1.22	88	170.4	260	Construction work in progress	3573	7838
31-Jul-13	9:38	01-Aug-13	9:38	Fine	2.8441	2.9903	01621.20	01645.20	24.00	1.22	1.22	1.22	83	170.4	260	Construction work in progress	3573	7879
													Minimum	77				
													Average	82				
													Maximum	88				

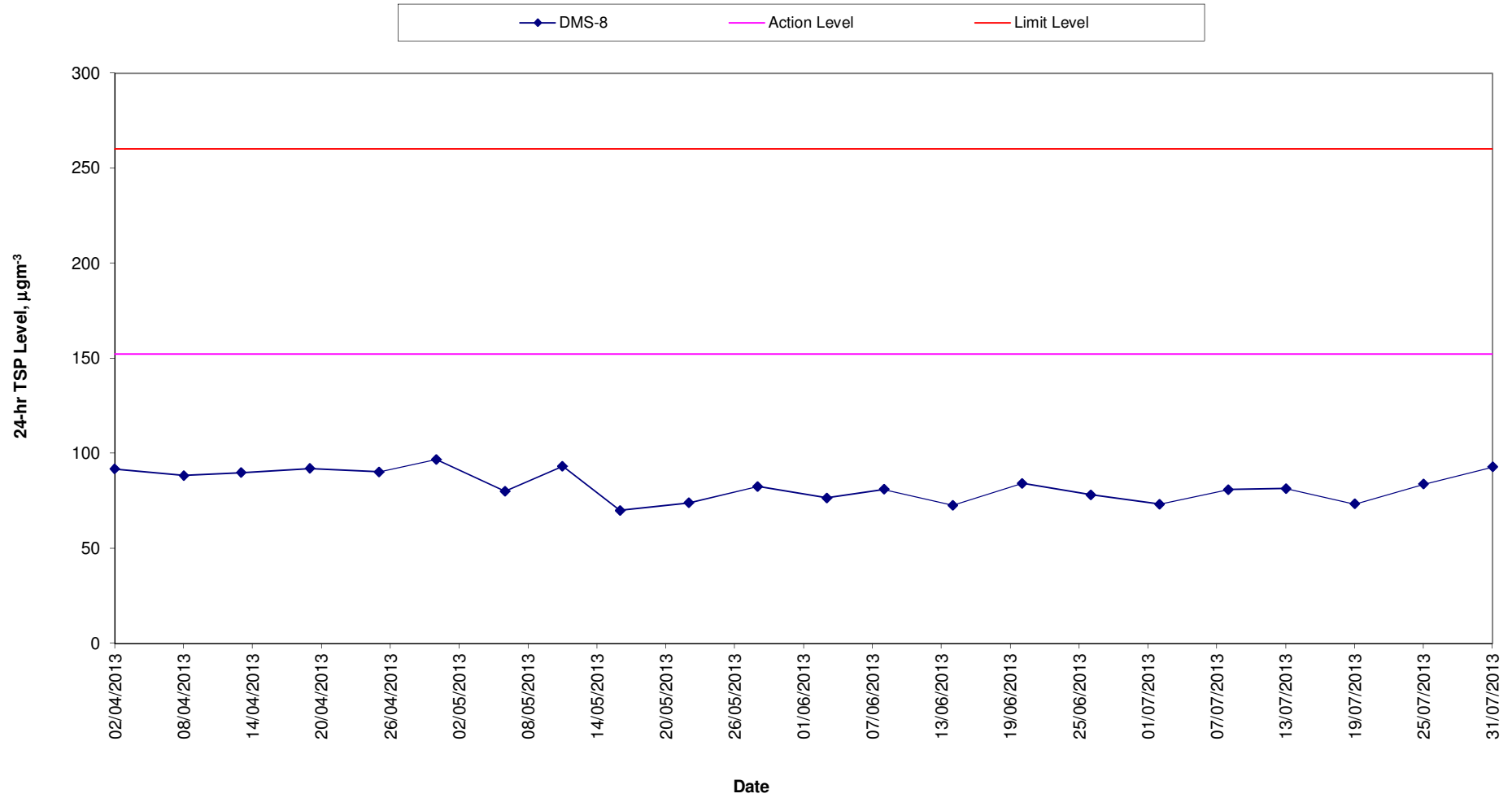
Construction Dust Monitoring Results for the Past 4 Months DMS-6 (Katherine Building)



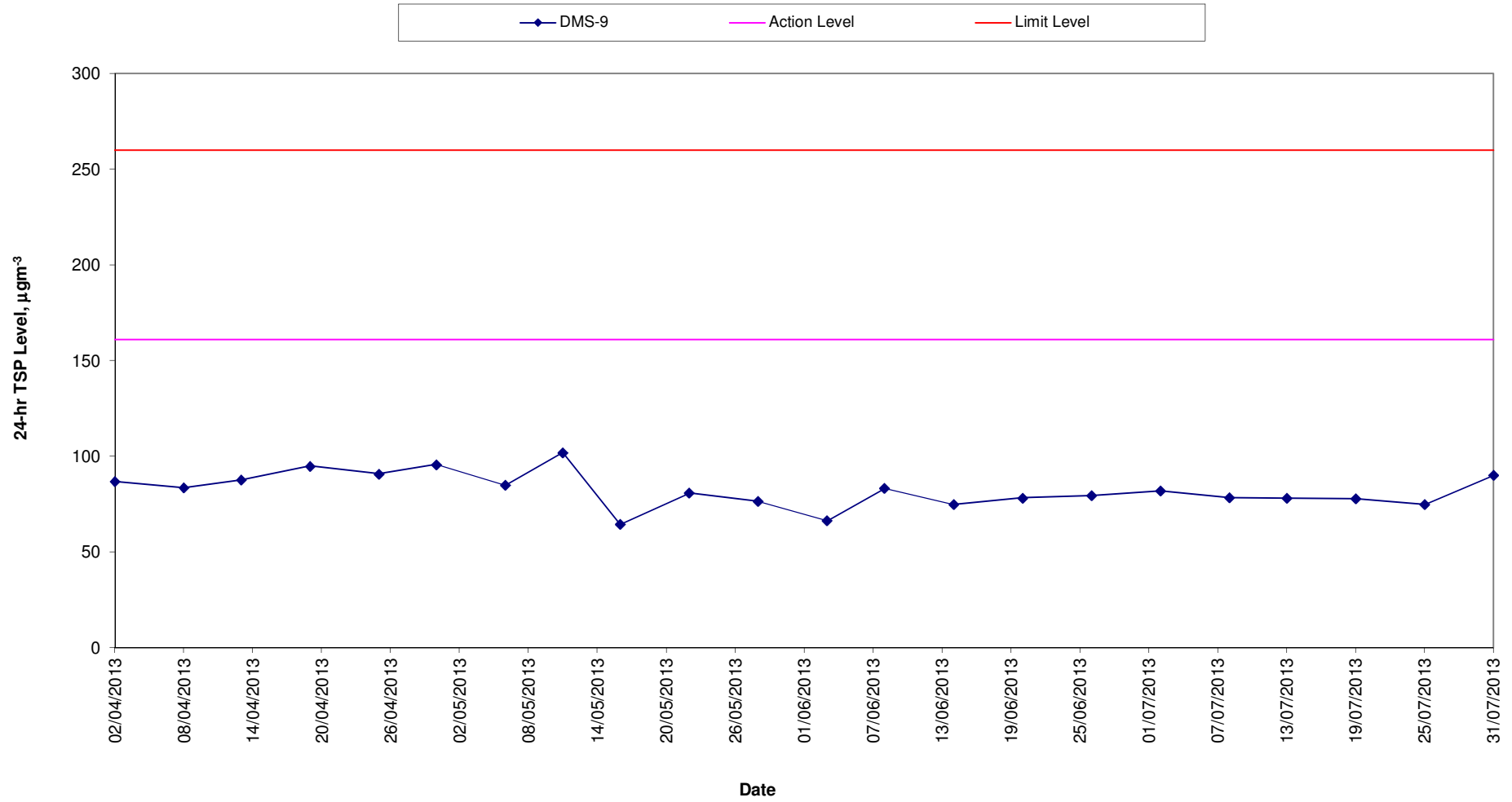
Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)



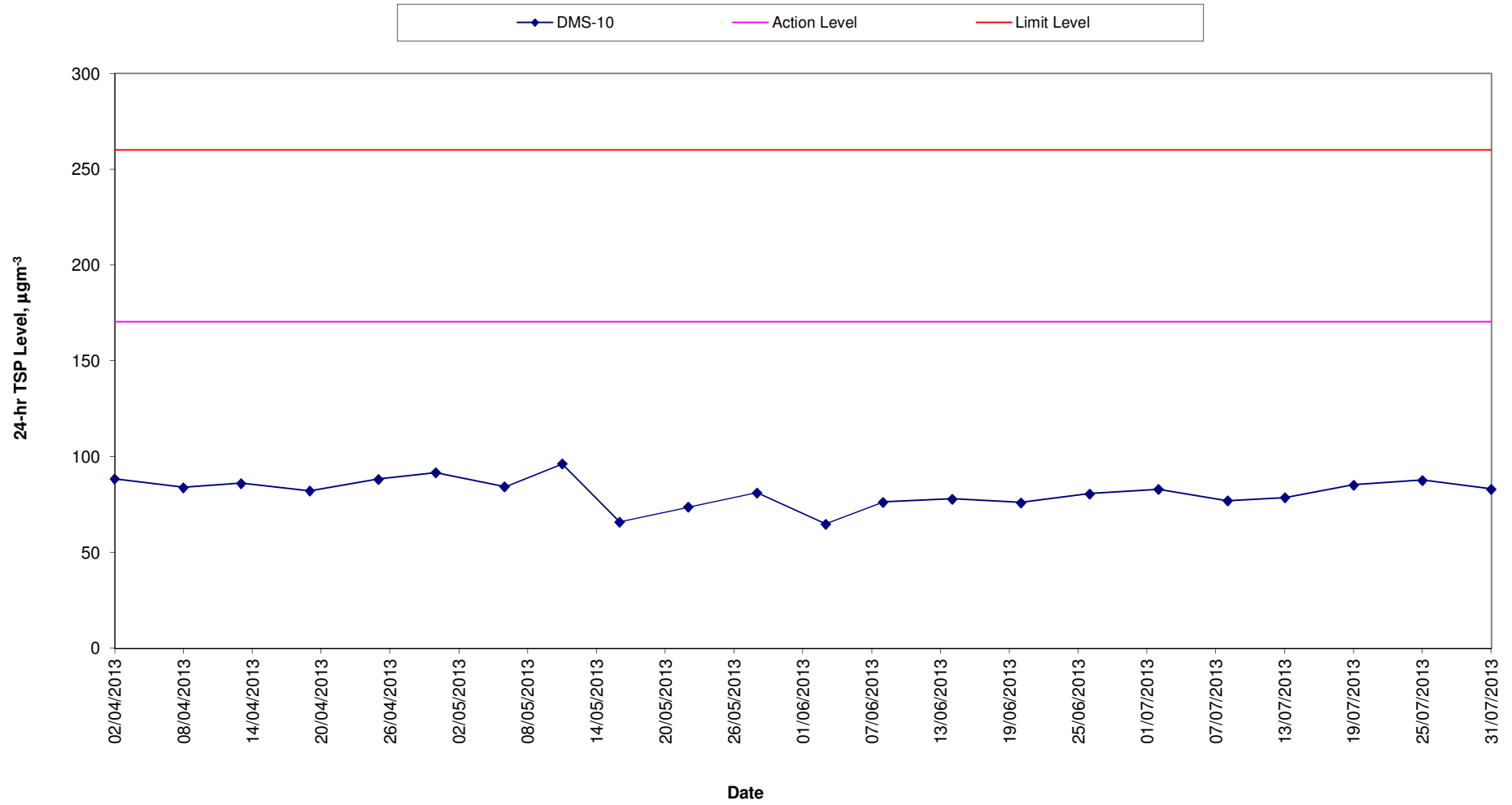
Construction Dust Monitoring Results for the Past 4 Months DMS-8 (SKH Good Shepherd Primary School)



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

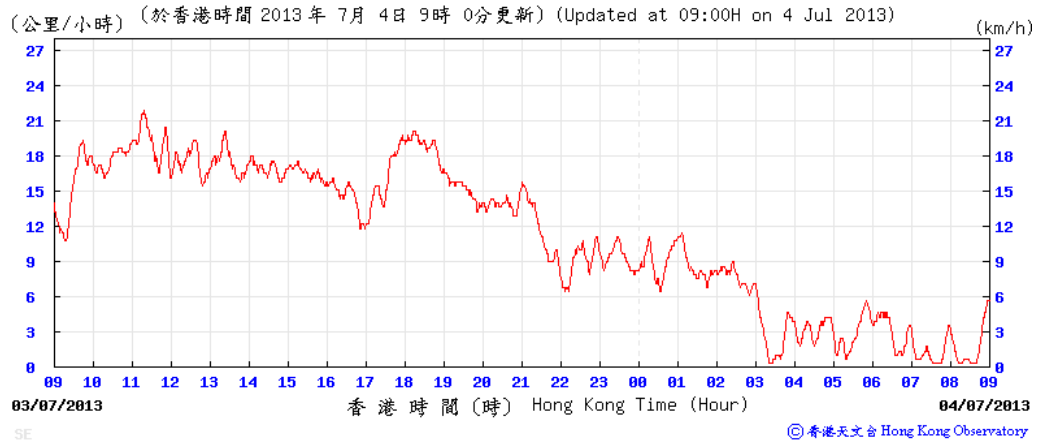
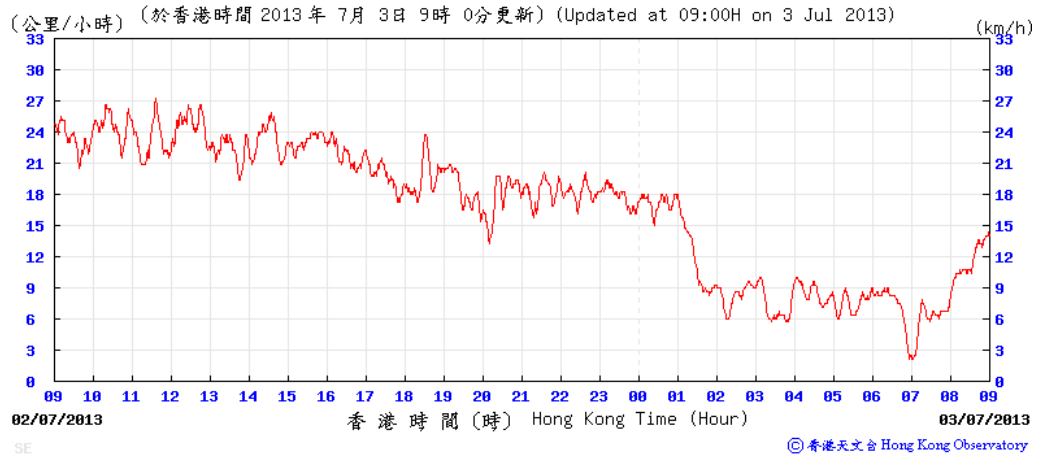
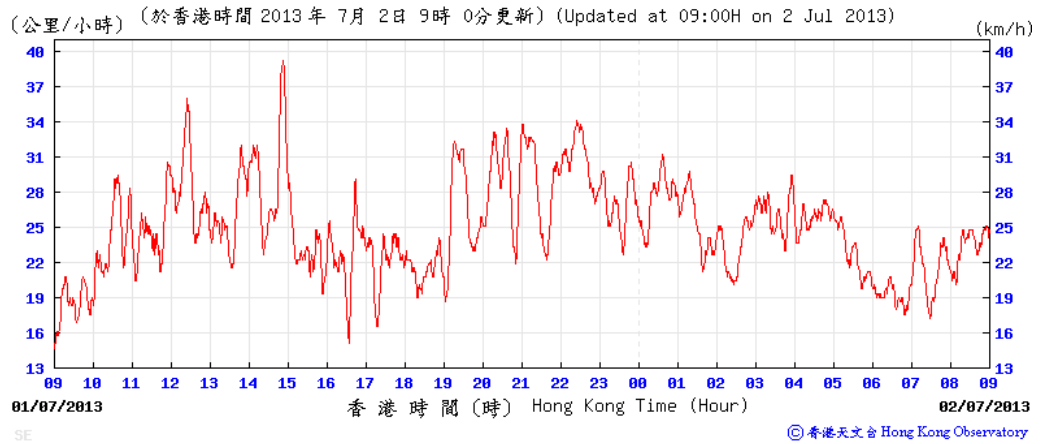


Construction Dust Monitoring Results for the Past 4 Months DMS-10 (Chat Ma Mansion)

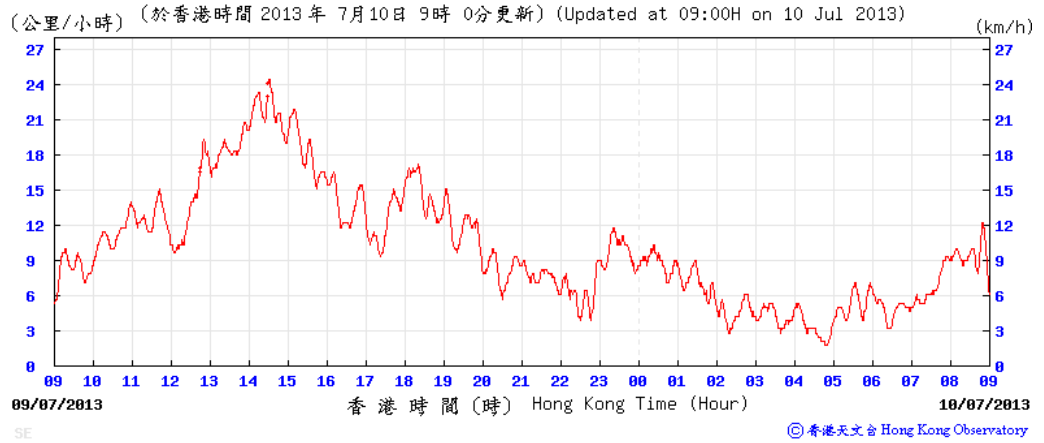
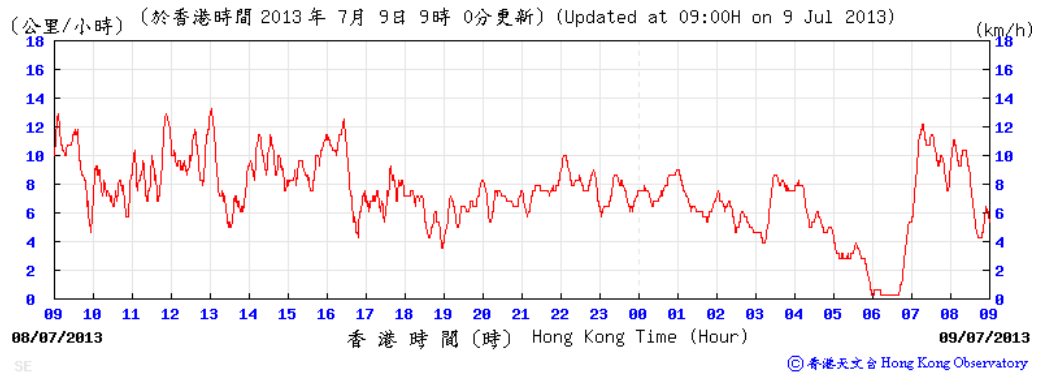
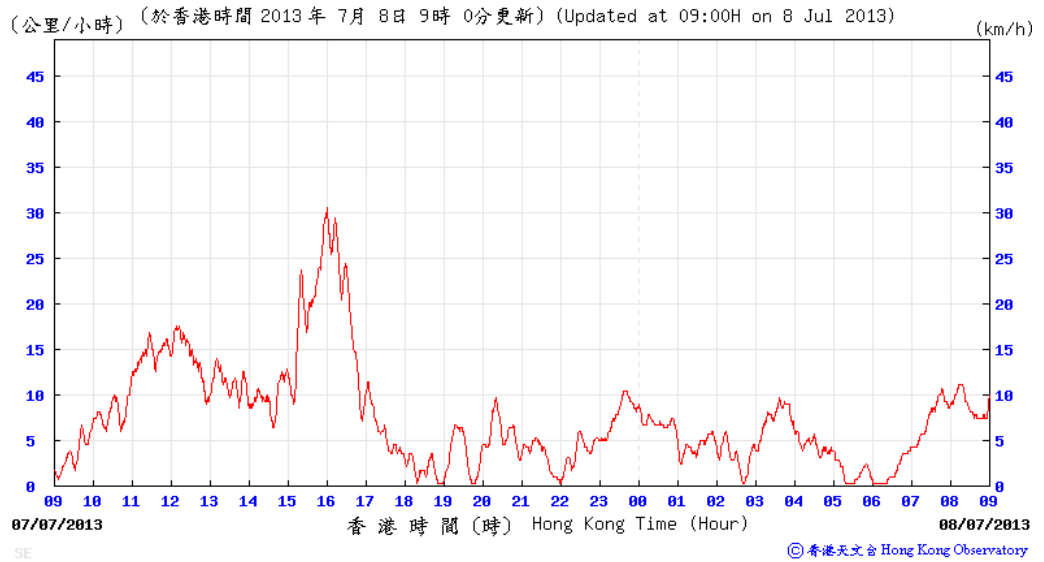


Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

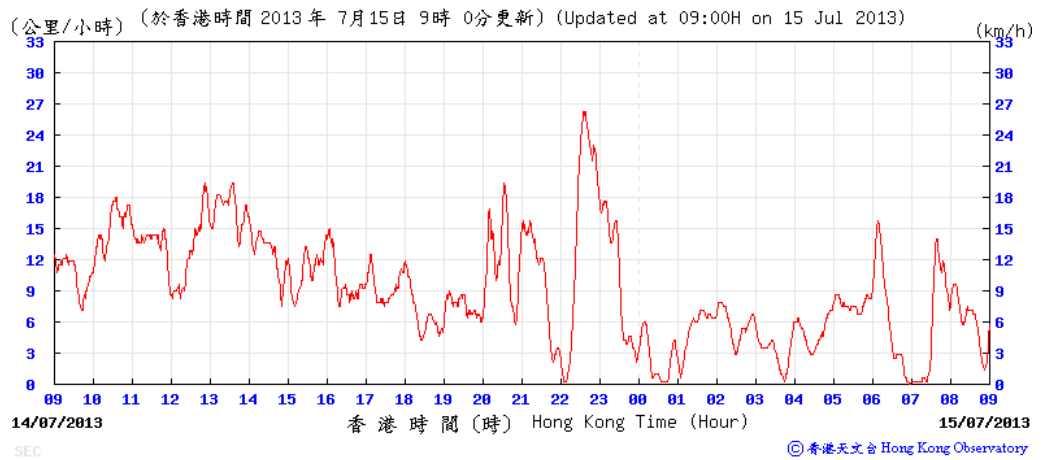
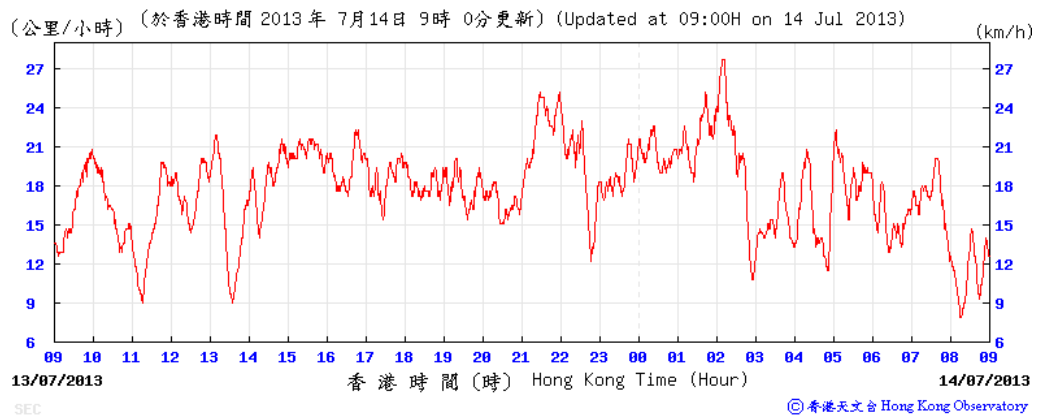
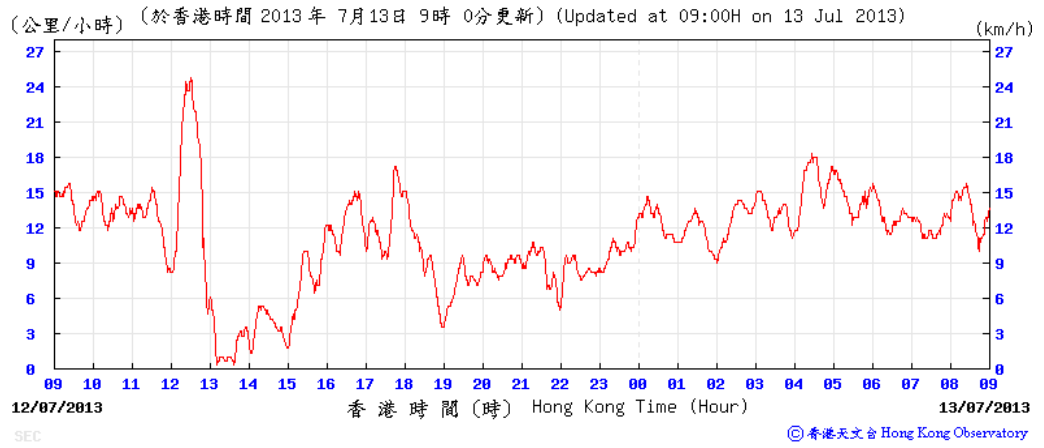
2 – 3 July 2013



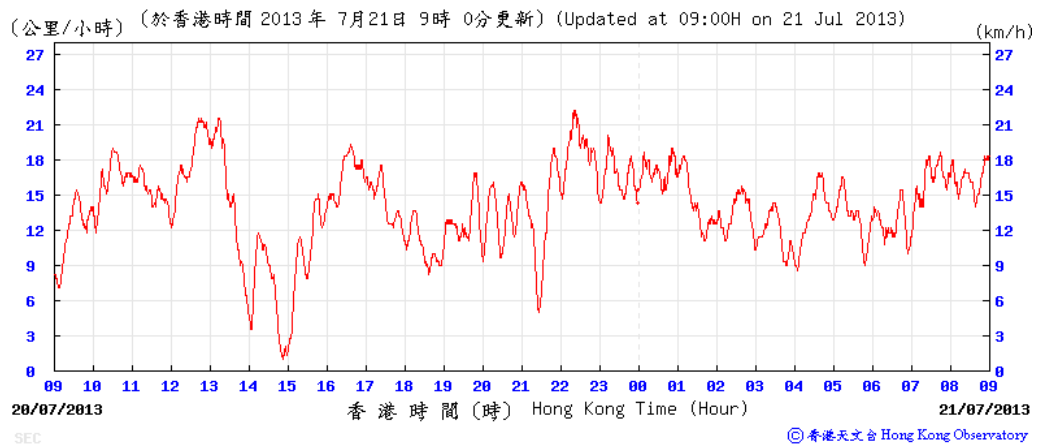
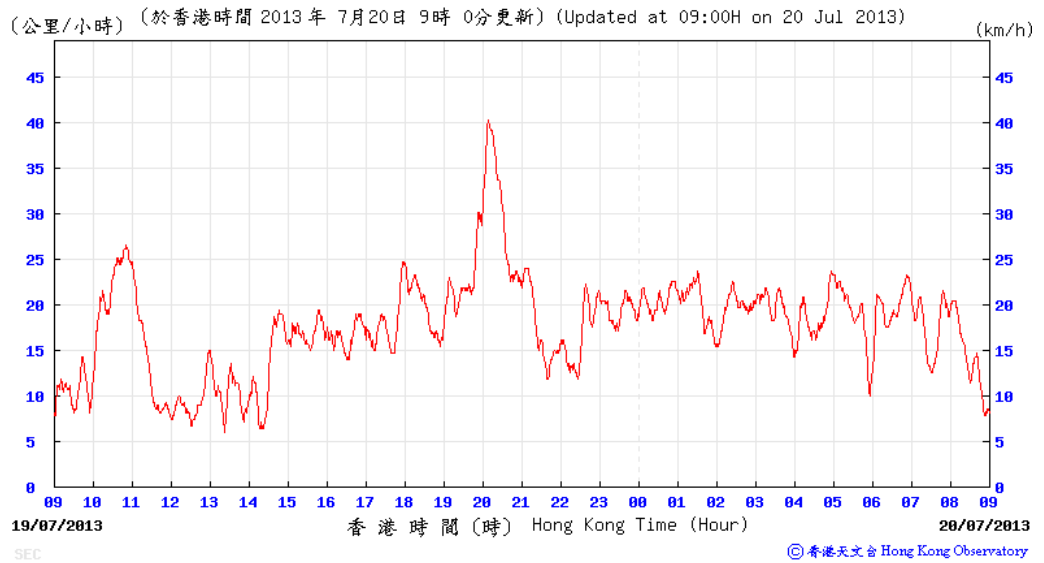
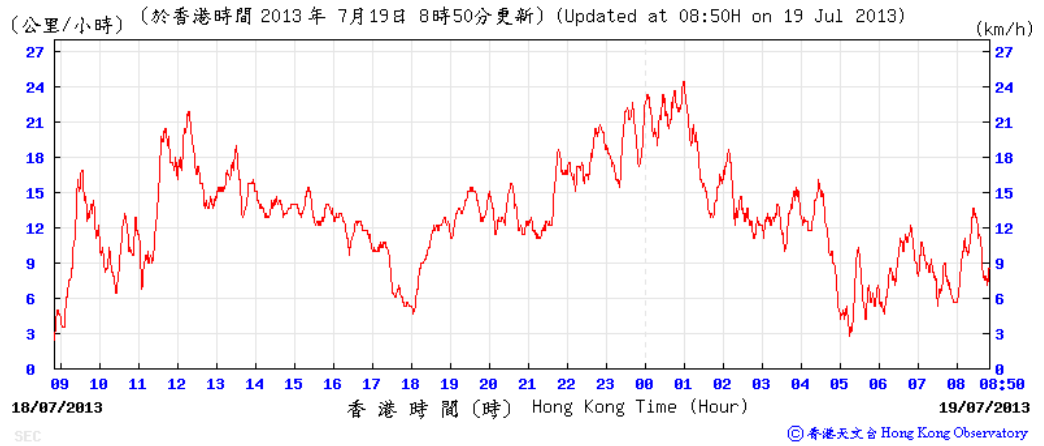
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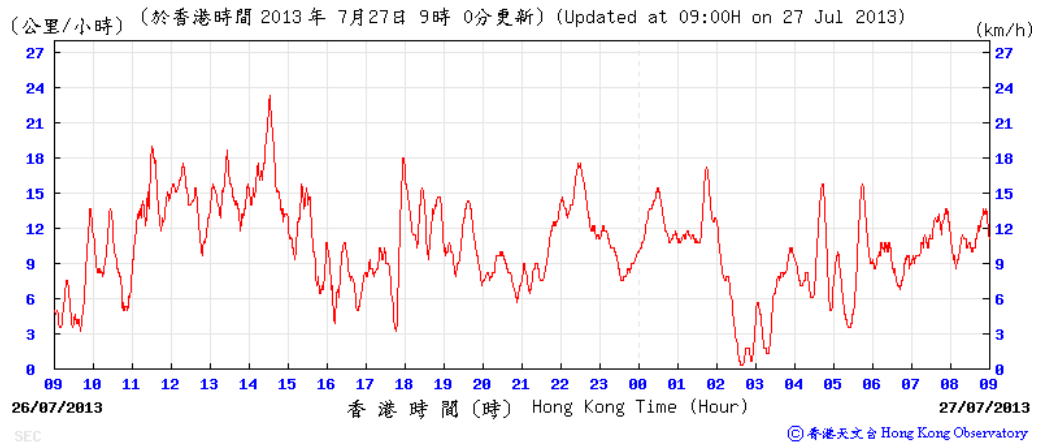
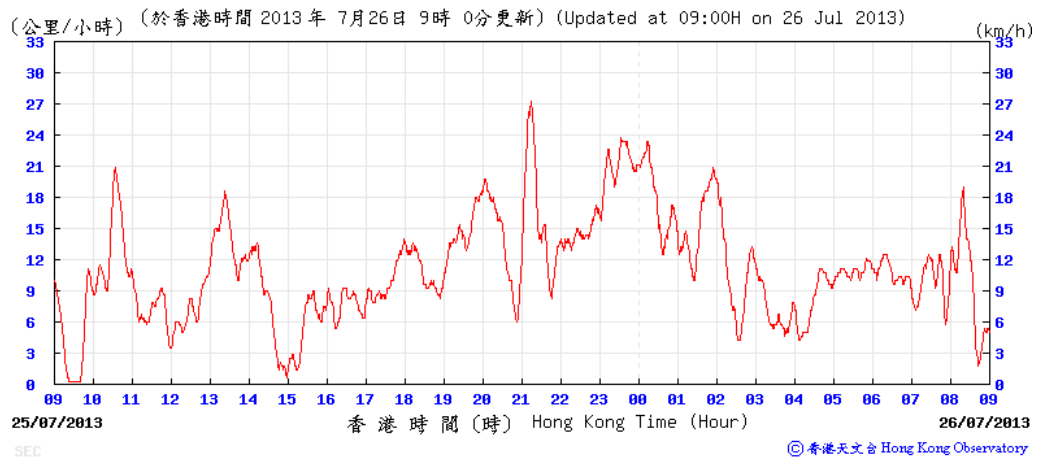
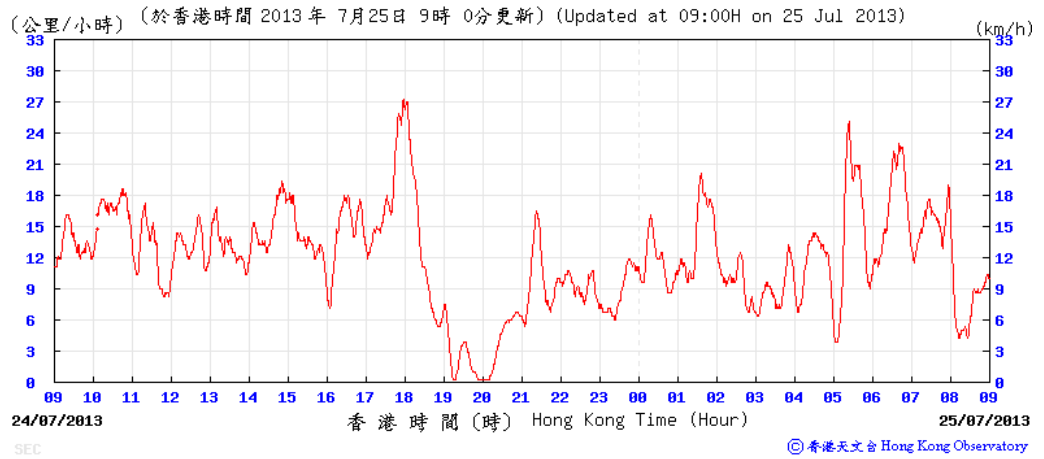
13-14 July 2013



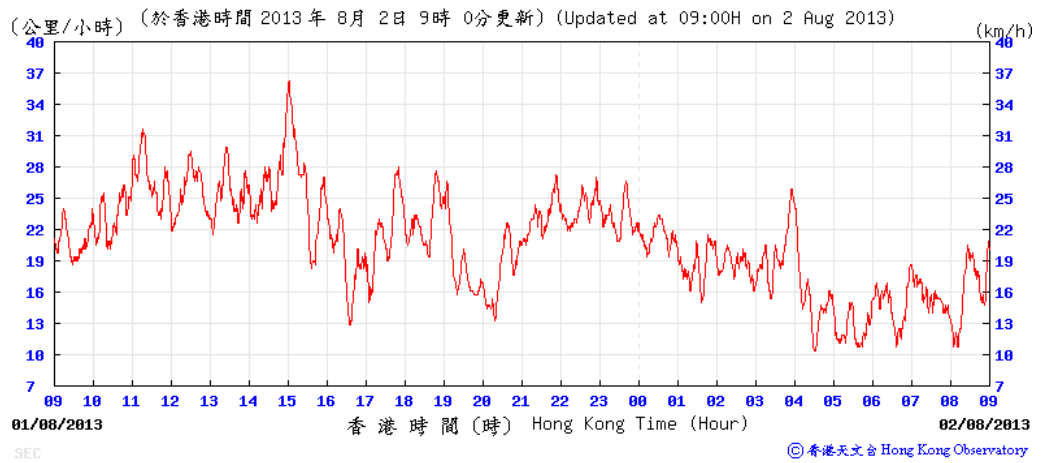
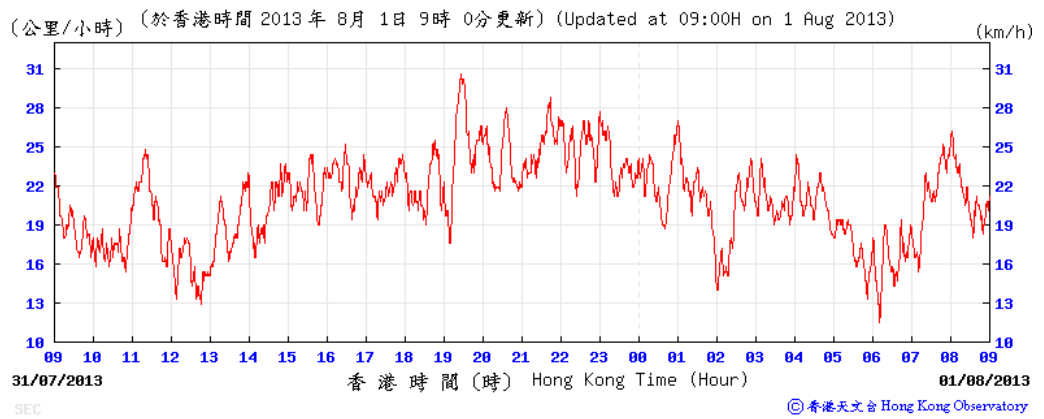
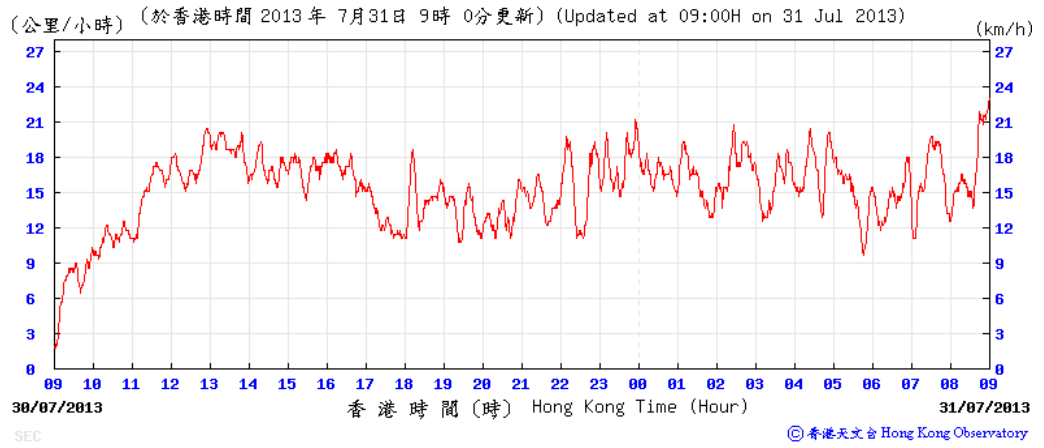
19 – 20 July 2013



25- 26 July 2013

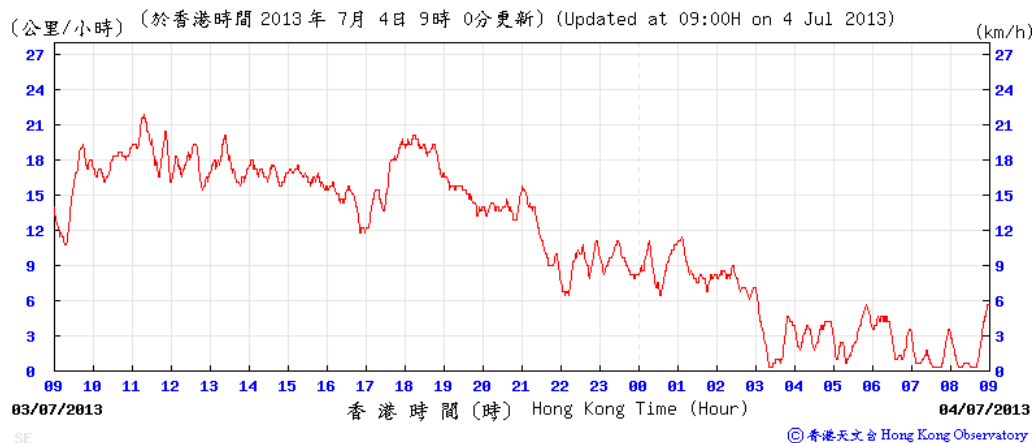
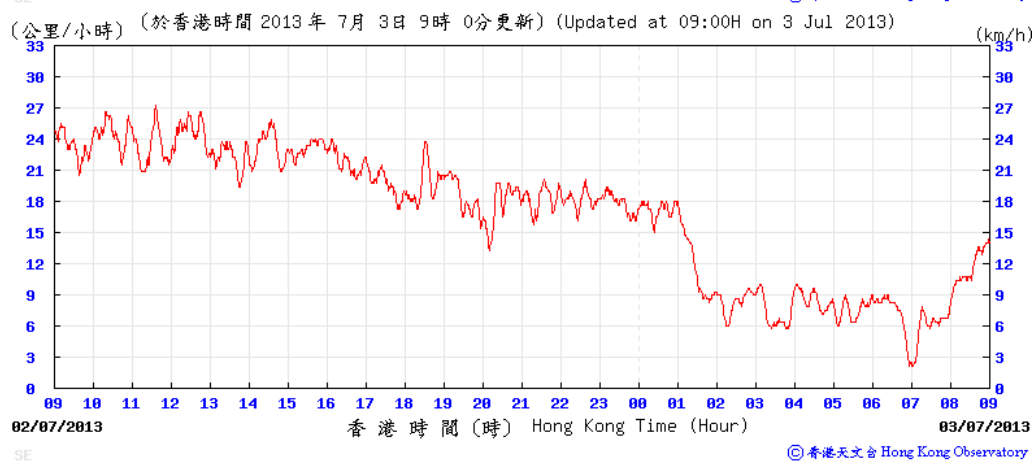
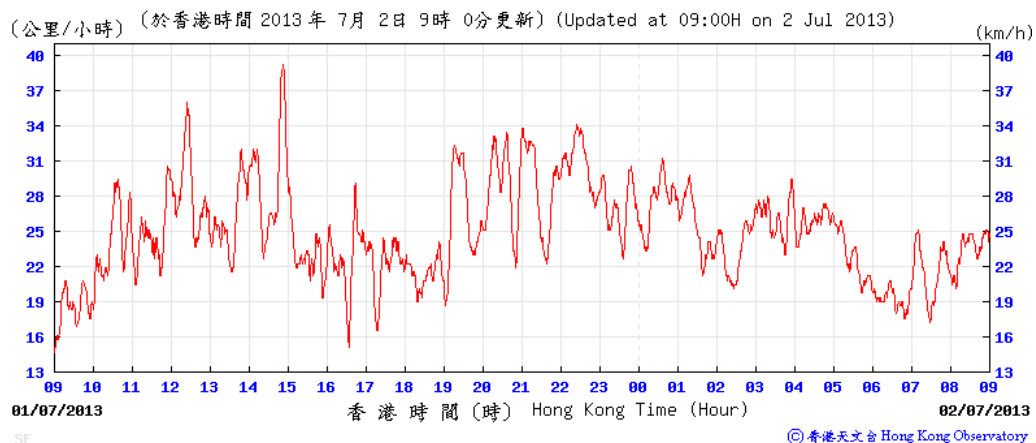


31 July – 1 August 2013

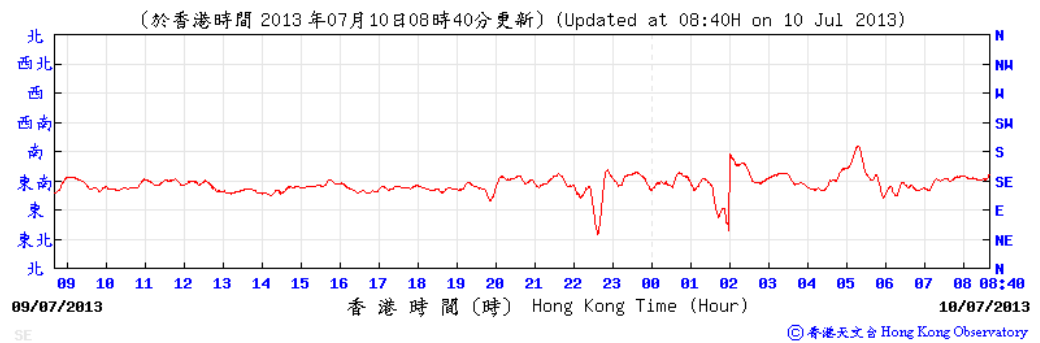
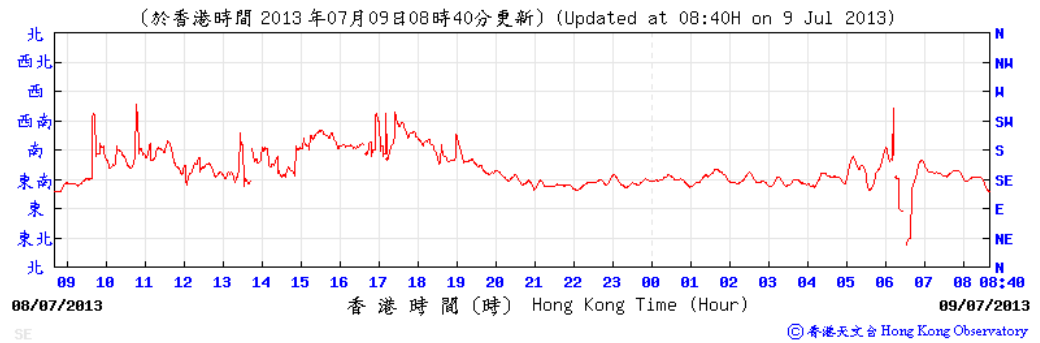
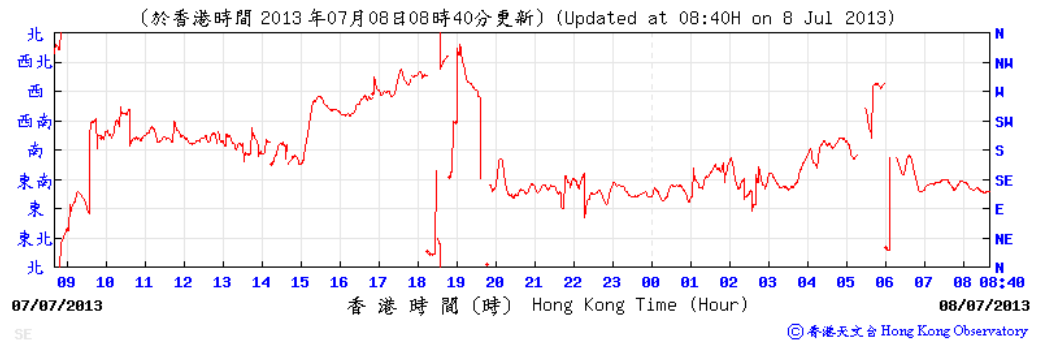


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

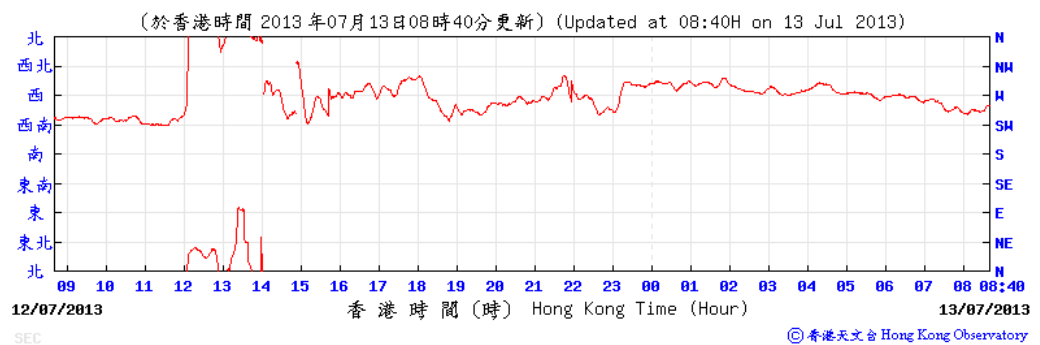
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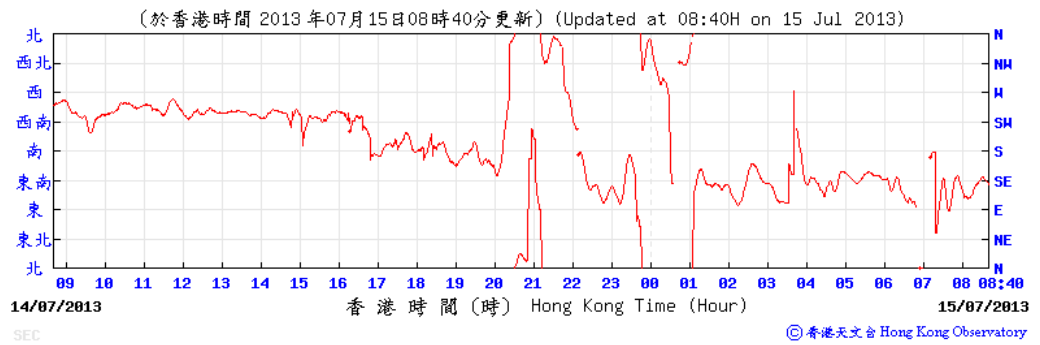
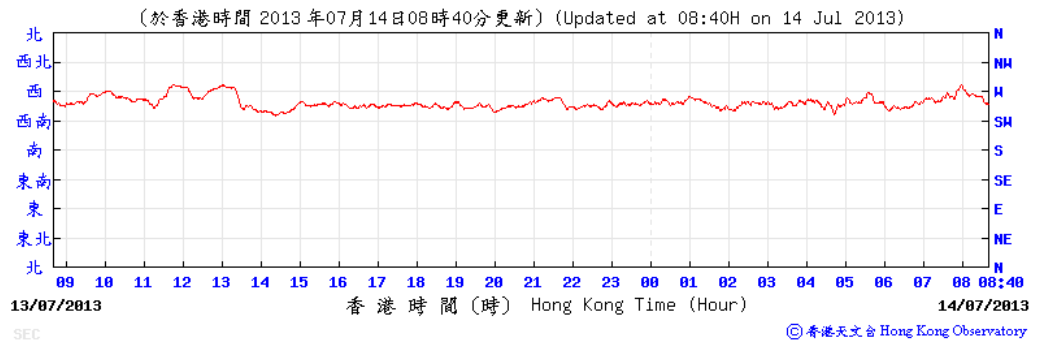


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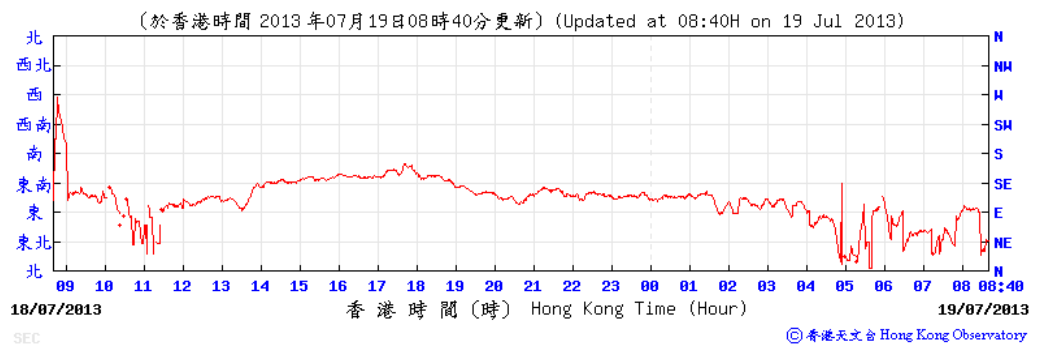


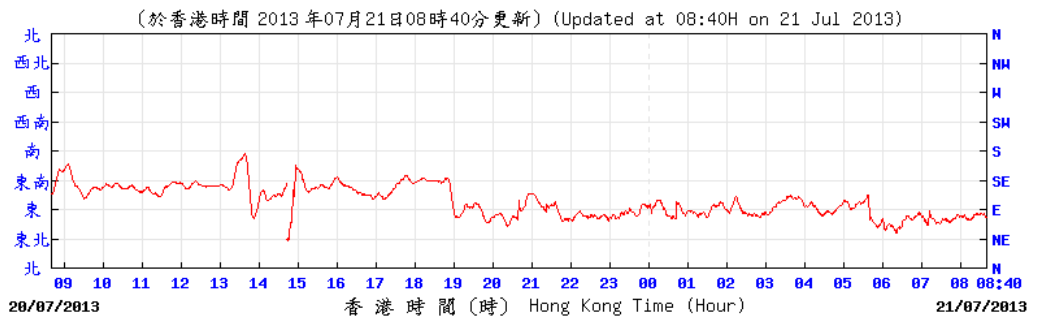
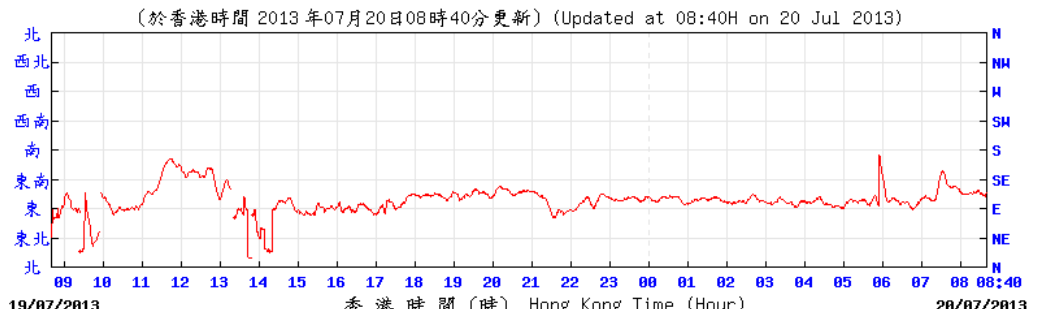
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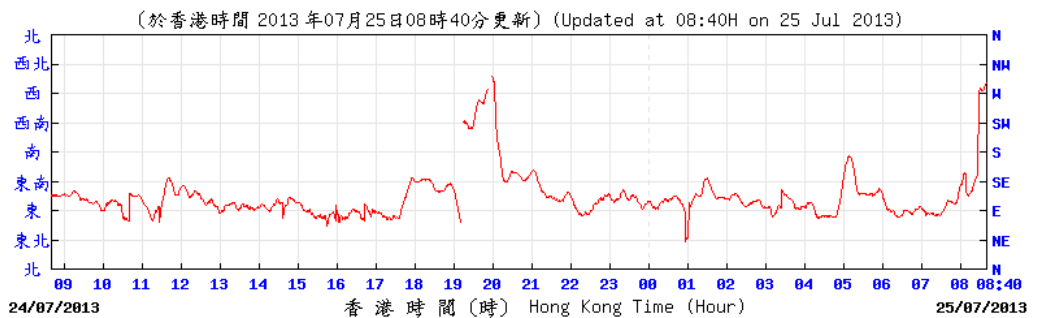
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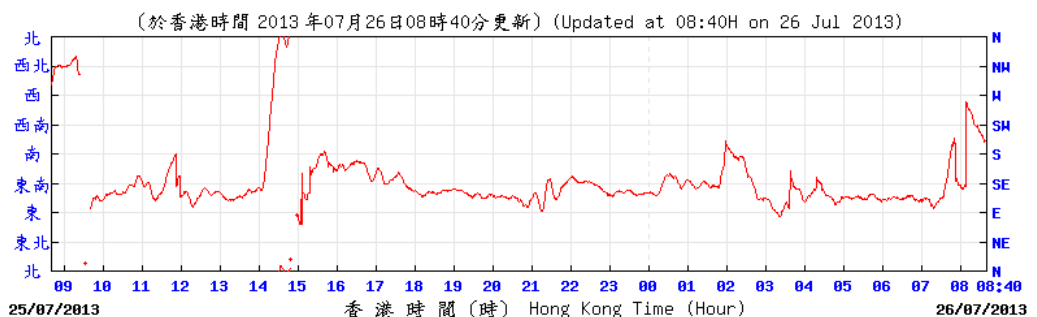


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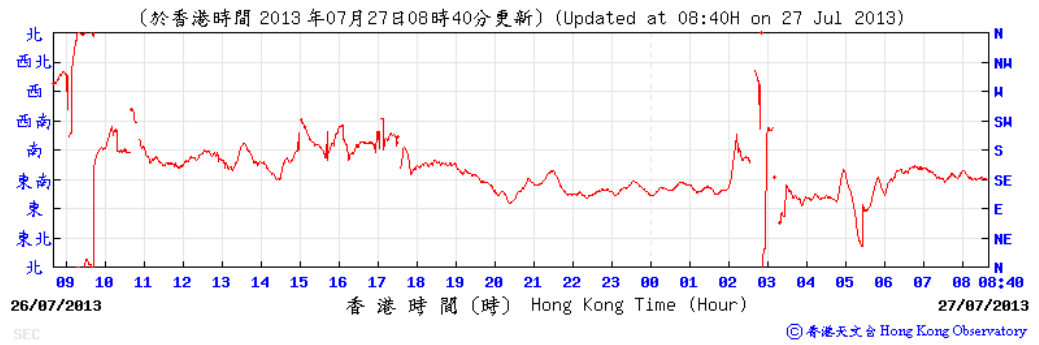
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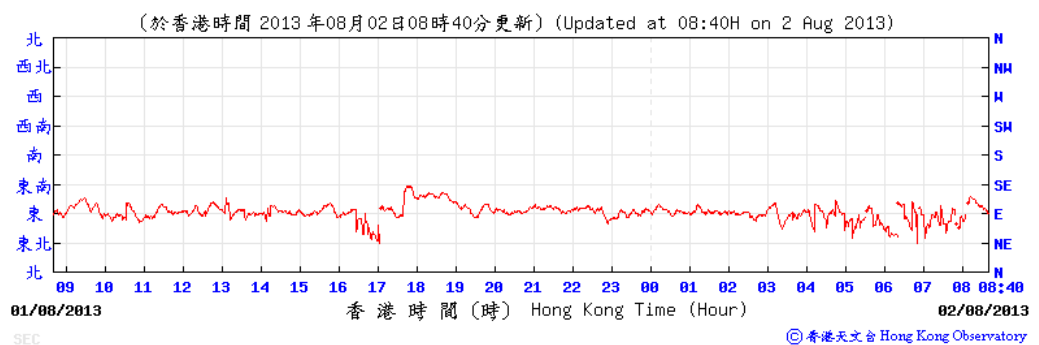
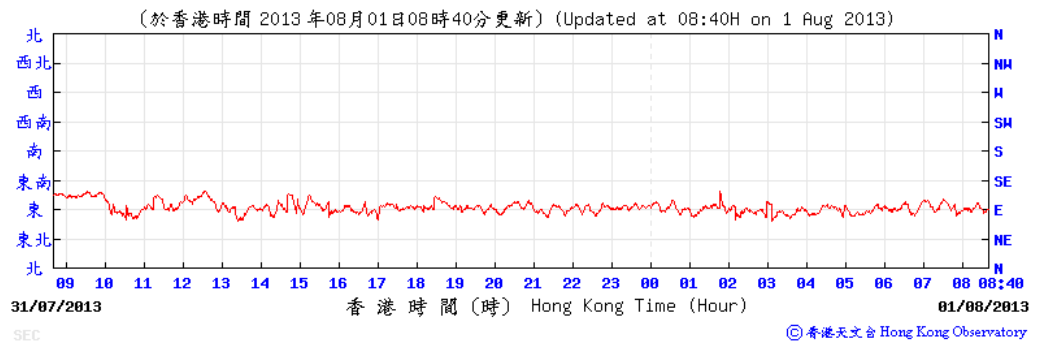
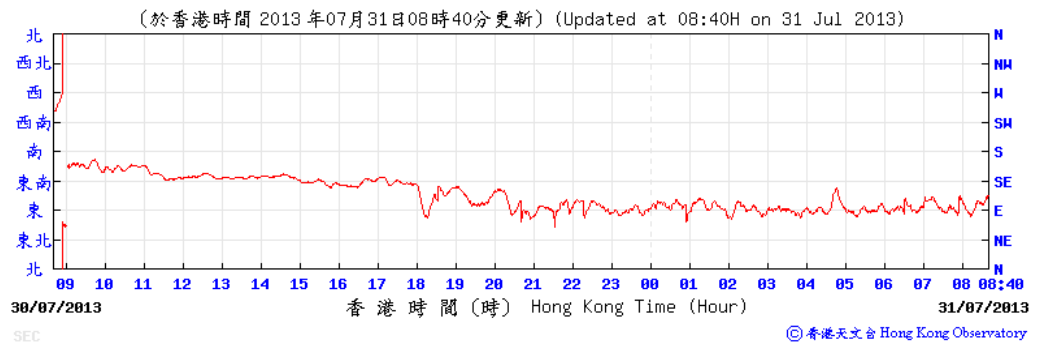
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31 July – 1 August 2013



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)	
Jan	--	--	--	--	--	--	--	--	--	--	--	--
Feb	--	--	--	--	--	--	--	--	--	--	--	--
Mar	--	--	--	--	--	--	--	--	--	--	--	--
Apr	--	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--	--	--	--	--	--
Aug	--	--	--	--	--	--	--	--	--	--	--	--
Sub-total												
Sept	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Jan	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	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
March	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
April	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	9.969	0.000	0.000	0.000	0.000	9.969	0.000	0.000	0.481	0.000	0.065	0.000
June	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
July	6.116	0.000	0.000	0.000	0.000	6.116	0.000	0.063	0.868	0.400	0.058	0.000
Total	95.526	0.000	0.605	0.000	0.064	94.856	12.800	0.612	8.918	0.720	1.182	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

(Not Used)

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
Overall Total	0	0

Appendix C

**8th EM&A Report for Works Contract 1101 –
Ma On Shan Line Modification Works**

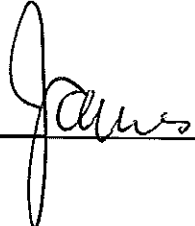
MTR Corporation Limited

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

Monthly EM&A Report
[Period from 1 to 31 July 2013]

Works Contract 1101
Ma On Shan Modification Works

(August 2013)

Certified by: James Choi 

Position: Environmental Team Leader

Date: 14 August 2013


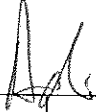
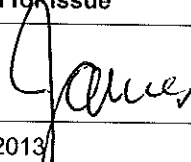
SCL Contract No. 1101

Ma On Shan Line Modification Works

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

for

Sun Fook Kong Joint Venture

Prepared By	Checked By	Approved for Issue
E Yue 	A Lee 	J Choi 
Version	0	Date
		2 August 2013

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.

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Appendix C	Organisation Chart of Environmental Management
Appendix D	Status of License, Permit and Submissions under Environmental Protection Requirements
Appendix E	Waste Flow Table
Appendix F	Summary of Site Inspections and Recommendations
Appendix G	Mitigation Measures Implementation Schedule for Construction Stage
Appendix H	Environmental Complaint Log

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/C) 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

During the reporting month, major construction activities undertaken by the Contractor includes erection of steel structure of noise cover at Tai Wai Mei Tin Road.

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 July 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 off in the reporting month and 6.50m³ of 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 Summon and Successful Prosecution

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

Future Key Issues

The major construction activities in the upcoming months will include construction of steel noise cover at Tai Wai Mei Tin Road during restricted hours. It is anticipated that construction noise will be the key issue. The Contractor has been reminded to properly implement construction noise control measures in order to minimize the potential environmental impacts due to the construction works of the Project.

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 activities of the Construction Works include:

- Construction of noise cover over the viaduct at Tai Wai Mei Tin Road

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 8th 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 July 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

In the reporting month, major site construction activities undertaken by the Contractor include:

Tai Wai Mei Tin Road:

- Erection of steel structure of noise cover

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 EP-438/2012/C 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	6.50	114.0
Chemical waste disposed off to Chemical Waste Treatment Centre at Tsing Yi	0	0

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 3, 10, 17, 23, 31 July 2013. The joint site inspection with IEC was carried out on 23 July 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 *Appendix F*.

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 G*.

5. ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month.

A log of environmental complaints is shown in *Appendix H*. 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

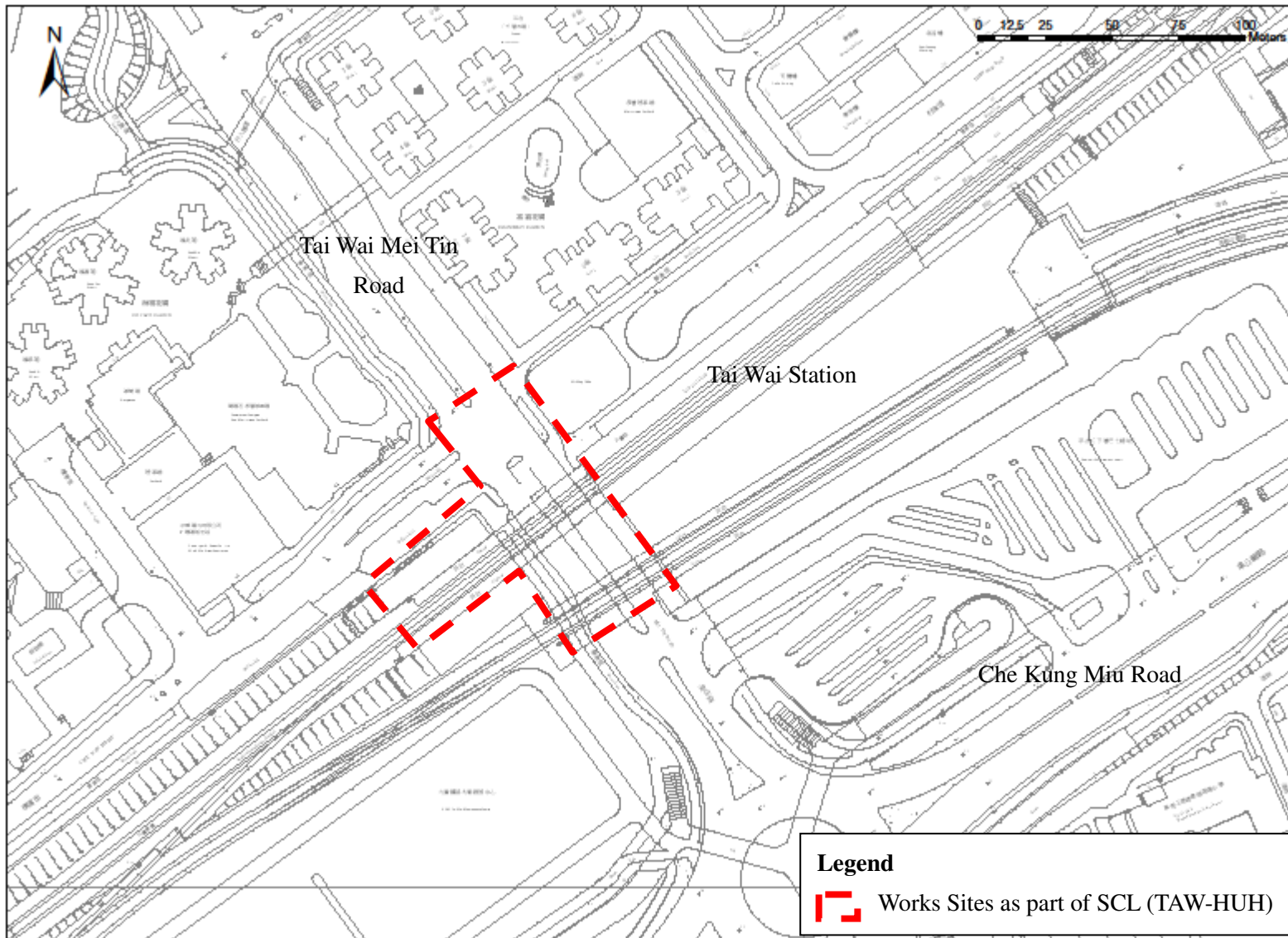
Neither Notification of Summon nor successful prosecution was received by the Contractor during the reporting month.

7. FUTURE KEY ISSUES

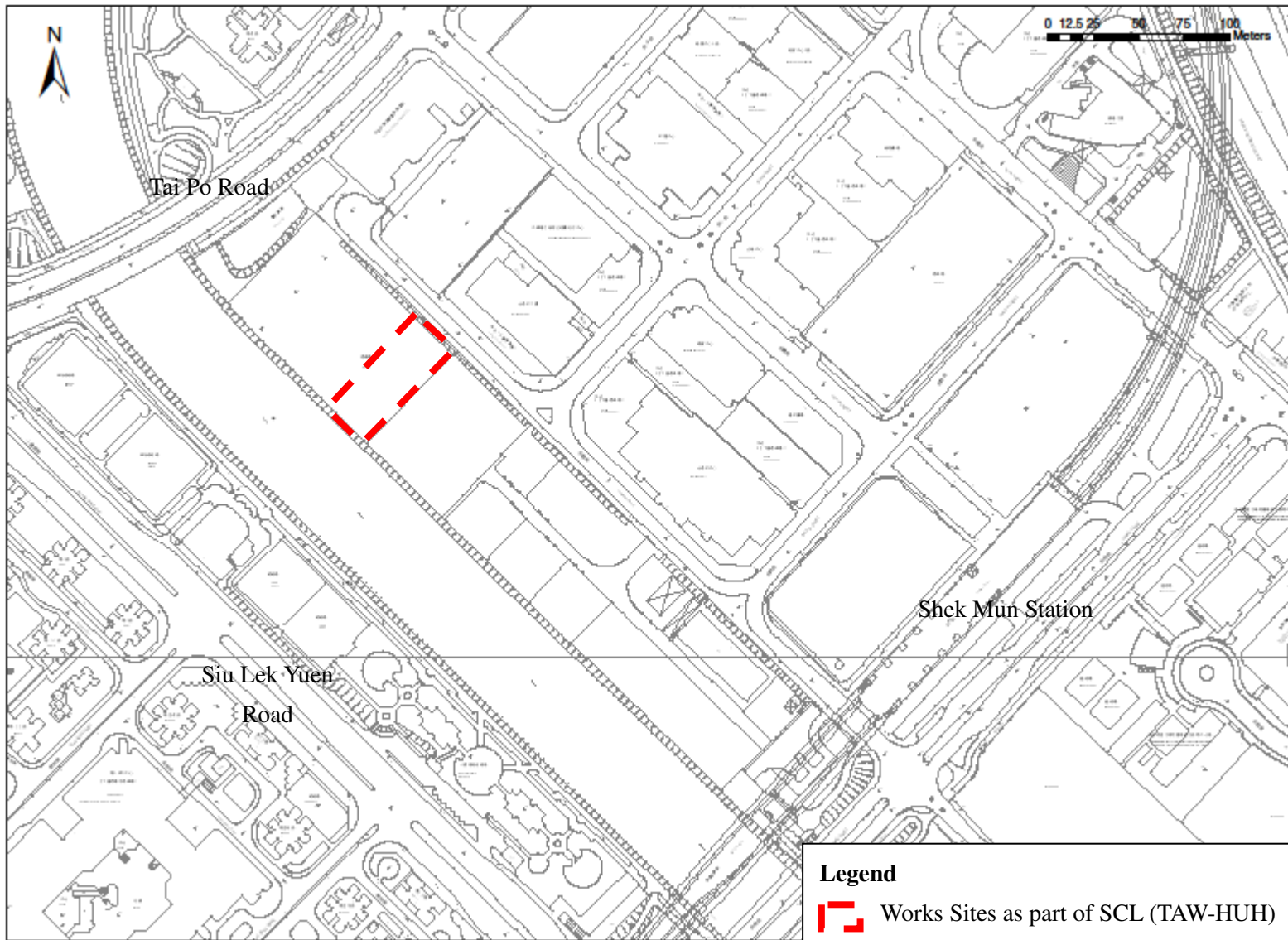
The major construction activities in the upcoming months will include construction of steel noise cover at Tai Wai Mei Tin Road during restricted hours. It is anticipated that construction noise will be the key issue. The Contractor has been reminded to properly implement construction noise control measures in order to minimize the potential environmental impacts due to the construction works of the Project.


APPENDIX A

LOCATION PLAN OF WORKS AREA AND STORAGE YARD



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

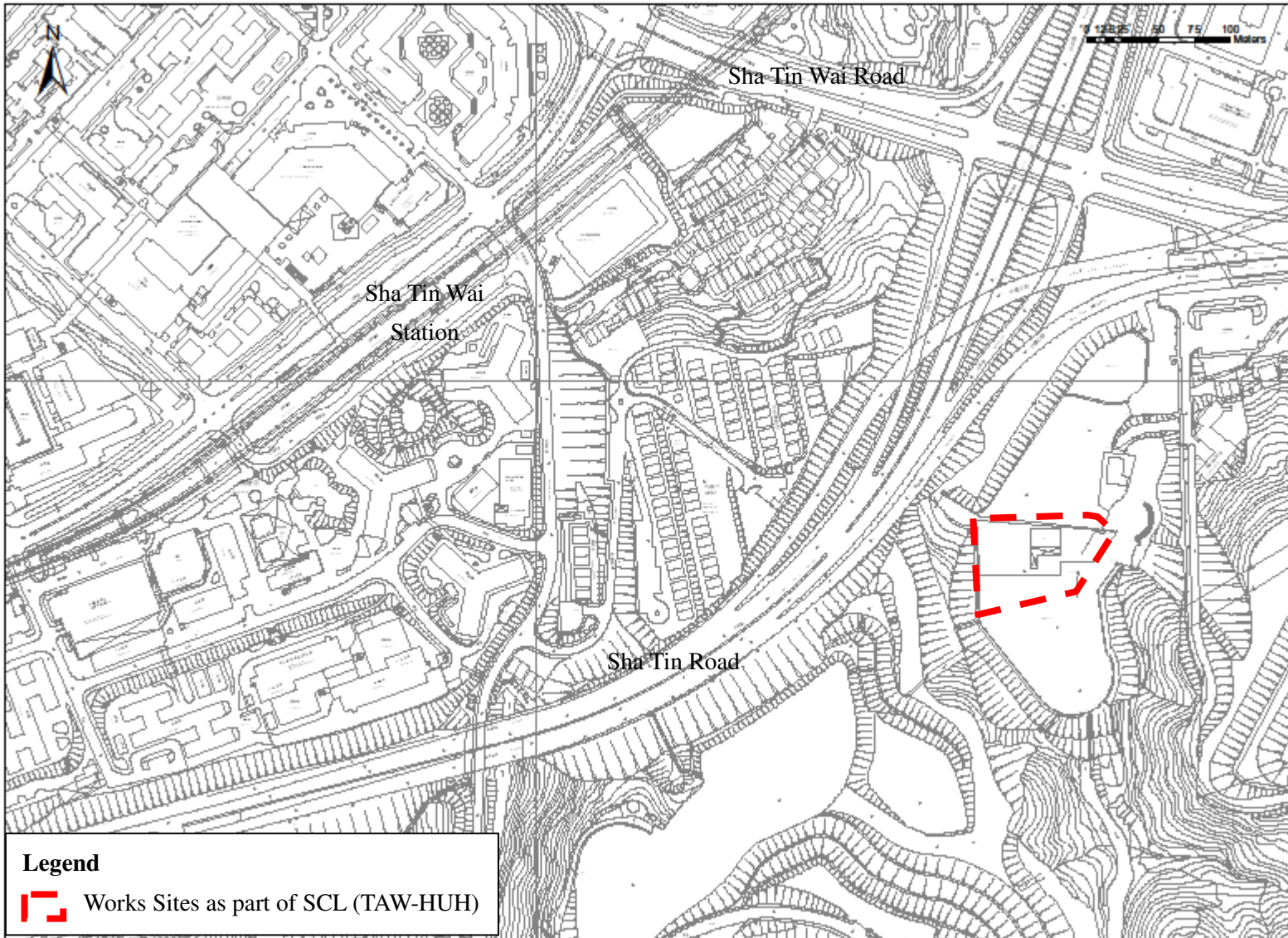


Legend
 Works Sites as part of SCL (TAW-HUH)



Location Plan of Works Area and Storage Yard
Shek Mun Storage Yard

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																																				

Note:

1. Abbreviation:

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

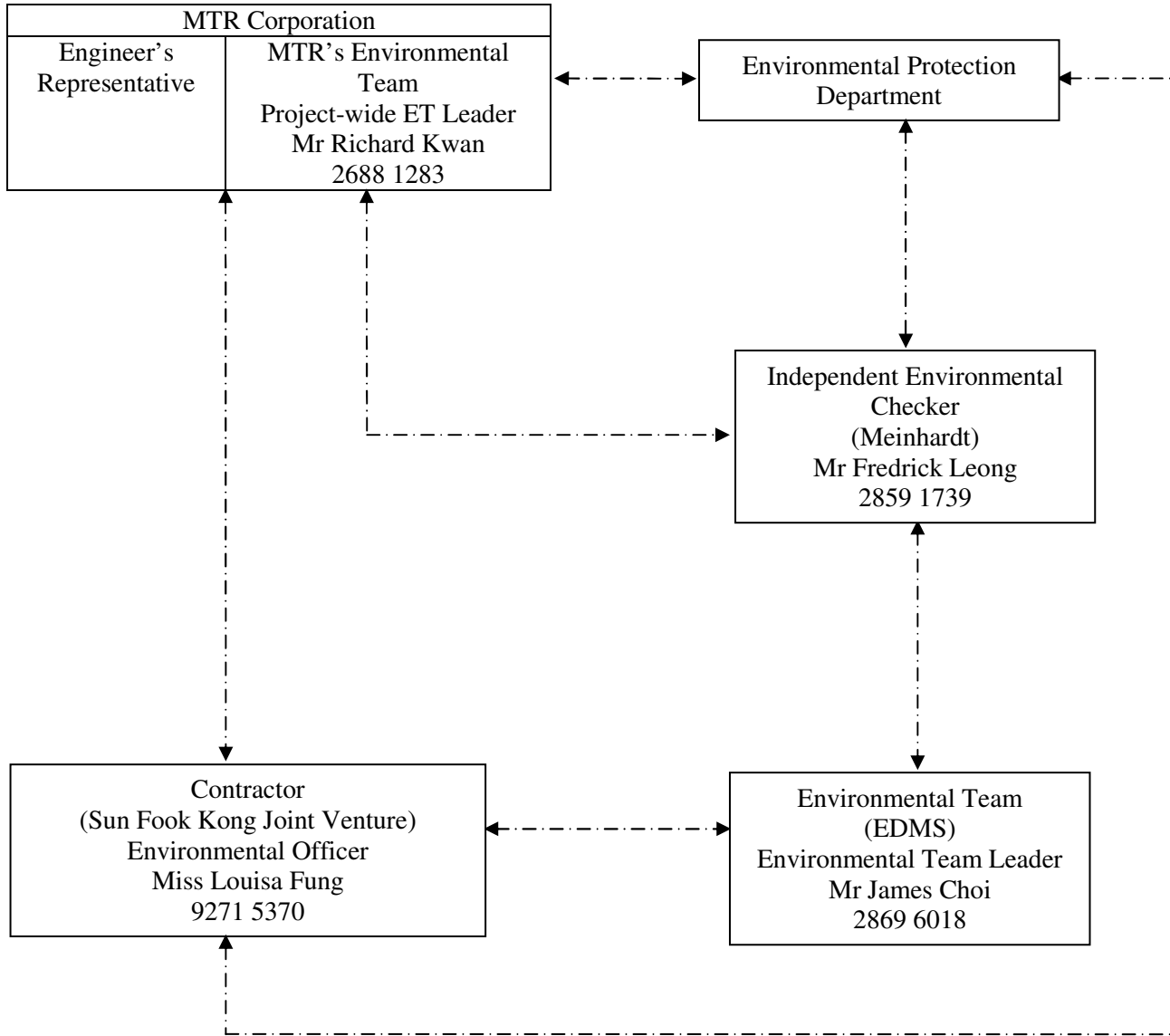
2 No construction activity had been carried out at To Shek Storage Yard and Shek Mun Storage Yard.

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/C	15 April 2013	30 April 2013	30 April 2013	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0086-13	28 January 2013	15 February 2013	18 February 2013	17 August 2013
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/C

EP Condition	Submission	Date of Submission
Condition 3.4	Monthly EM&A Report (June 2013)	12 July 2013

APPENDIX E

WASTE FLOW TABLE

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

Month	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	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
October	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	13.00	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
Cumulative Total	13.00	0.00	0.00	13.00	0.00	26.00	0.00

Remark: Waste Generated from site at Tai Wai Mei Tin Road, To Shek Storage Area and Tai Shui Hang Storage area.

1 full loaded dumping truck is assumed equivalent to 6.5 m³ by volume from Archsd D/OL03/09.002

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

Month	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	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
February	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	3.25	0.00
April	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	35.75	0.00
June	0.00	0.00	0.00	0.00	0.00	22.75	0.00
Sub-total	13.00	0.00	0.00	13.00	3.00	107.50	0.00
July	0.00	0.00	0.00	0.00	0.00	6.50	0.00
August							
September							
October							
November							
December							
Cumulative Total	13.00	0.00	0.00	13.00	3.00	114.00	0.00

Remark: Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Area and Tai Shui Hang Storage area from January 2013 – April 2013.

Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Area only during May 2013.

Tai Shui Hang Storage area has been handed back to land owner on 15/04/2013

1 full loaded dumping truck is assumed equivalent to 6.5 m³ by volume from Archsd D/OL03/09.002

APPENDIX F

SUMMARY OF SITE INSPECTIONS AND RECOMMENDATIONS

Environmental Site Walk on 3.7.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
No site observation	NA

Environmental Site Walk on 10.7.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
No site observation	NA

Environmental Site Walk on 17.7.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
No site observation	NA

Environmental Site Walk on 23.7.2013 (Joint Site Inspection with IEC)

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
No site observation	NA

Environmental Site Walk on 31.7.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
No site observation	NA

Remark:

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

APPENDIX G

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

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

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"> 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:

^ 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

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"> 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	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

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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
		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 	^

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

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
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:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

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; 						

Remarks:

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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	^

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"> 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	^

Remarks:

^ Implement mitigation measure in the reporting month

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* Not satisfactory but rectified by the contractor

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
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 	^

Remarks:

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* Not satisfactory but rectified by the contractor

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 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. 						

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

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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 						

Remarks:

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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 						

Remarks:

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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 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

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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
		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 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

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
		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 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

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>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 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

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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"> 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 	^

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

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"> 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 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

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>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

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

APPENDIX H

ENVIRONMENTAL COMPLAINT LOG

Appendix H 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

**7th EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnel**



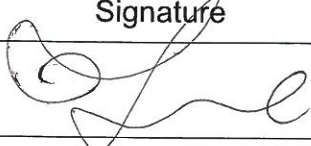

Gammon-Kaden SCL 1111 Joint Venture

**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
July 2013**

August 2013

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

Version: 0

Date: 14 August 2013

Disclaimer

This Monthly EM&A 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 July 2013. As informed by the Contractor, major activities in the reporting period were:-

Hung Hom Area

- Drain / sewage pipe construction, ABWF & E&M works.
- Excavation work, man hole and drainage construction, RC structure construction, slope work, geological investigation.
- Hoarding erection, cross track duct construction, cable trough installation, cable hanger.
- Trial pit, tree transplant and tree felling, site formation, sheet piling, OHL portals erection.
- Pre-drilling, close loop, pipe piling, hoarding re-alignment, site office setup.

Mong Kok Freight Terminal

- ABWF & 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

- Drain/sewage pipe construction, ABWF and E&M works.
- Excavation work, man hole and drainage construction, RC structure construction, slope work, geological investigation, demolition of OLB shelter, EVA construction.
- Cross track duct construction, cable trough installation, ADMS installation, tree felling, cable hanger.
- Trial pit, fencing/hoarding erection, pile piling, pre drilling, site formation, sheet piling, OHL portals erection, grouting.
- EMSD control room and ELS structure.

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 seventh monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 July 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/C) was issued by Director of Environmental Protection (DEP) on 30 April 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

- Drain / sewage pipe construction, ABWF & E&M works.
- Excavation work, man hole and drainage construction, RC structure construction, slope work, geological investigation.
- Hoarding erection, cross track duct construction, cable trough installation, cable hanger.
- Trial pit, tree transplant and tree felling, site formation, sheet piling, OHL portals erection.
- Pre-drilling, close loop, pipe piling, hoarding re-alignment, site office setup.

Mong Kok Freight Terminal

- ABWF & 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/C	30 Apr 2013	-	Valid	-
Construction Noise Permit				
GW-RE0479-13	19 May 2013	14 Jul 2013	Valid	For Slip Road from Chatham Road North to Hong Chong Road
GW-RE0537-13	31 May 2013	13 Jul 2013	Valid	For Cross-track Duct (Workfronts No.1, 2 & 3)
GW-RE0541-13	01 Jun 2013	31 Jul 2013	Valid	For E&M Works at Mong Kok East Station Concourse
GW-RE0587-13	14 Jun 2013	12 Aug 2013	Valid until cancellation on 31 July 2013	For Extended Hours of ABWF and E&M works at Mong Kok Freight Yard
GW-RE0618-13	21 Jun 2013	31 Jul 2013	Valid until cancellation on 26 July 2013	For Cross-track Duct Installation (Cable Hanger) at Workfronts No.7)
GW-RE0621-13	19 Jun 2013	07 Sep 2013	Valid	For Hung Hom Station Re provisioning Works
GW-RE0626-13	20 Jun 2013	15 Aug 2013	Valid	For Noise Panel Installation at Mong Kok East Station
GW-RE0640-13	03 Jul 2013	30 Aug 2013	Valid	For Tree Felling at Slip Road adjoining Hong Chong Road and Chatham Road North
GW-RE0663-13	29 Jun 2013	31 Jul 2013	Valid	For 6m Hoarding Works at Oi Sen Path Rest Area near Chatham Road North
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-RE0681-13	05 Jul 2013	31 Aug 2013	Valid until cancellation on 19 July 2013	For TBM mobilization works at Oi Sen Path and Rest Area at 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-RE0735-13	19 Jul 2013	31 Aug 2013	Valid	For Tree Felling Works at Oi Sen Path near Workfronts No. 5 & 6
GW-RE0741-13	18 Jul 2013	31 Dec 2013	Valid	For ADMS Installation Works near Hung Hom Station
GW-RE0770-13	26 Jul 2013	31 Aug 2013	Valid	For Cross-track Duct Installation (Cable Hanger) at Workfronts No. 7
GW-RE0794-13	31 Jul 2013	26 Jan 2014	Valid	For General Works at Mong Kok Freight Terminal

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 near Chatham Road North
EP682/243/0251/I	-	-	Application was made on 04 Jun 2013 and is pending for EPD's approval	For Winslow Street Slope Works Between Chatham Road North and Wai Fung Street
EP482/236/0107/I	-	-	Application was made on 14 Jun 2013 and is pending for EPD's approval	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	8 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 July 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	Rion (Model No. NL-31 (S/N: 00320528)), B&K (Model No. 2250L (S/N: 2681366)) & B&K (Model No. 2238 (S/N: 2285692))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307216), (S/N: 10307223) & (S/N: 10186482))

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 July 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/C (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/C)	Monthly EM&A Report for June 2013	12 July 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	29.3	22.6 – 45.0	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), $L_{\text{eq}} (30 \text{ mins})$	Limit Level, dB(A), $L_{\text{eq}} (30 \text{ mins})$
NM 1 ⁽²⁾	59.7 – 67.7	70 (65) ⁽¹⁾
NM 2 ⁽²⁾	68.4 – 75.3	75

Note:

(1) Daytime noise Limit Level of 70dB(A) applies to education institutions while 65dB(A) applies during school examination period.

(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, 3,805m³ of inert C&D material was generated and disposed as public fills at TKO 137 and TM38 while 93,320kg of general refuse was disposed at NENT landfill in the reporting month. No paper/cardboard packaging, plastics and 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 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, 4 site inspections were carried out on 4, 11, 18 and 25 July 2013. The one held on 18 July 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	4 July 2013	<ul style="list-style-type: none"> The Contractor should cover the stockpile in EWL8, Hong Chong Road and Homantin Siding entirely with impervious sheeting and provide sufficient sand bags to prevent any non-complied discharge during rainstorm. 	The item was observed to be rectified by the Contractor on 18 July 2013.
	4 & 11 July 2013	<ul style="list-style-type: none"> The Contractor should cover the stockpile in EWL8 with impervious sheeting entirely. 	The item was observed to be rectified by the Contractor on 20 June 2013.
	11 July 2013	<ul style="list-style-type: none"> Wheel washing facilities provided in EWL8 was found ineffective. The Contractor should review the wheel washing facilities implemented in EWL8 to ensure deposited slit was washed off from the vehicle effectively. 	The item was rectified by the Contractor on 17 July 2013.
	18 July 2013	<ul style="list-style-type: none"> The Contractor should cover the public drainage at works area in Cross Track 5, 6 East Bound properly and check the condition of sand bags to prevent grits from entering the drainage system. 	The item was rectified by the Contractor on 24 July 2013.
		<ul style="list-style-type: none"> The Contractor should clear deposited grits in the trenches in Homantin Siding regularly and provide sand bags at the periphery of site boundary to prevent any non-complied discharge occurs. 	The item was observed to be rectified by the Contractor on 25 July 2013.
	18 & 25 July 2013	<ul style="list-style-type: none"> The Contractor should review and maintain the effectiveness of the effluent treating facility in Homantin Siding. Moreover, water in internal drainage channel shall be pumped and treated by the effluent treating facility before discharge. 	The item will be follow-up in August.
	25 July 2013	<ul style="list-style-type: none"> Public drainage system was observed to be exposed to waste water in Homantin Siding. The Contractor should provide sand bags at the periphery of the gully to prevent effluent from entering the public drainage. 	The item will be follow-up in August.

Parameters	Date	Observations and Recommendations	Follow-up
		<ul style="list-style-type: none"> The Contractor should cover the temporary slope at works area in Winslow Street entirely with impervious sheeting and provide sand bags or wooden board at the periphery of public trench to prevent effluent from entering the trench. 	The item was rectified by the Contractor on 31 July 2013.
Air Quality	4 July 2013	<ul style="list-style-type: none"> The Contractor was reminded to provide sufficient spraying of water in Homantin Siding regularly to ensure EP compliance. 	The item was rectified by the Contractor on 10 July 2013.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	4 July 2013	<ul style="list-style-type: none"> Accumulation of waste was observed on bare ground in Homantin Siding. The Contractor was reminded to clear the waste in timely manner. 	The item was rectified by the Contractor on 10 July 2013.
		<ul style="list-style-type: none"> Leakage of lubricating oil was observed from the driller head in EWL8. The Contractor should clear the leaked oil and dispose of as chemical waste. Moreover, drip tray or equivalent mechanism should be provided to retain leakage, if any. 	The item was rectified by the Contractor on 11 July 2013.
	4 & 11 July 2013	<ul style="list-style-type: none"> Accumulation of waste was observed in the receptacle in EWL8, The Contractor was reminded to clear the waste in timely manner. 	The item was observed to be rectified by the Contractor on 18 July 2013.
	18 July 2013	<ul style="list-style-type: none"> Stagnant water was observed in drip trays near the site entrance in EWL8. The Contractor should clear the stagnant water in drip tray in timely manner. 	The item was observed to be rectified by the Contractor on 25 July 2013.
	25 July 2013	<ul style="list-style-type: none"> Accumulation of waste was observed in receptacles at works area in Homantin Siding. The Contractor should clear the accumulated waste in regularly. 	The item was rectified by the Contractor on 31 July 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 August and September 2013 will be:-

Hung Hom Area

- Drain/sewage pipe construction, ABWF and E&M works.
- Excavation work, man hole and drainage construction, RC structure construction, slope work, geological investigation, demolition of OLB shelter, EVA construction.
- Cross track duct construction, cable trough installation, ADMS installation, tree felling, cable hanger.
- Trial pit, fencing/hoarding erection, pile pilling, pre drilling, site formation, sheet pilling, OHL portals erection, grouting.
- EMSD control room and ELS structure.

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 August 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 4 nos. of environmental site inspections were carried out in July 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.

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

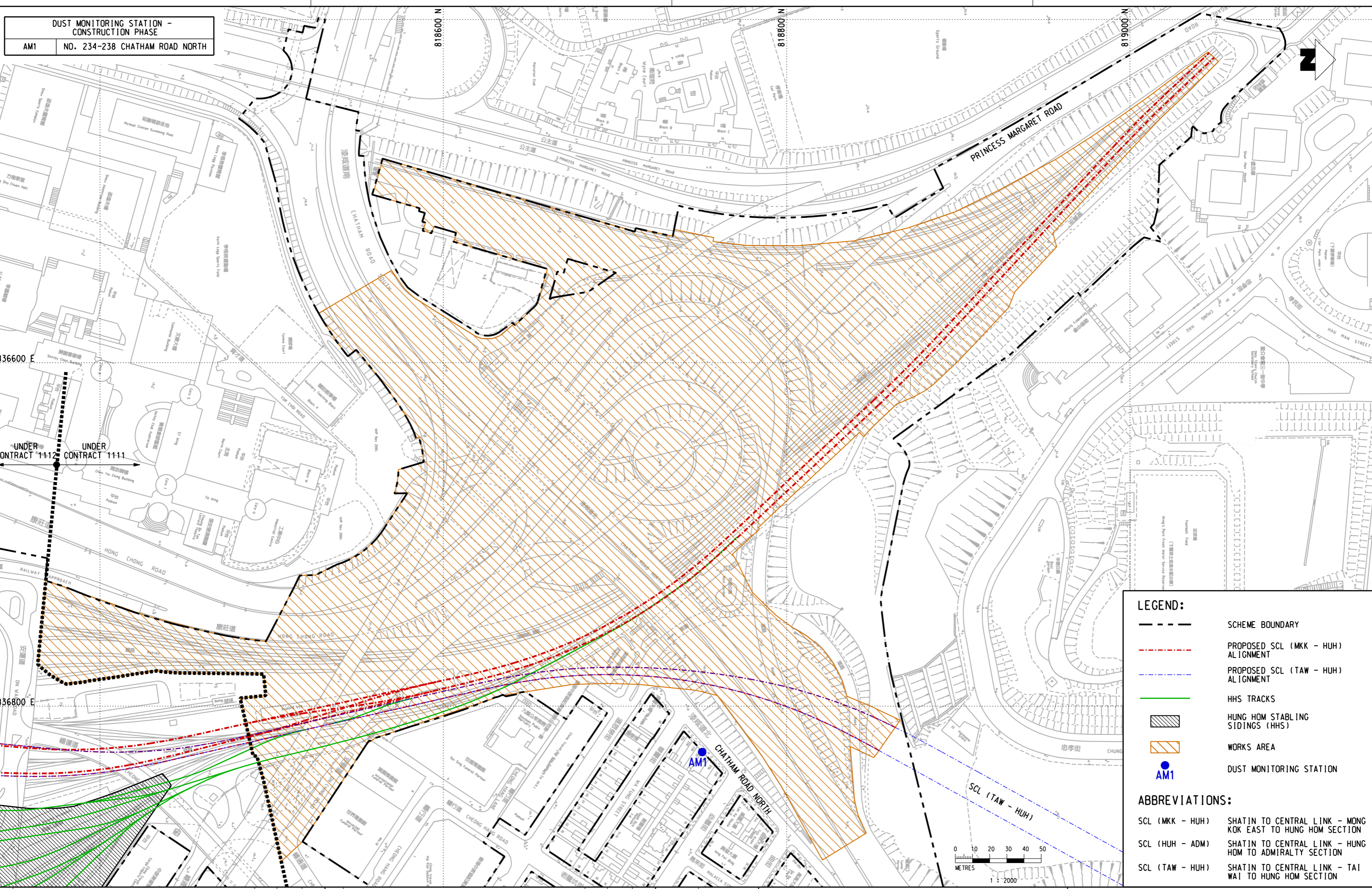
- Avoid accumulation of waste materials on site.
- Provide proper chemical waste management.

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
- 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

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DRAWN		HD		<p>CONTRACTOR</p> <p>Gammon Kaden</p> <p>Gammon - Kaden SCL 1111 Joint Venture</p>		<p>ORIGINATOR</p> <p>AECOM</p>		<p>SCALE</p> <p>1 : 2000 (A3)</p>	
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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																																																																	

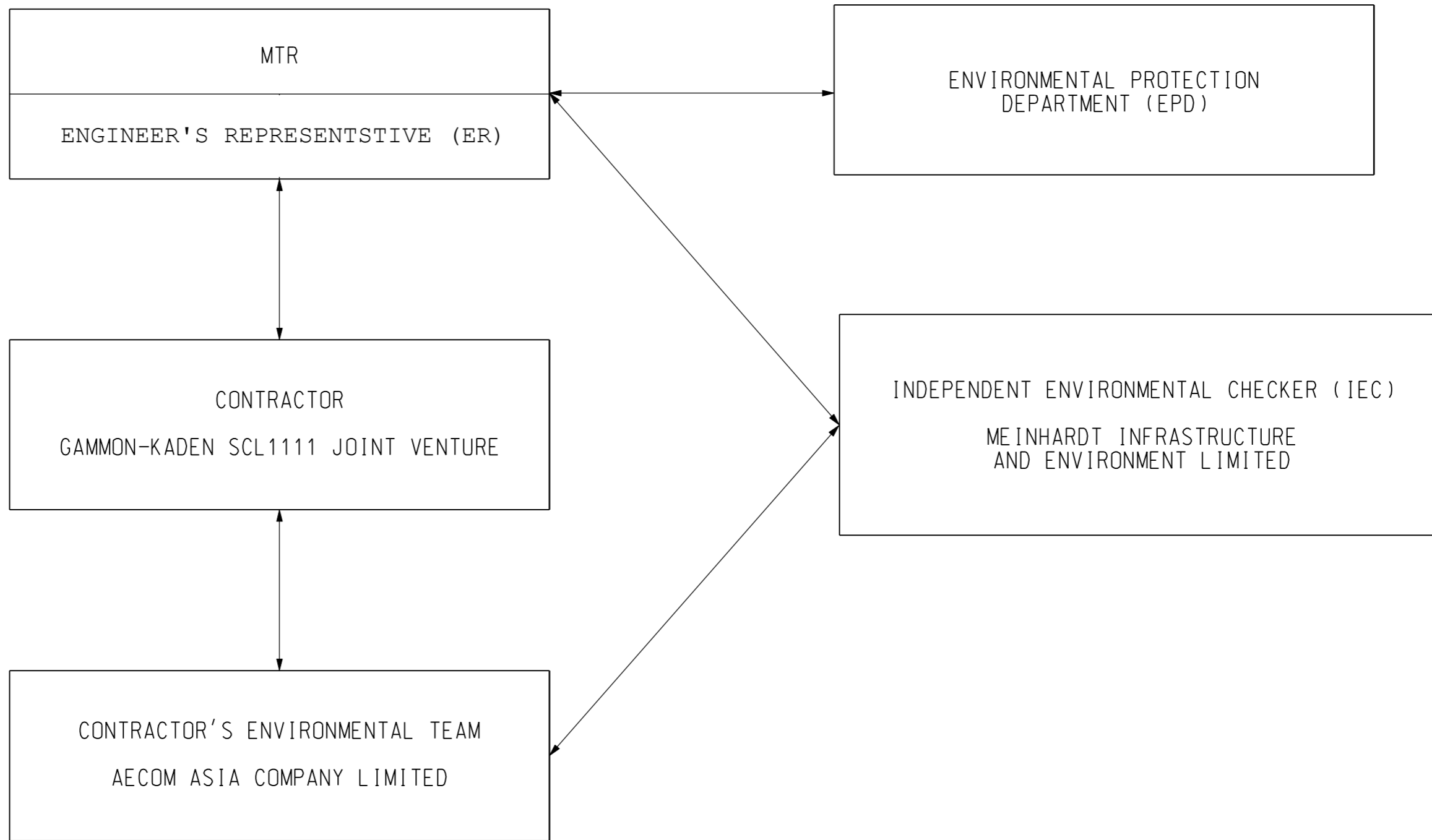
Early Bar
 Progress Bar
 Critical Activity

**SCL 1111
SUMMARY PROGRAMME**

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



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CHECKED		LCLL			Appendix B				HUNG HOM NORTH APPROACH TUNNELS		
APPROVED		IMW							PROJECT ORGANISATION		
DATE		08/JAN/2013		CADD REF.		Appendix B		SCALE		FIGURE NO.	
								N.T.S.		Appendix B	
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REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED		

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	N/A
		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 impactt	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	V
		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	@
		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	@
		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	@
		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	@
	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	V
	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	V
		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	@
				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: 13-May-13 Next Due Date: 13-Jul-13
 Equipment No.: --- Serial No. 894-0835

Ambient Condition			
Temperature, Ta (K)	302	Pressure, Pa (mmHg)	754.7

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99238	Intercept, bc	-0.00351
Last Calibration Date:	06-Dec-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	06-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	8.9	2.95	1.48	50.0	49.49
13	7.0	2.62	1.32	42.0	41.58
10	5.9	2.40	1.21	36.0	35.64
7	4.2	2.03	1.02	28.0	27.72
5	3.1	1.74	0.88	22.0	21.78

By Linear Regression of Y on X
 Slope, mw = 45.7423 Intercept, bw = -18.7845
 Correlation Coefficient* = 0.9976
 *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} = 41.10

Remarks: _____

QC Reviewer:  Signature:  Date: 16 May 13

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: 12-Jul-13 Next Due Date: 12-Sep-13
 Equipment No.: --- Serial No. 894-0835

Ambient Condition			
Temperature, Ta (K)	303	Pressure, Pa (mmHg)	752.7

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	8.8	2.93	1.47	50.0	49.35
13	7.0	2.61	1.31	42.0	41.45
10	5.8	2.38	1.19	35.0	34.54
7	4.2	2.02	1.02	28.0	27.63
5	3.2	1.77	0.89	21.0	20.73

By Linear Regression of Y on X
 Slope, mw = 48.4665 Intercept, bw = -22.2868
 Correlation Coefficient* = 0.9967
 *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} = 41.26

Remarks: _____

QC Reviewer: WS CHAN Signature: [Signature] Date: 15/7/13



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 06, 2012 Rootsmeter 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.: 12CA1008 02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	Rion Co., Ltd.	Rion Co., Ltd.	Rion Co., Ltd.
Type/Model No.:	NL-31	UC-53A	NH-19
Serial/Equipment No.:	00320528 / N 007.03A	90565	75883
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 08-Oct-2012

Date of test: 08-Oct-2012

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 ± 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 ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 08-Oct-2012

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

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 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.: 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

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

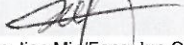

Test specifications

- 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:  Date: 14-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.



CERTIFICATE OF CALIBRATION

Certificate No.: 12CA0817 01

Page: 1 of 2

Item tested

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

Item submitted by

Customer: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 17-Aug-2012

Date of test: 17-Aug-2012

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	05-Jan-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	29-Dec-2012	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI
Digital multi-meter	34401A	US36087050	16-Dec-2012	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: 995 ± 5 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

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

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 17-Aug-2012

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

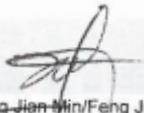
Test specifications

- 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 July 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul
		24-hour TSP (AM1)	Noise (NM1, NM2)			
07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
		Noise (NM1, NM2)			24-hour TSP (AM1)	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
				24-hour TSP (AM1)	Noise (NM1, NM2)	
28-Jul	29-Jul	30-Jul	31-Jul			
			24-hour TSP (AM1)			

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

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for August 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Aug	02-Aug	03-Aug
				Noise (NM1, NM2)		
04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
		24-hour TSP (AM1)	Noise (NM1, NM2)			
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
		Noise (NM1, NM2)			24-hour TSP (AM1)	
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
				24-hour TSP (AM1)	Noise (NM1, NM2)	

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

APPENDIX G

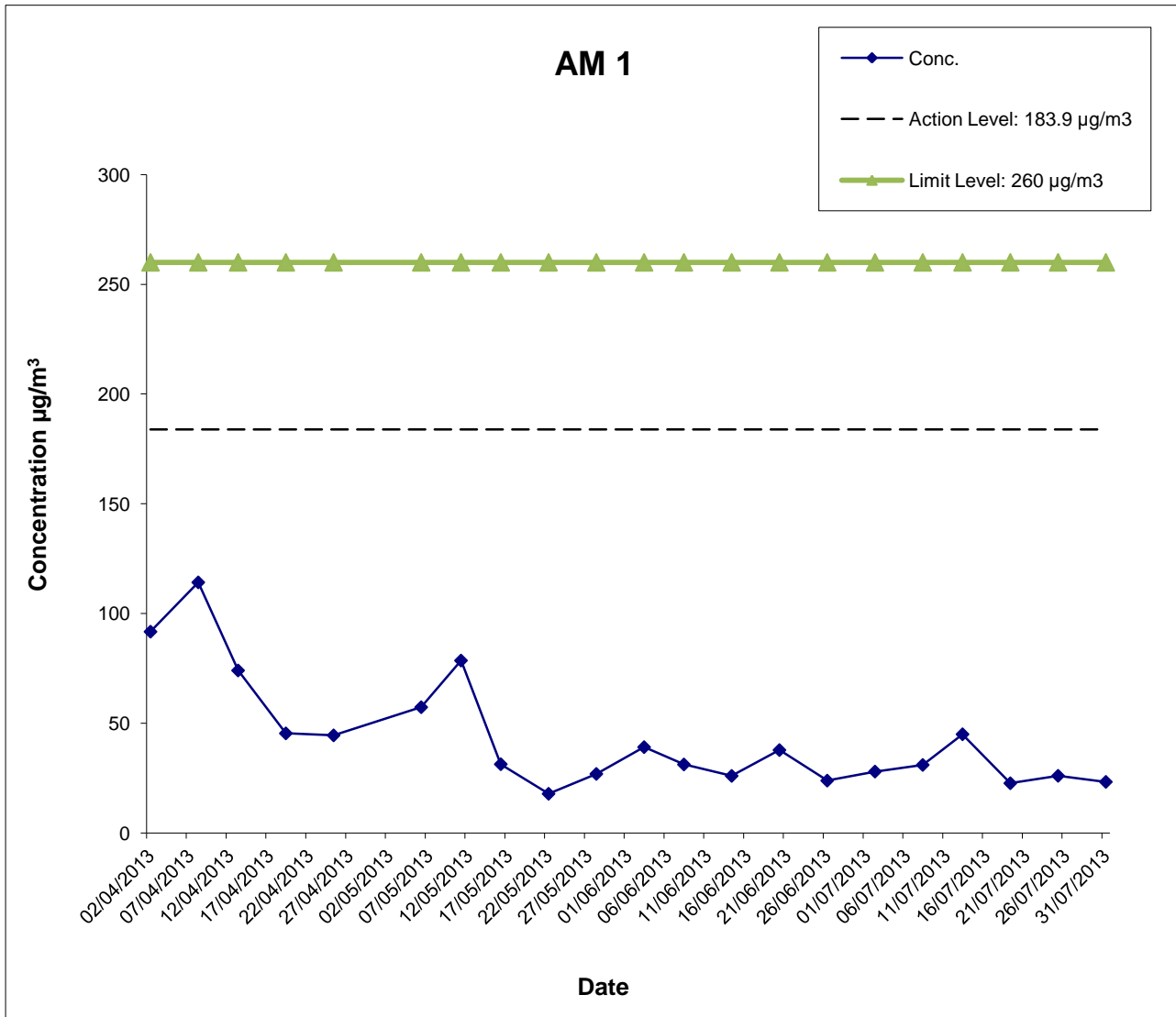
**Air Quality Monitoring Results and
their Graphical Presentations**


**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		
02-Jul-13	0:00	03-Jul-13	0:00	Sunny	29.4	1007.9	1.30	1.30	1.30	1877.8	3.5535	3.6060	0.0525	12793.87	12817.87	24.00	28.0
08-Jul-13	0:00	09-Jul-13	0:00	Sunny	28.8	1010.8	1.33	1.33	1.33	1916.6	3.6477	3.7071	0.0594	12817.87	12841.87	24.00	31.0
13-Jul-13	0:00	14-Jul-13	0:00	Rainy	30.1	1001.0	1.43	1.43	1.43	2054.9	3.6203	3.7127	0.0924	12841.87	12865.87	24.00	45.0
19-Jul-13	0:00	20-Jul-13	0:00	Cloudy	26.8	1005.9	1.33	1.33	1.33	1916.6	3.6720	3.7154	0.0434	12865.87	12889.87	24.00	22.6
25-Jul-13	0:00	26-Jul-13	0:00	Cloudy	25.7	1004.3	1.33	1.33	1.33	1916.6	3.6810	3.7309	0.0499	12889.87	12913.87	24.00	26.0
31-Jul-13	0:00	01-Aug-13	0:00	Sunny	29.4	1004.7	1.33	1.33	1.33	1916.6	3.7400	3.7846	0.0446	12913.87	12937.87	24.00	23.3
Average																29.3	
Minimum																22.6	
Maximum																45.0	

Appendix G Air Quality Monitoring Results



	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Aug-13
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.	60284101	APPENDIX No.	G

Appendix G Extract of Meteorological Observations for King's Park* Automatic Weather Station, July 2013

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
Jul-01	33.0	120	15.1
Jul-02	0.0	160	11.8
Jul-03	0.0	160	7.9
Jul-04	0.0	290	7.4
Jul-05	0.0	290	7.5
Jul-06	4.0	180	7.2
Jul-07	12.5	210	6.5
Jul-08	2.0	180	7.3
Jul-09	0.0	130	5.5
Jul-10	26.5	150#	5.0#
Jul-11	0.0	290	4.9
Jul-12	0.0	290	8.6
Jul-13	0.0	280	8.8
Jul-14	33.5	280	8.9
Jul-15	36.0	120	5.1
Jul-16	5.5	120	5.8
Jul-17	23.5	120	9.7
Jul-18	0.5	120	7.4
Jul-19	10.0	120#	10.4#
Jul-20	2.5	120	11.1
Jul-21	0.5	120	11.3
Jul-22	9.0	120	11.6
Jul-23	10.5	120	10.1
Jul-24	24.0	120	9.4
Jul-25	51.0	120	7.7
Jul-26	55.5	190	9.0
Jul-27	14.5	180	8.3
Jul-28	9.0	120	7.7
Jul-29	0.0	120	6.8
Jul-30	0.0	120	6.0
Jul-31	1.5	120	13.8
Mean	-----	120#	8.5#
Total	365	---	-----
Maximum	55.5	---	15.1#
Minimum	0.0	---	4.9#

*Meteorological data of the nearest Automatic Weather Station is presented.

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				
03-Jul-13	Sunny	10:15	65.5	69.5	67.7	67.7	68.0	70	N
09-Jul-13	Sunny	10:03	65.7	70.3	68.6	59.7 [#]	68.0	70	N
16-Jul-13	Cloudy	10:00	67.0	71.1	69.4	63.8 [#]	68.0	70	N
26-Jul-13	Cloudy	10:10	61.7	69.8	64.3	64.3	68.0	70	N
		Min	61.7	69.5		59.7			
		Max	67.0	71.1		67.7			

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				
03-Jul-13	Sunny	10:00	70.5	74.5	72.9	72.9	79.0	75	N
09-Jul-13	Sunny	10:45	71.6	77.1	75.3	75.3	79.0	75	N
16-Jul-13	Cloudy	10:48	68.6	77.0	74.0	74.0	79.0	75	N
26-Jul-13	Cloudy	11:00	62.9	70.0	68.4	68.4	79.0	75	N
		Min	62.9	70.0		68.4			
		Max	71.6	77.1		75.3			

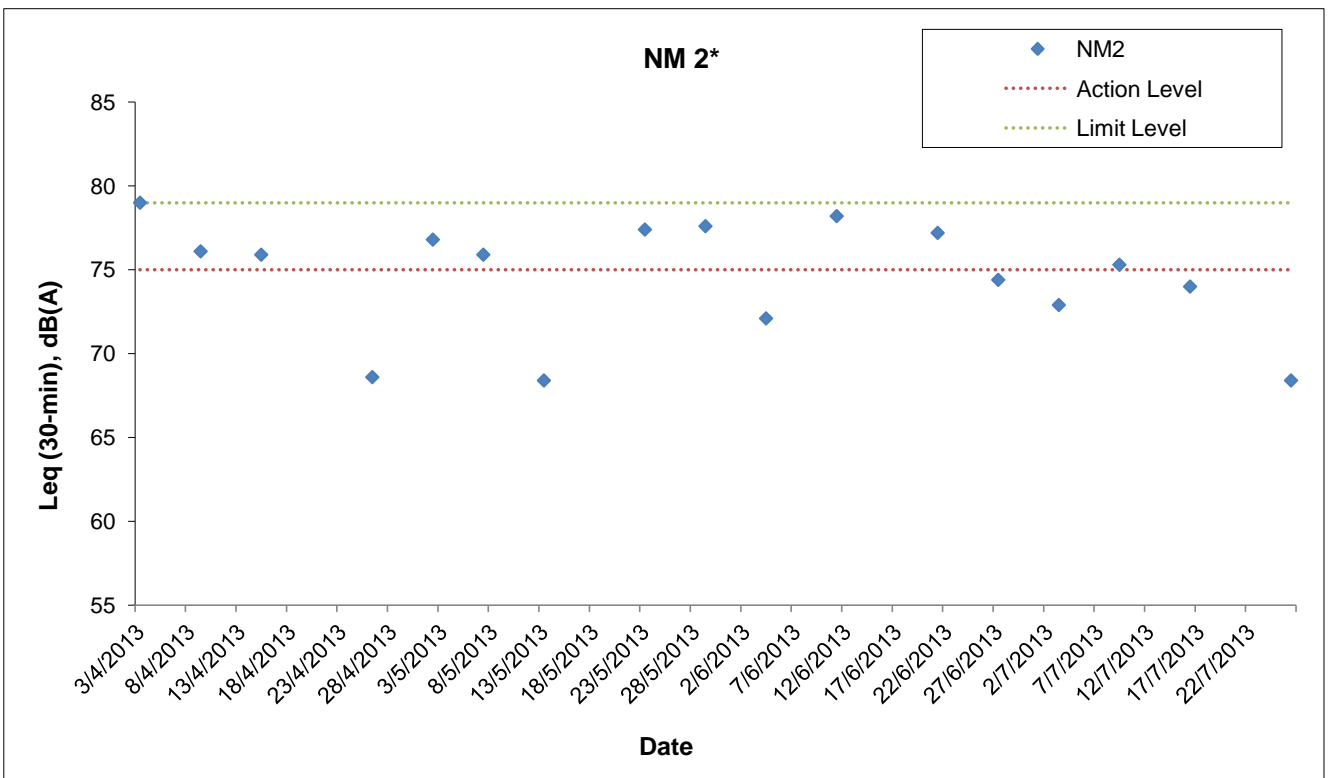
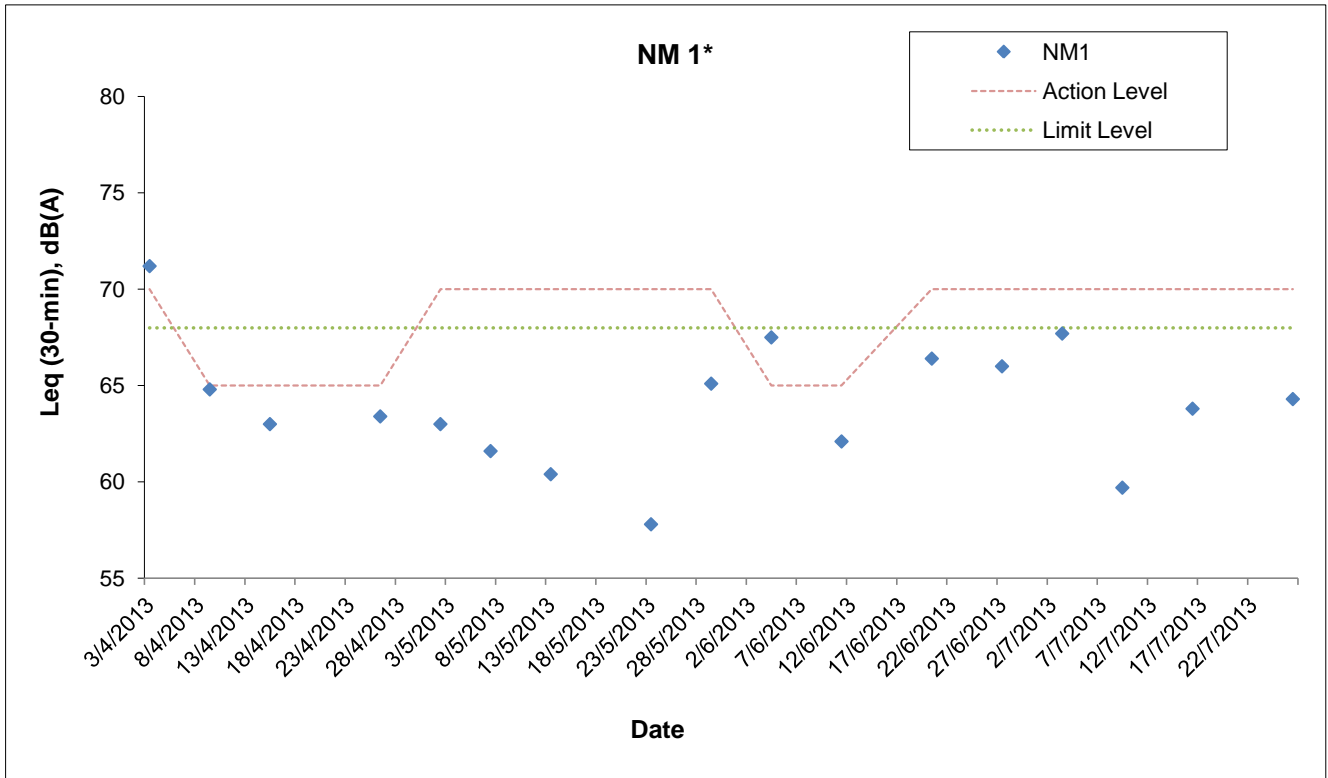
⁺ - Façade measurement

⁺⁺ - Free field measurement


^{***} - Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

[#] - 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	Aug-13
	Graphical Presentations of Noise Monitoring Results	CHECK	TYUT	DRAWN	IYYS
		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	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of 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.	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, 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; 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	Asphalt												
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	3.776	0.022	0.007	3.805	0.000	0.000	0.000	0.044	3.761	3.805	0.000	0.161	0.000	0.000	93.320
Aug															
Sep															
Oct															
Nov															
Dec															
TOTAL	10.949	0.199	0.343	11.491	0.026	0.000	0.001	4.181	7.283	11.491	7.490	0.427	0.000	0.000	791.770

Note:

1. Assume the density of fill is 2 ton/m³.
2. Refuses disposed of at NENT landfill.

Appendix E

**6th 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. 6

[Period from 1 to 31 July 2013]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(August 2013)

Certified by: Coleman Ng 

Position: Environmental Team Leader

Date: 12/08/2013

MTR Corporation Limited

**SCL1103 Hin Keng to Diamond
Hill Tunnels Construction Stage -
Environmental Services**

Monthly Environmental Monitoring
and Audit Report – July 2013

228105-27

August 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 sixth 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 July 2013 (1 to 31 July 2013).

In the reporting month, the following activities took place for the Project:

- Diaphragm Wall Construction at Diamond Hill;
- Pipe Piling and Ground Investigation at Hin Keng;
- Utilities Diversion, Ground Investigation, Hoarding Erection and Platform Construction at Fung Tak; and
- Site Formation, Jogging Path Diversion, Ground Investigation, Tree Transplant and Removal, Hoarding Erection and Platform Construction 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 3319m³ were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility

(Contract 1108A). 41m³ 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 3 July 2013 and the final, an IEC joint site audit, was undertaken on 31 July 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

There were no reporting changes in the reporting month.

Future Key Issues

Waste management is a key environmental issue. The waste management plan should be strictly followed in accordance with the requirements described in the EIA report.

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	Diaphragm Wall Construction.
Hin Keng	Pipe Piling Work and Ground Investigation.
Fung Tak	Utilities Diversion, Ground Investigation, Preparation of Hoarding Erection and Platform Construction.
Ma Chai Hang	Site Formation, Jogging Path Diversion, Ground Investigation, Tree Transplant and Removal, Hoarding Erection and Platform Construction.

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 contractor 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	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
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 sixth 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 July 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 (June 2013)	12 th July 2013

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 be 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 3, 9, 15, 20, 26 July 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	16.9	35.5	148.7	260
DMS-2	11.5	23.7	167.4	260
DMS-3 / DMS-4	14.3	17.5	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, tree transplant and removal 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 an 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 4, 10, 16, 22 and 29 July 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)
4 July 13	13:40-14:10	59.8	57.0	56.6	70/65
10 July 13	13:30-14:00	58.9		54.4	
16 July 13	15:00-15:30	58.7		53.8	
22 July 13	14:30-15:00	58.4		52.8	
29 July 13	14:10-14:40	59.2		55.2	

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)
4 July 13	09:40-10:10	68.6	66.0	65.1	70/65
10 July 13	09:10-09:40	67.5		62.2	
16 July 13	09:05-09:35	67.2		61.0	
22 July 13	09:20-09:50	67.9		63.4	
29 July 13	09:30-10:00	68.4		64.7	

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)
4 July 13	11:30-12:00	69.5	73.0	< Baseline Level	75
10 July 13	11:00-11:30	68.2		< Baseline Level	
16 July 13	11:25-11:55	67.9		< Baseline Level	
22 July 13	11:30-12:00	67.2		< Baseline Level	
29 July 13	11:20-11:50	67.2		< 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 3, 17 and 31 July 2013. During the site inspections the following actions were found to be required:

17 July 2013

- The Contractor is reminded to ensure that tree protection zones are adequate.

31 July 2013

- A broken tree trunk was observed on a transplanted tree. The Contractor shall seek ITS advice to enhance tree protection during transplantation.

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	3,319m ³	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	0	Disposed of by a licensed collector
Paper / cardboard packaging	0	
Plastic	0	
Metal	0	
General Refuse	41m 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 31 July 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
Air Quality				
3 July 2013 and 17 July 2013	Ma Chai Hang	The Contractor is reminded to ensure that stockpiles are properly covered when not in use.	Agreed with ET's Advice.	The contractor rectified the situation and covered the stockpile with tarpaulin sheet. Closed 24 July 2013.
3 July 2013	Hin Keng	The Contractor is reminded to ensure that stockpiles are properly covered when not in use.	Agreed with ET's Advice.	The contractor rectified the situation and covered the stockpile with tarpaulin sheet. Closed 10 July 2013.
Water Quality				
10 July 2013	Fung Tak	The contractor is reminded to replace the worn-out sandbags surrounding the sewer.	Agreed with ET's Advice	The contractor has rectified the issue and placed new sandbags around the sewer. Closed 17 July 2013.
10 July 2013	Hin Keng	The contractor is reminded to provide additional sandbags to prevent overflowing of muddy water at the drill rig.	Agreed with ET's Advice	The issue has been resolved as the drilling works are completed and the drilling rigs have been removed from site. Closed 17

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				July 2013.
24 July 2013		The contractor is reminded to check the digital display of the pH meter for sedimentation tank regularly.	Agreed with ET's Advice	The contractor has rectified the issue. Closed 31 July 2013.
24 July 2013	Fung Tak	The contractor is reminded to increase the height of sand bags around stockpiles.	Agreed with ET's Advice	The contractor has rectified the issue and increase the height of sand bags. Closed 31 July 2013.
31 July	Hin Keng	The contractor is reminded to ensure that the pH level is adequate in the Waste Water Treatment Plant.		The contractor will follow up. The status will be reported by the ET in the next reporting month.
Noise				
17 July 2013	Hin Keng	Drill rigs were observed without proper noise mitigation measures. The contractor shall place acoustic barriers in the vicinity of drill rigs in order to mitigate noise impacts.	Agreed with ET's Advice	The contractor rectified the situation and properly placed acoustic barriers. Closed 24 July 2013.
Landscape and Visual				
26 June 2013	Ma Chai Hang	Construction materials are located next to planters. The contractor shall set up a clear boundary in order to protect them.	Agreed with ET's Advice	The contractor has rectified the issue and set up a clear tree boundary.
17 July 2013	Ma Chai Hang	The contractor is reminded to enhance tree protection zones.	Agreed with ET's Advice	The contractor rectified the issue and ensured that all tree protection zones are adequate. Closed 24 July 2013.

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
31 July 2013	Ma Chai Hang	A broken tree trunk was observed on a transplanted tree. The contractor shall seek ITS advice to enhance tree protection during transplantation.	Agreed with ET's Advice	The contractor will follow up. The status will be reported by the ET in the next reporting month.
Waste				
26 June 2013	Diamond Hill	The contractor is reminded to provide drip trays for reagents of sedimentation tank.	Agreed with ET's Advice.	The reminder has been noted and the contractor has provided drip trays. Closed 3 July 2013.
26 June 2013	Ma Chai Hang	The contractor is reminded to ensure the dryness of drip tray of pump and liquid should be treated as chemical waste in accordance with WDO.	Agreed with ET's Advice.	The reminder has been noted and the contractor ensured that drip trays were regularly emptied properly. Closed 3 July 2013.
3 July 2013	Diamond Hill	Minor oil stain was observed near the chemical storage cabinet. The Contractor shall clear it as chemical waste as soon as possible	Agreed with ET's Advice.	The contractor has rectified the issue removed the contaminated soil. Closed 10 July 2013.
24 July 2013	Diamond Hill	The contractor is reminded to increase the height of drip trays in order to prevent overflow during the rainy season.	Agreed with ET's Advice.	The contractor has rectified the issue and improved the drip trays. Closed 31 July 2013.
31 July 2013	Hin Keng	The contractor is reminder to ensure that drip trays are plugged and any liquid is removed and treated in accordance with WDO.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				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			
01/07/13– 31/07/13	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	Diaphragm Wall Construction.
Hin Keng	Pipe Piling Work, Site Setup and Site Formation.
Fung Tak	Utilities Diversion, Hoarding Erection and Platform Construction.
Ma Chai Hang	Diaphragm Wall Construction, Hoarding Erection and Platform Construction and Site Setup and Preparation.

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. Five 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.

Waste management is a key environmental issue. The waste management plan should be strictly followed in accordance with the requirements described in the EIA report.

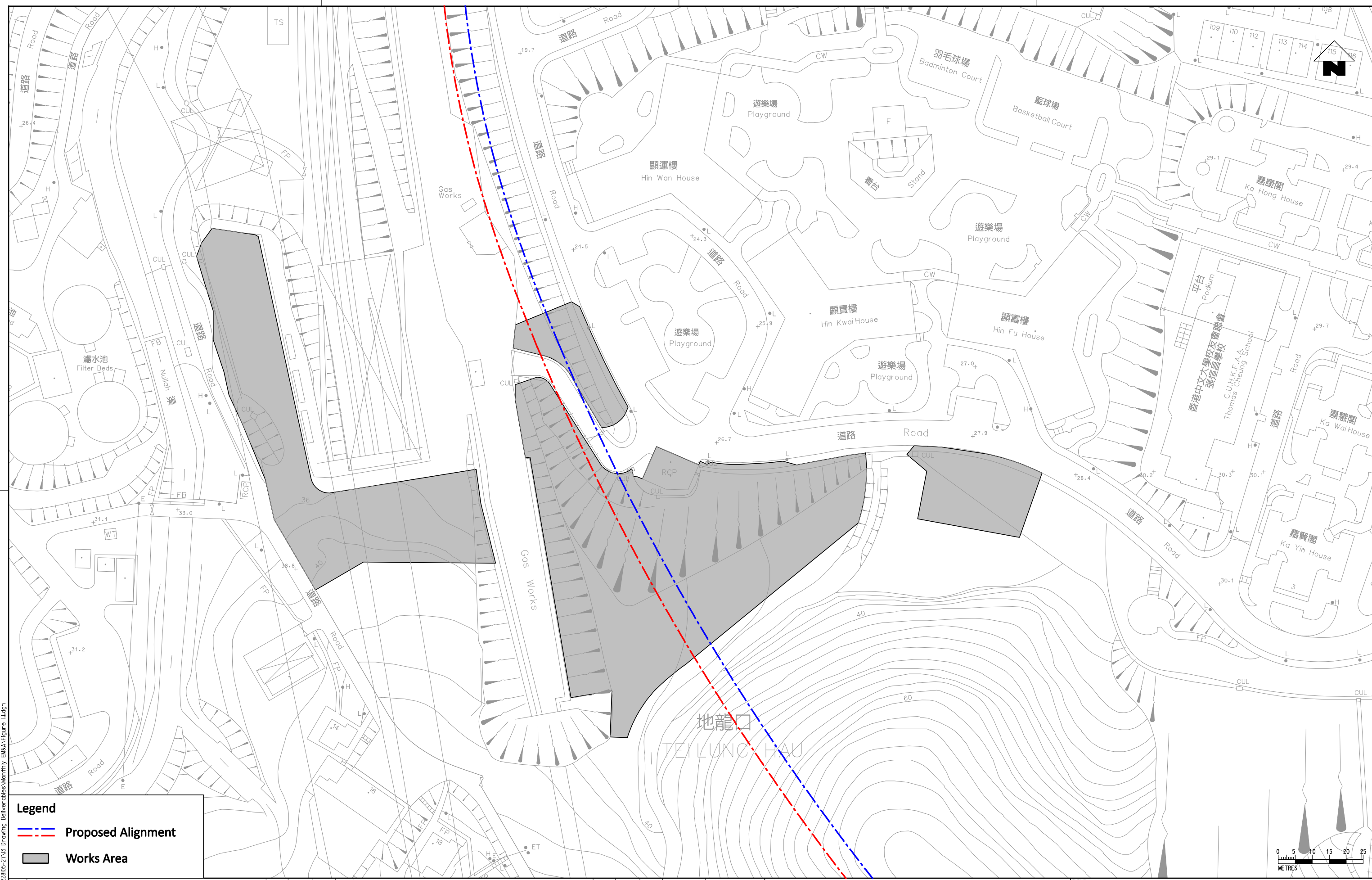
Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge. The solid and liquid waste management should be strictly followed in accordance with the requirements stipulated in the EIA report.

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.

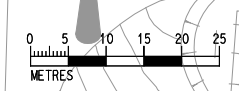
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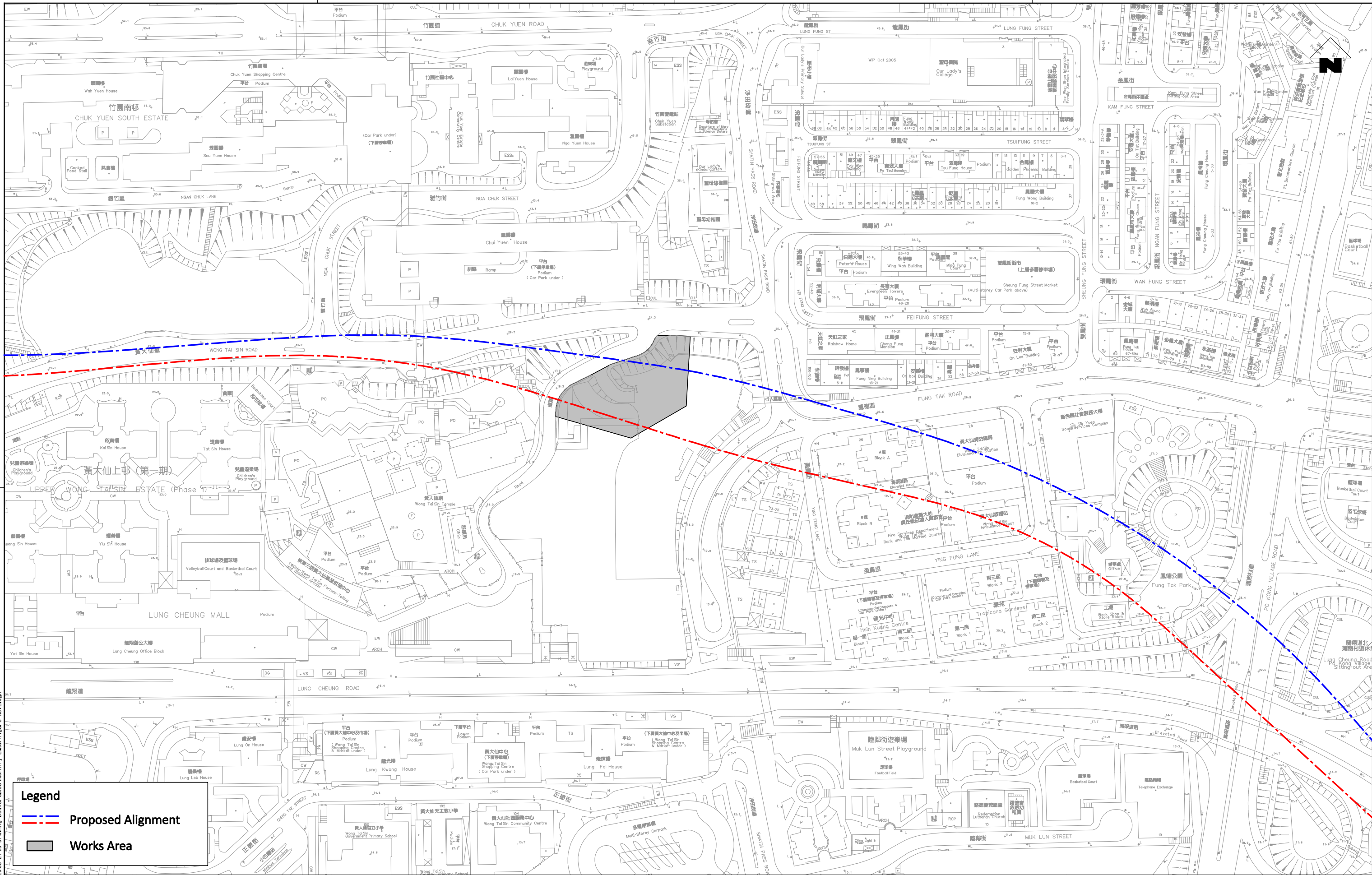
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CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Project Works Areas
 - General Site Layout of Hin Keng Works Area
 (Sheet 1 of 6)

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- - - Proposed Alignment
- Works Area

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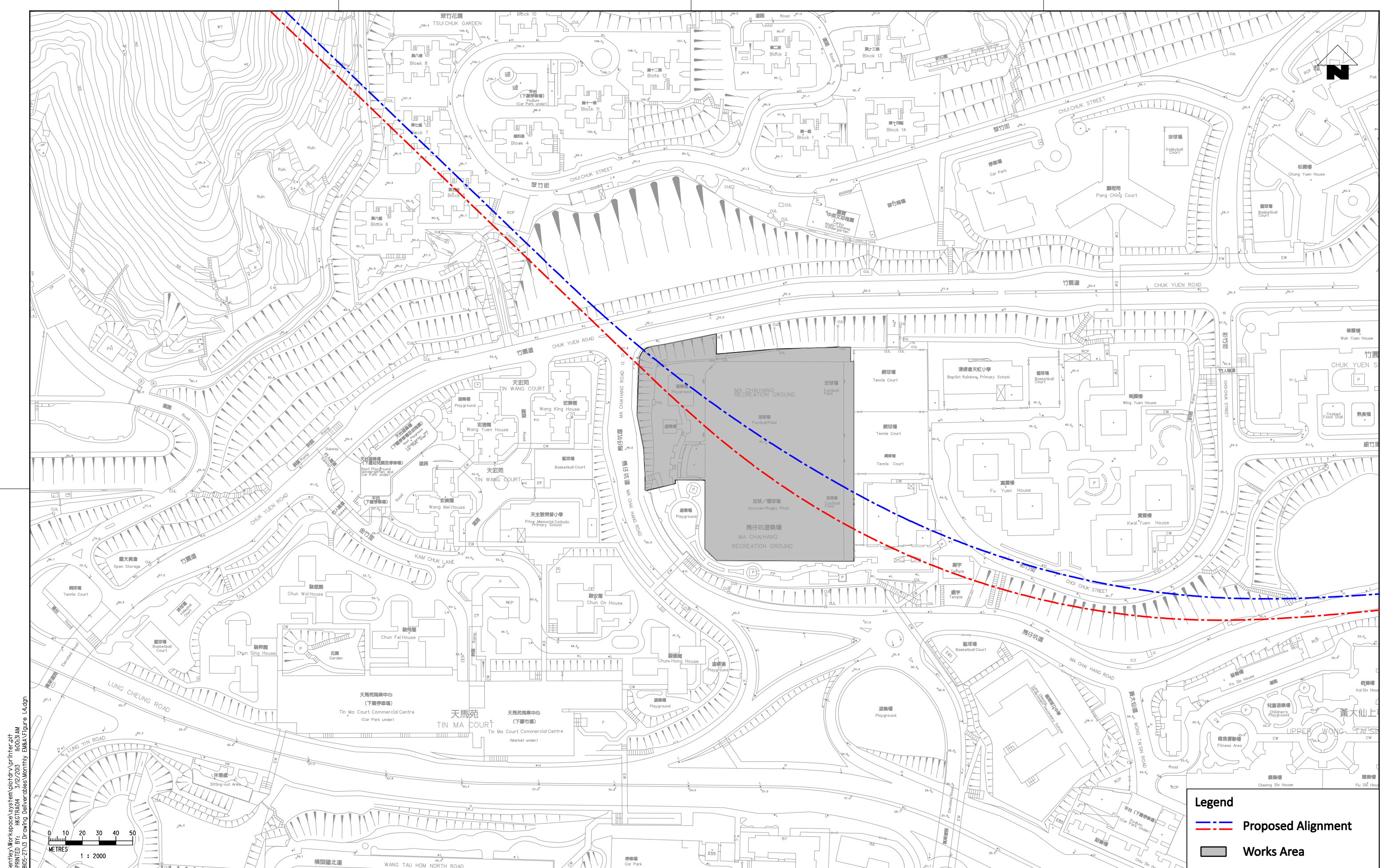
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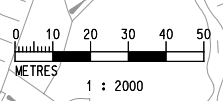
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 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Project Works Areas
 - Site Layout Plan of Ma Chai Hang Shaft
 (Sheet 4 of 6)

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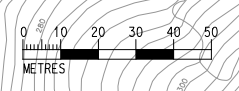
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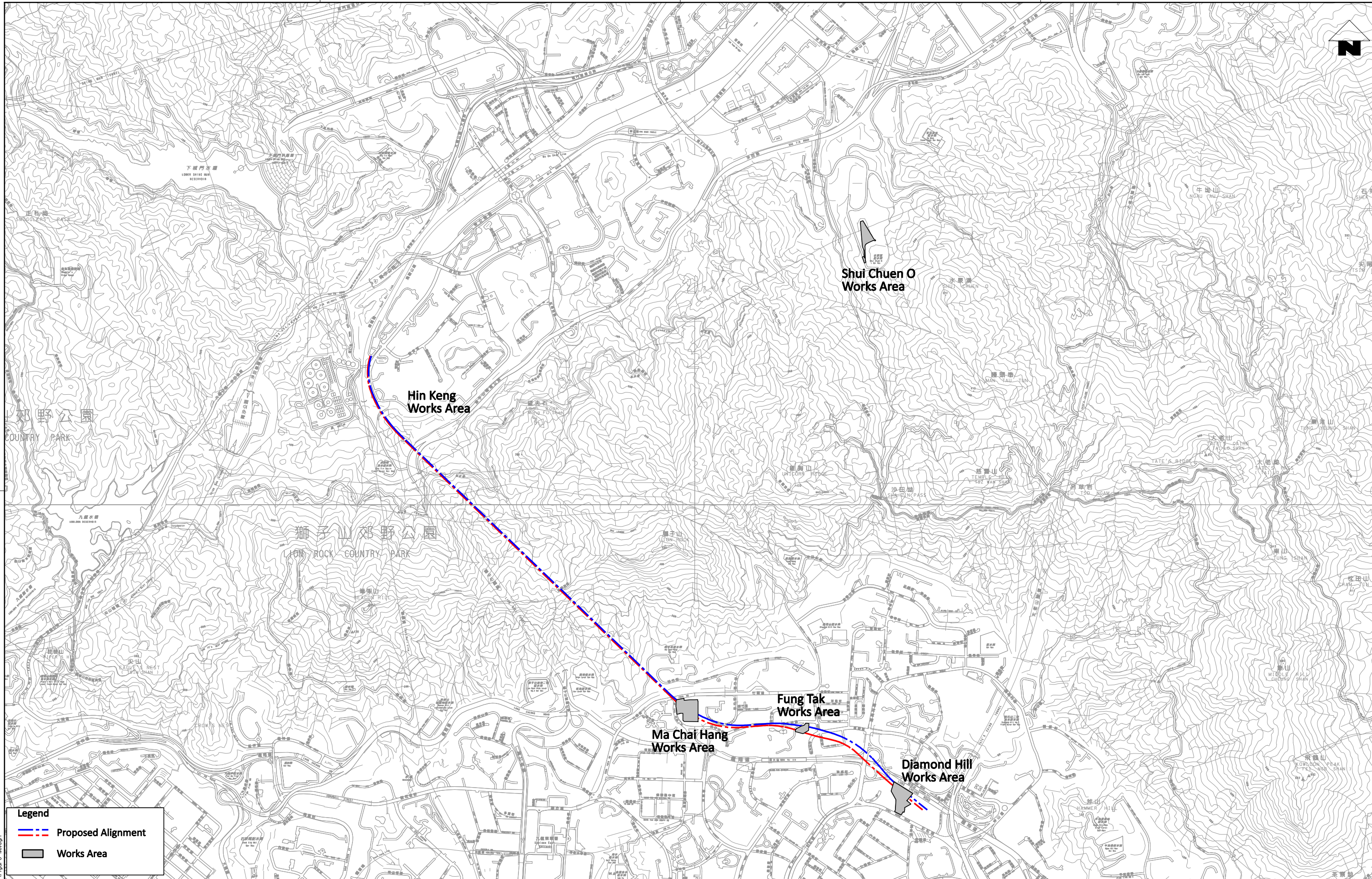
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- --- Proposed Alignment
- Works Area

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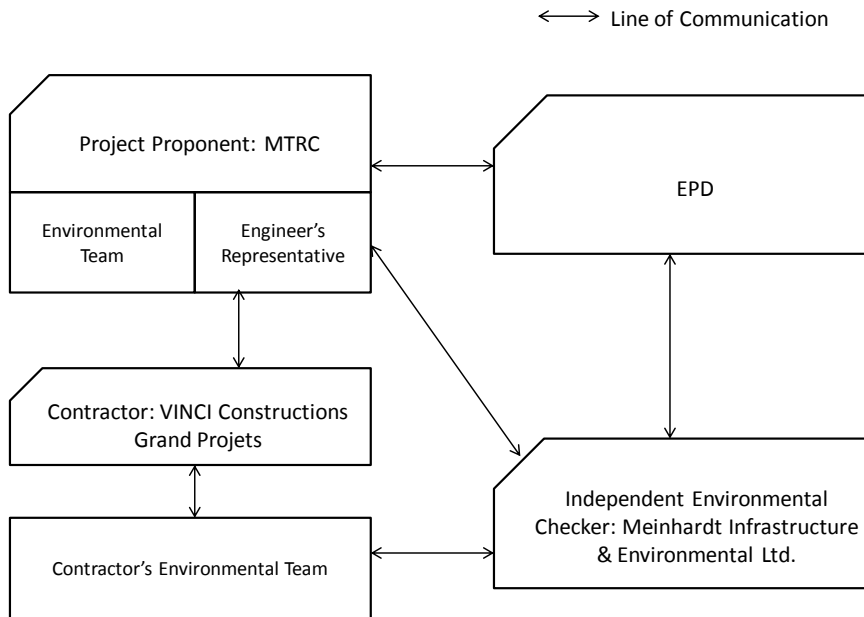
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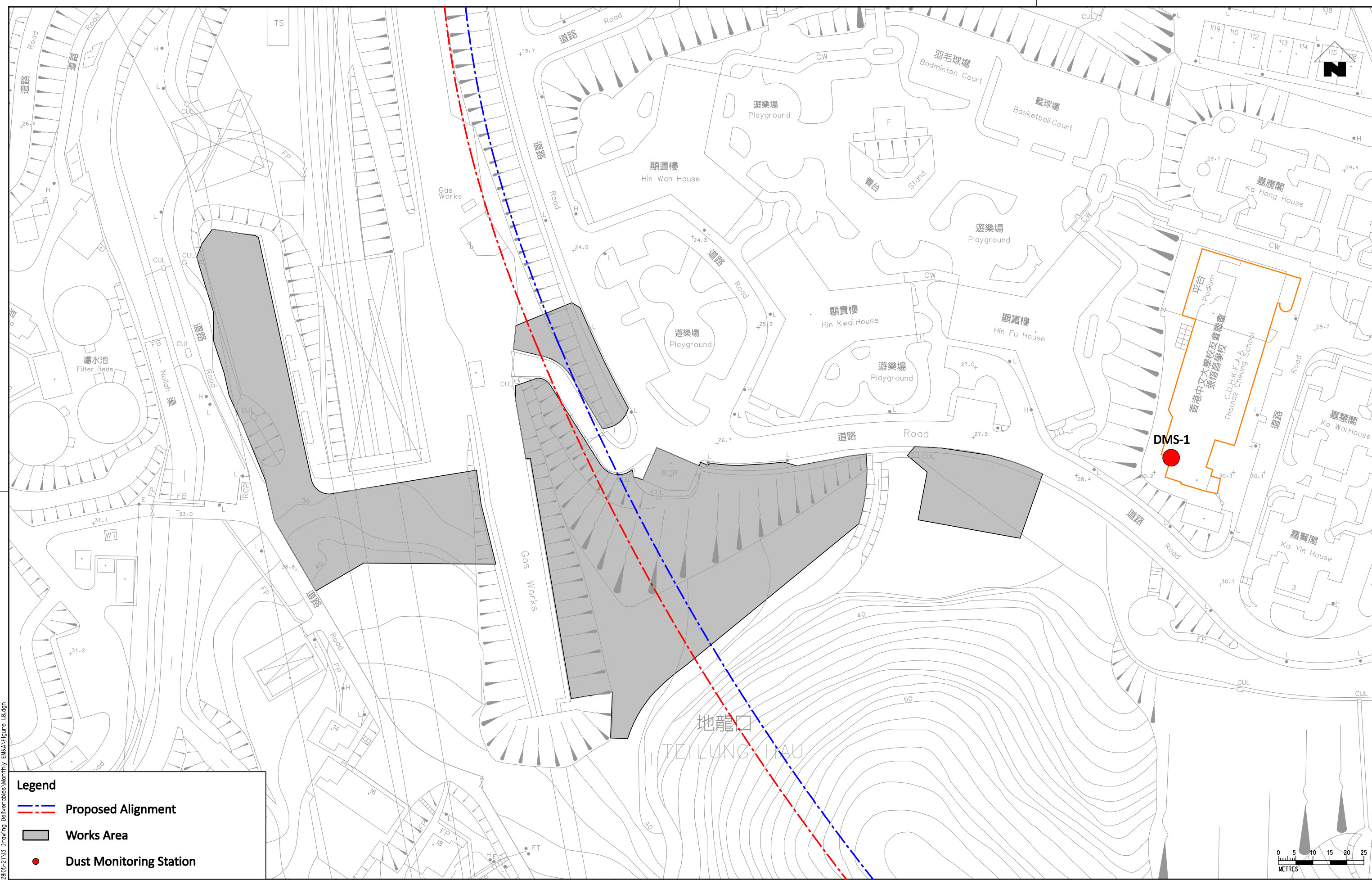
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Figure 1.7 - Project Organisation for Environmental Works



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- Legend**
- --- Proposed Alignment
 - Works Area
 - Dust Monitoring Station

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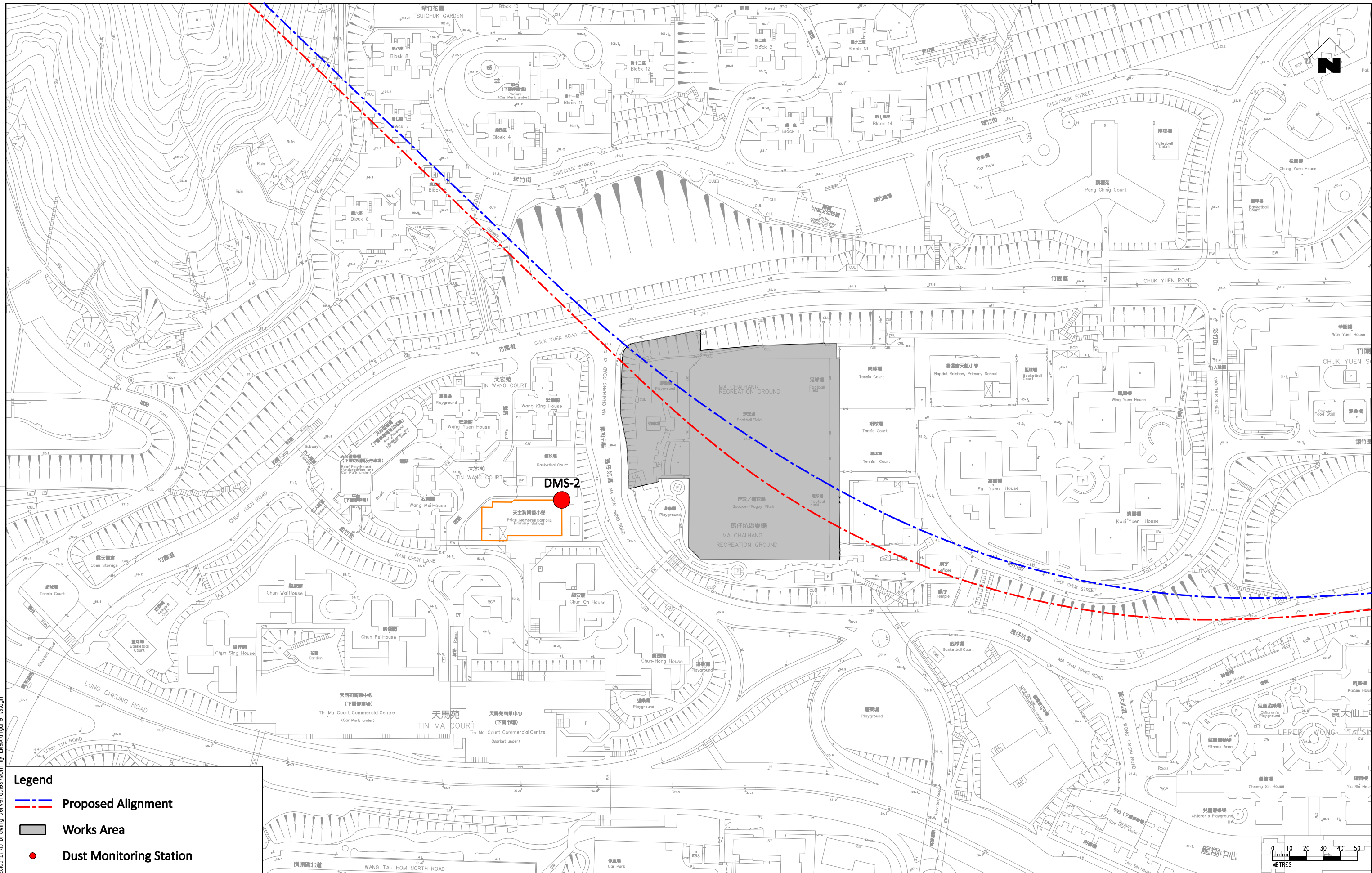
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		HIN KENG TO DIAMOND HILL TUNNELS	
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- Legend**
- - - - · - Proposed Alignment
 - Works Area
 - Dust Monitoring Station

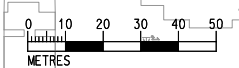
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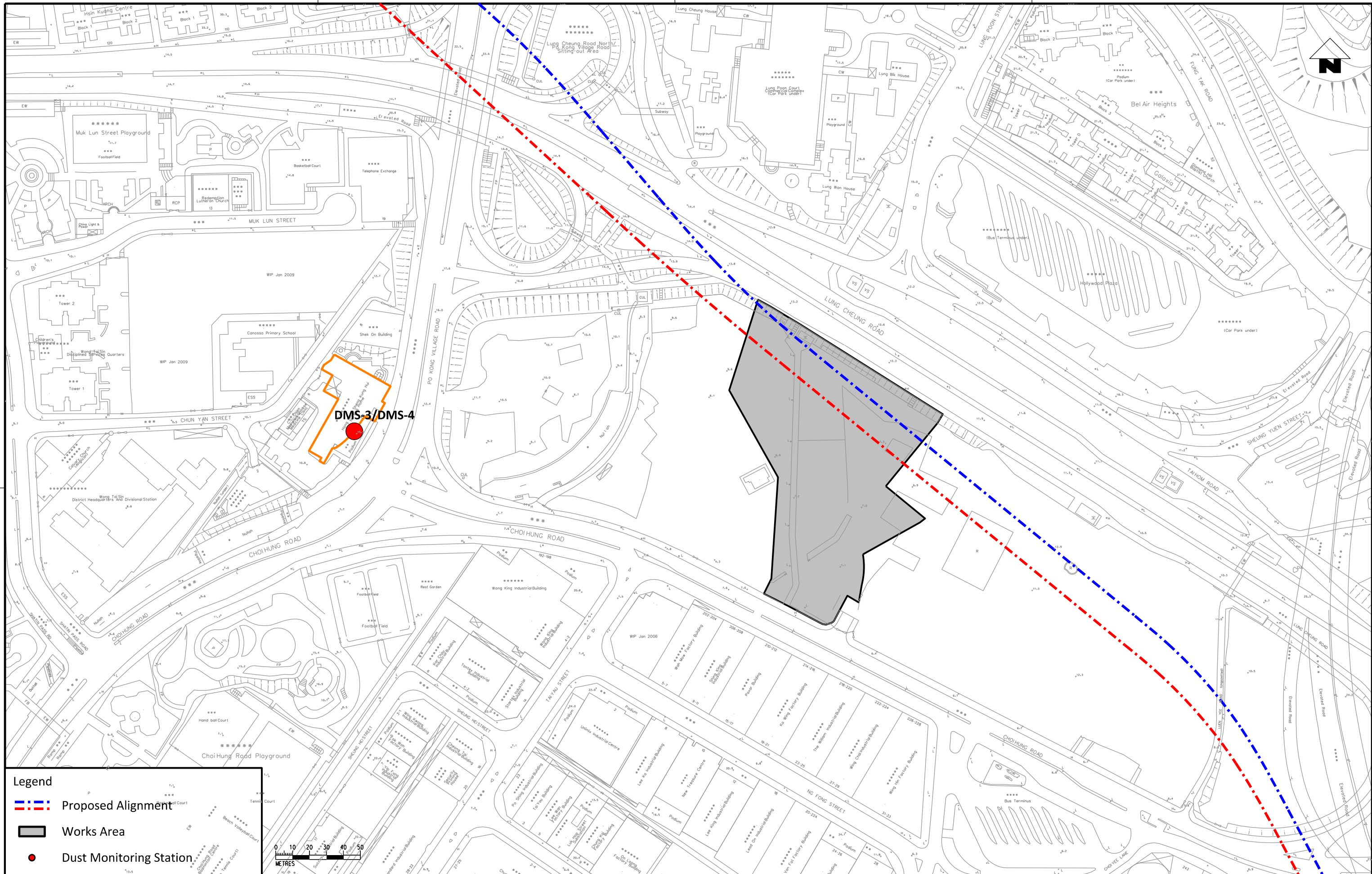
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- - - Proposed Alignment
- Works Area
- Dust Monitoring Station



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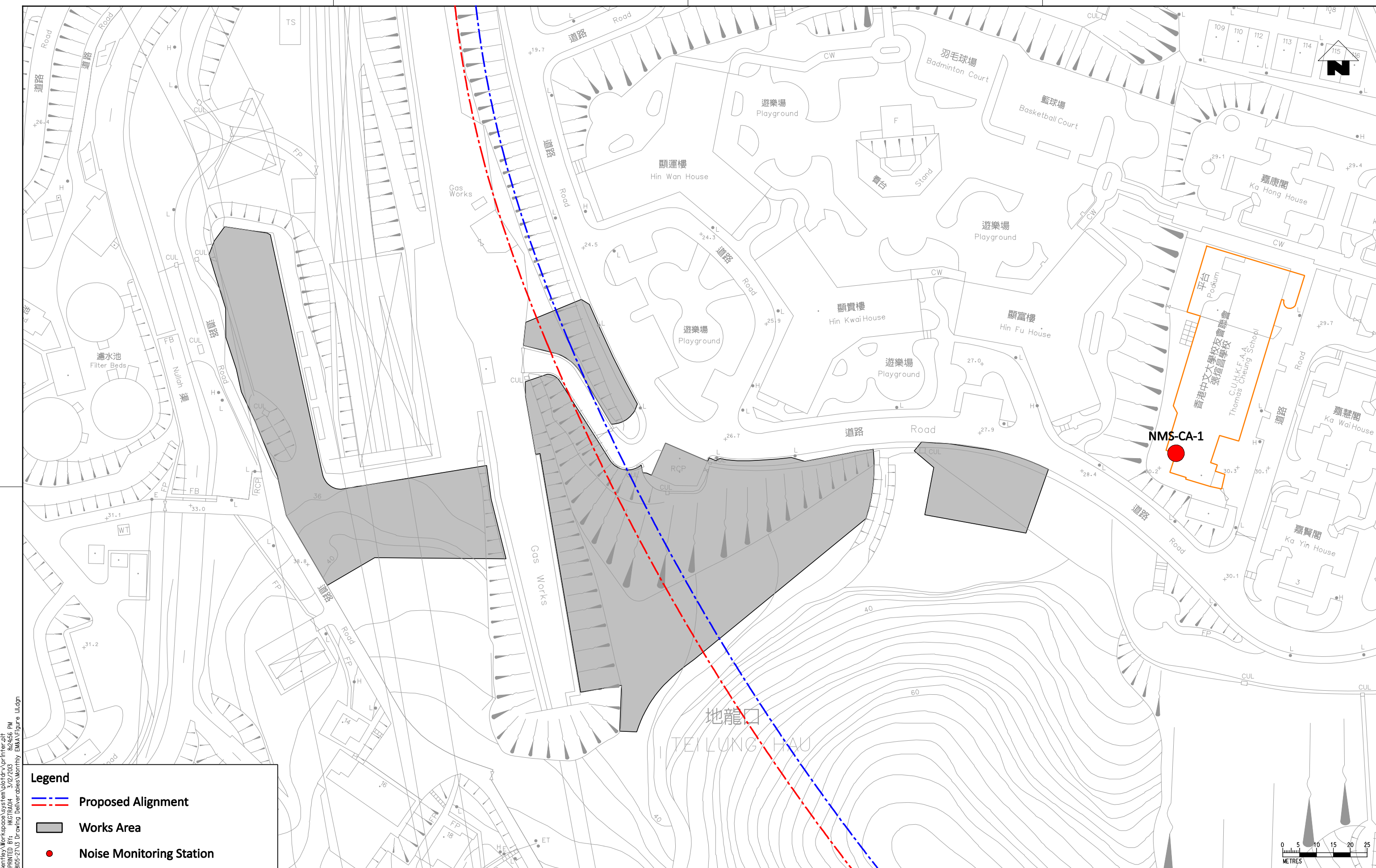
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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Proposed Dust Monitoring Stations
 (Sheet 3 of 3)

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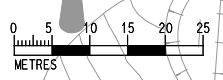
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- --- **Proposed Alignment**
- Works Area**
- **Noise Monitoring Station**



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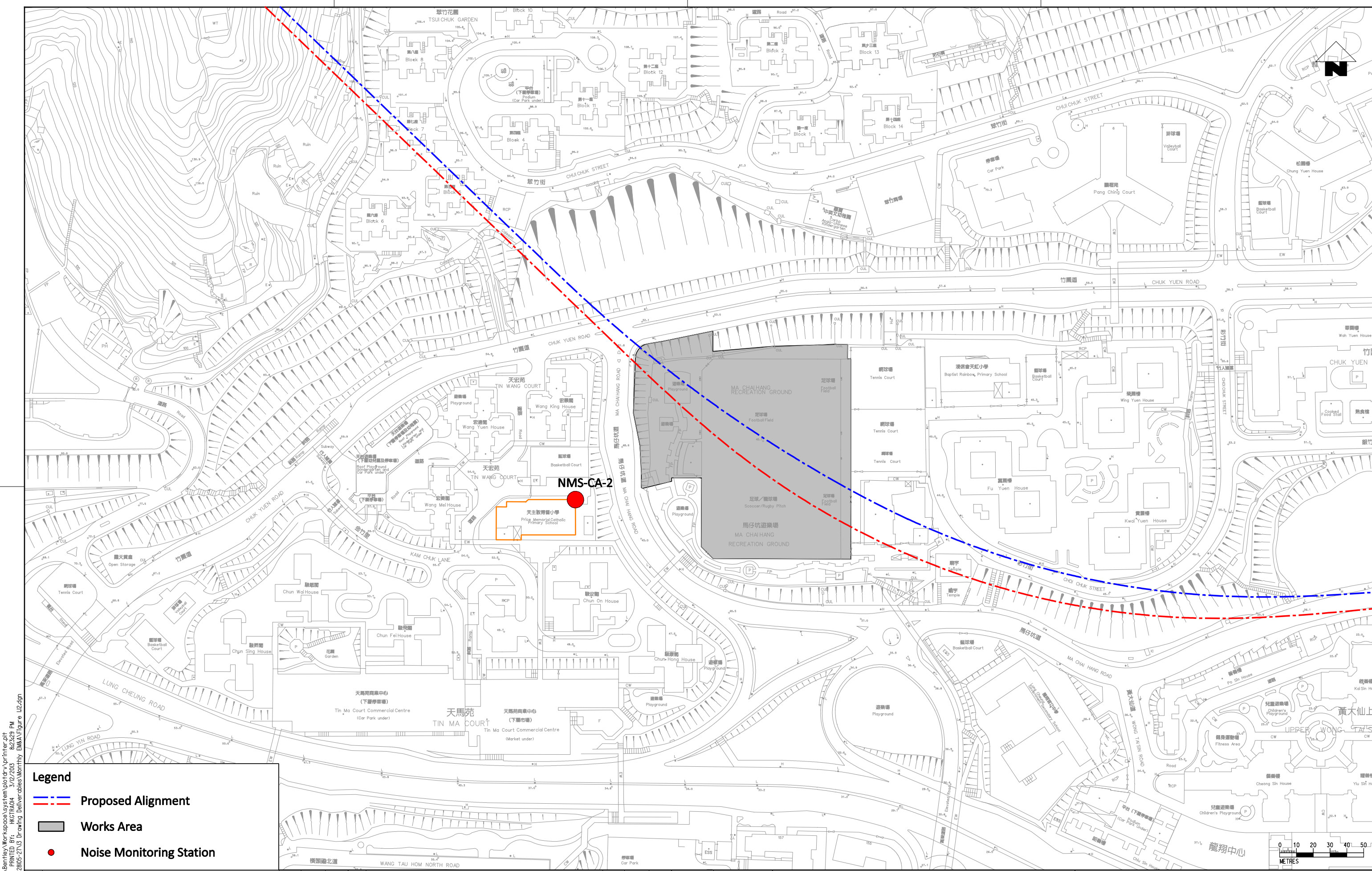
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 CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Noise Monitoring Stations
 (Construction Airborne Noise)
 (Sheet 1 of 3)

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- --- Proposed Alignment
 - Works Area
 - Noise Monitoring Station

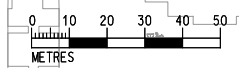
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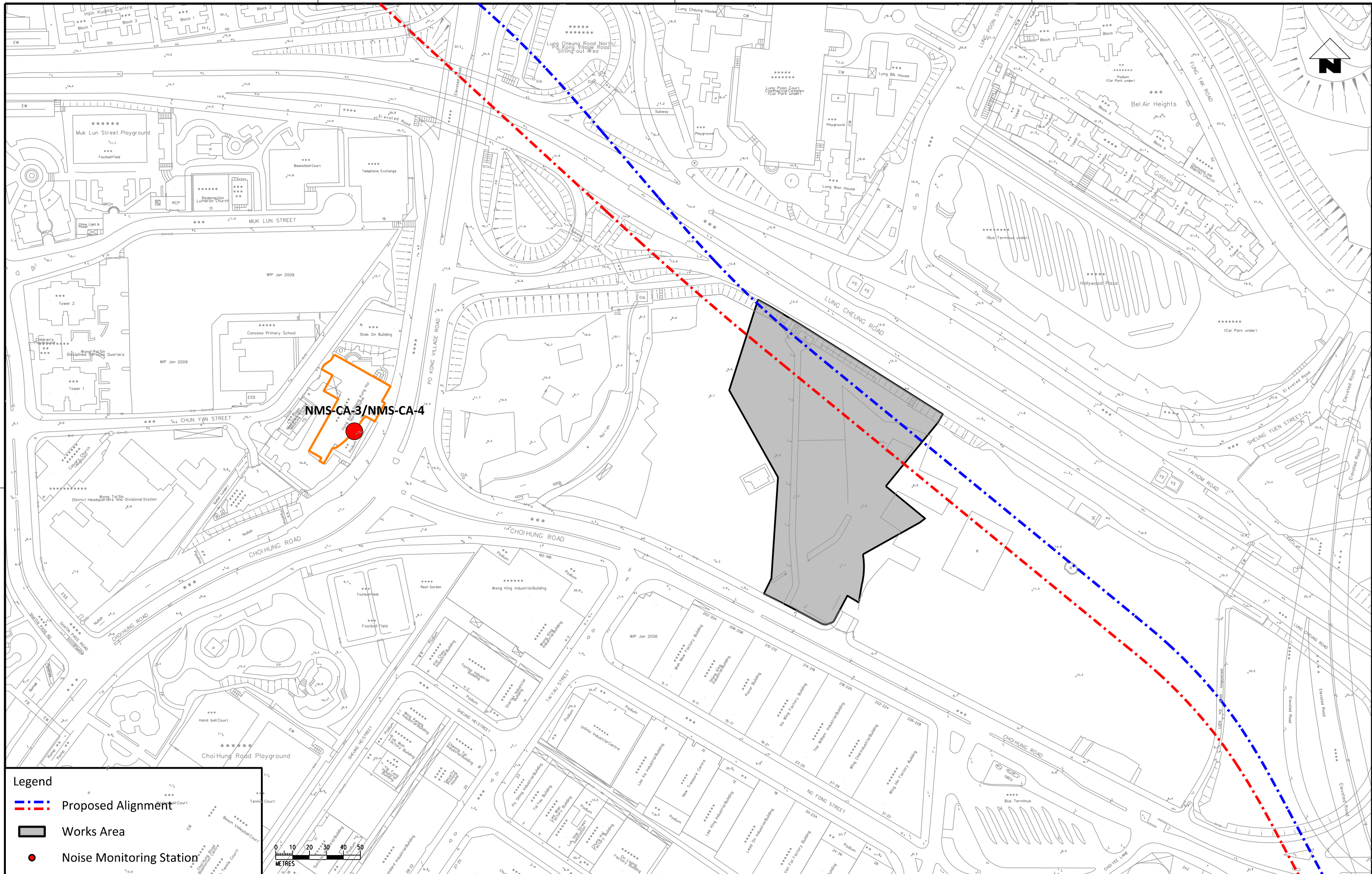
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		HIN KENG TO DIAMOND HILL TUNNELS	
		Locations of Noise Monitoring Stations	
		(Construction Airborne Noise)	
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- - - Proposed Alignment
- Works Area
- Noise Monitoring Station



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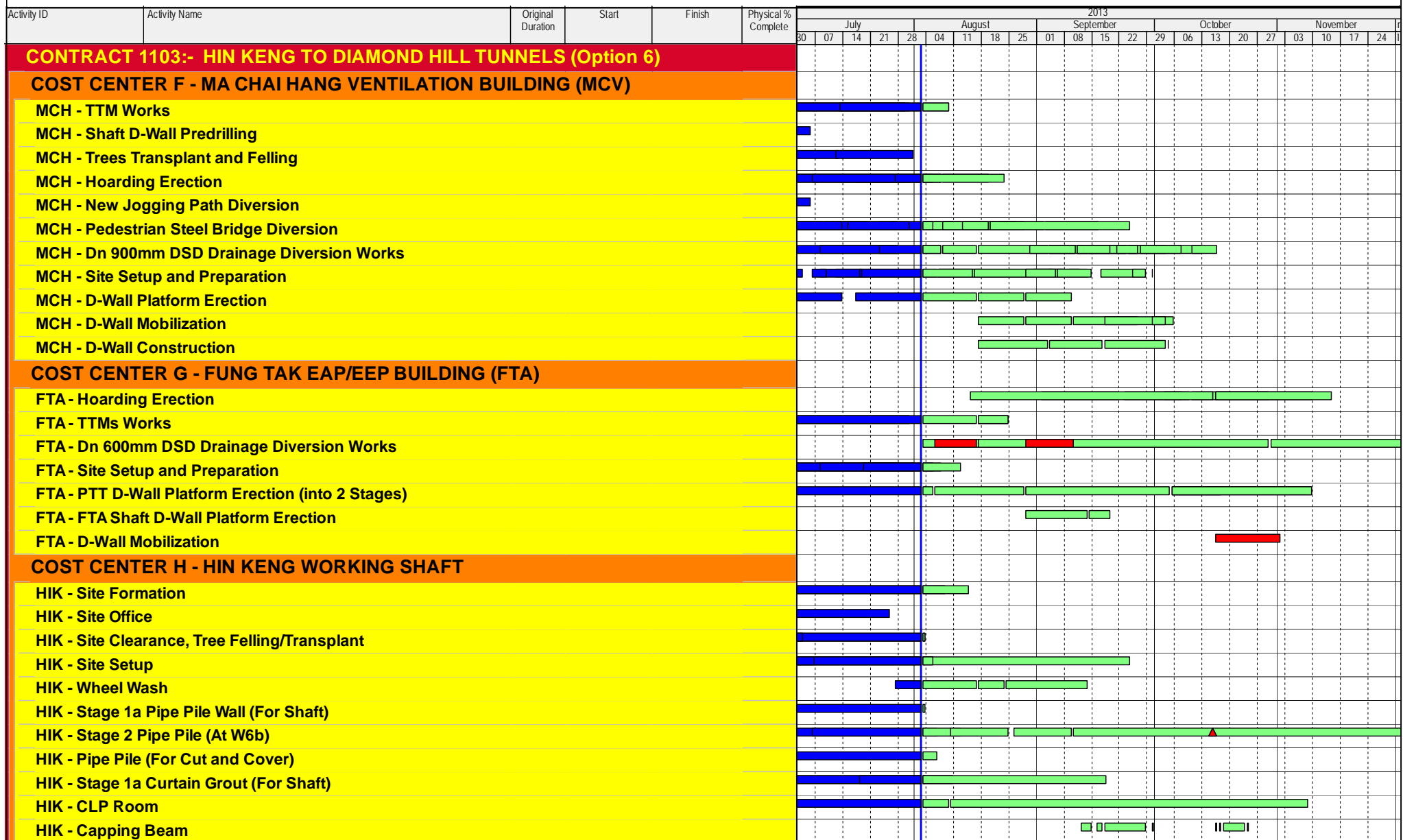
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CADD REF.

TITLE		CONTRACT 1103	
		HIN KENG TO DIAMOND HILL TUNNELS	
		Locations of Noise Monitoring Stations	
		(Construction Airborne Noise)	
		(Sheet 3 of 3)	
SCALE	1:2000 (A3)	DRAWING NO.	Figure 1.13
REV.			A

Appendix A

Construction Programme



**Three Month Rolling Programme
As of 31-7-2013**

Date	Revision	Checked	Approved
05-08-13	Submission for MTR Information	QT	Robert N.D.

Activity ID	Activity Name	Original Duration	Start	Finish	Physical % Complete	2013																											
						July				August				September				October				November											
						30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24						
	HIK Stage 1 Pumping Test																																
	HIK - ELS in Stages																																
	HIK - Muckling Out Arrangement																																
	HIK - Conveyor System																																
	HIK - Tower Crane																																
	HIK - Mined Tunnel																																
	HIK - 1102 Access Deck (TBC)																																
	HIK - RCP (TBC)																																
	COST CENTER S - DIAMOND HILL																																
	DIH - D-Wall Construction																																
	DIH - Ground Treatment for TBM at Works Areas W21c																																
	DIH - Capping Beams																																
	DIH - Pumping Test																																
	DIH - KTL DIH Strengthening Works																																
	DIH - Shaft Excavation and Strutting																																

Appendix B

Environmental
Monitoring
Programme in
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - July 2013**

Date	Air Quality		Noise	Site Inspection
	24-hours TSP		L _{Aeq} , 30 min	
01-Jul-13 Mon				
02-Jul-13 Tue				
03-Jul-13 Wed				
04-Jul-13 Thu				
05-Jul-13 Fri				
06-Jul-13 Sat				
07-Jul-13 Sun				
08-Jul-13 Mon				
09-Jul-13 Tue				
10-Jul-13 Wed				
11-Jul-13 Thu				
12-Jul-13 Fri				
13-Jul-13 Sat				
14-Jul-13 Sun				
15-Jul-13 Mon				
16-Jul-13 Tue				
17-Jul-13 Wed				
18-Jul-13 Thu				
19-Jul-13 Fri				
20-Jul-13 Sat				
21-Jul-13 Sun				
22-Jul-13 Mon				
23-Jul-13 Tue				
24-Jul-13 Wed				
25-Jul-13 Thu				
26-Jul-13 Fri				
27-Jul-13 Sat				
28-Jul-13 Sun				
29-Jul-13 Mon				
30-Jul-13 Tue				
31-Jul-13 Wed				

	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 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

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
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 style="text-align: right;">✓</p> <p style="text-align: right;">✓</p> <p style="text-align: right;">✓</p> <p style="text-align: right;">✓</p> <p style="text-align: right;">✓</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
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>

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
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">Rdr</p> <p align="center">Obs</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
		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 data-bbox="331 500 982 665">• <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 data-bbox="331 678 982 841">• <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 data-bbox="331 854 982 1075">• <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	<p align="center">✓</p> <p align="center">✓</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
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 	✓
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 ✓ ✓

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>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>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</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
		<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>

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
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 align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p 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.	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	Obs

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
		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	✓

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
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">Rdr</p> <p align="center">✓</p> <p align="center">✓</p>

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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>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">Rdr</p> <p align="center">✓</p> <p align="center">✓</p>

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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>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>Rdr</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

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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>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>✓</p> <p>✓</p> <p>Rdr</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>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
S10.7.1	W3	<u>Sewage Effluent</u>	To minimize water quality	All construction sites	Construction	<ul style="list-style-type: none"> Water Pollution 	

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
		<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>

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>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 banded 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">Rdr</p> <p align="center">✓</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
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">✓</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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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">✓</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	1) An Environmental Team needs to be employed as per the EM&A Manual.	Perform environmental monitoring & auditing	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	✓
		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.					✓

Appendix D

Calibration
Certificates for Air
Monitoring
Equipment

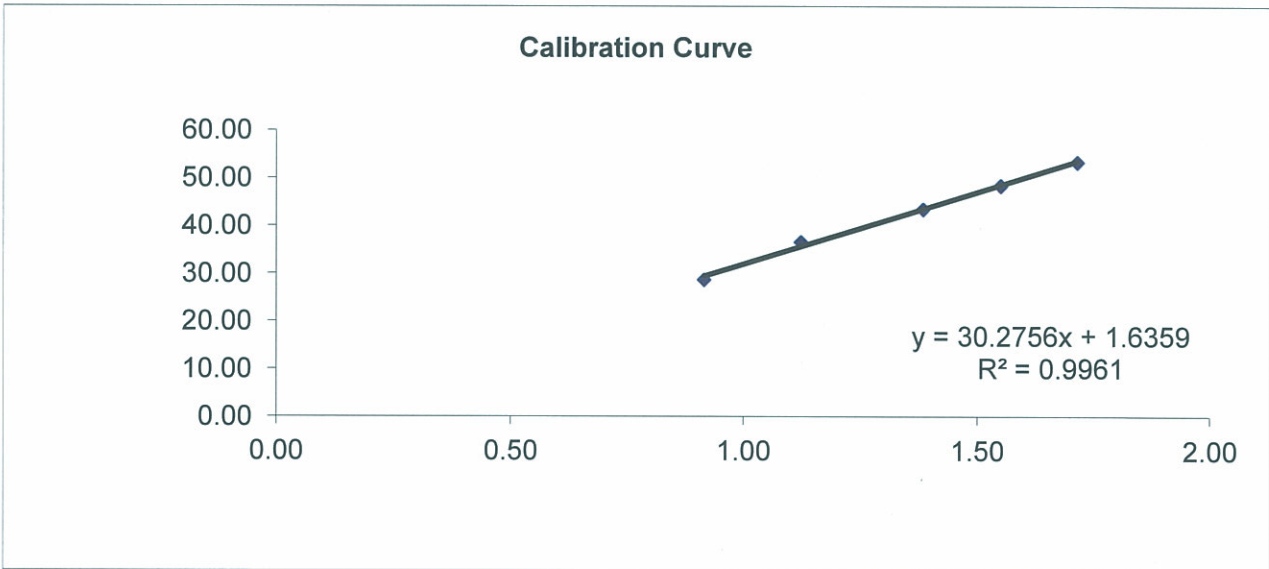
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	3-Jun-13	Barometric pressure	756 mm Hg
Next Calibration date	2-Aug-13	Temperature (°C)	30 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (K)	303 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	3.60	29.00	0.92	28.68
7	5.40	37.00	1.12	36.60
10	8.20	44.00	1.38	43.52
13	10.30	49.00	1.55	48.47
18	12.60	54.00	1.72	53.41



Linear Regression

Sampler slope (m) :	30.2756
Sampler intercept (b) :	1.6359
Correlation coefficient (R ²) :	0.9961

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____

Date: 3-6-13

Checked by: _____

Date: 10-6-13

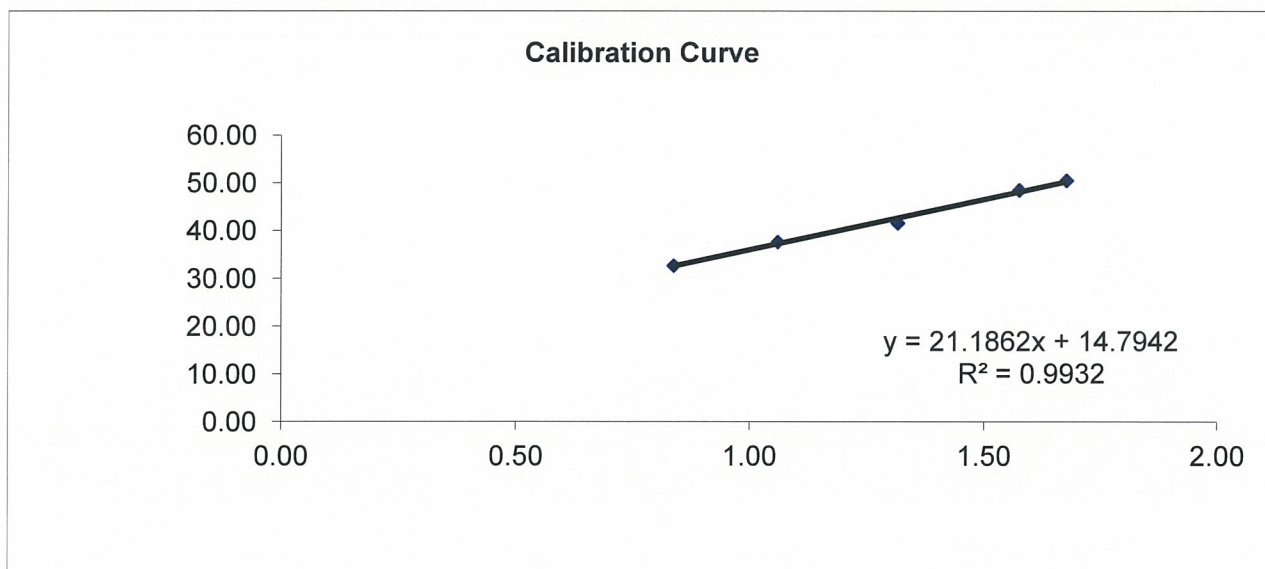
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	28-Jun-13	Barometric pressure	755 mm Hg
Next Calibration date	27-Aug-13	Temperature (°C)	29 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	302 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	3.00	33.00	0.84	32.67
7	4.80	38.00	1.06	37.62
10	7.40	42.00	1.32	41.58
13	10.60	49.00	1.57	48.51
18	12.00	51.00	1.68	50.49



Linear Regression

Sampler slope (m) : **21.1862**
 Sampler intercept (b) : **14.7942**
 Correlation coefficient (R²) : **0.9932**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____
 Checked by: _____

Date: 28.6.13
 Date: 4.7.13

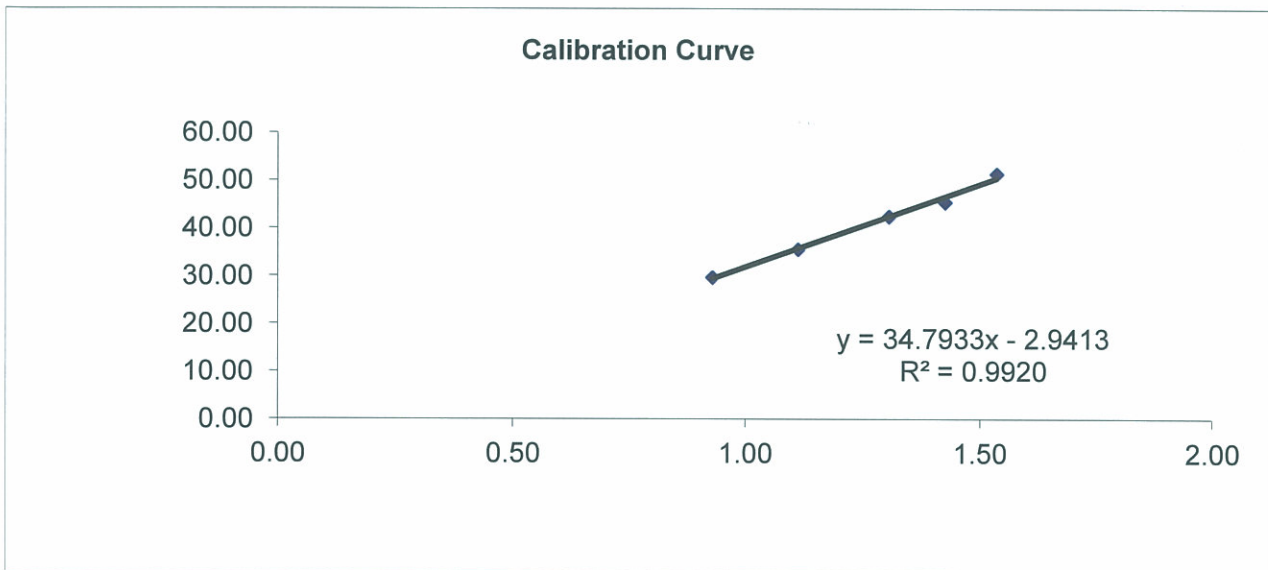
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	3-Jun-13	Barometric pressure	756 mm Hg
Next Calibration date	2-Aug-13	Temperature (°C)	30 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing Home	Temperature (K)	303 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	3.70	30.00	0.93	29.67
7	5.30	36.00	1.11	35.61
10	7.30	43.00	1.31	42.53
13	8.70	46.00	1.43	45.50
18	10.10	52.00	1.54	51.43



Linear Regression

Sampler slope (m) :	34.7933
Sampler intercept (b) :	-2.9413
Correlation coefficient (R ²) :	0.9920

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____

Date: 3-6-13

Checked by: _____

Date: 10-6-13

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					
102720	Jul-13	3-Jul-13	00:00	00:00	DMS1	Fine	Normal Operation	756.0	756.0	30.0	30.0	41.0	42.0	3.5360	3.6115	0.0755	1.2854	1.3181	1.3018	672.29	696.29	1440.00	1874.52	40.3	148.7	260.0
102723	Jul-13	9-Jul-13	00:00	00:00	DMS1	Cloudy	Normal Operation	755.0	755.0	29.0	30.0	42.0	42.0	3.5481	3.5910	0.0429	1.3195	1.3172	1.3184	696.29	720.29	1440.00	1898.42	22.6	148.7	260.0
102726	Jul-13	15-Jul-13	00:00	00:00	DMS1	Rainy	Normal Operation	754.0	754.0	26.0	27.0	44.0	44.0	3.5402	3.5593	0.0191	1.3911	1.3887	1.3899	720.29	744.29	1440.00	2001.46	9.5	148.7	260.0
102728	Jul-13	20-Jul-13	00:00	00:00	DMS1	Cloudy	Normal Operation	753.0	753.0	27.0	27.0	42.0	42.0	3.5443	3.5579	0.0136	1.3222	1.3222	1.3222	744.29	768.29	1440.00	1903.97	7.1	148.7	260.0
102733	Jul-13	26-Jul-13	00:00	00:00	DMS1	Rainy	Normal Operation	752.0	752.0	26.0	27.0	41.0	40.0	3.5317	3.5405	0.0088	1.2908	1.2558	1.2733	768.29	792.29	1440.00	1833.55	4.8	148.7	260.0

Average (µg/m3)	16.9
Max (µg/m3)	40.3
Min (µg/m3)	4.8

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					
102721	Jul-13	3-Jul-13	00:00	00:00	DMS2	Fine	Normal Operation	756.0	756.0	30.0	30.0	41.0	40.0	3.5383	3.5828	0.0445	1.2158	1.1691	1.1925	528.39	552.39	1440.00	1717.13	25.9	167.4	260.0
102724	Jul-13	9-Jul-13	00:00	00:00	DMS2	Cloudy	Normal Operation	755.0	755.0	29.0	30.0	42.0	41.0	3.5483	3.5744	0.0261	1.2645	1.2146	1.2396	552.39	576.39	1440.00	1784.95	14.6	167.4	260.0
102727	Jul-13	15-Jul-13	00:00	00:00	DMS2	Rainy	Normal Operation	754.0	754.0	26.0	27.0	44.0	44.0	3.5445	3.5638	0.0193	1.3669	1.3634	1.3652	576.39	600.39	1440.00	1965.82	9.8	167.4	260.0
102730	Jul-13	20-Jul-13	00:00	00:00	DMS2	Cloudy	Normal Operation	753.0	753.0	27.0	27.0	41.0	42.0	3.5515	3.5554	0.0039	1.2215	1.2684	1.2450	600.39	624.39	1440.00	1792.73	2.2	167.4	260.0
102732	Jul-13	26-Jul-13	00:00	00:00	DMS2	Rainy	Normal Operation	752.0	752.0	26.0	27.0	40.0	41.0	3.5443	3.5533	0.0090	1.1767	1.2203	1.1985	624.39	648.39	1440.00	1725.84	5.2	167.4	260.0

Average (µg/m3)	11.5
Max (µg/m3)	25.9
Min (µg/m3)	2.2

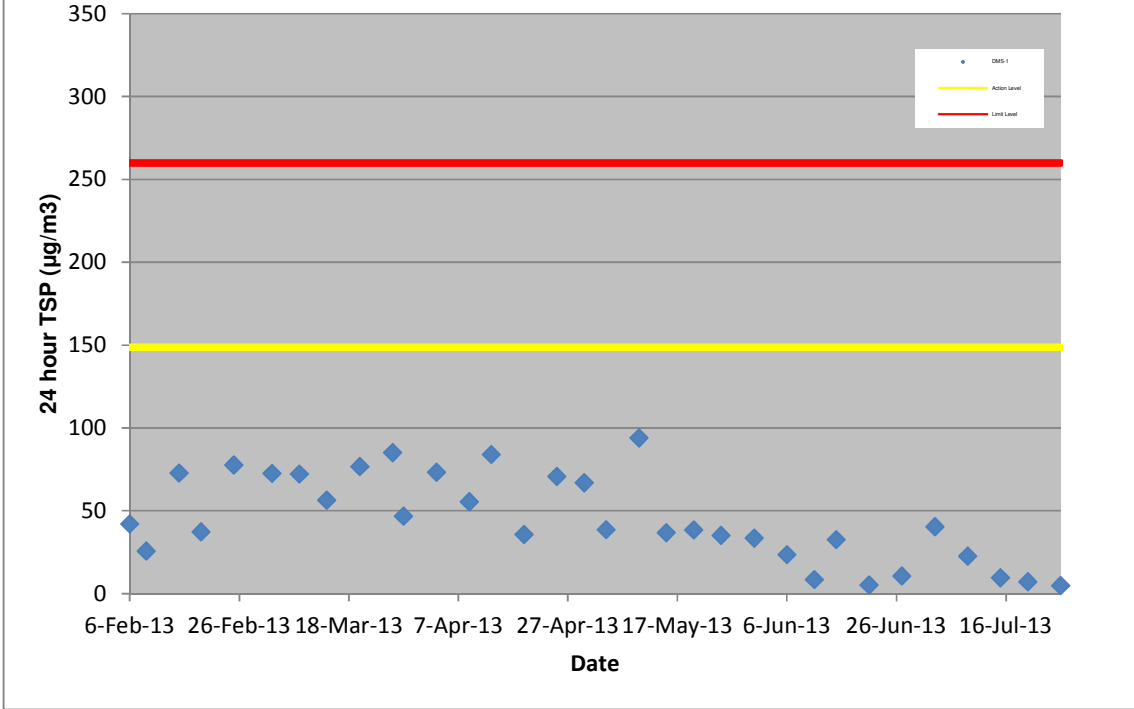
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

Details of 24-Hour TSP Monitoring

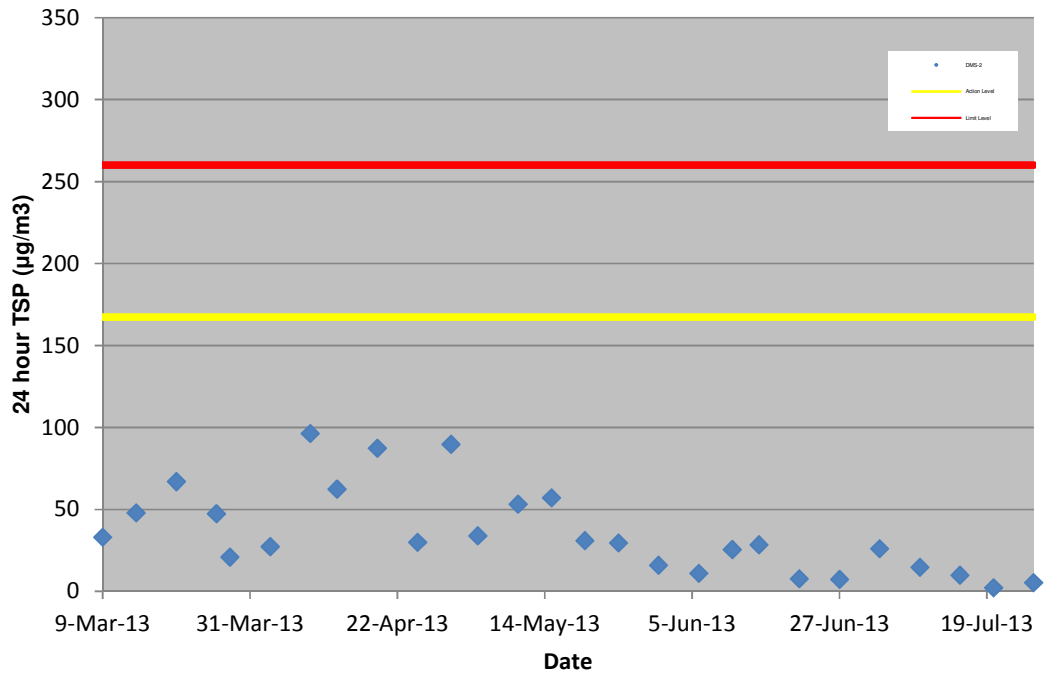
Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (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					
102722	Jul-13	3-Jul-13	00:00	00:00	DMS3	Fine	Normal Operation	756.0	756.0	30.0	30.0	42.0	40.0	3.5349	3.5726	0.0377	1.2785	1.2216	1.2501	672.40	696.40	1440.00	1800.07	20.9	159.1	260.0
102725	Jul-13	9-Jul-13	00:00	00:00	DMS3	Cloudy	Normal Operation	755.0	755.0	29.0	30.0	40.0	41.0	3.5402	3.5680	0.0278	1.2228	1.2493	1.2361	696.40	720.40	1440.00	1779.91	15.6	159.1	260.0
102729	Jul-13	15-Jul-13	00:00	00:00	DMS3	Rainy	Normal Operation	754.0	754.0	26.0	27.0	43.0	44.0	3.5418	3.5836	0.0418	1.3135	1.3399	1.3267	720.40	744.40	1440.00	1910.45	21.9	159.1	260.0
102731	Jul-13	20-Jul-13	00:00	00:00	DMS3	Cloudy	Normal Operation	753.0	753.0	27.0	27.0	40.0	41.0	3.5386	3.5464	0.0078	1.2250	1.2536	1.2393	744.40	768.40	1440.00	1784.59	4.4	159.1	260.0
102734	Jul-13	26-Jul-13	00:00	00:00	DMS3	Rainy	Normal Operation	752.0	752.0	26.0	27.0	40.0	40.0	3.5416	3.5572	0.0156	1.2262	1.2243	1.2253	768.40	792.40	1440.00	1764.36	8.8	159.1	260.0

Average (µg/m3)	14.3
Max (µg/m3)	21.9
Min (µg/m3)	4.4

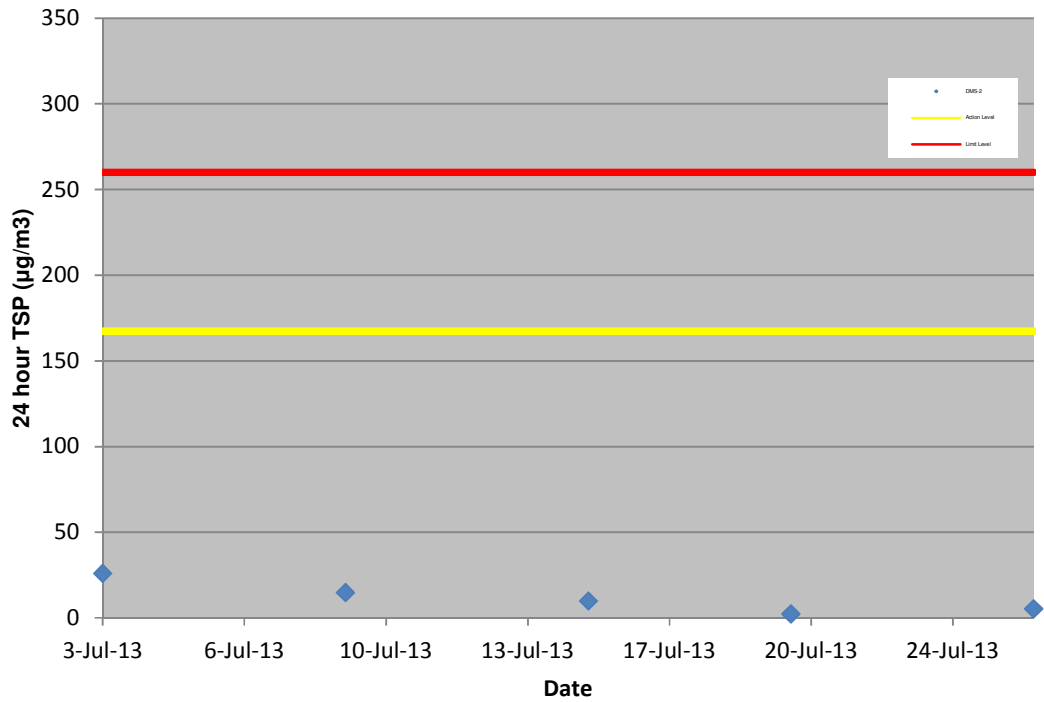
**Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
From February 2013 to July 2013**



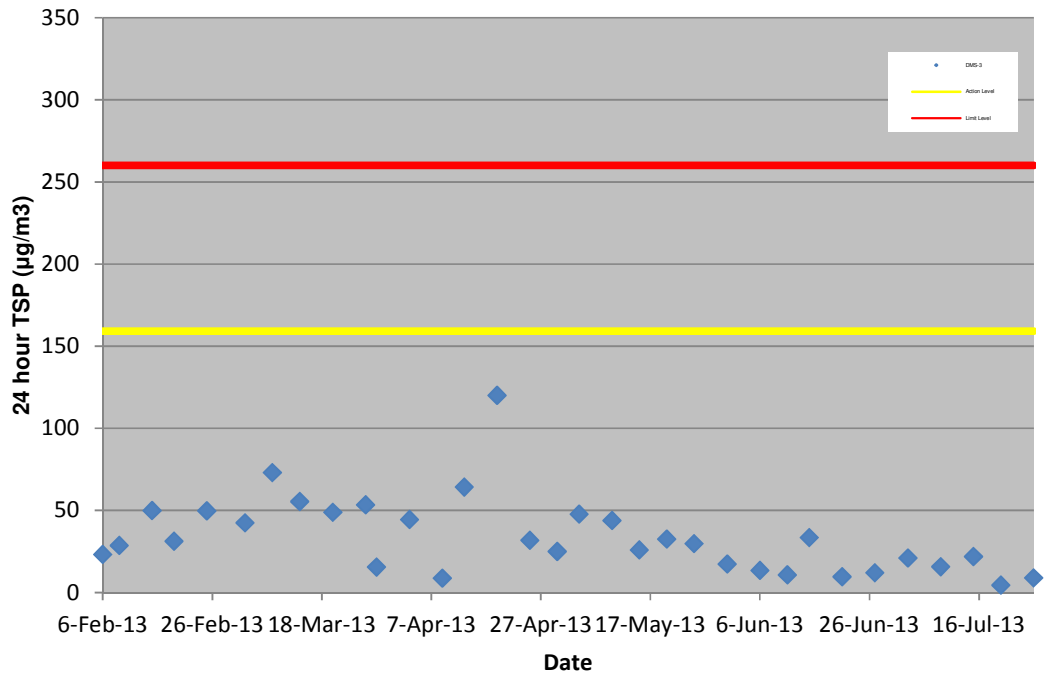
Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
From March 2013 to July 2013



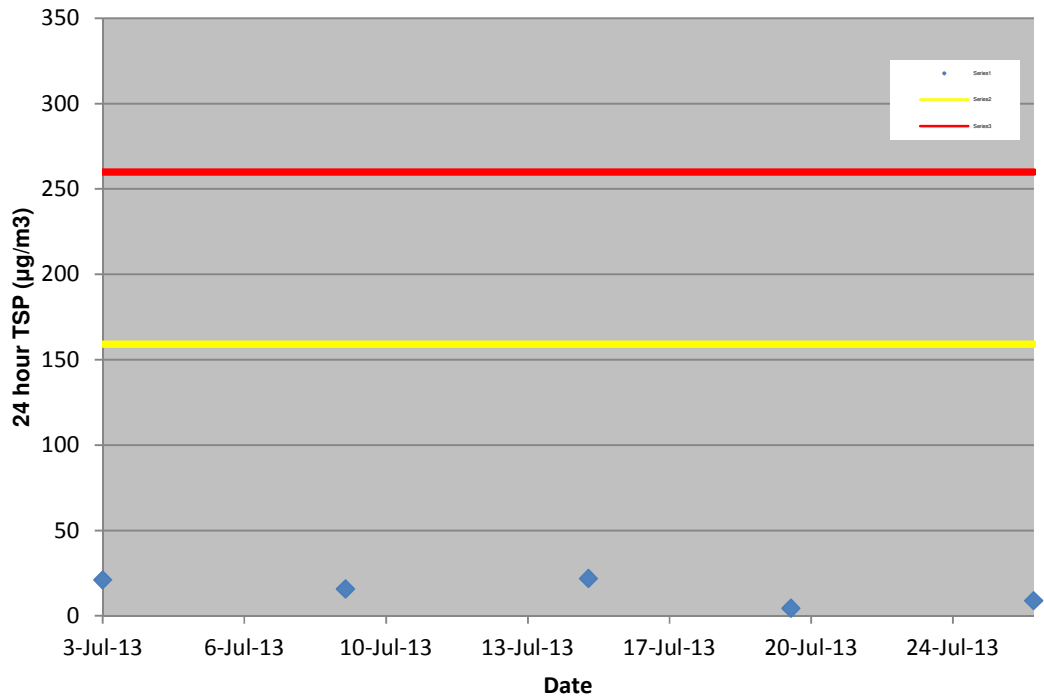
Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2



**Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-3/DMS-4
From February 2013 to July 2013**



Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-3/DMS-4

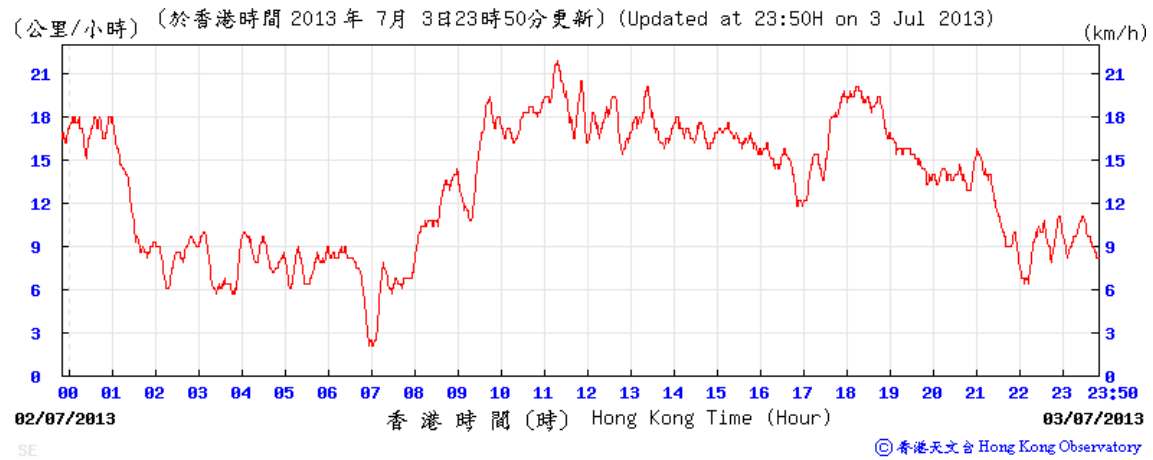


Appendix F

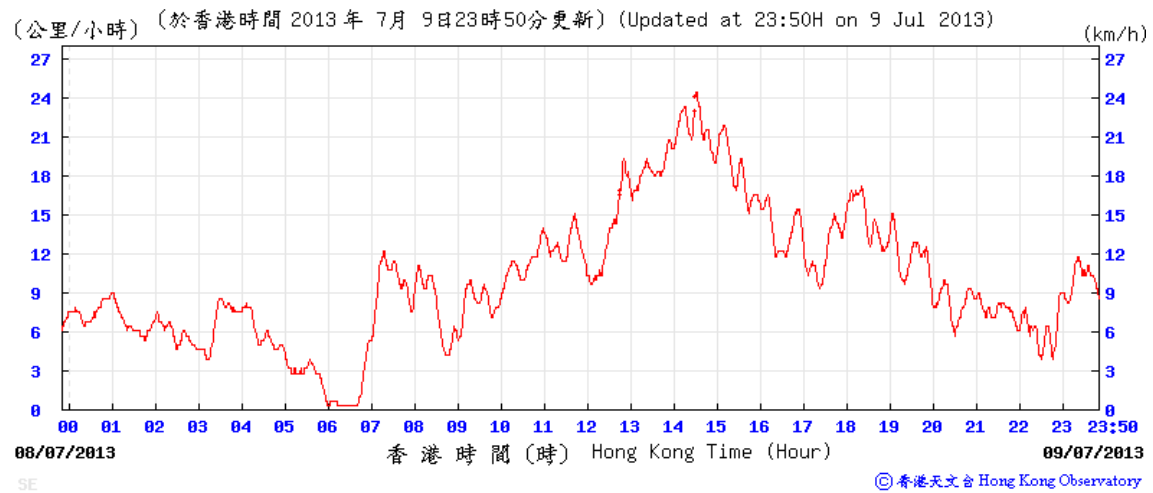
Wind data

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

3 July 2013

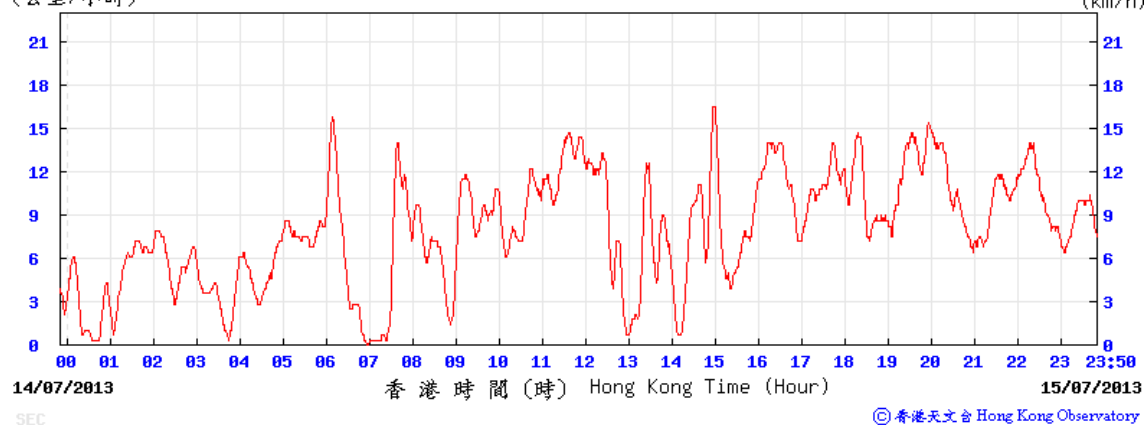


9 July 2013



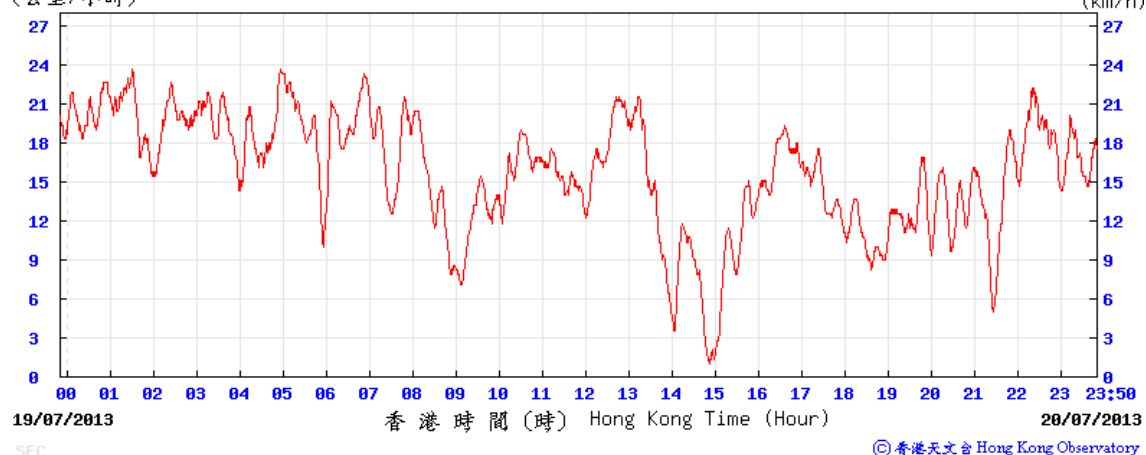
15 July 2013

(公里/小時) (於香港時間 2013 年 7 月 15 日 23 時 50 分更新) (Updated at 23:50H on 15 Jul 2013)



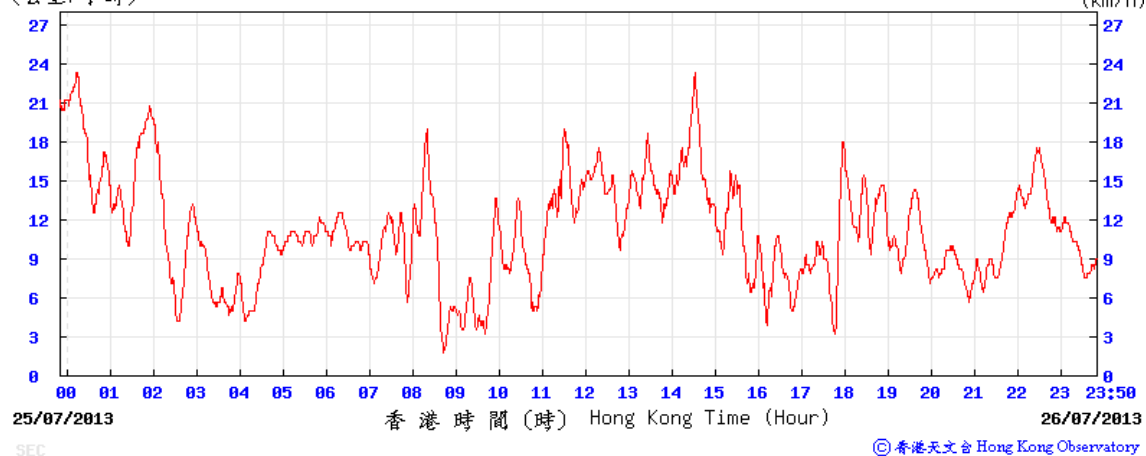
20 July 2013

(公里/小時) (於香港時間 2013 年 7 月 20 日 23 時 50 分更新) (Updated at 23:50H on 20 Jul 2013)



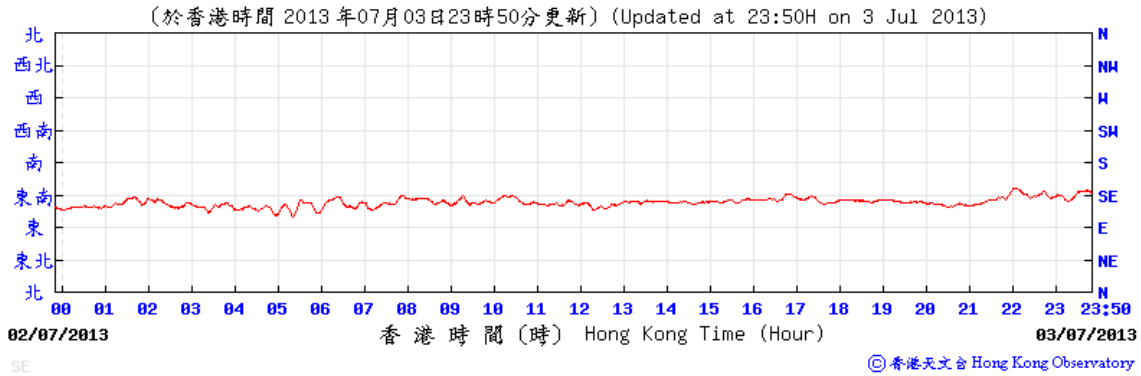
26 July 2013

(公里/小時) (於香港時間 2013 年 7 月 26 日 23 時 50 分更新) (Updated at 23:50H on 26 Jul 2013)

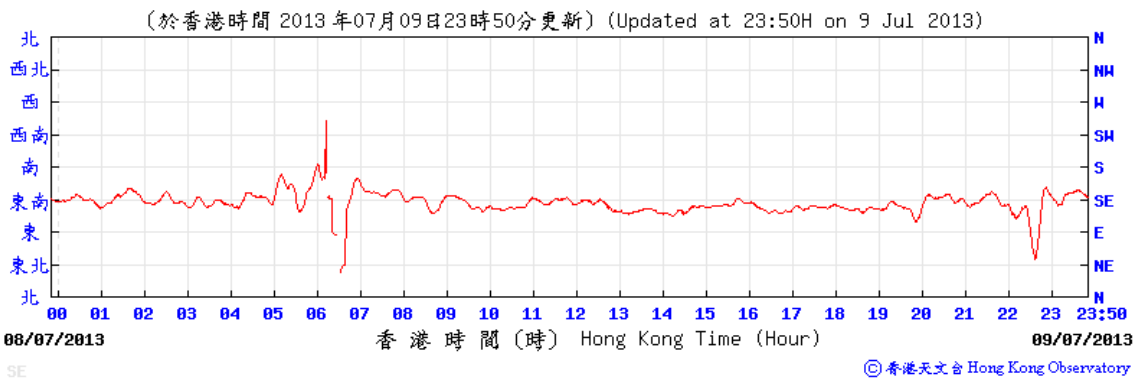


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

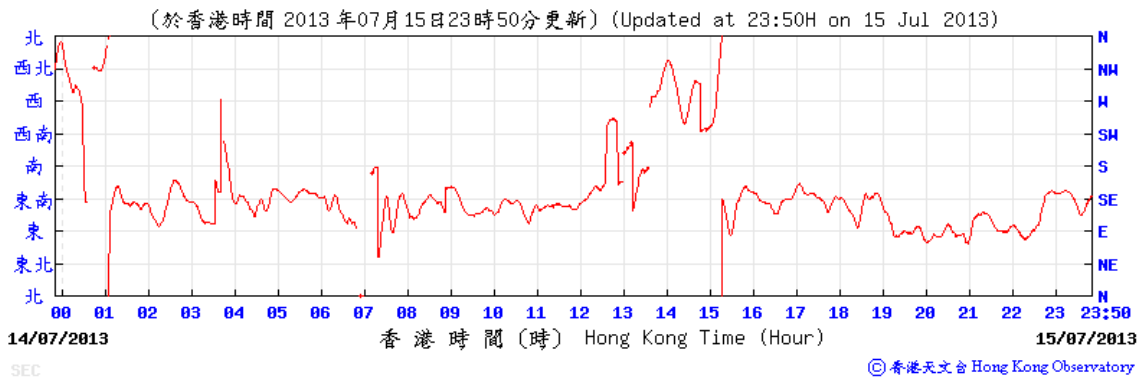
3 July 2013



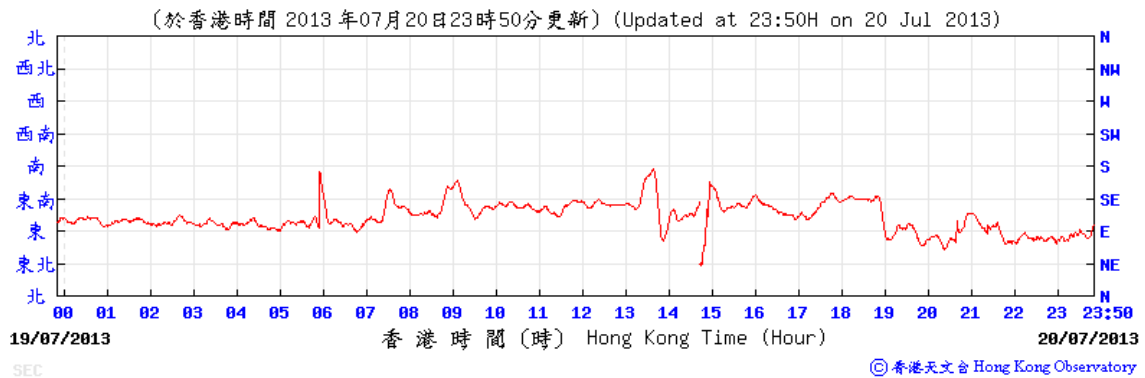
9 July 2013



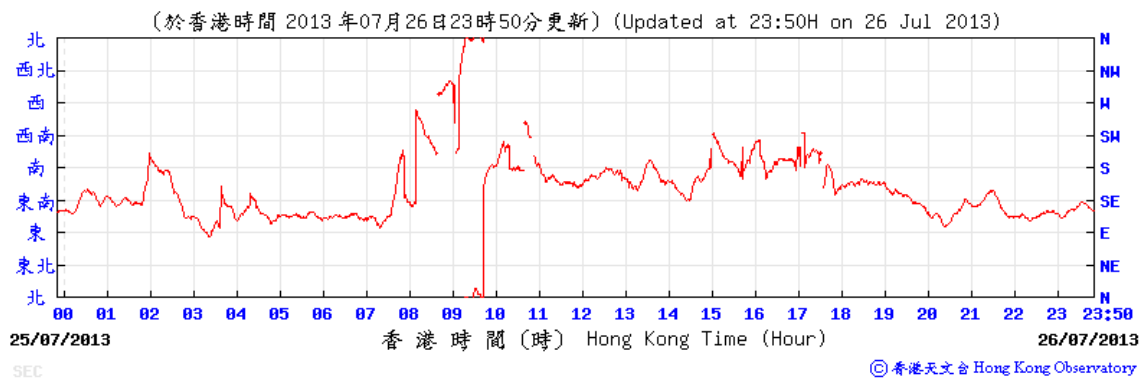
15 July 2013



20 July 2013

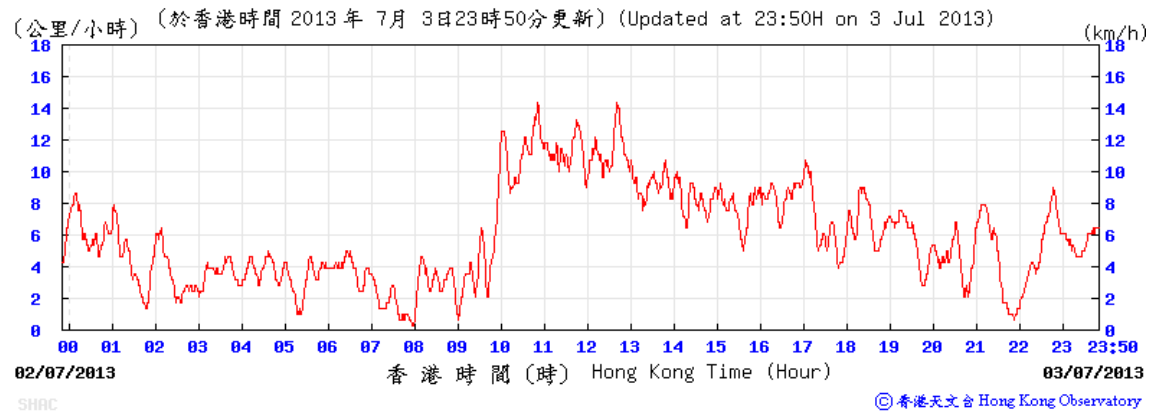


26 July 2013

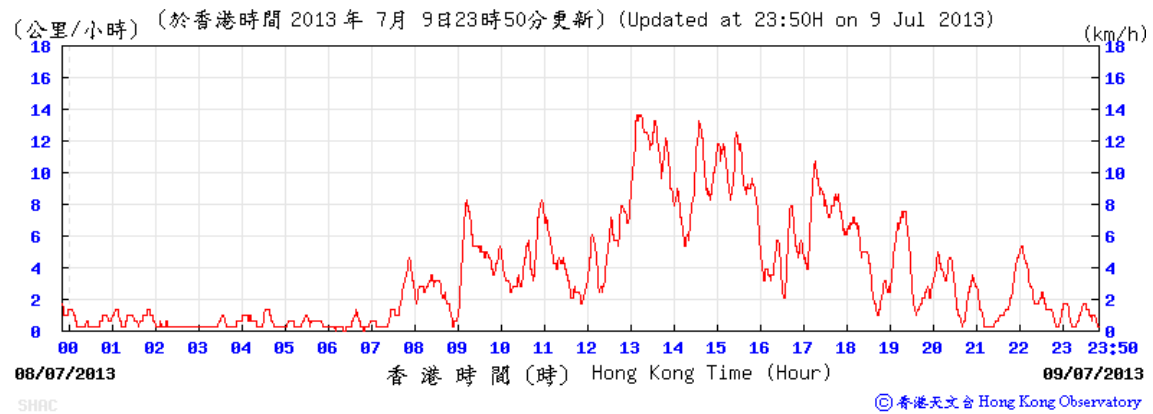


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

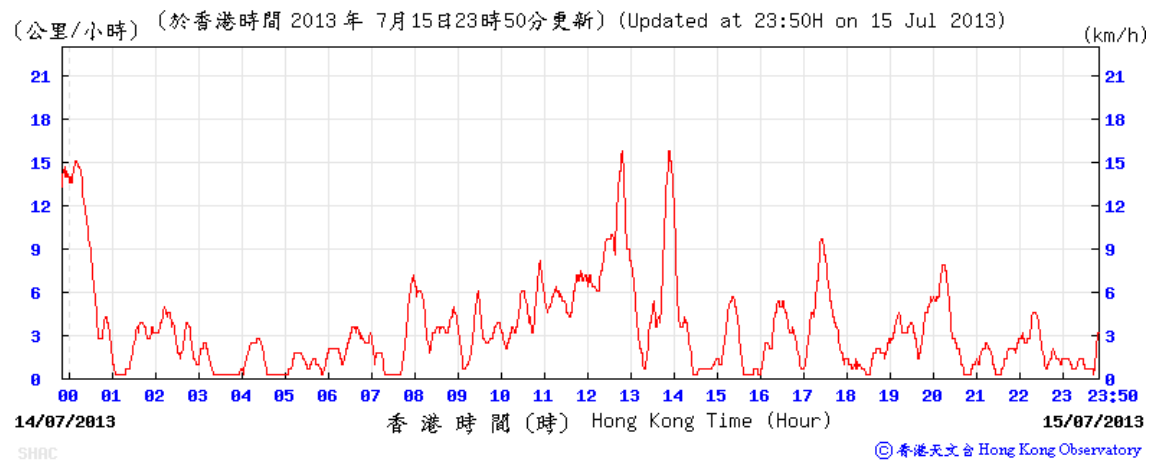
3 July 2013



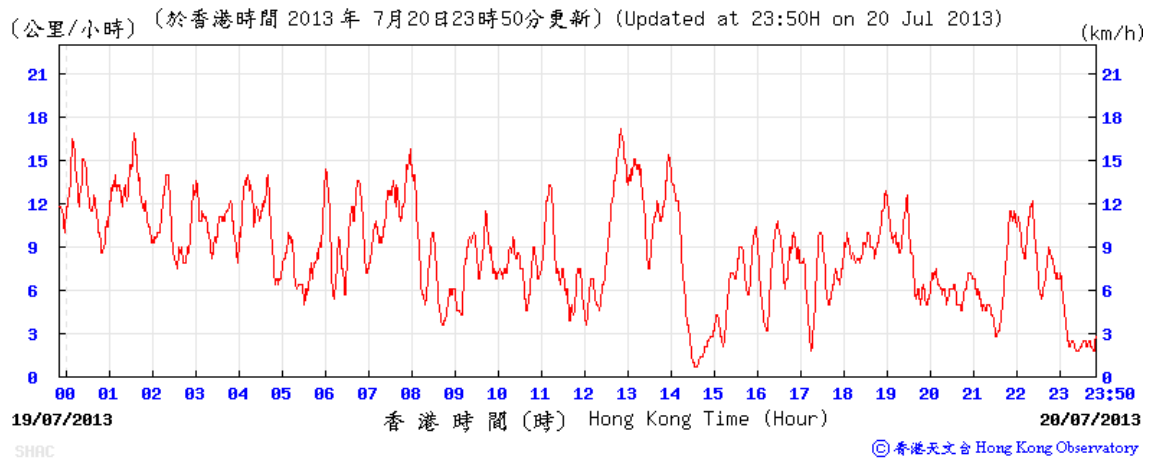
9 July 2013



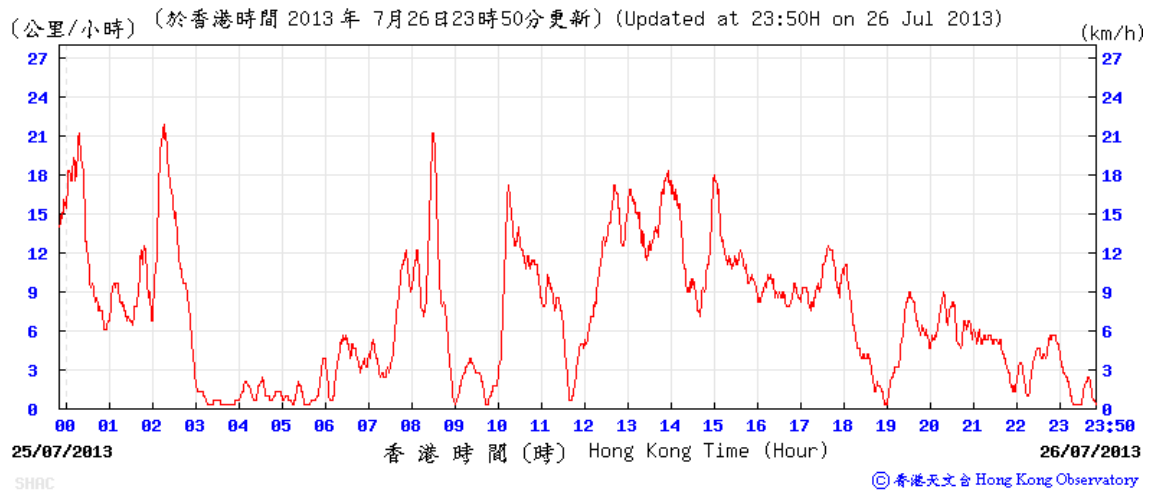
15 July 2013



20 July 2013

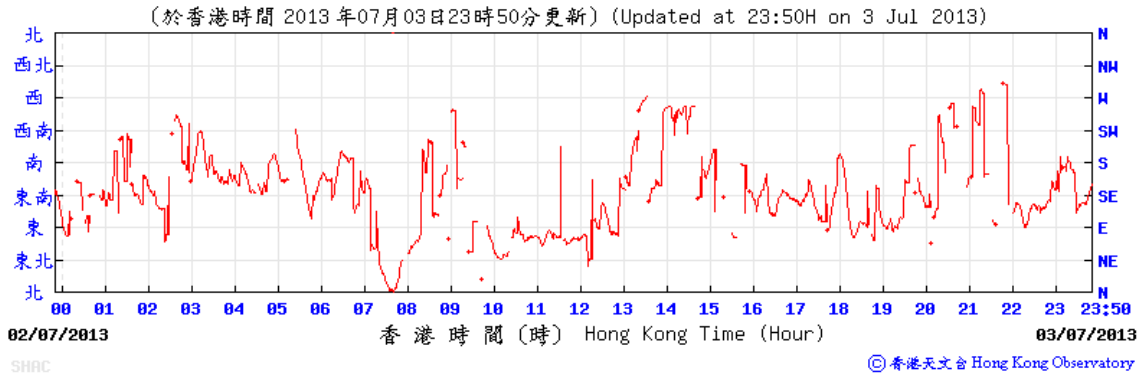


26 July 2013

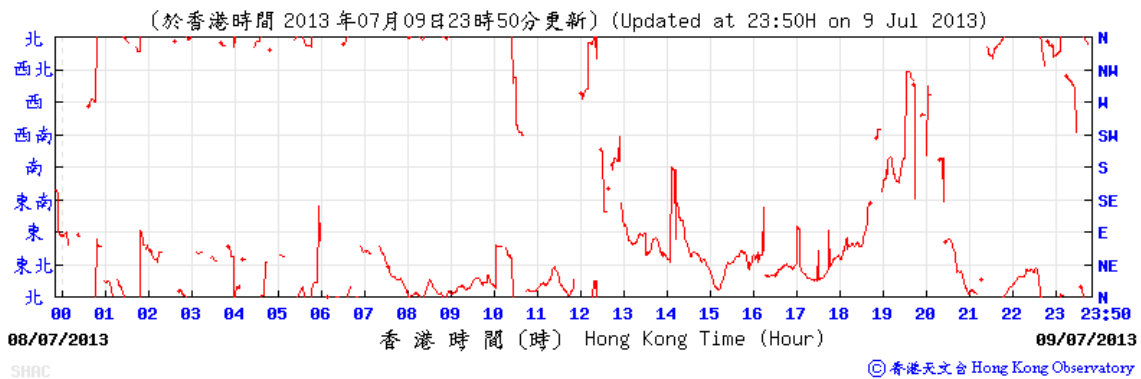


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

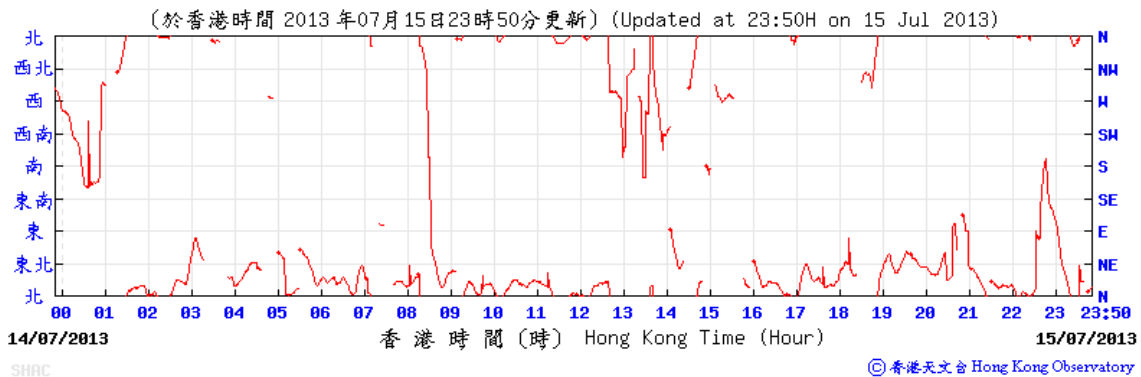
3 July 2013



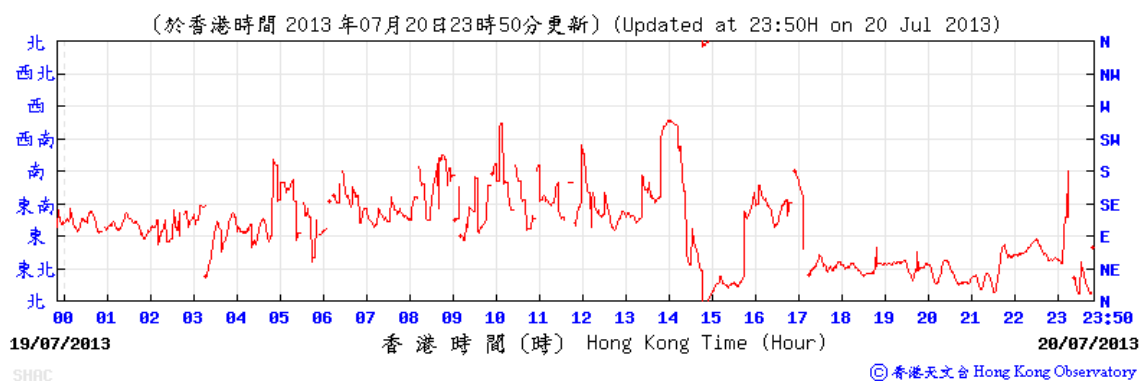
9 July 2013



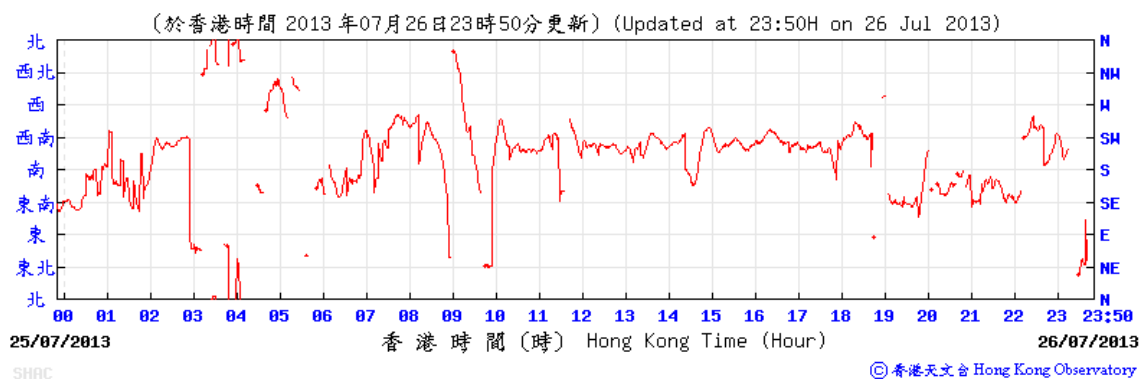
15 July 2013



20 July 2013



26 July 2013



Appendix G

Calibration
Certificates of Noise
Monitoring
Equipment

輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C124325
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1839)

Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Bruel & Kjaer
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 : 25 July 2012

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 Precision Measurement Ltd., UK
- 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 : 26 July 2012
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室所書面批准。

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

Page 1 of 4

Certificate of Calibration

校正證書

Certificate No. : C124325

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 laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.3.2.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. 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	94.2

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	94.0	± 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	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

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Certificate of Calibration

校正證書

Certificate No. : C124325
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 _{AFF}	A	F	94.00	1	94.0	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 _{AFF}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.1	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-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)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFF}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	94.9	+1.0 ± 1.0
					8 kHz	92.9	-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.

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所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C124325

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	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	90.9	-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)	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
								90	89.7	± 0.5
			60 sec.					80	79.7	± 1.0
								70	69.8	± 1.0
			5 min.					70	69.8	± 1.0

Remarks : - 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. : C124803
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1839)

Description / 儀器名稱 : Acoustical Calibrator
Manufacturer / 製造商 : Bruel & Kjaer
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 : 16 August 2012

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 : 17 August 2012
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. : C124803

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	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
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	114.0		

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.

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所書面批准。

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}
04-Jul-13	13:40 - 14:10	59.8	70.0	61.5	53.5	57.0	56.6
10-Jul-13	13:30 - 14:00	58.9	70.0	61.0	52.5	57.0	54.4
16-Jul-13	15:00 - 15:30	58.7	70.0	61.0	52.5	57.0	53.8
22-Jul-13	14:30 - 15:00	58.4	70.0	60.0	51.0	57.0	52.8
29-Jul-13	14:10 - 14:40	59.2	70.0	61.0	53.5	57.0	55.2

Notes: (*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	59.0
Max L _{Aeq,30min}	59.8
Min L _{Aeq,30min}	58.4

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}
04-Jul-13	09:40 - 10:10	68.6	70.0	69.5	61.0	66.0	65.1
10-Jul-13	09:10 - 09:40	67.5	70.0	68.5	60.5	66.0	62.2
16-Jul-13	09:05 - 09:35	67.2	70.0	68.5	60.5	66.0	61.0
22-Jul-13	09:20 - 09:50	67.9	70.0	69.5	61.0	66.0	63.4
29-Jul-13	09:30 - 10:00	68.4	70.0	70.0	61.5	66.0	64.7

Notes: (*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	67.9
Max L _{Aeq,30min}	68.6
Min L _{Aeq,30min}	67.2

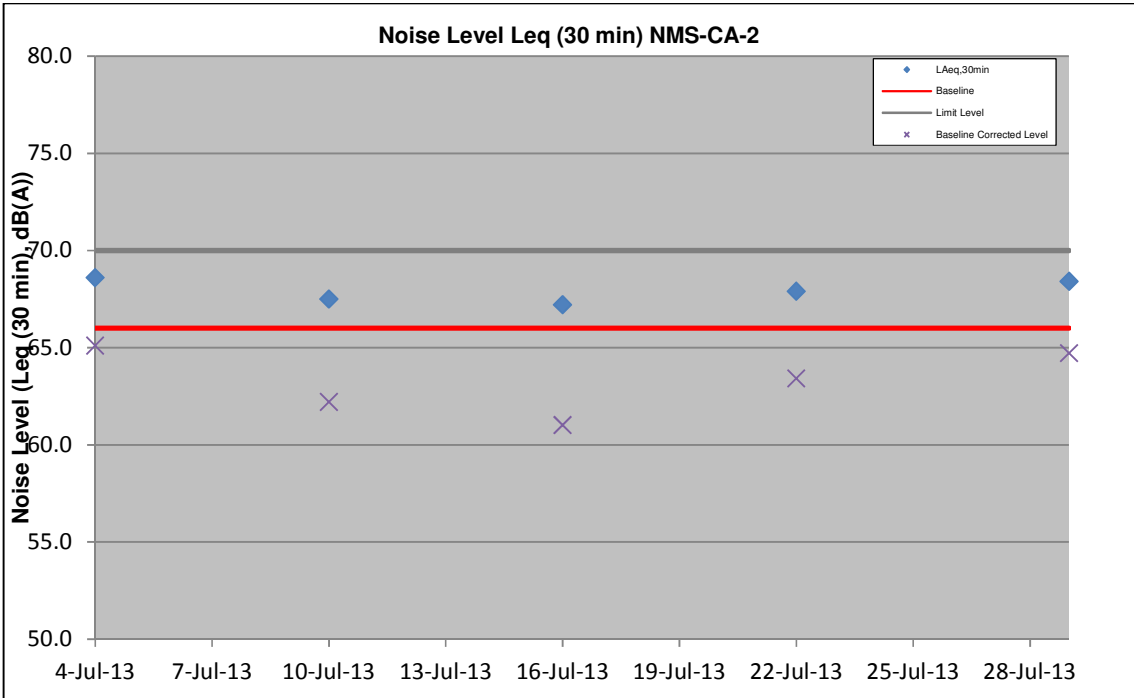
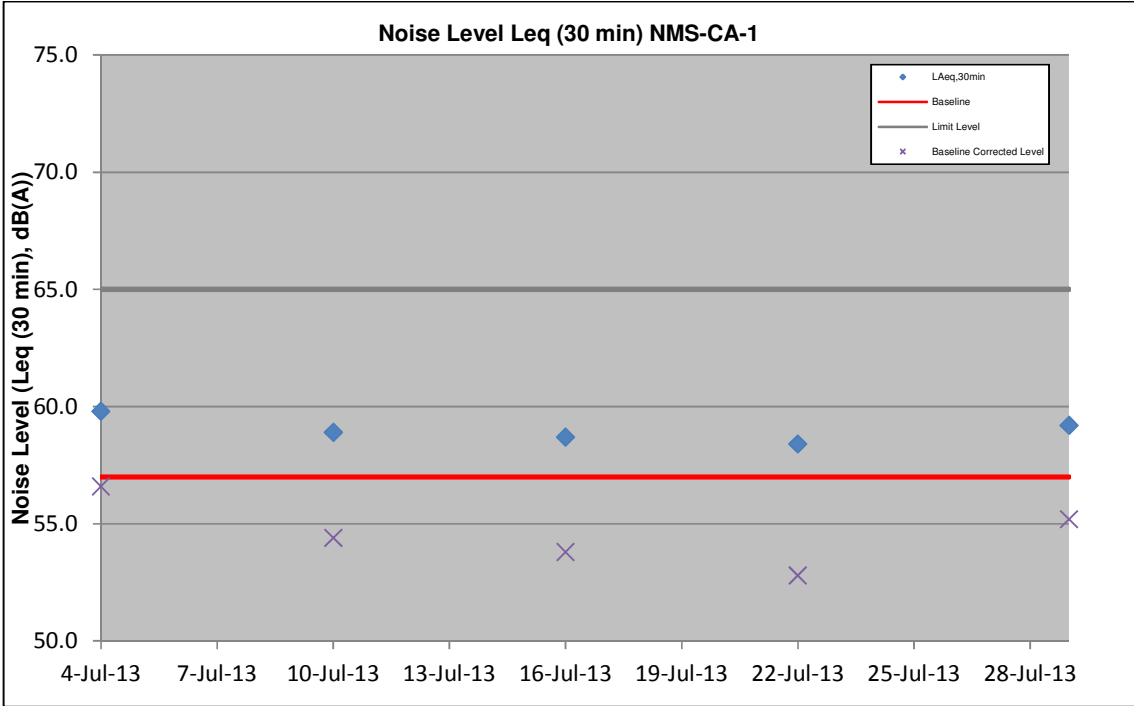
Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home

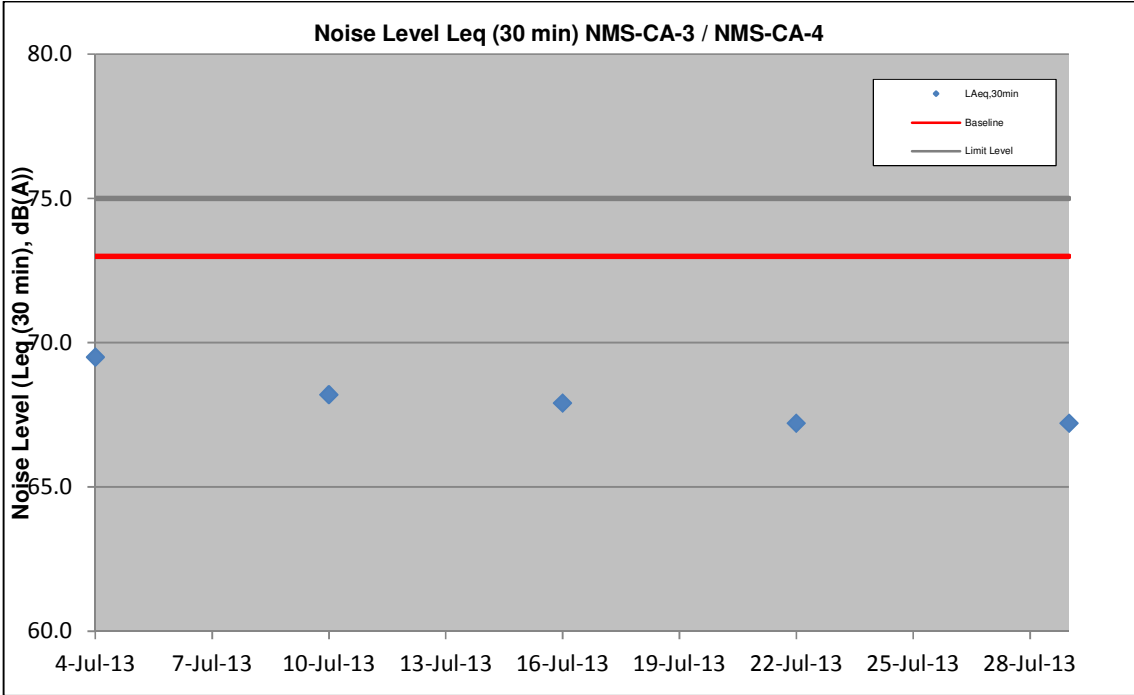
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
04-Jul-13	11:30 - 12:00	69.5	75.0	71.0	63.0	73.0	< Baseline Level
10-Jul-13	11:00 - 11:30	68.2	75.0	69.5	62.0	73.0	< Baseline Level
16-Jul-13	11:25 - 11:55	67.9	75.0	69.5	62.0	73.0	< Baseline Level
22-Jul-13	11:30 - 12:00	67.2	75.0	69.5	60.5	73.0	< Baseline Level
29-Jul-13	11:20 - 11:50	67.2	75.0	69.0	61.0	73.0	< Baseline Level

Notes: (*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	68.0
Max L _{Aeq,30min}	69.5
Min L _{Aeq,30min}	67.2





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 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	0.800	0.037
Sub-total	19.050	0.000	0.440	11.662	6.948	3.538	0.000	0.000	0.000	1.400	0.253
Jul	3.319	0.000	0.110	2.006	1.203	0.000	0.000	0.000	0.000	0.000	0.041
Aug											
Sep											
Oct											
Nov											
Dec											
Total	22.369	0.000	0.550	13.668	8.151	3.538	0.000	0.000	0.000	1.400	0.294

Comment:

- 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 amounts of waste in Jul and cut-off date of data for TKO137FB/TM38FB, NENT Landfill, Kai Tak (Contact 1108A) are 2406.67ton as at 24/7/13, 41.28ton, as at 24/7/13, 4011.621ton as at 24/7/13.
- 3) The amount of chemical waste in Jul and cut-off date of data is 0 as at 26/7/13. Chemical Waste will be collected by registered chemical waste collector.
- 4) The amount of spoil reuse in Kai Tak Nursery and cut-off date is 22 trucks as at 26/7/13.

Appendix K

Environmental
Monitoring
Programme for
Coming Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Tentative Impact Monitoring Schedule - August 2013**

Date	Air Quality		Noise	Site Inspection
	24-hours TSP		L _{Aeq} , 30 min	
01-Aug-13	Thu			
02-Aug-13	Fri			
03-Aug-13	Sat			
04-Aug-13	Sun			
05-Aug-13	Mon			
06-Aug-13	Tue			
07-Aug-13	Wed			
08-Aug-13	Thu			
09-Aug-13	Fri			
10-Aug-13	Sat			
11-Aug-13	Sun			
12-Aug-13	Mon			
13-Aug-13	Tue			
14-Aug-13	Wed			
15-Aug-13	Thu			
16-Aug-13	Fri			
17-Aug-13	Sat			
18-Aug-13	Sun			
19-Aug-13	Mon			
20-Aug-13	Tue			
21-Aug-13	Wed			
22-Aug-13	Thu			
23-Aug-13	Fri			
24-Aug-13	Sat			
25-Aug-13	Sun			
26-Aug-13	Mon			
27-Aug-13	Tue			
28-Aug-13	Wed			
29-Aug-13	Thu			
30-Aug-13	Fri			
31-Aug-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 (July 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
Total	0	0	0

Appendix F

**5th EM&A Report for Works Contract 1106 –
Diamond Hill Station**

MTR Corporation Limited

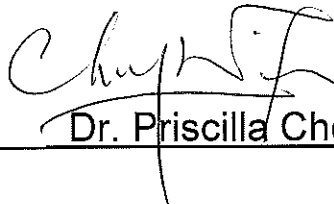
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 5

[Period from 1 to 31 July 2013]

Works Contract 1106 – Diamond Hill Station

(August 2013)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader


Date: 8th August 2013

Sembawang – Leader Joint Venture

**Shatin to Central Link –
Contract 1106
Diamond Hill Station**

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

(Version 1.1)

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 5th 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 July to 31 July 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
 - D-wall construction;
 - Archaeological survey-cum-excavation;
 - Underpinning works of the Old Pillbox;
 - Pre-drilling work.

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) | 6 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 is being conducted 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 July 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 2,560 m^3 of inert C&D materials were generated from the Project and were sent to SCL1108A, Tuen Mun Area 38 Fill Bank and Fill Bank at Tseung Kwan O Area 137 during the reporting month. About 321 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. About 640 kg of chemical wastes was also generated and collected by licensed collector. No steel material, plastics and paper/cardboard packaging were generated during this reporting month.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2, 16 and 30 July 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 2, 12, 16, 23 and 30 July 2013. The representative of the IEC joined the site inspection on 23 July 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;
 - Archaeological survey-cum-excavation;
 - Underpinning works and relocation of the Old Pillbox;
 - Construction of temporary storage compound for the Old Pillbox; and
 - Pre-drilling 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 5th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 July to 31 July 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;
 - Archaeological survey-cum-excavation;
 - Underpinning works of the Old Pillbox; and
 - Pre-drilling work.

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/C	30/04/2013	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
Construction Noise Permit (CNP)			
GW-RE0340-13	12/04/2013	11/10/2013	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.: 14303 & 21459)
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 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 ± 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.

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 commenced on 25 April 2013 and is being 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 was commenced on 30 May 2013 and is 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 is 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 (June 2013)	12 th July 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 3, 9, 15 and 22 July 2013 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as they were below the baseline noise level.
- 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 6 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⁾)	4.4	21.9	14.3	159.1	260
24-hr TSP (DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾)	22.9	47.1	30.2	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 is being conducted 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 July 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, paper/cardboard packaging and plastics were generated 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		
July 2013	2,560 m ³	321 m ³	640 kg	0 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, Fill Bank at Tseung Kwan O Area 137 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 2, 16 and 30 July 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 2, 12, 16, 23 and 30 July 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 23 July 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>	25 Jun 2013	Stagnant water should be clear and pump into appropriate water tank.	According to the Contractor, accumulated water at the identified location will be pumped back into water tank regularly. The water pump was operating for pumping the water during the site inspection on 2 July 2013.
	16 Jul 2013	Drainage system for properly treating muddy water is advised to be enhanced.	Sand bags were provided in the U-channel for interception of runoff and the accumulated sediment in the U-channel was cleared by the Contractor on 23 July 2013.
	30 Jul 2013	To clear the accumulated slurry in U-channel to prevent blockage.	Follow up actions will be reported in next month.
	30 Jul 2013	<u>Reminder:</u> It is reminded the Contractor to clear the slurry on the haul roads regularly.	Follow up actions will be reported in next month.
<i>Noise</i>	12 Jul 2013	<u>Reminder:</u> It is recommended to further enhance the noise mitigation measures near the desander next to Lung Cheung Road where possible.	Installation works of acoustic fabrics was completed on 23 July 2013.
<i>Landscape and Visual</i>	2 Jul 2013	Retained trees next to wheel washing bay shall be properly fenced off.	Tree protection zones were set up for the identified retained trees on 12 July 2013.
	2 Jul 2013	Tree (DT 2002) at bar bending area is reminded to be carefully protected. Broken branches should be cut off.	Broken branches were cut off by the Contractor. No further damage on the identified tree was observed on 12 July 2013.
	12 Jul 2013	<u>Reminder:</u> It is reminded to remove the construction materials near the trees next	According to the photo provided by the Contractor, the construction

Parameters	Date	Observations and Recommendations	Follow-up
		to the wheel washing bay.	materials near the trees were removed on 16 July 2013.
	23 Jul 2013	To remove the materials and skip within the tree protection zone and properly erect the tree protection fence for better tree protection.	The materials were removed and the skip was moved away from tree protection zone on 30 July 2013.
	30 Jul 2013	Materials placed next to trees should be removed to avoid damage to trees. (Area W8)	Follow up actions will be reported in next month.
Cultural Heritage	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A
Waste / Chemical Management	2 Jul 2013	Drip tray for generator near new desander was observed damaged and shall be repaired to avoid any fuel leakage.	The drip tray was repaired by the Contractor on 12 July 2013.
	12 Jul 2013	Oily mixture was leaked out from drip trays for generators on-site. The Contractor was recommended to properly repair or plug the drain hole to avoid any oily mixture leakage.	Drain hole of the identified drip tray was plugged by the Contractor. Leaked oily mixture was also removed by the Contractor on 16 July 2013.
	16 Jul 2013	Oily mixture or stagnant water accumulated on the drip trays for generator is recommended to be cleared.	Oily mixture and stagnant water accumulated on the drip trays was cleared by the Contractor on 23 July 2013.
	23 Jul 2013	<u>Reminder:</u> To remove the construction materials in the drip tray to avoid contamination.	The materials in drip tray were cleared by the Contractor on 30 July 2013.
Permits/ Licenses	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;
- Archaeological survey-cum-excavation;
- Underpinning works and relocation of the Old Pillbox;
- Construction of temporary storage compound for the Old Pillbox; 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 or dry PFA and bentonite and excavated materials;
- Control of silty surface runoff during wet season;
- 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 July to 31 July 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 3 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 and particularly following wet seasons.
- It is recommended particular attention should be paid to the control of silty surface runoff during wet season. Stockpiles of materials that are likely to generate silty surface runoff should be covered by impervious sheets whenever practicable.

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

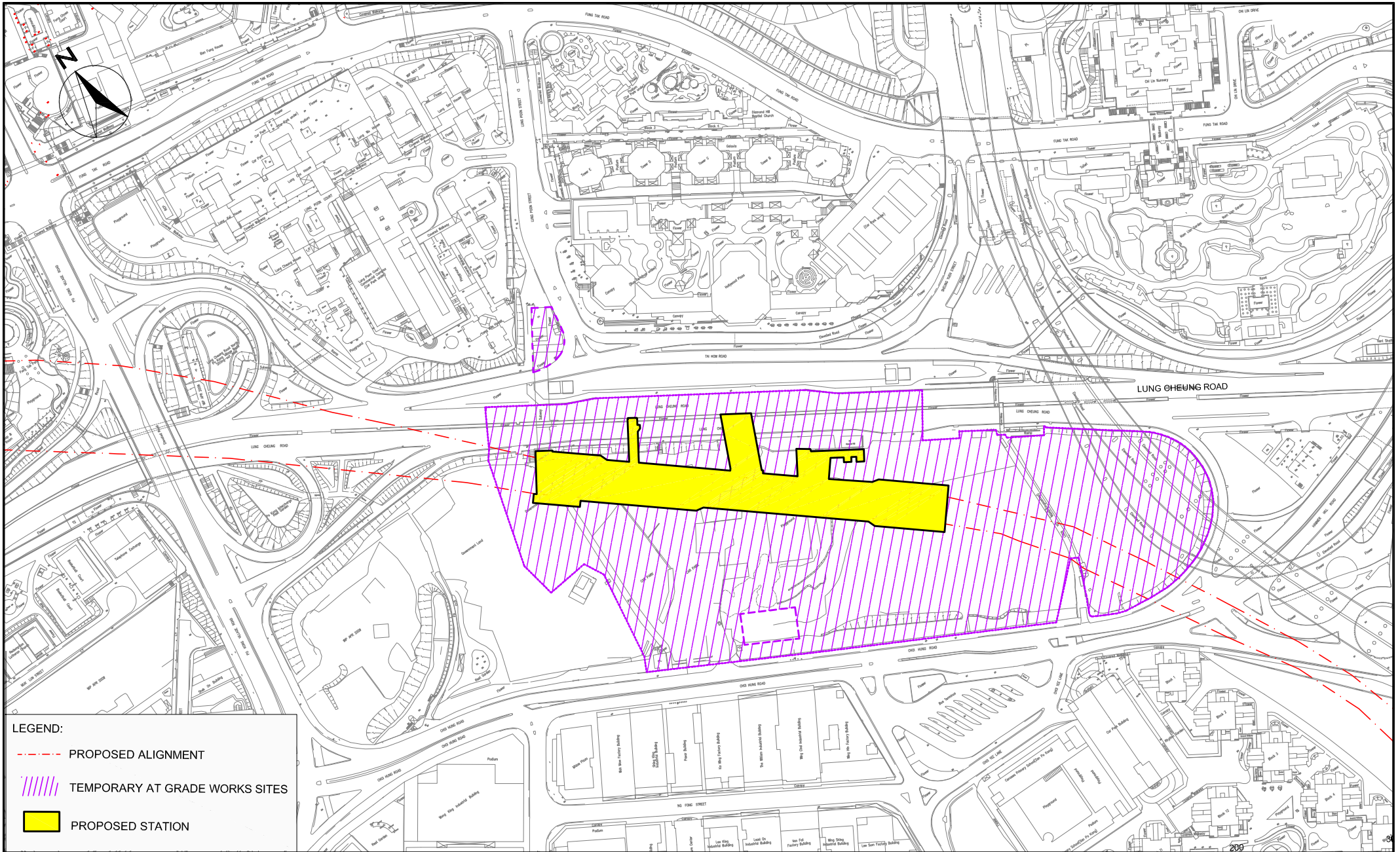
- Regular water spraying on site is reminded to be implemented as per EP requirement.
- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable 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.
- Provision of preventive mitigation measures to avoid oil leakage during oil filling works.

FIGURES



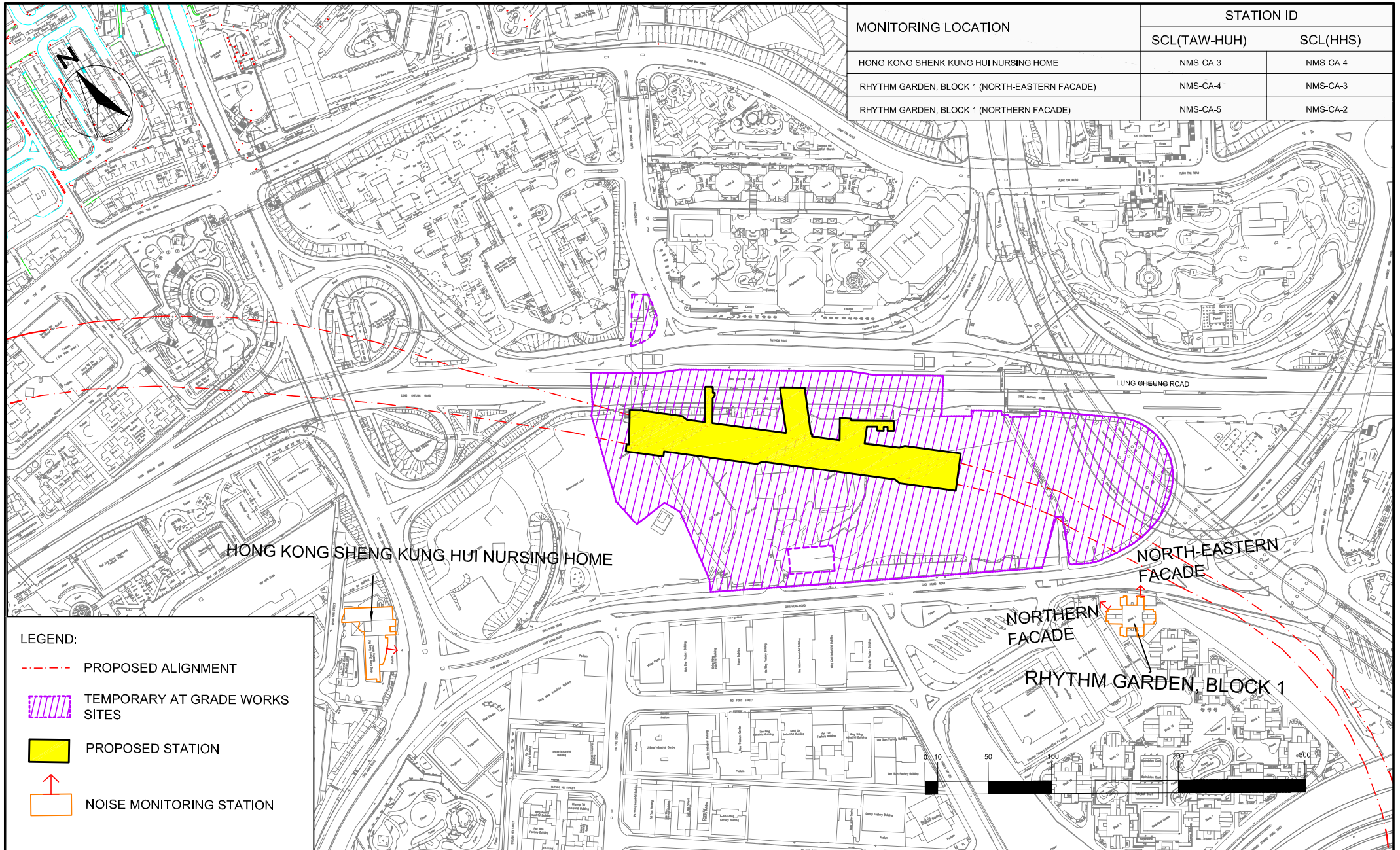
- LEGEND:**
- - - PROPOSED ALIGNMENT
 - ||||| TEMPORARY AT GRADE WORKS SITES
 - PROPOSED STATION

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:

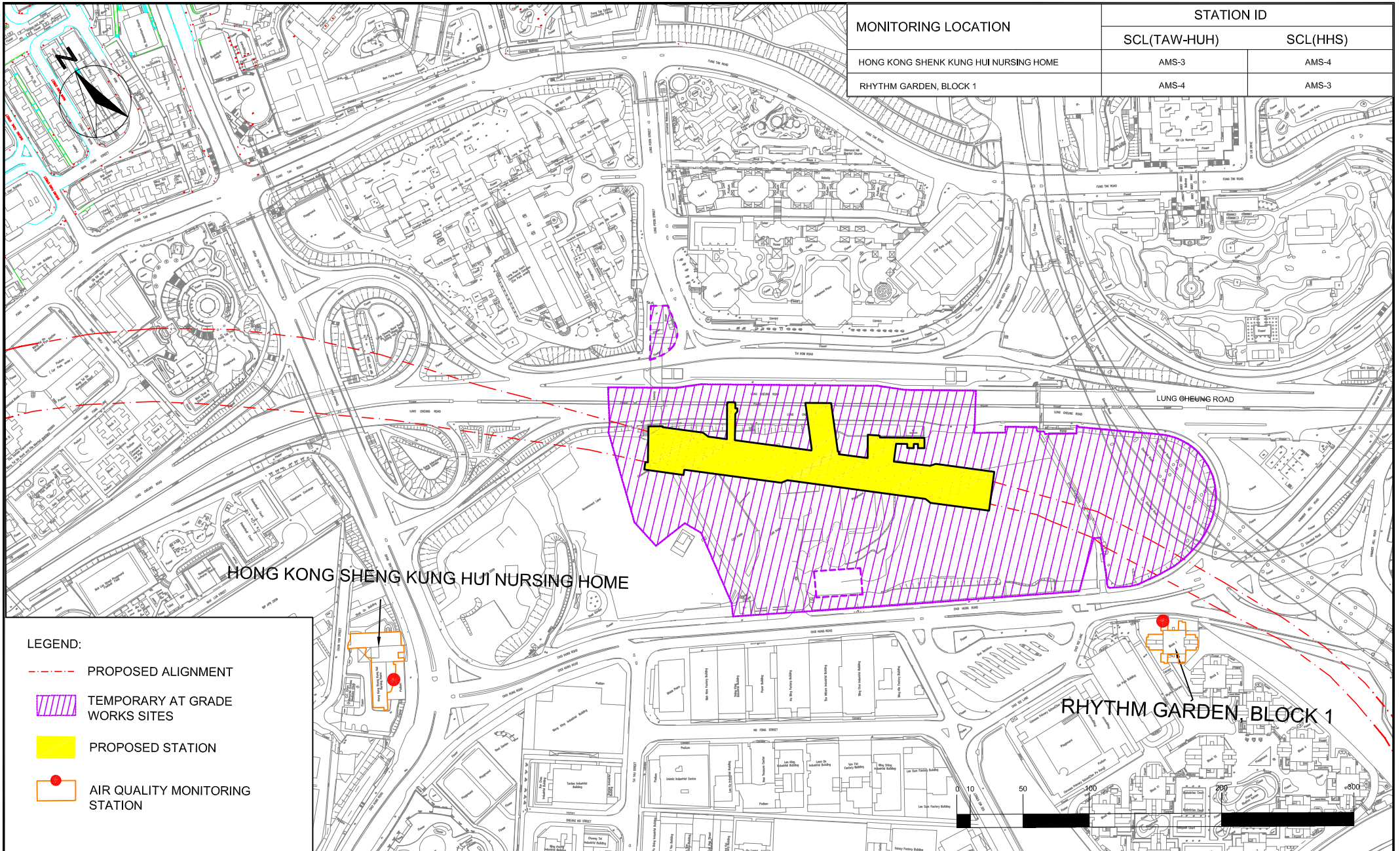
-  PROPOSED ALIGNMENT
-  TEMPORARY AT GRADE WORKS SITES
-  PROPOSED STATION
-  NOISE MONITORING STATION



SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF NOISE MONITORING STATIONS(CONSTRUCTION AIRBORNE NOISE)

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 SHEN KUNG HUI NURSING HOME	AMS-3	AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4	AMS-3

LEGEND:

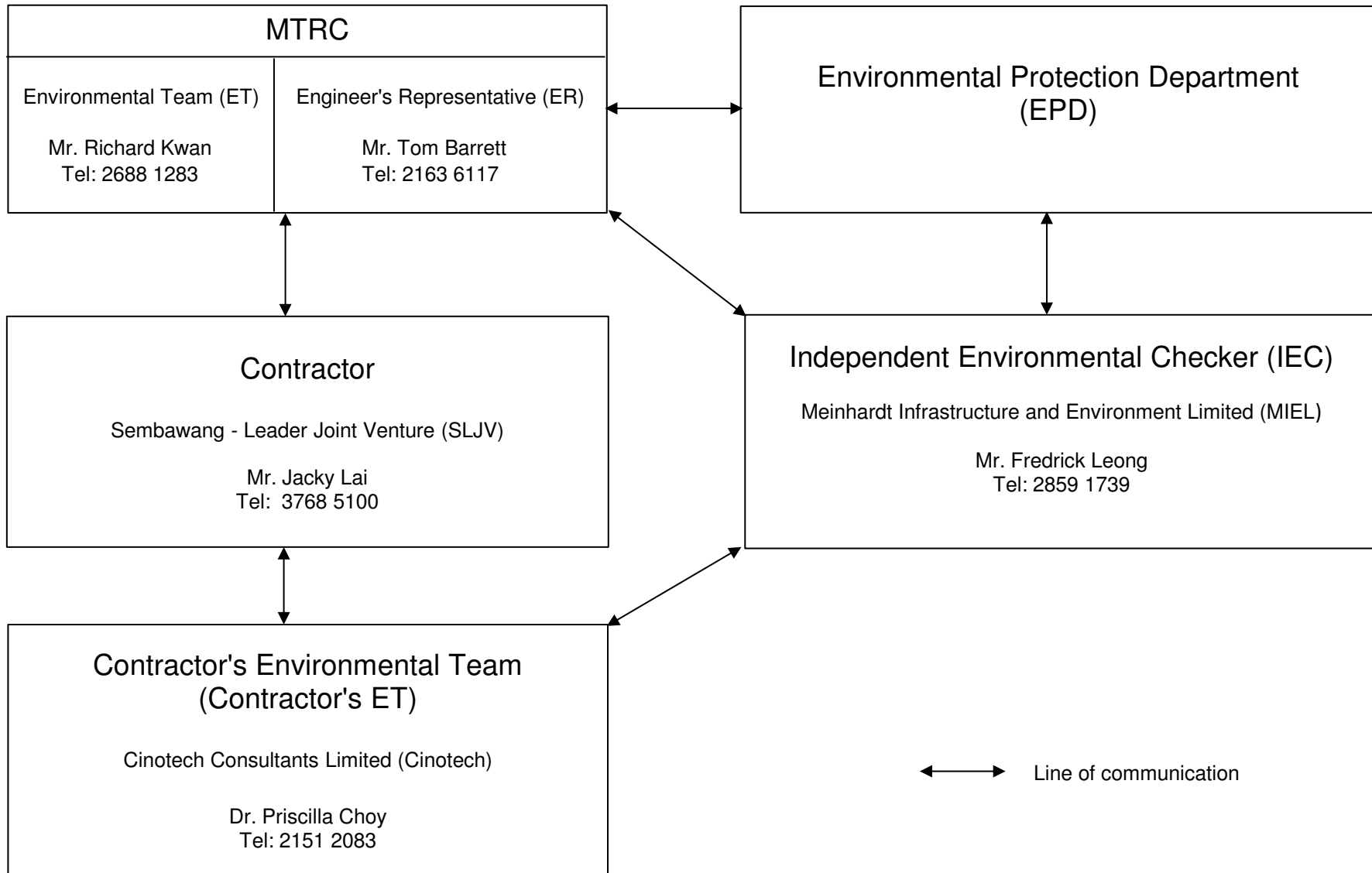
- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION

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**

Activity ID	Activity Name	Orig Dur	Planned Early Start	Planned Early Finish	% Complete	July					August					September				October				
						01	08	15	22	29	05	12	19	26	02	09	16	23	30	07	14	21	28	
Contract Dates																								
Possession & Vacation Dates																								
Possession of Works Areas																								
Possession Dates																								
C1106.ADW002	Access to Works Area 1106.W2 (Existing Public Access)	0	31-Aug-13*		0%																			
C1106.ADW010	Access to Works Area 1106.W1C (Interface with 1103)	0	31-Aug-13*		0%																			
Milestone Dates																								
Cost Centre A Milestones																								
Preliminaries																								
C1106.MSA003	A3: Engineer's Confirmation of Satisfactory Implementation of Safety and Environmental Requirements	0		28-Jul-13 A	100%																			
C1106.MSA004	A4: Engineer's Confirmation of Satisfactory Implementation of Programming Management System	0		22-Oct-13	0%																			
Cost Centre C (Option 5 (KTL) Station Modification)																								
Completion Dates																								
C1106.CMSC001	C1: Complete New Concession at Concourse Level GL 2-4	0		19-Oct-13	0%																			
C1106.CMSC002	C2: Complete Demolished Existing Concession at CC Level GL3-4 and GL13-14, Sheet Pile for lift LT-02 at Lung Poon	0		25-Sep-13	0%																			
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		19-Sep-13	0%																			
Cost Centre A - Preliminaries																								
General Requirements																								
Submissions																								
General																								
C1106.GS0318	1st Safety Management & Environmental Monitoring Audit -A3	90	26-Apr-13 A	12-Jul-13 A	100%																			
C1106.GS0320	1st Progress Monitoring & Programming Management System Audit - F	90	13-Jul-13 A	22-Oct-13	20%																			
C1106.GS0322	1st Quality Management Audit - A5	90	23-Oct-13	20-Jan-14	0%																			
C1106.GS0485	Review & Approve by BD/ RDO	28	23-May-13 A	15-Aug-13	70%																			
C1106.GS0495	Prepare & Submit BD BA10 Form	7	16-Aug-13	22-Aug-13	0%																			
C1106.GS0575	Erect and Equip Engineer's Site Office	70	23-Aug-13	15-Nov-13	0%																			
Cost Centre B: SCL- DIH Station, Entrances and Adits																								
Design & Approval																								
General																								
General																								
C1106.DS0575	Prepare & Submit Method Statement of Pre-drilling for Socketed H-Pile and Barrette	10	02-Jul-13 A	12-Jul-13 A	100%																			
C1106.DS0580	Review & Approved Method Statement of Pre-drilling for Socketed H-Pile and Barrette	25	13-Jul-13 A	30-Jul-13 A	100%																			
C1106.DS0585	Prepare & Submit Excavation & ELS Design, ICE Check	21	08-Aug-13*	31-Aug-13	0%																			
C1106.DS0590	Review & Approve Excavation & ELS Design for the Station	40	02-Sep-13	21-Oct-13	0%																			
TTMS Implementation																								
Submissions																								
TTM Submission																								
C1106.TMS0275	Discuss & Agree in Principles at SLG Meeting	12	03-Jun-13 A	26-Aug-13	70%																			
C1106.TMS0280	Submission of District Council Consultation Paper	0		26-Aug-13*	0%																			
C1106.TMS0290	Transport & Housing Bureau (THB) Clearance prior to Submission of District Council Consultation Paper	14	27-Aug-13	09-Sep-13	0%																			
C1106.TMS0300	District Consultation (Meeting Schedule of YTMDC/ T&TC Meeting)	21	10-Sep-13	30-Sep-13	0%																			
C1106.TMS0305	Community Liaison Group (CLG) Consultation	28	10-Sep-13	07-Oct-13	0%																			
C1106.TMS0310	Railway Development Office (RDO) Endorsed TTMS Drawing	7	01-Oct-13	07-Oct-13	0%																			
C1106.TMS0315	Submission of Section 22 Paper	0		07-Oct-13	0%																			
C1106.TMS0320	Government Internal Review of Section 22 Paper	28	08-Oct-13	04-Nov-13	0%																			
Lung Cheung Road																								
TTA Implementation																								
C1106.TMS0360	TTA for Root Pruning at Lung Cheung Road Footway (SLG/009/DIH/002/001)	30	16-Jun-13 A	14-Jul-13 A	100%																			
C1106.TMS0375	TTA for Installation of Instrumentation at Lung Cheung Road (SLG/006/DIH/003/001)	1	18-Jul-13 A	27-Jul-13 A	100%																			
Choi Hung Road																								
TTA Implementation																								
C1106.TMS0370	TTA for Trial Pit for Exploring the Existing Utilities (SLG/010/DIH/006/001A1)	14	27-Jun-13 A	14-Jul-13 A	100%																			
C1106.TMS0377	TTA for the Construction of Site Access Adjacent to Luen Yee Road (Stage 2) - (SLG/002/DIH/002/002A)	13	26-Jun-13 A	10-Jul-13 A	100%																			
C1106.TMS0386	TTA for Trial Pit for Exploring the Existing Utilities (SLG/010/DIH/008/001A)	14	27-Jun-13 A	10-Jul-13 A	100%																			
Lung Poon Street																								
TTA Implementation																								
C1106.TMS0398	TTA for Setting back of Traffic Island at J/O Tai Hom Road/ Lung Poon Street (SLG/004/DIH/001/001A)	18	15-Jun-13 A	01-Jul-13 A	100%																			
Sheung Yuen Street																								
TTA Implementation																								
C1106.TMS0403	TTA for Installation of Instrumentation at Sheung Yuen Street	22	18-Jul-13 A	08-Aug-13	60%																			
Tree Felling / Transplanting																								
General																								
Tree Transplanting																								
C1106.BTP1425	Tree Transplant to Permanent Location for Category A & B Trees - 5 nos	30	04-Jun-13 A	08-Aug-13	90%																			
C1106.BTP1480	Tree Transplant to Permanent Location for Category C Trees - 5 nos	53	26-Jun-13 A	29-Aug-13	60%																			
C1106.BTP1520	Tree Transplant (2nd Stage Works for Category D Trees - 2 nos.)	70	02-May-13 A	20-Jul-13 A	100%																			
C1106.BTP1525	Tree Transplant (3rd Stage Works for Category D Trees - 2 nos.)	70	21-Jul-13 A	17-Oct-13	5%																			
C1106.BTP1530	Tree Transplant to Permanent Location for Category D Trees - 2 nos	65	18-Oct-13	04-Jan-14	0%																			
Diaphragm Wall & Foundation Works																								
DIH (SCL) Gridline 39 - 49																								
Station Cofferdam																								
C1106.BDW4022	GL 41-42 Construct Dwall Panel A08 (Closing) (Gang 1)	18	29-Jun-13 A	06-Aug-13	90%																			
C1106.BDW4027	GL 39-40 Construct Dwall Panel A01 (Closing) (Gang 1)	14	08-Aug-13	23-Aug-13	0%																			
C1106.BDW4028	GL 48-49 Construct Dwall Panel A33 (Primary) (Gang 1)	35	24-Aug-13	05-Oct-13	0%																			
C1106.BDW4029	GL 48-49 Construct Dwall Panel A34 (Gang 1)	20	07-Oct-13	30-Oct-13	0%																			
C1106.BDW4032	GL 49-50 Construct Dwall Panel A35 (Gang 1)	25	31-Oct-13	28-Nov-13	0%																			
C1106.BDW4050	GL 42-43 Construct Dwall Panel A14 (Gang 2)	12	20-Jun-13 A	08-Jul-13 A	100%																			
C1106.BDW4055	GL 443-43 Construct Dwall Panel A13 (Closing) (Gang 2)	12	10-Jul-13 A	05-Aug-13	80%																			
C1106.BDW4060	GL 43-44 Construct Dwall Panel A16 (Gang 2)	14	06-Aug-13	21-Aug-13	0%																			
C1106.BDW4065	GL 43-44 Construct Dwall Panel A17 (Gang 2)	14	22-Aug-13	06-Sep-13	0%																			
C1106.BDW4070	GL 43-44 Construct Dwall Panel A18 (Gang 2)	14	07-Sep-13	24-Sep-13	0%																			
C1106.BDW4075	GL 44-45 Construct Dwall Panel A19 (Gang 2)	14	25-Sep-13	11-Oct-13	0%																			
C1106.BDW4082	GL 44-45 Construct Dwall Panel A20 (Closing) (Gang 2)	13	12-Oct-13	28-Oct-13	0%																			
C1106.BDW4095	GL 44-45 Construct Dwall Panel A21 (Gang 2)	13	29-Oct-13	12-Nov-13	0%																			
C1106.BDW4110	GL 45-46 Construct Dwall Panel A25 (Primary) (Gang 2)	9	07-Sep-13*	17-Sep-13	0%																			
C1106.BDW4112	GL 45-46 Construct Dwall Panel A24 (Gang 2)	13	18-Sep-13	04-Oct-13	0%																			
C1106.BDW4113	GL 46-47 Construct Dwall Panel A26 (Gang 2)	14	05-Oct-13	22-Oct-13	0%																			

— Baseline
— Actual Work
— Remaining Work
— Critical Remaining Work
◆ Baseline Milestone

Project File: C1106-3MRP
 July 2013
 Project Start: 17-Dec-12
 Project Finish: 14-Apr-19
 Date Date: 01-Aug-13
 Print: 02-Aug-13 @11:20

Page 1 of 2

MTR Contract 1106 - Diamond Hill Station

Three Month Rolling Programme as of 31 July 2013

3 Month Rolling Programme			
Date	Revision	Checked	Approved
01-Aug-13	C1106-3M...	RR	RB



Contract 1106 - Diamond Hill Station



Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Early Finish	% Complete	July							August							September							October						
						01	08	15	22	29	05	12	19	26	02	09	16	23	30	06	13	20	27	03	10	17	24	31	07	14	21	28	
C1106.BDW4450	GL 40-41 Construct Dwall Panel A73 (Gang 3)	18	23-May-13 A	03-Jul-13 A	100%	GL 40-41 Construct Dwall Panel A73 (Gang 3)																											
C1106.BDW4455	GL 42-43 Construct Dwall Panel A70 (Gang 3)	18	18-Jun-13 A	12-Jul-13 A	100%	GL 42-43 Construct Dwall Panel A70 (Gang 3)																											
C1106.BDW4460	GL 40-41 Construct Dwall Panel A74 (Gang 3)	18	06-Jul-13 A	08-Aug-13	80%	GL 40-41 Construct Dwall Panel A74 (Gang 3)																											
C1106.BDW4470	GL 39-40 Construct Dwall Panel A75 (Gang 3)	22	09-Aug-13	03-Sep-13	0%	GL 39-40 Construct Dwall Panel A75 (Gang 3)																											
C1106.BDW4480	GL 39-40 Construct Dwall Panel A76 (Interface) (Gang 3)	18	04-Sep-13	25-Sep-13	0%	GL 39-40 Construct Dwall Panel A76 (Interface) (Gang 3)																											
C1106.BDW4525	GL 42-46 Construction of Guide Wall (Panel A17-A22; 20m)	10	15-Aug-13*	26-Aug-13	0%	GL 42-46 Construction of Guide Wall (Panel A17-A22; 20m)																											
C1106.BDW4530	GL 42-46 Construction of Guide Wall (Panel A22-A28; 20m)	12	27-Aug-13	09-Sep-13	0%	GL 42-46 Construction of Guide Wall (Panel A22-A28; 20m)																											
C1106.BDW4645	GL 47-48 Construct Dwall Panel A59 (Primary) (Gang 5)	18	29-May-13 A	24-Jul-13 A	100%	GL 47-48 Construct Dwall Panel A59 (Primary) (Gang 5)																											
C1106.BDW4650	GL 47-48 Construct Dwall Panel A60 (Gang 5)	26	25-Jul-13 A	23-Aug-13	20%	GL 47-48 Construct Dwall Panel A60 (Gang 5)																											
C1106.BDW4655	GL 48-49 Construct Dwall Panel A58 (Gang 5)	18	25-Oct-13	14-Nov-13	0%	GL 48-49 Construct Dwall Panel A58 (Gang 5)																											
C1106.BDW4660	GL 48-49 Construct Dwall Panel A57 (Gang 5)	27	05-Aug-13	04-Sep-13	0%	GL 48-49 Construct Dwall Panel A57 (Gang 5)																											
C1106.BDW4665	GL 46-47 Construct Dwall Panel A61 (Gang 5)	30	24-Oct-13*	27-Nov-13	0%	GL 46-47 Construct Dwall Panel A61 (Gang 5)																											
C1106.BDW4750	GL 43-46 Pre-Drilling Works of Diaphragm Wall Panel A63-A67 (5 nos)	15	29-Jun-13 A	18-Jul-13 A	100%	GL 43-46 Pre-Drilling Works of Diaphragm Wall Panel A63-A67 (5 nos)																											
C1106.BDW4760	GL 43-46 Construction of Guide Wall and Setting out for Dwall (Panel A64-A68; 31m)	14	13-Jul-13 A	22-Jul-13 A	100%	GL 43-46 Construction of Guide Wall and Setting out for Dwall (Panel A64-A68; 31m)																											
C1106.BDW4763	GL 45-46 Construct Dwall Panel A64 (Primary) (Gang 6)	23	19-Jul-13 A	21-Aug-13	20%	GL 45-46 Construct Dwall Panel A64 (Primary) (Gang 6)																											
C1106.BDW4765	GL 44-46 Construct Dwall Panel A65 (Closing) (Gang 6)	23	22-Aug-13	17-Sep-13	0%	GL 44-46 Construct Dwall Panel A65 (Closing) (Gang 6)																											
C1106.BDW4800	GL 43-45 Construct Dwall Panel A67 (Gang 6)	20	18-Sep-13	12-Oct-13	0%	GL 43-45 Construct Dwall Panel A67 (Gang 6)																											
C1106.BDW4805	GL 44-45 Construct Dwall Panel A66 (Gang 6)	18	15-Oct-13	04-Nov-13	0%	GL 44-45 Construct Dwall Panel A66 (Gang 6)																											
DIH (SCL) Gridline 49 - 53																																	
Station Cofferdam																																	
C1106.BDW4483	GL 51-52 Construct Dwall Panel A52 (Gang 5)	26	24-Aug-13	24-Sep-13	0%	GL 51-52 Construct Dwall Panel A52 (Gang 5)																											
C1106.BDW4485	GL 52-53 Construct Dwall Panel A51 (Gang 5)	25	25-Sep-13	25-Oct-13	0%	GL 52-53 Construct Dwall Panel A51 (Gang 5)																											
C1106.BDW4490	GL 51-52 Construct Dwall Panel A50 (Gang 5)	26	26-Oct-13	25-Nov-13	0%	GL 51-52 Construct Dwall Panel A50 (Gang 5)																											
C1106.BDW4955	GL 50-51 Construct Dwall Panel A54 (Gang 4)	18	17-Jun-13 A	03-Aug-13	90%	GL 50-51 Construct Dwall Panel A54 (Gang 4)																											
C1106.BDW4960	GL N-R Pre-drilling Works for Dwall Panel at Archaeological Areas (9 nos)	14	15-Aug-13*	30-Aug-13	0%	GL N-R Pre-drilling Works for Dwall Panel at Archaeological Areas (9 nos)																											
C1106.BDW4970	GL 49-50 Construct Dwall Panel A56 (Gang 4)	18	05-Sep-13	26-Sep-13	0%	GL 49-50 Construct Dwall Panel A56 (Gang 4)																											
C1106.BDW4980	GL 49-50 Construct Dwall Panel A55 (Gang 4)	22	27-Sep-13	24-Oct-13	0%	GL 49-50 Construct Dwall Panel A55 (Gang 4)																											
C1106.BDW5315	GL N-R Construction of Guide Wall & Setting Out for Dwall Panel A41	14	30-Aug-13*	14-Sep-13	0%	GL N-R Construction of Guide Wall & Setting Out for Dwall Panel A41																											
C1106.BDW5320	GL N-P Construct Dwall Panel A41 (Primary) (Gang 4)	16	25-Oct-13	12-Nov-13	0%	GL N-P Construct Dwall Panel A41 (Primary) (Gang 4)																											
Construction of Interchange Adit																																	
Submissions																																	
General																																	
C1106.BIA6010	Prepare Cofferdam (ELS) Design, ICE Check & Submit	25	11-Mar-13 A	29-Jul-13 A	100%	Prepare Cofferdam (ELS) Design, ICE Check & Submit																											
C1106.BIA6017	Review & Approve Cofferdam (ELS) Design	28	30-Jul-13 A	26-Aug-13	5%	Review & Approve Cofferdam (ELS) Design																											
Site Preparation																																	
C1106.BIA6023	Mobilize, Site Preparation & Survey	14	27-Aug-13	11-Sep-13	0%	Mobilize, Site Preparation & Survey																											
C1106.BIA6026	Erect Hoarding & Temporary Site Access/ Access Staircase	18	12-Sep-13	04-Oct-13	0%	Erect Hoarding & Temporary Site Access/ Access Staircase																											
C1106.BIA6034	Install Instrumentation & Markers	14	05-Oct-13	22-Oct-13	0%	Install Instrumentation & Markers																											
C1106.BIA6068	Demolition of Existing Concrete Boundary Walls, Stairs, planter wall & others	12	23-Oct-13	05-Nov-13	0%	Demolition of Existing Concrete Boundary Walls, Stairs, planter wall & others																											
Construction of West Unpaid Link Adit																																	
Submissions																																	
General																																	
C1106.BWA7522	Prepare Cofferdam (ELS) Design, ICE Check & Submit	25	18-Apr-13 A	19-Jul-13 A	100%	Prepare Cofferdam (ELS) Design, ICE Check & Submit																											
C1106.BWA7527	Review & Approve Cofferdam (ELS) Design	25	20-Jul-13 A	20-Aug-13	30%	Review & Approve Cofferdam (ELS) Design																											
C1106.BWA7540	Mobilise, Site Preparation & Survey	12	21-Aug-13	03-Sep-13	0%	Mobilise, Site Preparation & Survey																											
C1106.BWA7550	Erect Hoarding & Temporary Site Access/ Access Staircase	8	04-Sep-13	12-Sep-13	0%	Erect Hoarding & Temporary Site Access/ Access Staircase																											
C1106.BWA7560	Install Instrumentation & Markers	14	13-Sep-13	30-Sep-13	0%	Install Instrumentation & Markers																											
C1106.BWA7565	Demolition of Existing Concrete Boundary Wall, Stairs, Metal Fencing & Others	12	02-Oct-13	16-Oct-13	0%	Demolition of Existing Concrete Boundary Wall, Stairs, Metal Fencing & Others																											
West Adit Link - South Section																																	
Adit Cofferdam																																	
C1106.BWA8260	Mobilize & Set-up for Equipment and Pre-drilling Works	7	17-Oct-13	24-Oct-13	0%	Mobilize & Set-up for Equipment and Pre-drilling Works																											
C1106.BWA8270	West Unpaid Link Adit - Install Prebored Socketed H-Pile 610mm (2 nos)	10	25-Oct-13	05-Nov-13	0%	West Unpaid Link Adit - Install Prebored Socketed H-Pile 610mm (2 nos)																											
Cost Centre D - Re-provisioning, Remedial and Improvement Works (RRIW)																																	
Preservation of Old Pillbox & RAF Hanger and Archaeological Survey-Cum-Excavation																																	
Preservation of Old Pillbox																																	
General																																	
C1106.DRIW406	Old Pill Box - Install of casing for socket H-Pile P05-P08 (4 nos.)	7	10-Jul-13 A	18-Jul-13 A	100%	Old Pill Box - Install of casing for socket H-Pile P05-P08 (4 nos.)																											
C1106.DRIW409	Old Pill Box - Install of casing for socket H-Pile P01-P08 (4 nos.)	10	22-Jul-13 A	29-Jul-13 A	100%	Old Pill Box - Install of casing for socket H-Pile P01-P08 (4 nos.)																											
C1106.DRIW411	Installation of H-pipes and grouting for P05 to P08	10	20-Jul-13 A	01-Aug-13	60%	Installation of H-pipes and grouting for P05 to P08																											
C1106.DRIW412	Installation of H-pipes and grouting for P01 to P04	3	02-Aug-13	05-Aug-13	0%	Installation of H-pipes and grouting for P01 to P04																											
C1106.DRIW414	Low Pressure Cement Sand grout underneath	6	06-Aug-13	12-Aug-13	0%	Low Pressure Cement Sand grout underneath																											
C1106.DRIW416	Install Horizontal Pipe Pipes	12	13-Aug-13	26-Aug-13	0%	Install Horizontal Pipe Pipes																											
C1106.DRIW418	Install 2 nos Girder Outside	2	27-Aug-13	28-Aug-13	0%	Install 2 nos Girder Outside																											
C1106.DRIW423	Tunnel Excavation for the remaining 2 nos. Girder in the Middle	10	29-Aug-13	09-Sep-13	0%	Tunnel Excavation for the remaining 2 nos. Girder in the Middle																											
C1106.DRIW428	Final Welding of the Steel Frames and Excavation to the Formation	7	10-Sep-13	17-Sep-13	0%	Final Welding of the Steel Frames and Excavation to the Formation																											
C1106.DRIW433	Transport the Pill Box by Tractor to Final Position	3	17-Sep-13	19-Sep-13	0%	Transport the Pill Box by Tractor to Final Position																											
C1106.DRIW473	Construction of Temporary Storage Compound for Pill Box	3	06-Sep-13	09-Sep-13	0%	Construction of Temporary Storage Compound for Pill Box																											
C1106.DRIW478	Construction of Access Road for relocation of Pill Box	6	10-Sep-13	16-Sep-13	0%	Construction of Access Road for relocation of Pill Box																											
Archaeological Survey																																	
General																																	
C1106.DRIW468	Stage 2: Archaeological Survey-Cum-Excavation at Zone "A" & "C"	40	20-Jun-13 A	06-Aug-13	90%	Stage 2: Archaeological Survey-Cum-Excavation at Zone "A" & "C"																											
C1106.DRIW469	Submission of Monthly Progress Report No. 1	1	03-Jul-13 A	03-Jul-13 A	100%	Submission of Monthly Progress Report No. 1																											
C1106.DRIW470	Zone "A" Site Handover Assessment Report	7	07-Aug-13	13-Aug-13	0%	Zone "A" Site Handover Assessment Report																											
C1106.DRIW474	Zone "A" Handover	0		13-Aug-13	0%	Zone "A" Handover																											
C1106.DRIW475	Archaeological Survey-Cum-Excavation at Zone "B"	21	26-Jun-13 A	12-Aug-13	75%	Archaeological Survey-Cum-Excavation at Zone "B"																											
C1106.DRIW481	Submission of Monthly Report No. 2	1	26-Jul-13 A	26-Jul-13 A	100%	Submission of Monthly Report No. 2																											
C1106.DRIW482	Excavation Completion Interim Report and Handover	7	13-Aug-13	20-Aug-13	0%	Excavation Completion Interim Report and Handover																											
C1106.DRIW483	Whole Site Handover	1	20-Aug-13	20-Aug-13	0%	Whole Site Handover																											
C1106.DRIW485	Preparation of Archaeological Survey-Cum-Excavation Report (Draft ASE Report)	20	22-Aug-13	13-Sep-13	0%	Preparation of Archaeological Survey-Cum-Excavation Report (Draft ASE Report)																											
C1106.DRIW490	Final submission of ASE Report incorporates AMO comments	46	14-Sep-13	29-Oct-13	0%	Final submission of ASE Report incorporates AMO comments																											
Cost Centre H - Option No. 4 Piling Works for CDA at SCL DIH East																																	
Design & Approval																																	
Submissions																																	
Exercise Date of Option																																	
C1106.CDA0152	MTR Provide Details Drawings for the CDA Piling	21	02-Jul-13 A	24-Aug-13	50%	MTR Provide Details Drawings for the CDA Piling																											
C1106.CDA0155	Submit / Approve Method Statement for Bored Pile	60	25-Aug-13	23-Oct-13	0%	Submit / Approve Method Statement for Bored Pile																											
Piling Works for CDA																																	
CDA Development Site																																	
General																																	
C1106.CDA1010	Mobilize, Survey & Setting Out	4	24-Oct-13	28-Oct-13	0%	Mobilize, Survey & Setting Out																											
C1106.CDA1015	General Clearance & Remove/ Divert/ Terminate Existing Utilities	6	29-Oct-13	04-Nov-13	0%	General Clearance & Remove/ Divert/ Terminate Existing Utilities																											

Baseline
 Actual Work
 Remaining Work
 Critical Remaining Work
 Baseline Milestone

Project File: C1106-3MRP
 July 2013
 Project Start: 17-Dec-12
 Project Finish: 14-Apr-19
 Date Date: 01-Aug-13
 Print: 02-Aug-13 @11:20

Page 2 of 2
MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
as of 31 July 2013

3 Month Rolling Programme			
Date	Revision	Checked	Approved
01-Aug-13	C1106-3M...	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. MA12051/57/0002

 Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 13-May-13 Next Due Date: 12-Jul-13
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	299.9	Pressure, Pa (mmHg)	758.3

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	11.4	3.36	57.27	7.3	2.69
2	8.9	2.97	50.66	5.4	2.31
3	7.0	2.63	44.98	4.3	2.06
4	4.6	2.14	36.55	2.8	1.67
5	2.9	1.70	29.12	1.7	1.30

By Linear Regression of Y on X

 Slope, mw = 0.0487 Intercept, bw = -0.1230
 Correlation coefficient* = 0.9993

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.92

Remarks: _____

 Conducted by: Wk Tang Signature: [Signature] Date: 13/5/13
 Checked by: [Signature] Signature: [Signature] Date: 13 May 2013

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0003

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 9-Jul-13 Next Due Date: 8-Sep-13
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	301.3	Pressure, Pa (mmHg)	760.2

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	11.5	3.37	57.45	7.4	2.71
2	8.9	2.97	50.60	5.5	2.33
3	7.2	2.67	45.56	4.4	2.09
4	4.6	2.13	36.51	2.7	1.63
5	2.9	1.69	29.09	1.7	1.30

By Linear Regression of Y on X

Slope, mw = 0.0496 Intercept, bw = -0.1629
 Correlation coefficient* = 0.9995

*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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.92

Remarks: _____

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

Date: 9/7/13
 Date: 9 July 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 Rootmeter 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)]			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/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 59%

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

Remark: 1) This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

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/120901/2
Date of Issue:	2012-09-02
Date Received:	2012-09-01
Date Tested:	2012-09-01
Date Completed:	2012-09-02
Next Due Date:	2013-09-01

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 67%

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/120921/1
Date of Issue:	2012-09-22
Date Received:	2012-09-21
Date Tested:	2012-09-21
Date Completed:	2012-09-22
Next Due Date:	2013-09-21

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	: 24 degree Celsius
Relative Humidity	: 56%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/121005/1
Date of Issue:	2012-10-07
Date Received:	2012-10-05
Date Tested:	2012-10-05
Date Completed:	2012-10-07
Next Due Date:	2013-10-06

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	: 23 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

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


PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1106 Diamond Hill Station
Impact Air Quality and Noise Monitoring Schedule for July 2013**

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

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 August 2013**

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

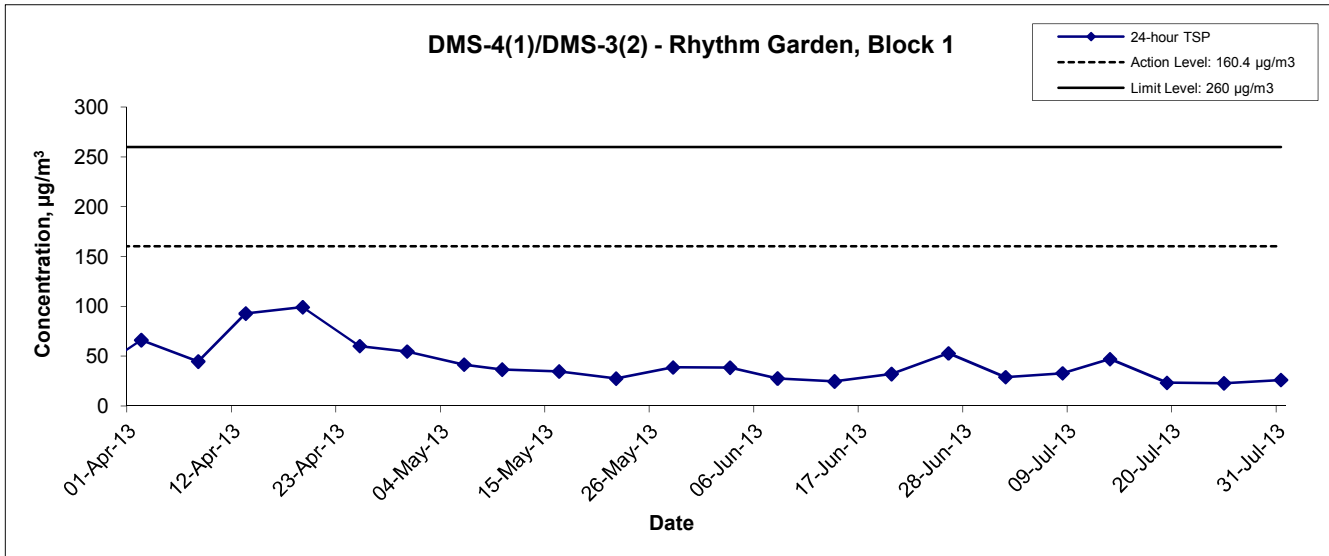
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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			
2-Jul-13	09:00	Sunny	302.1	757.7	3.0394	3.0900	0.0506	1289.9	1313.9	24.0	1.21	1.21	1.21	1741.7	29.1
8-Jul-13	09:00	Sunny	301.1	760.7	3.0583	3.1158	0.0575	1313.9	1337.9	24.0	1.21	1.21	1.21	1747.7	32.9
13-Jul-13	09:00	Sunny	303.6	753.1	3.0318	3.1134	0.0816	1337.9	1361.9	24.0	1.20	1.20	1.20	1734.0	47.1
19-Jul-13	09:00	Sunny	300.1	756.8	3.8808	3.9215	0.0407	1361.9	1385.9	24.0	1.21	1.21	1.21	1747.2	23.3
25-Jul-13	09:00	Cloudy	298.3	755.4	3.0275	3.0676	0.0401	1385.9	1409.9	24.0	1.22	1.22	1.22	1750.7	22.9
31-Jul-13	09:00	Cloudy	301.8	756.1	3.6398	3.6854	0.0456	1409.9	1433.9	24.0	1.21	1.21	1.21	1742.0	26.2
														Min	22.9
														Max	47.1
														Average	30.2

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



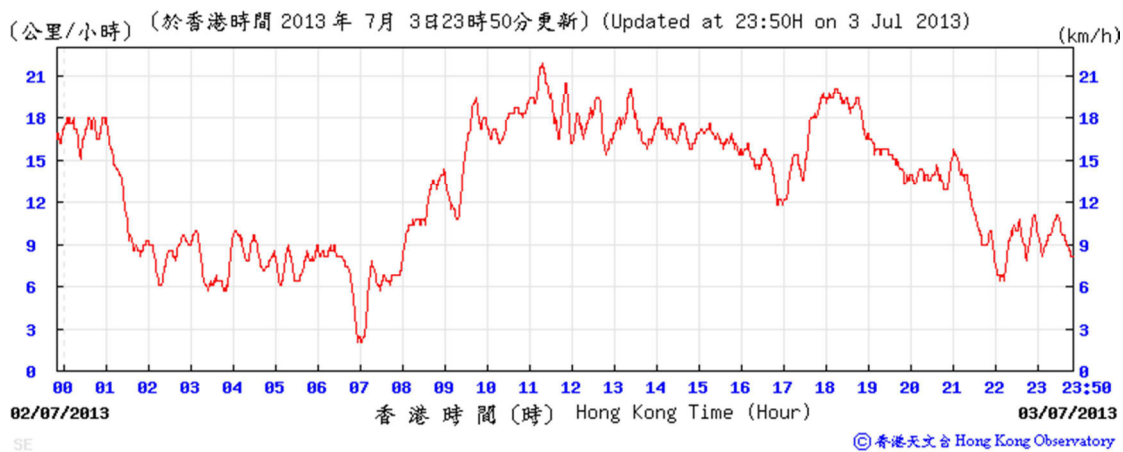
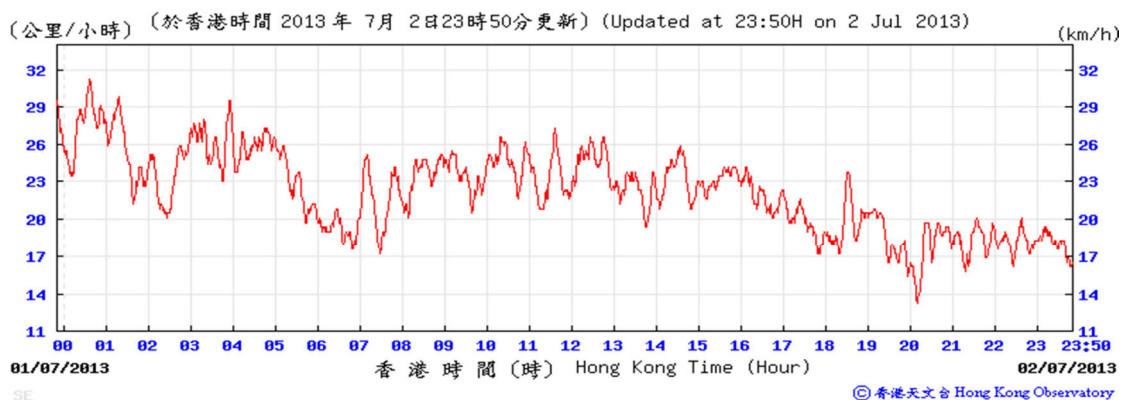
Remarks:

- (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 Jul 13	Appendix E	

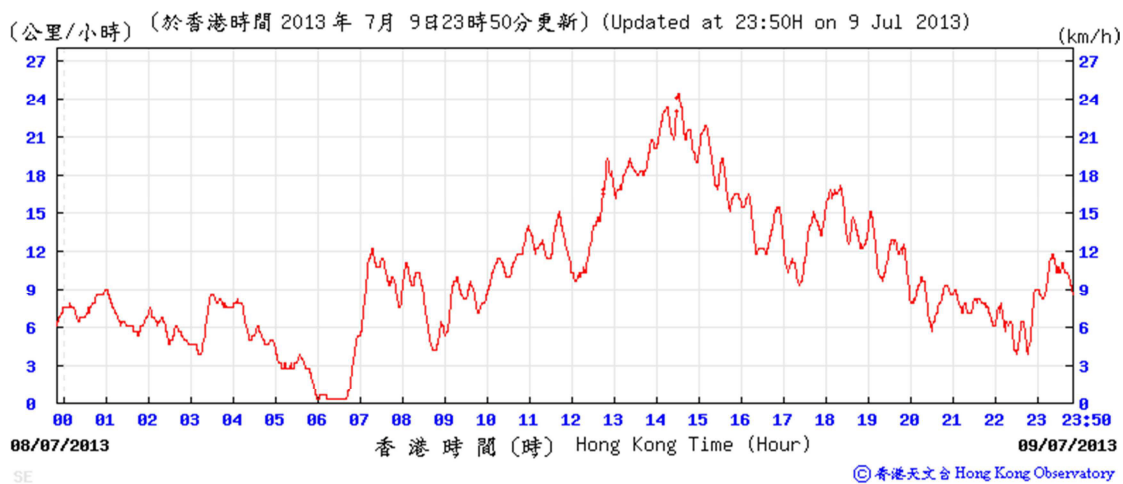
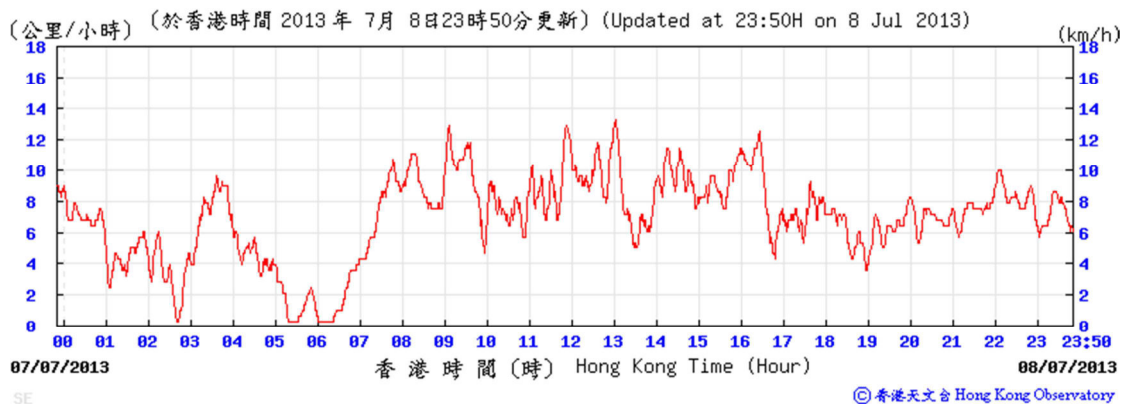
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2013



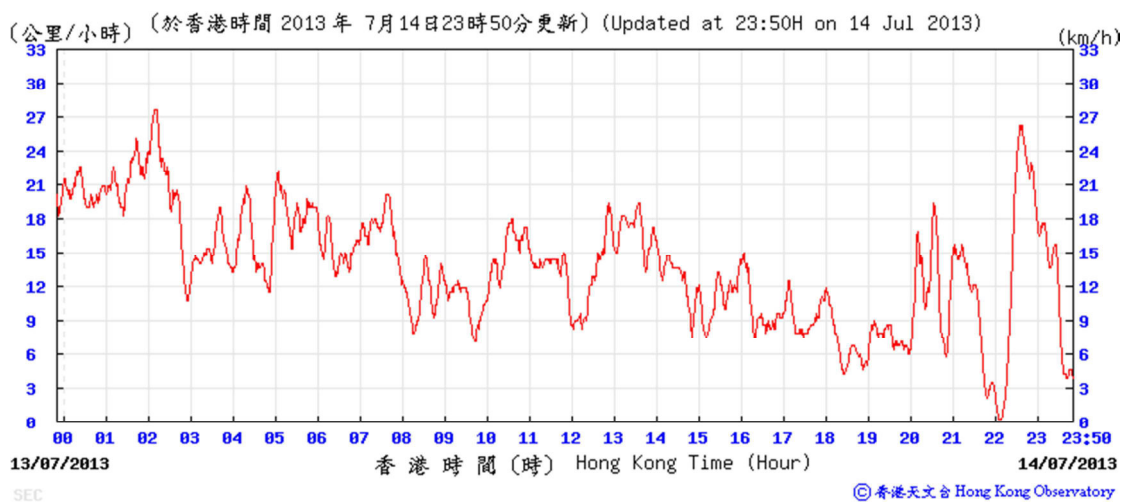
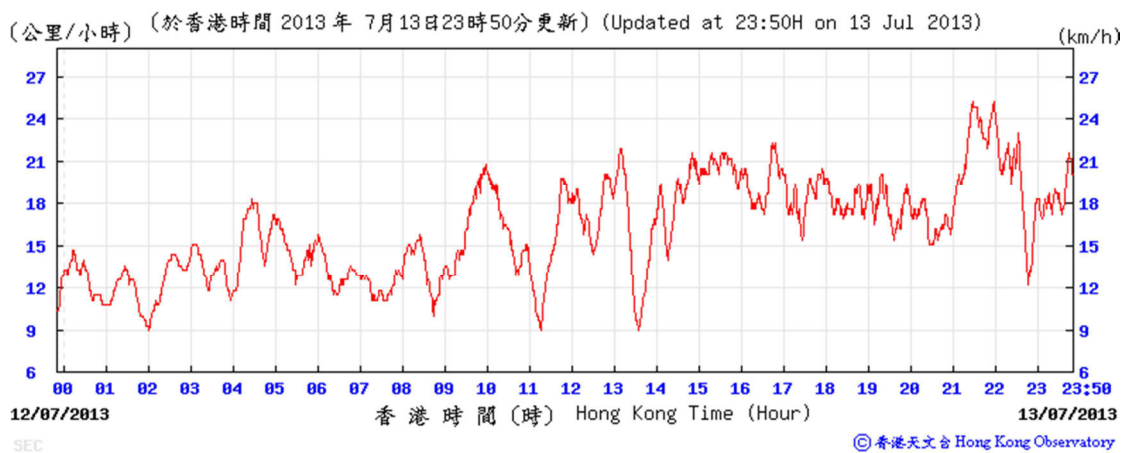
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2013



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

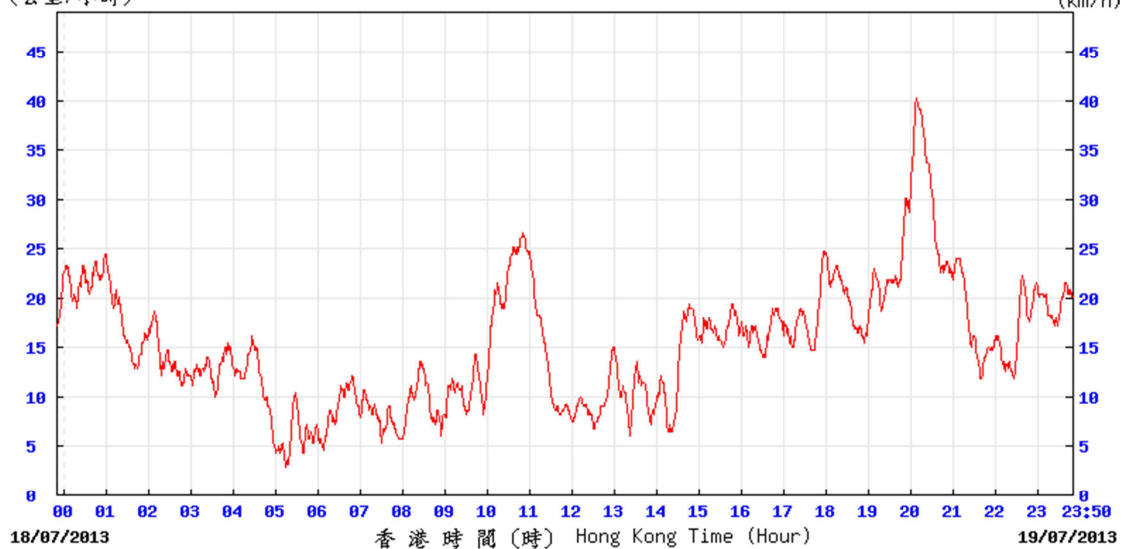
13-14 July 2013



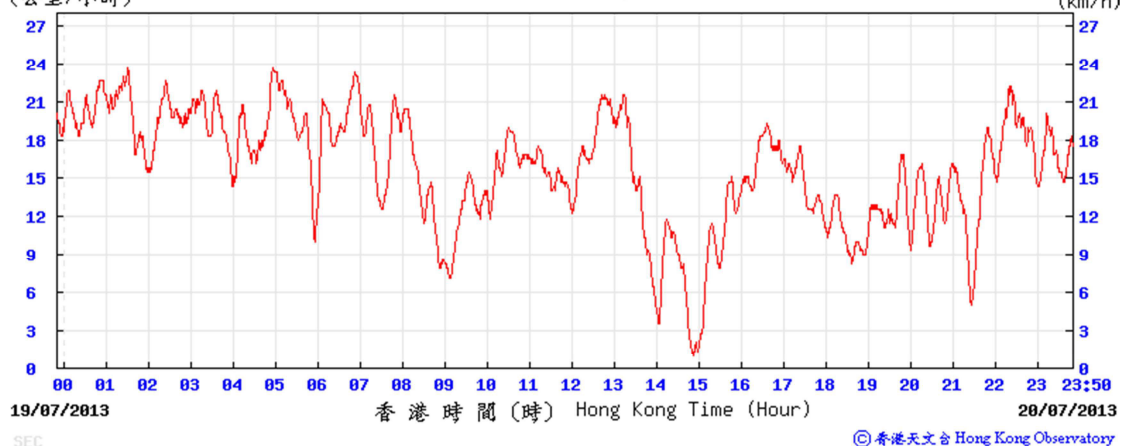
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 July 2013

(公里/小時) (於香港時間 2013 年 7 月 19 日 23 時 50 分更新) (Updated at 23:50H on 19 Jul 2013) (km/h)

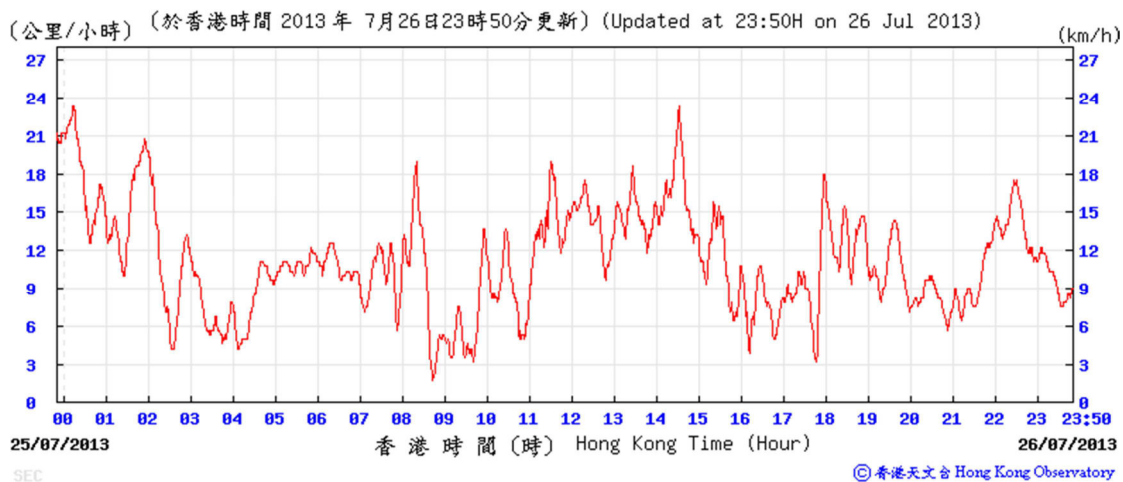
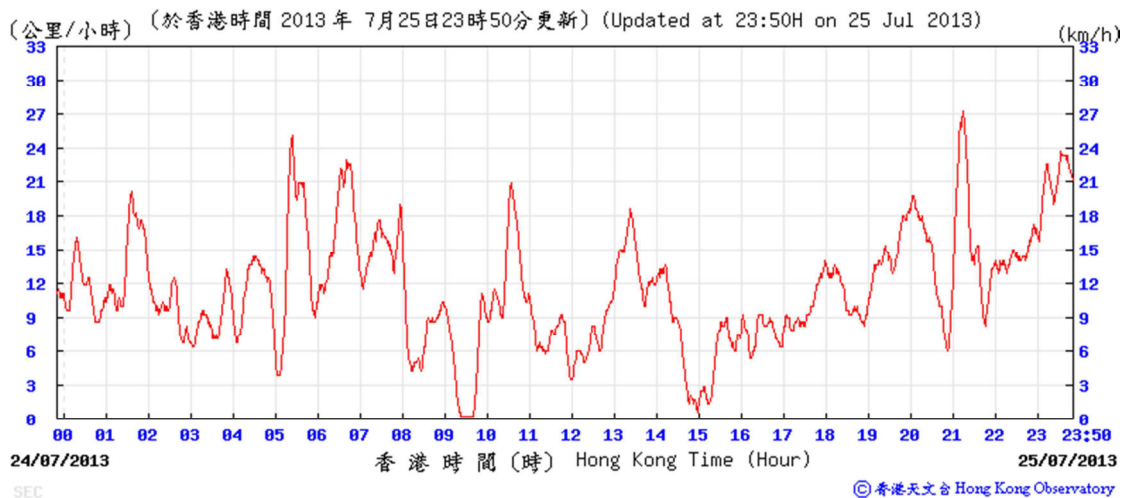


(公里/小時) (於香港時間 2013 年 7 月 20 日 23 時 50 分更新) (Updated at 23:50H on 20 Jul 2013) (km/h)



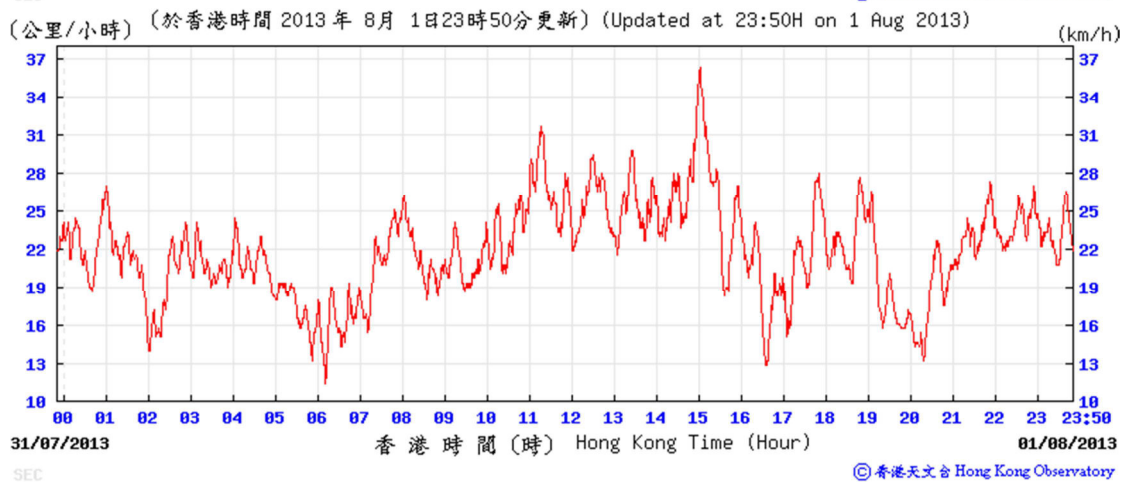
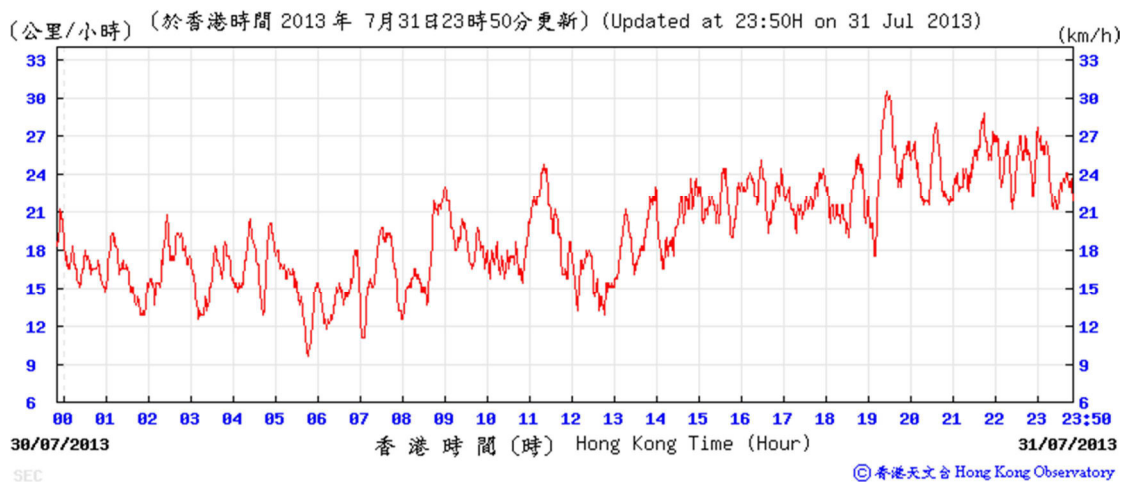
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2013



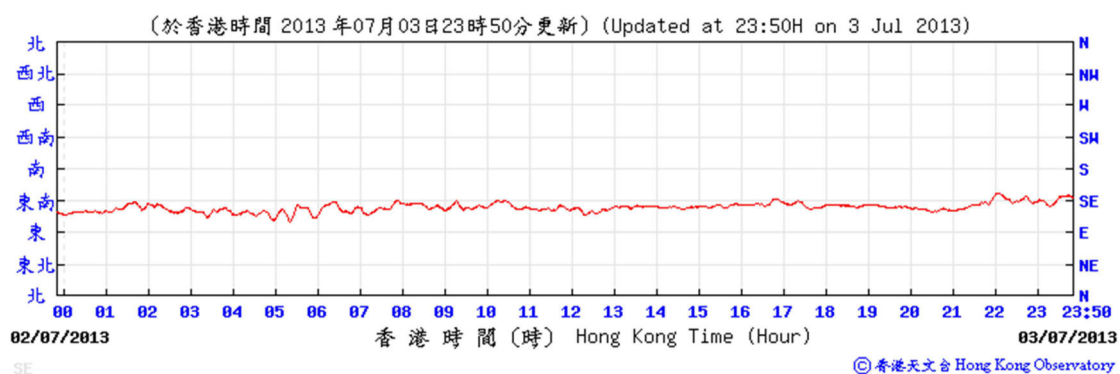
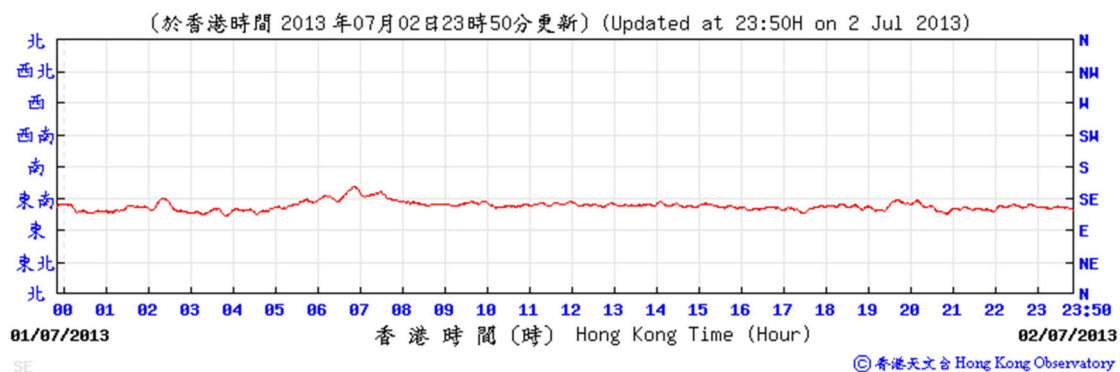
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

31- July to 1 August 2013



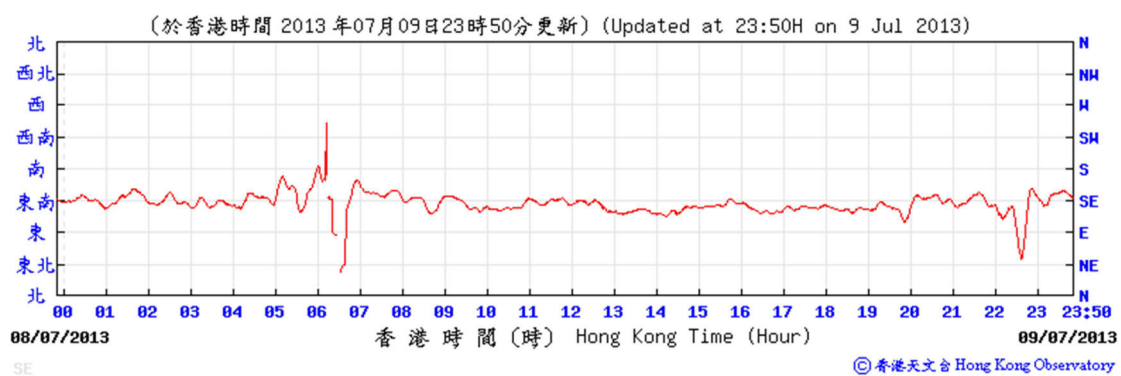
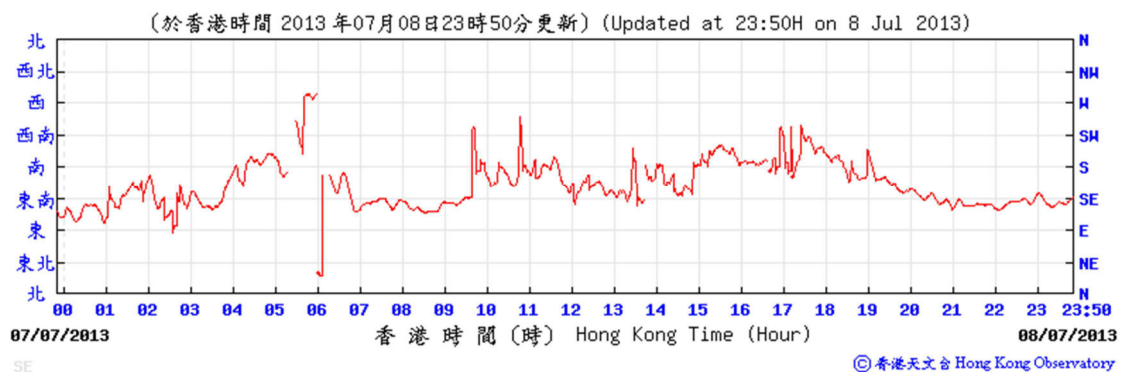
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2013



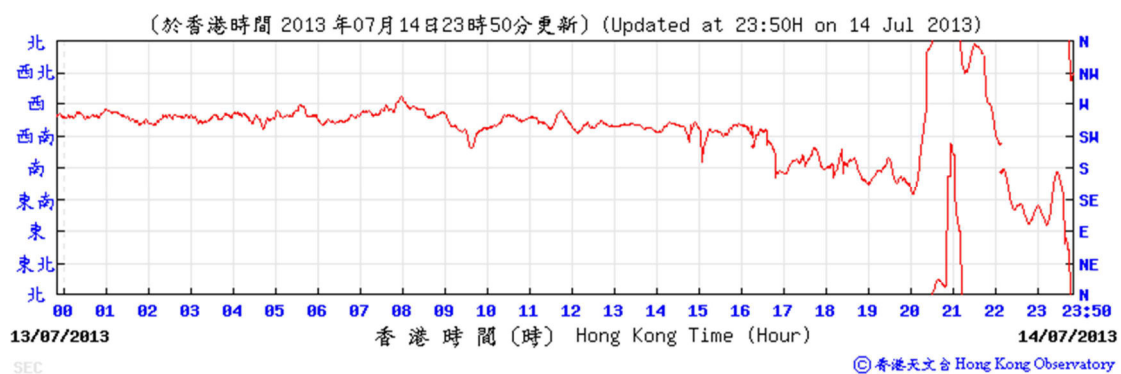
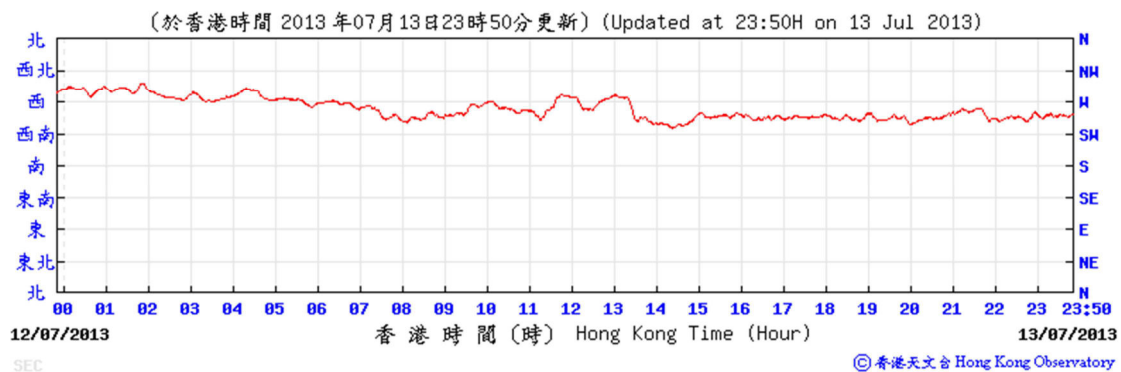
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2013



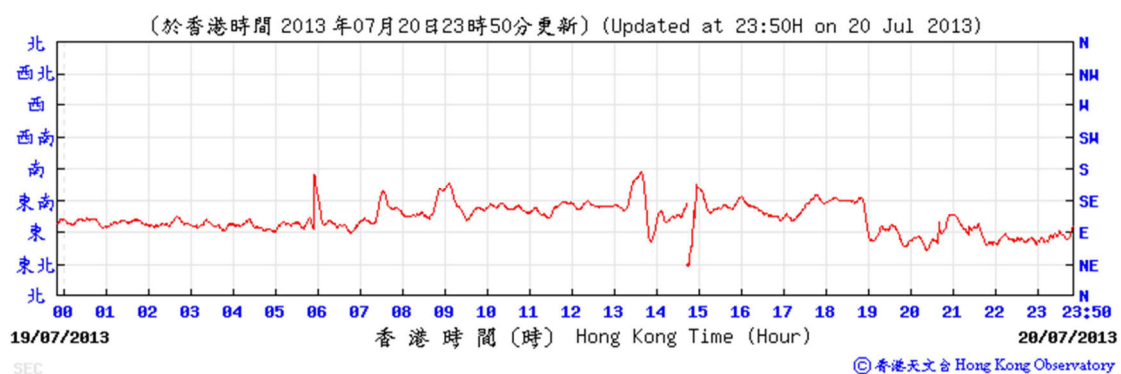
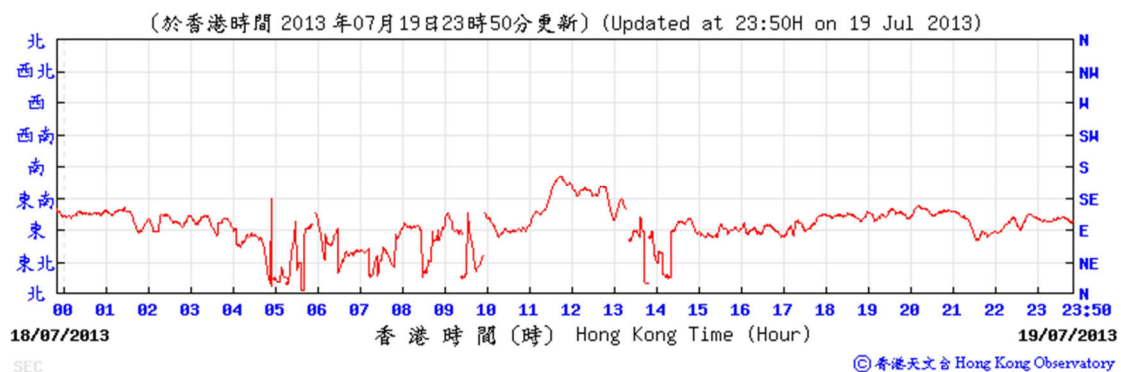
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

13-14 July 2013



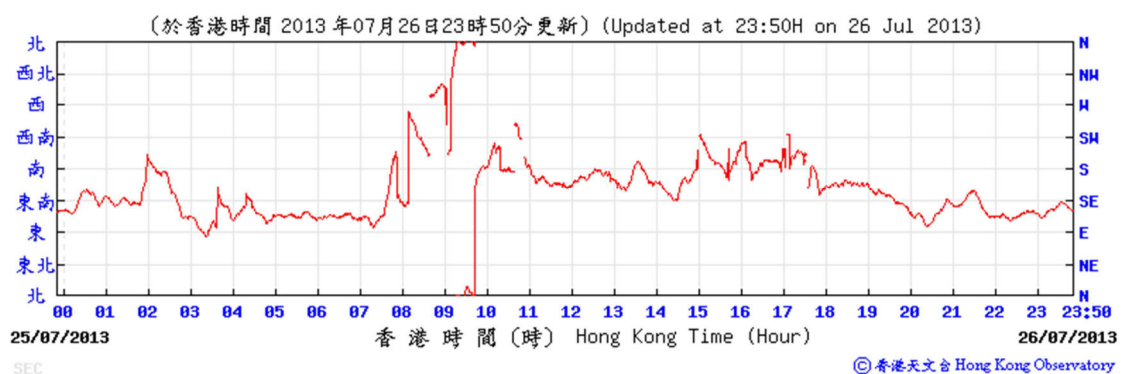
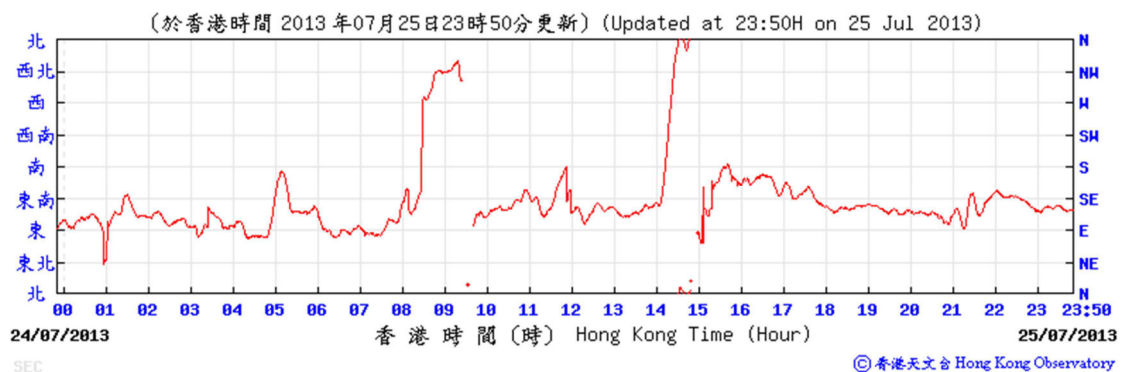
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 July 2013



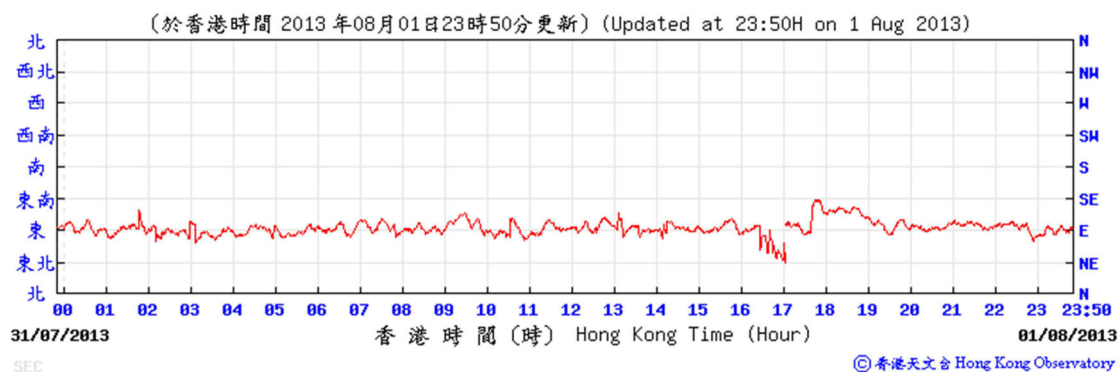
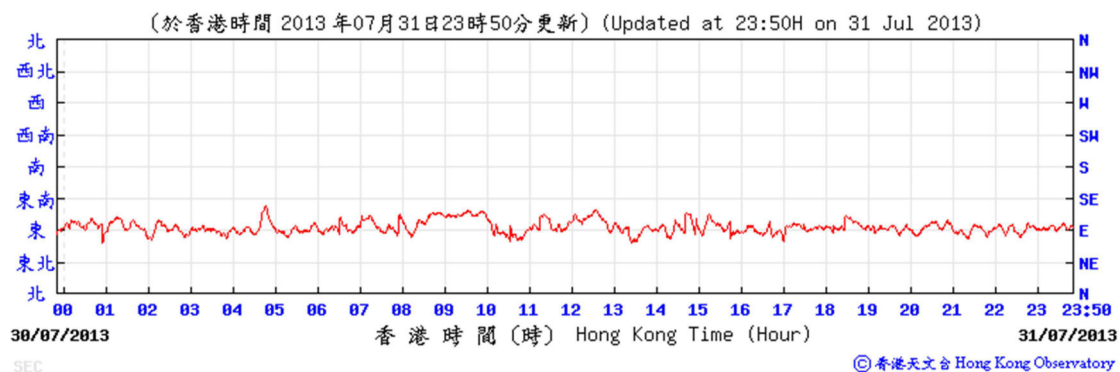
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2013



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

31- July to 1 - August 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}
3-Jul-13	Sunny	13:00	70.1	72.3	68.8	70.3	71	70.3 Measured ≤ Baseline Level
		13:05	70.3	72.7	68.6			
		13:10	70.4	72.8	68.8			
		13:15	70.2	72.7	68.8			
		13:20	70.4	72.7	68.9			
		13:25	70.4	72.8	68.9			
9-Jul-13	Sunny	13:16	71.6	72.7	70.2	71.6	71	62.7
		13:21	71.5	72.7	70.0			
		13:26	71.7	72.8	70.3			
		13:31	71.6	72.7	70.2			
		13:36	71.4	72.5	70.1			
		13:41	71.8	72.7	70.3			
15-Jul-13	Cloudy	13:00	74.5	76.1	71.9	74.5	71	71.9
		13:05	74.5	76.0	72.1			
		13:10	74.7	76.2	72.3			
		13:15	74.4	76.0	71.7			
		13:20	74.2	75.8	71.5			
		13:25	74.6	76.4	72.1			
22-Jul-13	Sunny	14:15	73.7	74.9	72.2	73.5	71	69.9
		14:20	73.5	74.7	72.1			
		14:25	72.9	74.3	72.3			
		14:30	73.4	74.2	72.3			
		14:35	73.6	74.8	72.5			
		14:40	73.6	74.8	72.7			
29-Jul-13	Sunny	13:00	67.4	68.6	66.1	67.6	71	67.6 Measured ≤ Baseline Level
		13:05	67.7	68.7	66.3			
		13:10	67.7	68.7	66.4			
		13:15	67.5	68.6	66.1			
		13:20	67.4	68.5	66.0			
		13:25	67.7	68.8	66.3			

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).

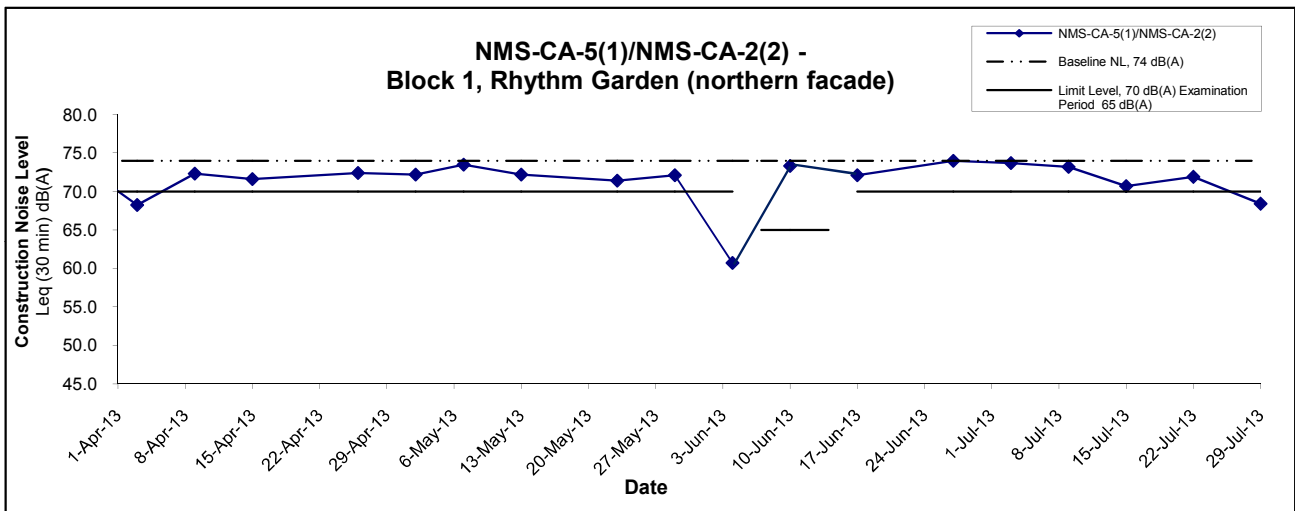
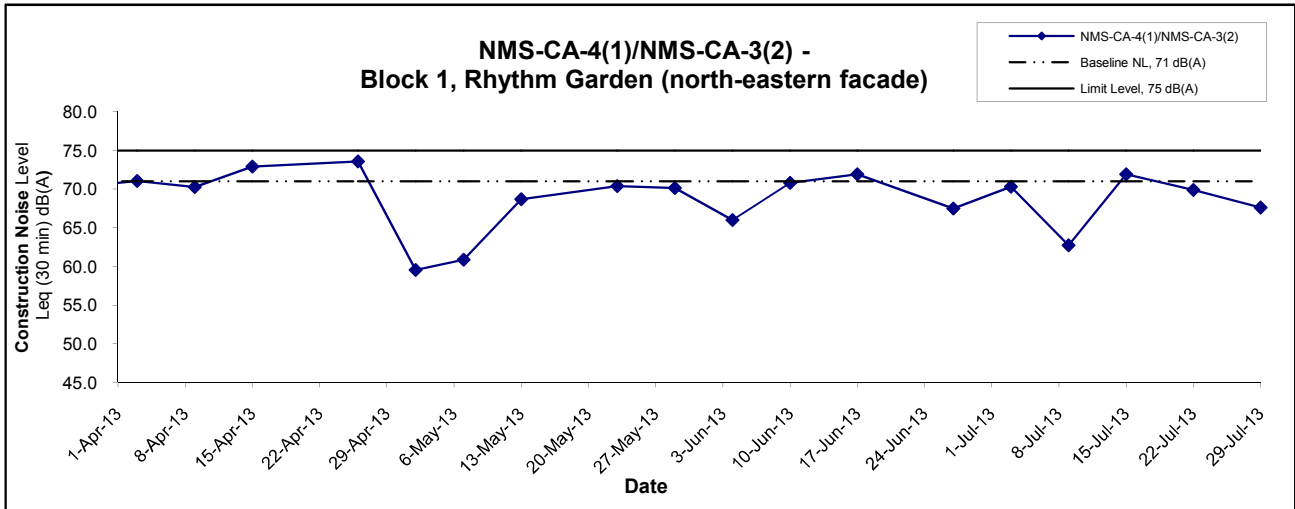
Appendix F - Noise Monitoring Results

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}
3-Jul-13	Sunny	13:35	73.7	74.8	72.1	73.7	74	73.7 Measured ≤ Baseline Level
		13:40	73.6	75.0	72.3			
		13:45	73.7	74.9	72.1			
		13:50	73.7	74.8	72.0			
		13:55	73.8	74.9	72.3			
		14:00	73.7	74.8	72.0			
9-Jul-13	Sunny	15:50	73.1	74.3	71.7	73.2	74	73.2 Measured ≤ Baseline Level
		15:55	73.3	74.5	72.0			
		16:00	73.0	74.2	71.6			
		16:05	73.2	74.5	71.6			
		16:10	73.3	74.5	71.7			
		16:15	73.2	74.3	71.5			
15-Jul-13	Cloudy	11:25	70.8	72.3	68.1	70.7	74	70.7 Measured ≤ Baseline Level
		11:30	70.7	72.5	68.3			
		11:35	70.5	71.9	67.7			
		11:40	70.7	72.3	68.5			
		11:45	70.8	72.5	68.3			
		11:50	70.8	72.4	68.3			
22-Jul-13	Sunny	13:30	71.8	72.8	70.5	71.9	74	71.9 Measured ≤ Baseline Level
		13:35	71.8	72.9	70.4			
		13:40	71.9	72.9	70.5			
		13:45	72.0	73.0	70.5			
		13:50	72.1	73.2	70.6			
		13:55	72.0	73.1	70.7			
29-Jul-13	Sunny	13:40	68.5	69.6	67.2	68.4	74	68.4 Measured ≤ Baseline Level
		13:45	68.0	69.3	67.0			
		13:50	68.3	69.6	67.3			
		13:55	68.3	69.5	67.5			
		14:00	68.6	70.0	67.7			
		14:05	68.4	69.4	67.5			

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 Jul 13	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: July 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*

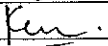

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130702
Date	2 July 2013 (Tuesday)
Time	09:00 – 10:40

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

Ref. No.	Remarks/Observations	Related Item No.
130702-002 130702-003	<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"> Retained trees next to wheel washing bay shall be properly fenced off. Tree (DT 2002) at bar bending area is reminded to be carefully protected. Broken branches should be cut off. 	D2. D3.
130702-001	<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"> Drip tray for generator near new desander was observed damaged and shall be repaired to avoid any fuel leakage. <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.:130625), all identified environmental deficiency was observed improved/rectified by the Contractor. 	H10.

	Name	Signature	Date
Recorded by	Ken Cheng		2 July 2013
Checked by	Dr. Priscilla Choy		2 July 2013

**Shatin to Central Link -
Contract 1106 Diamond Hill Station**

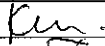

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130712
Date	12 July 2013 (Friday)
Time	10:30 – 11:45

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

Ref. No.	Remarks/Observations	Related Item No.
130712-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"> It is reminded to remove the construction materials near the trees next to the wheel washing bay. 	D3.
130712-R03	<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"> It is recommended to further enhance the noise mitigation measures near the desander next to Lung Cheung Road where possible. 	G7.
130712-O01	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Oily mixture was leaked out from drip trays for generators on-site. The Contractor was recommended to properly repair or plug the drain hole to avoid any oily mixture leakage. <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.:130702), all identified environmental deficiency was observed improved/rectified by the Contractor. 	H9. & H10.

	Name	Signature	Date
Recorded by	Ken Cheng		12 July 2013
Checked by	Dr. Priscilla Choy		12 July 2013

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

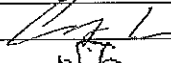

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130716
Date	16 July 2013 (Tuesday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
130716-002	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> • Drainage system for properly treating muddy water is advised to be enhanced. <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"> • 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. 	B1. & B15i.
130716-001	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> • Oily mixture or stagnant water accumulated on the drip trays for generator is recommended to be cleared. <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.:130712), rectification for 130712-R03 was in progress according to the Contractor and will be followed up during next site inspection. 	H10.

	Name	Signature	Date
Recorded by	Gary Lau		16 July 2013
Checked by	Dr. Priscilla Choy		16 July 2013

**Shatin to Central Link -
Contract 1106 Diamond Hill Station**

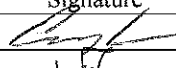

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130723
Date	23 July 2013 (Tuesday)
Time	09:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
130723-001	<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 remove the materials and skip within the tree protection zone and properly erect the tree protection fence 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 – 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. 	D 3
130723-R02	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> To remove the construction materials in the drip tray to avoid contamination. <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.:130716), all identified environmental deficiency was observed improved/rectified by the Contractor. 	H 10

	Name	Signature	Date
Recorded by	Gary Lau		24 July 2013
Checked by	Dr. Priscilla Choy		24 July 2013

*Shatin to Central Link -
Contract 1106 Diamond Hill Station*

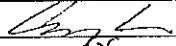

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130730
Date	30 July 2013 (Tuesday)
Time	09:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
130730-O01 130730-R03	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> To clear the accumulated slurry in U-channel to prevent blockage. It is reminded the Contractor to clear the slurry on the haul roads regularly. 	B 7 B 17
130730-O02	<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"> Materials placed next to trees should be removed to avoid damage to trees. (Area W8) <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"> 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.:130723), all identified environmental deficiency was observed improved/rectified by the Contractor. 	D 3

	Name	Signature	Date
Recorded by	Gary Lau		30 July 2013
Checked by	Dr. Priscilla Choy		30 July 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

<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.

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
		an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency						
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 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 	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; 						^ ^ ^ 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
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>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 						^
								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
		<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; and • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 					<ul style="list-style-type: none"> • TM-Water 	* ^ ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D 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 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 	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

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
		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.						
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 	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>^</p> <p>^</p> <p>^</p> <p>N/A</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
		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	<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 	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: right;">^</p> <p style="text-align: right;">^</p> <p style="text-align: right;">N/A</p> <p style="text-align: right;">N/A</p>

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

Contract No: MTR SCL 1106 - Diamond Hill Station

Date of Report: July, 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	0.00	0.000	0.267	
Feb	2.171	0.000	0.000	0.272	1.899	0.000	0.000	0.000	0.00	0.000	0.203	
Mar	1.416	0.000	0.000	0.392	1.024	0.000	0.000	0.000	0.00	1.500	0.172	
Apr	1.977	0.000	0.000	0.463	1.514	0.000	0.000	0.000	0.00	0.000	1.545	
May	2.638	0.000	0.000	0.400	2.238	0.000	0.000	0.050	0.00	0.000	1.396	
Jun	2.467	0.000	0.000	0.000	2.467	0.000	0.002	0.000	0.00	0.480	0.609	
Sub-total	11.280	0.000	0.000	1.527	9.752	0.000	0.002	0.050	0.000	1.980	4.192	
Jul	2.560	0.000	0.000	1.972	0.588	0.000	0.000	0.000	0.000	0.640	0.321	
Aug												
Sept												
Oct												
Nov												
Dec												
Total	13.840	0.000	0.000	3.500	10.340	0.000	0.002	0.050	0.000	2.620	4.513	

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

**3rd EM&A Report for Works Contract 1107 –
Diamond Hill to Kai Tak Tunnels**

MTR Corporation Limited

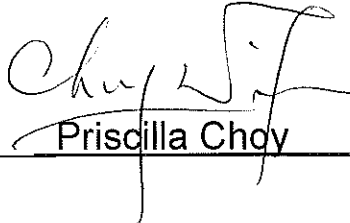
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report

[Period from 1 to 31 July 2013]

Works Contract 1107 – Diamond Hill to Kai Tak
Tunnels

(July 2013)

Certified by: 
Priscilla Choy

Position: Environmental Team Leader


Date: 12th August 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 July 2013**

(Version 3.0)

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 3rd 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 July to 31 July 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; 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/C) was issued by EPD on 30 April 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) 6 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 12 and 26 July 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 5, 12, 19 and 26 July 2013. The representative of the IEC joined the site inspection on 19 July 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;
 - D-wall construction; and
 - Preparation works for site access and drainage.

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 3rd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 July to 31 July 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; 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 Permits (CNP) (Permit No. PP-RE0028-13 and GW-RE0781-13) were granted by EPD on 27 June 2013 and 23 July 2013 respectively.

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	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)			
GW-RE0781-13	24/07/2013	26/07/2013	Expired
PP-RE0028-13	15/07/2013	14/01/2014	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	SVANTEK – SVAN 955 (Serial no.: 14303), SVAN 957 (Serial no.: 21459)
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 (June 2013)	12 th July 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 3, 9, 15 and 22 July 2013 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as they are below or equal to the baseline level.
- 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**.
- 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 6 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 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-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾)	22.9	47.1	30.2	160.4	260

- 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.

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

5.10 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 paper/cardboard packaging and plastics 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		
July 2013	880 m ³	35 m ³	0 kg	0 kg	0 kg	100 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

5.11 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 12 and 26 July 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 5, 12, 19 and 26 July 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 19 July 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>	5 Jul 2013	Sand bag bunding should be provided for all sides of gully to avoid untreated runoff discharge.	The observation was observed to be improved/rectified by the Contractor during the audit session on 12 Jul 2013.
	5 Jul 2013	<u>Reminder:</u> To provide sand bag bunding to U-channel near site boundary.	The observation was observed to be improved/rectified by the Contractor during the audit session on 12 Jul 2013.
	19 Jul 2013	Stagnant water is observed in the U-channel near the site boundary. The Contractor is reminded to provide sand bag bunding to avoid runoff out of the site.	The observation was observed to be improved/rectified by the Contractor during the audit session on 2 Aug 2013.
	19 Jul 2013	Footings of hoarding at the site boundary should be sealed up to avoid surface runoff out of the site.	Follow up action will be reported in next reporting month.
	26 Jul 2013	Muddy water observed discharged to U-channel out of the site. The Contractor is reminded to avoid surface runoff out of site.	The observation was observed to be improved/rectified by the Contractor during the audit session on 2 Aug 2013.
	26 Jul 2013	<u>Reminder:</u> Footings of hoarding at the site boundary should be sealed up under good weather conditions to avoid surface runoff.	Follow up action will be reported in next reporting month.
<i>Noise</i>	--	--	--
<i>Landscape and Visual</i>	28 Jun 2013	<u>Reminder:</u> It is recommended tree protection zone to be enlarged whenever practicable and remove materials within the protection zone.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 Jul 2013.
	5 Jul 2013	<u>Reminder:</u> Enlarge the tree protection zone and properly maintain the retained trees on-	The observation was observed to be improved/rectified by

Parameters	Date	Observations and Recommendations	Follow-up
		site.	the Contractor during the audit session on 12 Jul 2013.
	12 Jul 2013	Construction materials and boulders should be removed from near the tree. The Contractor is reminded to set up a tree protection area.	Follow up action will be reported in next reporting month.
	19 Jul 2013	Construction materials should be removed from near the tree. The Contractor is reminded to set up tree protection area.	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Jul 2013.
<i>Air Quality</i>	28 Jun 2013	Stockpiles of materials are advised to be covered by impervious sheeting.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 Jul 2013.
	5 Jul 2013	Dust generation observed from grouting plant. The Contractor is reminded to provide a proper enclosure to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 12 Jul 2013.
	5 Jul 2013	<u>Reminder:</u> To provide sufficient water spray to haul road and keep the on-site record for water spray.	The observation was observed to be improved/rectified by the Contractor during the audit session on 12 Jul 2013.
	12 Jul 2013	<u>Reminder:</u> Properly cover the stockpile of dusty material.	Follow up action will be reported in next reporting month.
	19 Jul 2013	<u>Reminder:</u> Properly cover the stockpile of dusty material.	Follow up action will be reported in next reporting month.
	26 Jul 2013	<u>Reminder:</u> Properly cover stockpile of dusty material.	Follow up action will be reported in next reporting month.
<i>Waste / Chemical Management</i>	28 Jun 2013	<u>Reminder:</u> It is reminded non-chemical wastes should be removed from chemical wastes storage area.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 Jul 2013.
	28 Jun 2013	<u>Reminder:</u> It is reminded stagnant water on drip tray for generator should be cleared.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 Jul 2013.
	19 Jul 2013	<u>Reminder:</u> To provide tarpaulin sheets for placing the breaker to avoid chemical leakage to unpaved ground.	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Jul 2013.
	26 Jul 2013	Chemical leakage observed on unpaved ground. The Contractor is reminded to provide a plug to drip tray to avoid further leakage.	The observation was observed to be improved/rectified by the Contractor during the audit session on 2 Aug 2013.
<i>Permits/ Licenses</i>	--	--	--

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;
- D-wall construction; and
- Preparation works for site access and drainage.

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 July to 31 July 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 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.
- 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.

Landscape and Visual

- It is recommended to set up “no-intrusion zone” for existing trees on site in order to restrict the site working staff from entering into the zone prior to any tree survey or assessment.

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 that a proper enclosure for the grouting plant should be provided to avoid dust generation.

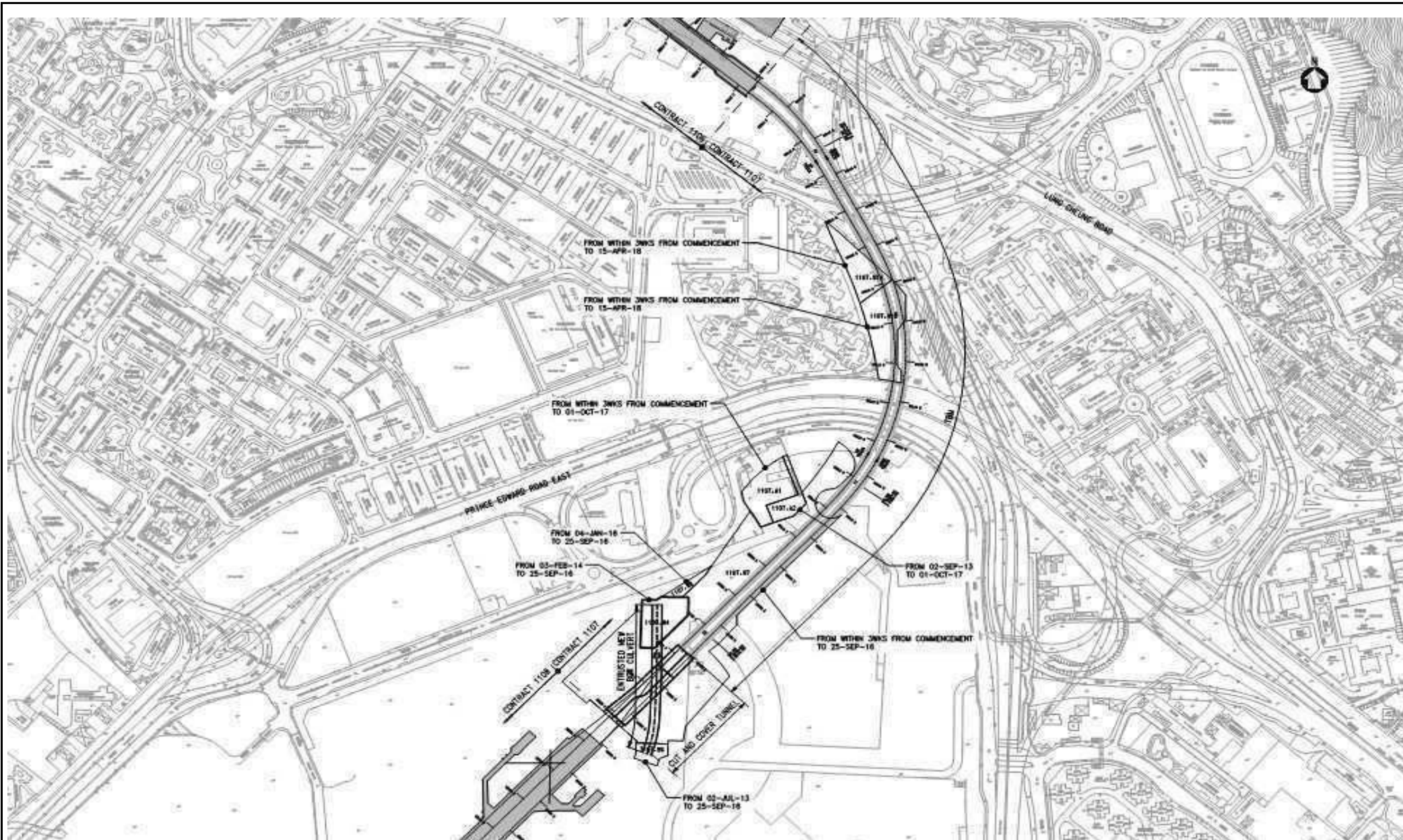
Waste/Chemical Management

- 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.

- It is reminded that tarpaulin sheets should be provided for placing the breaker to avoid chemical leakage to unpaved ground.

FIGURES



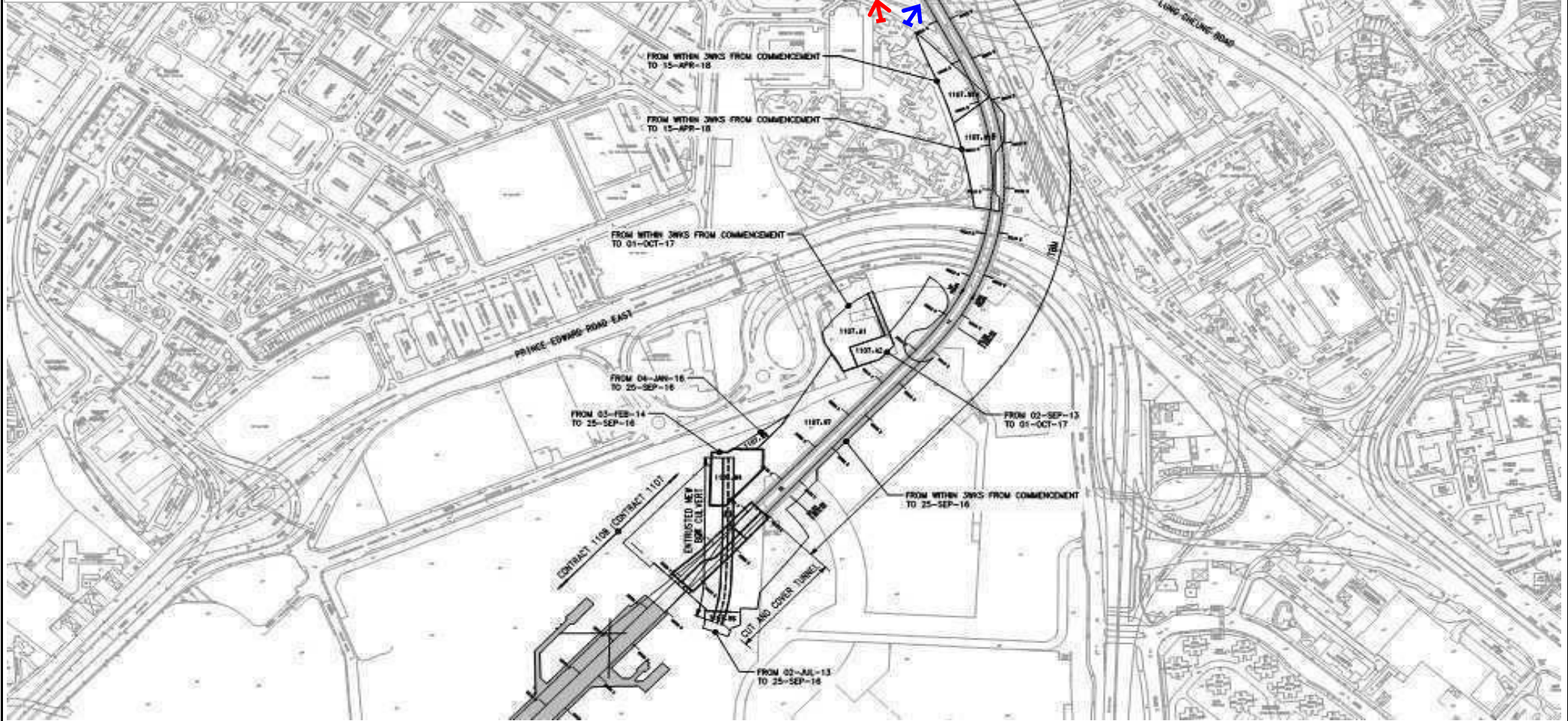
Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels		Scale	N.T.S	Project No.	MA13018
	Site Layout Plan		Date	May-13	Figure	1
						CINOTECH

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).



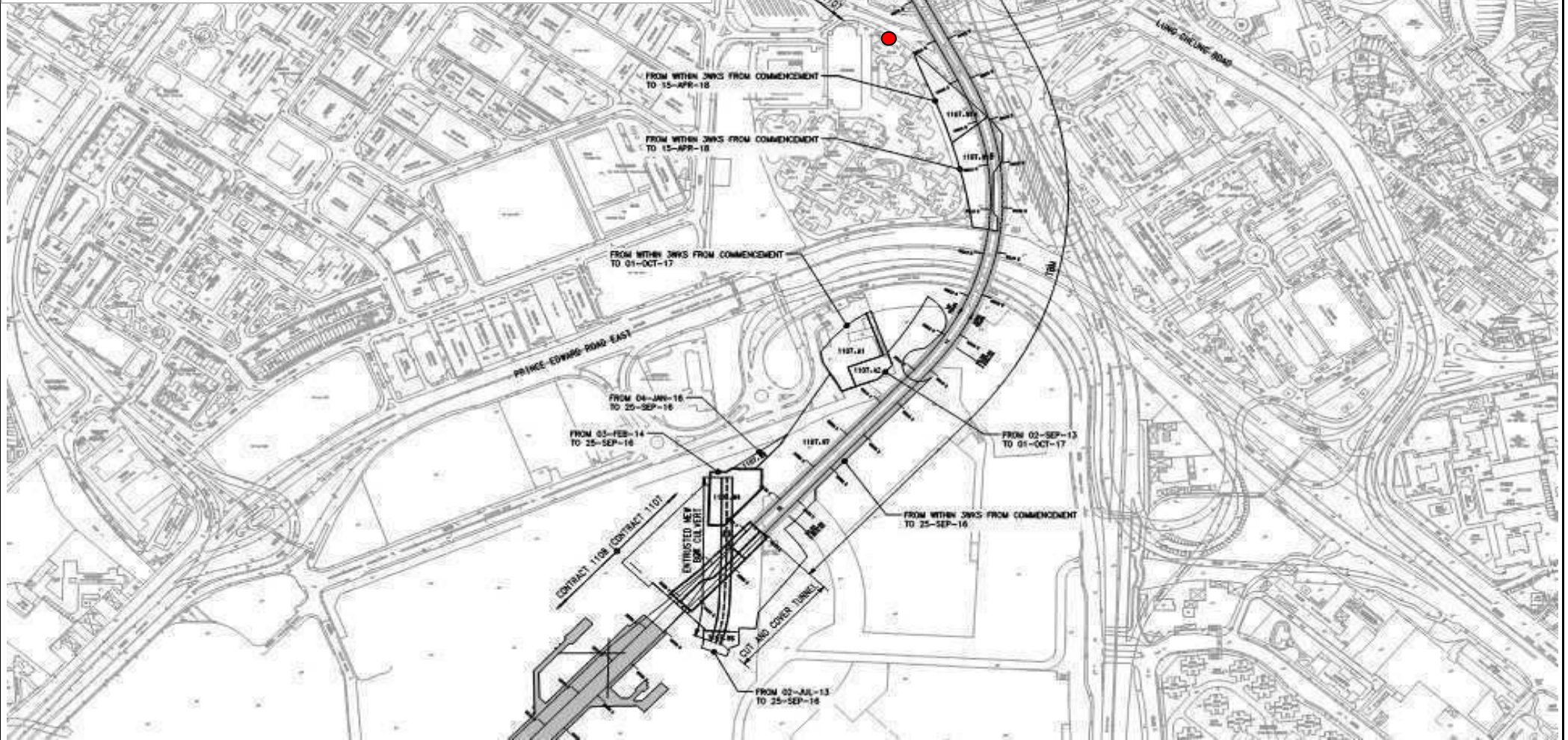
<p>Title</p> <p style="text-align: center;">MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels</p> <p style="text-align: center;">Locations of Constrction Noise Monitoring</p>	<p>Scale</p> <p style="text-align: center;">N.T.S</p>	<p>Project No.</p> <p style="text-align: center;">MA13018</p>	
	<p>Date</p> <p style="text-align: center;">May-13</p>	<p>Figure</p> <p style="text-align: center;">2</p>	

Legend:

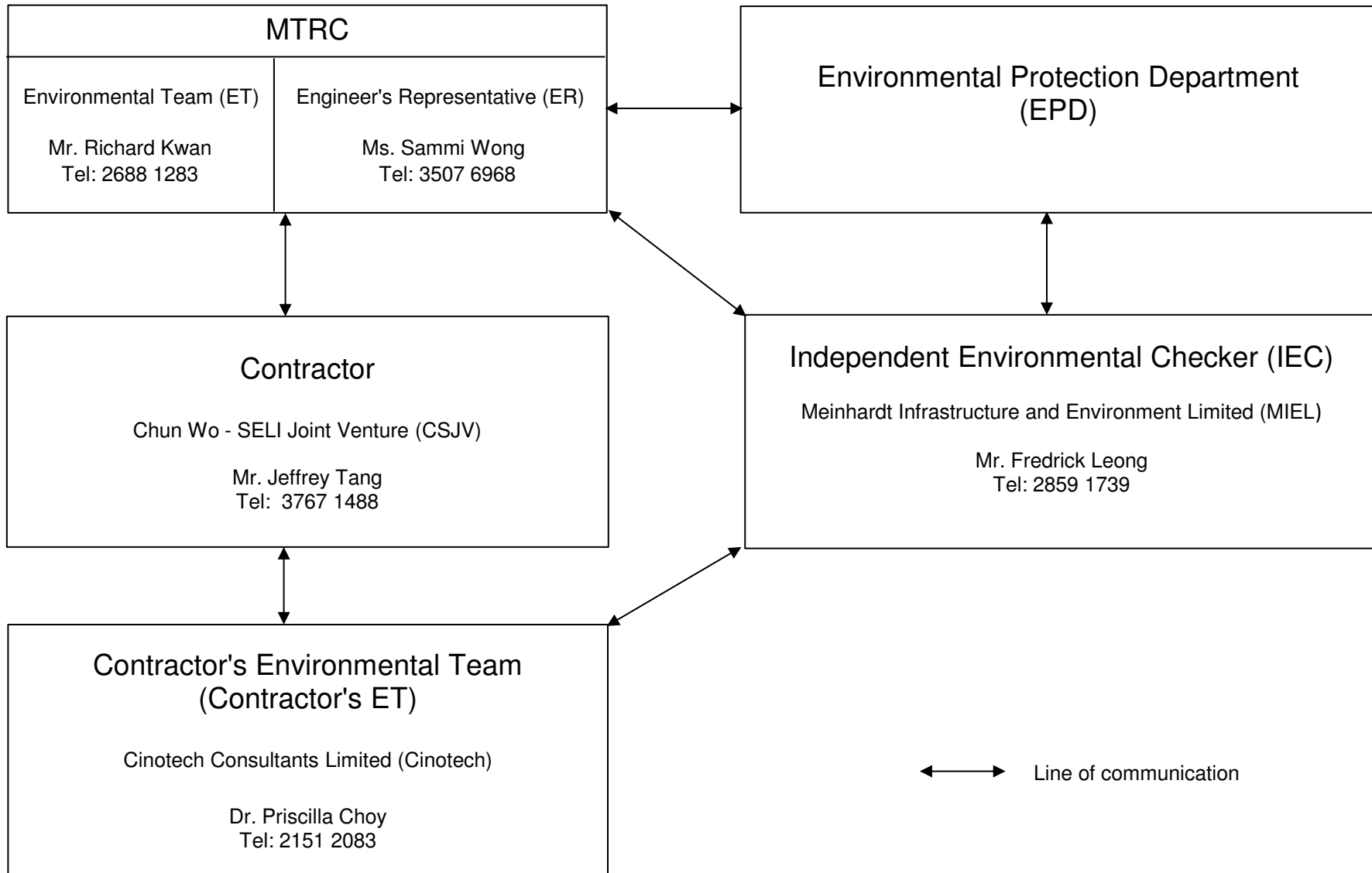
- DMS-4⁽¹⁾/DMS-3⁽²⁾ Block 1, Rhythm Garden

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**

Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels ...										
Schedule of Completion Obligation & Other Contr...										
Schedule of Milestone Dates - Cost Centre A										
1107.MS10160	A2a Approval of Preliminary Master Programme & Time Chainage Programme		14-Jul-13	0		14-Jul-13*		◆		
1107.MS10170	A2b Engr confirm satisfactory implementation of safety & enviro requirements in accordance with the Specified Plans		14-Jul-13	0		14-Jul-13*		◆		
1107.MS10180	A3 Approval of Detailed Interface Specifications with all the Designated Contractors (PS Appendix J)		29-Sep-13	0		29-Sep-13*				◆
Schedule of Milestone Dates - Cost Centre C										
1107.MS10380	C1 Submit design and manuf'g data complete & Engr's 'notice of no objection' obtained for mould manufacture 25AUG13		11-Jul-13	0		11-Jul-13*		◆		
Schedule of Milestone Dates - Cost Centre D										
1107.MS10540	D2a 30% by plan length of Dwalls complete at Kai Tak Box 2A and Box 1A shaft 28JUL13 Proposed 11AUG13		09-Aug-13	0	14-Aug-13	14-Aug-13*			◆	
Schedule of Milestone Dates - Cost Centre F										
1107.MS10660	F3 TTMS at Choi Hung Road (East) for water main replacement scheme approved 30JUN13		24-Jun-13	0	24-Jun-13 A	24-Jun-13 A	◆			
Schedule of Milestone Dates - Cost Centre I (for Option 2 i...										
1107.MS10750	I1 Submit design and manuf'g data complete & Engr's 'notice of no objection' obtained for mould manufacture 25AUG13		11-Jul-13	0	11-Jul-13	11-Jul-13*		◆		
Schedule of Access Dates for Works Areas										
1107.AD11030	Access for 1107.W6		22-Jul-13	0	22-Jul-13*			◆		
1107.AD11070	Access for 1107.A2		22-Sep-13	0	22-Sep-13*					◆
Cost Centre A - Preliminaries										
Contractor Submission Schedule										
1107.11200	P2.7 Preparation & Submission of Detailed Supervision Plan	11-Mar-13	16-Mar-13	6	11-Mar-13 A	24-Jun-13 A				
1107.11240	P4.5.11, G2.9.1 Construction of 6 nos. of Project Sign Boards	11-Mar-13	25-Mar-13	13	11-Mar-13 A	16-Jul-13				
1107.11260	G6.8.3 First SLG Approval	11-Mar-13	28-Mar-13	16	11-Mar-13 A	26-Jun-13 A				
1107.11290	G13.1.1 Plant & Material Testings	11-Mar-13	06-Apr-13	20	11-Mar-13 A	24-Jul-13				
1107.11310	COC13.2 Submit Guarantee to Employer	11-Mar-13	08-Apr-13	21	11-Mar-13 A	15-Jun-13 A				
1107.11370	P19.7 Endorsement of Road closure Order (TTMS)	11-Mar-13	10-Apr-13	23	11-Mar-13 A	01-Jun-13 A				
1107.11460	P41.1.1 Supply Survey Equipment	11-Mar-13	10-Apr-13	23	11-Mar-13 A	15-Jun-13 A				
1107.11590	G7.5.1 Preparation & Submission of Schedule of Utility Services arrangements	11-Mar-13	01-Jun-13	66	11-Mar-13 A	15-Jul-13				
1107.11610	G1.7.1 Submit Survey Method Statement	11-Mar-13	08-Jun-13	72	11-Mar-13 A	21-Jun-13 A				
1107.11620	P7.3.21 Preparation & Submission of Tunnel Construction Method Statement & Temp Works Design for 1106 & 1108 Review	11-Mar-13	08-Jun-13	72	11-Mar-13 A	04-Jun-13 A				
1107.11640	P11.1.13 Provision of Common Temporary Haul Road	11-Mar-13	08-Jun-13	72	11-Mar-13 A	10-Jul-13				



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02-Jul-13

Contract 1107 Diamond Hill to Kai Tak Tunnels
3 Month Rolling Programme -DD 1st JUL 2013
Chun Wo - SELI Joint Venture

Date	Revision	Checked	Approved
02-Jul-13	0	KCL	

Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
1107.11650	P13.6.1 Preparation & Submission of Tunnel Survey Method Statement	11-Mar-13	08-Jun-13	72	11-Mar-13 A	29-Jun-13 A				
1107.11660	P31.5 Preparation & Submission of Contractor's Cooperative Training Scheme (CCTS)	11-Mar-13	08-Jun-13	72	11-Mar-13 A	02-Jul-13				
1107.11690	P55.2 Preparation & Complete Building Information Model based on Engr's Dwgs	11-Mar-13	08-Jun-13	72	02-Jul-13	24-Sep-13				
1107.11700	G3.11.4 Conduct First Safety Baseline Audit	09-Jul-13		0	09-Jul-13*					
1107.11730	G5.1.13, 5.1.14 Submit First Environmental Objectives & Targets	11-Mar-13	11-Mar-13	1	02-Jul-13	02-Jul-13				
1107.11750	G3.39.5 First Inspection of Safety Harnesses - NOT APPLICABLE	11-Mar-13	09-Apr-13	22	27-Jun-13 A	29-Jun-13 A				
1107.11760	G3.43.3 Submission of First Dangerous Goods Register- NOT APPLICABLE	11-Mar-13	09-Apr-13	22	27-Jun-13 A	29-Jun-13 A				
1107.11790	G17.1.5, 17.17 Submission of First Monthly Hazard Log incl Emergency Plan	04-Jul-13	29-Jul-13	22	09-Jul-13	02-Aug-13				
1107.11800	P4.5.12 Submission of First Monthly As-Built Hoarding Plan	11-Mar-13	09-Apr-13	1	02-Jul-13	02-Jul-13				
1107.11810	P10.13 Submission of First Monthly Earned Value Report	15-Jul-13	08-Aug-13	22	15-Jul-13	08-Aug-13				
1107.11820	P10.14 Submission of First Monthly List of Sub-contractors Disciplines	11-Mar-13	09-Apr-13	22	11-Mar-13 A	18-Jun-13 A				
1107.11830	P22.20, 22.66 Submission of First Monthly Environmental Monitoring & Audit Report	11-Mar-13	09-Apr-13	22	11-Mar-13 A	14-Jun-13 A				
1107.11840	Submission of First Monthly Noise Forecast Report	11-Mar-13	09-Apr-13	22	11-Mar-13 A	03-Jul-13				
1107.11860	G5.1.16 Submit First Fuel Consumption Record	11-Mar-13	08-Jun-13	72	11-Mar-13 A	08-Jun-13 A				
1107.11870	P22.17 Submission of First Monthly Environmental Monitoring & Audit for Air Noise & Water	11-Mar-13	09-Apr-13	22	11-Mar-13 A	14-Jun-13 A				
1107.11880	P22.49 Submission of First Monthly Environmental Monitoring & Audit for Waste Flow Table	11-Mar-13	09-Apr-13	22	11-Mar-13 A	14-Jun-13 A				
1107.11910	COC26.3 Effect Professional Indemnity Insurance	11-Mar-13	10-May-13	36	02-Jul-13	12-Aug-13				
1107.11940	G1.11.1, 7.5.1 Preparation & Submission of Deformation Monitoring Scheme	11-Mar-13	10-May-13	48	11-Mar-13 A	24-Jun-13 A				
1107.11970	G3.33.6 Submit Tunnel Ventilation Design by Engineer	11-Mar-13	10-May-13	48	11-Mar-13 A	29-Jun-13 A				
1107.12010	G5.5.4 Application to EPD for Water Pollution Control Ordinance License	11-Mar-13	10-May-13	48	11-Mar-13 A	13-Jun-13 A				
1107.12020	G5.7.10 Preparation & Application of Construction Noise Permit	11-Mar-13	10-Jun-13	73	11-Mar-13 A	13-Jun-13 A				
1107.12170	P11.11.3 Conduct Underground Obstruction Survey	11-Mar-13	10-May-13	48	11-Mar-13 A	17-Jun-13 A				
1107.12190	P13.14 Preparation & Submission of Details & Tests of GFRP	11-Mar-13	06-Apr-13	20	11-Mar-13 A	15-Jun-13 A				
1107.12220	P17.6.6 Submission of EPD Billing Account for Disposal of Construction Waste	11-Mar-13	06-Jun-13	70	11-Mar-13 A	04-May-13 A				
1107.12260	P19.3 Submit First TTMS As-built Records	09-Sep-13	25-Sep-13	14	09-Sep-13	25-Sep-13				
1107.12330	P29.5.3 Install Instrumentation & Submit Baseline Readings	11-Mar-13	10-May-13	48	11-Mar-13 A	24-Jun-13 A				
1107.12350	P43.11.1 Review Detail Plan of Project Related Events/Ceremonies	11-Mar-13	09-Apr-13	6	02-Jul-13	08-Jul-13				
Project Audit		08-Jun-13	08-Jul-13	24	08-Jun-13 A	08-Jul-13				
1107.12440	1st Audit of safety & environmental plans	08-Jun-13	08-Jul-13	24	08-Jun-13 A	08-Jul-13				
Site Enabling Works		11-Mar-13	10-Sep-13	200	11-Mar-13 A	11-Nov-13				



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Contract 1107 Diamond Hill to Kai Tak Tunnels
3 Month Rolling Programme -DD 1st JUL 2013
Chun Wo - SELI Joint Venture

Date	Revision	Checked	Approved
02-Jul-13	0	KCL	

Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
Site Setup		30-Apr-13	10-Sep-13	157	06-May-13 A	11-Nov-13				
Engineer's Site Accomodation		30-Apr-13	10-Sep-13	111	02-Jul-13	11-Nov-13				
1107.12620	Engr's Site Accomodation- First Design Submission & Review of Building Plans	30-Apr-13	25-May-13	21	02-Jul-13	25-Jul-13				
1107.12630	Engr's Site Accomodation- Final Submission of Building Plans	27-May-13	08-Jun-13	12	26-Jul-13	08-Aug-13				
1107.12640	Engr's Site Accomodation- Final Approval of Building Plans	10-Jun-13	17-Jun-13	6	09-Aug-13	15-Aug-13				
1107.12650	Engr's Site Accomodation- Construction Works	18-Jun-13	10-Sep-13	72	16-Aug-13	11-Nov-13				
Misc Items		06-May-13	03-Jun-13	24	06-May-13 A	13-May-13 A				
1107.12710	Site Condition Survey incl EBS	06-May-13	03-Jun-13	24	06-May-13 A	13-May-13 A				
Hoarding Erection		07-May-13	04-Jun-13	24	07-May-13 A	04-Jun-13 A				
1107.12790	Hoarding - Erection	07-May-13	04-Jun-13	24	07-May-13 A	04-Jun-13 A				
Temporary Site Drainage		11-Mar-13	25-May-13	60	11-Mar-13 A	26-Jun-13 A				
1107.12800	Temporary Drainage - Submit Plan to MTR	11-Mar-13	25-Apr-13	36	11-Mar-13 A	25-Apr-13 A				
1107.12810	Temporary Drainage - Construct Temp Drains	26-Apr-13	25-May-13	24	26-Apr-13 A	26-Jun-13 A				
Instrumentation & Monitoring		04-May-13	14-Jun-13	34	04-May-13 A	14-Jun-13 A				
1107.12820	Predrilling for D-walls 4 nos	04-May-13	15-May-13	10	04-May-13 A	15-May-13 A				
1107.12830	Install 8 nos. Peizometers outside D-wall Footprint	16-May-13	14-Jun-13	24	16-May-13 A	14-Jun-13 A				
Cost Centre B - Procurement of TBM		11-Mar-13	22-Oct-13	183	11-Mar-13 A	22-Oct-13				
1107.12840	Submission & Approval of TBM Design	11-Mar-13	24-May-13	59	11-Mar-13 A	24-May-13 A				
1107.12850	TBM Detailed Design	25-May-13	27-Jun-13	28	25-May-13 A	27-Jun-13 A				
1107.12851	TBM Manufacture & Refurbishment	28-Jun-13	30-Aug-13	54	28-Jun-13 A	30-Aug-13				
1107.12852	Back Up Pre-assembly	31-Aug-13	22-Oct-13	42	31-Aug-13	22-Oct-13				
1107.12920	B1 Design of tunnel boring machine (TBM) approved by the Engineer and order for TBM placed		26-May-13	0		26-May-13 A				
Cost Centre C - Tunnel Construction by TBM		11-Mar-13	11-Dec-13	226	11-Mar-13 A	11-Dec-13				
Site Enabling Works for TBM		11-Mar-13	11-Dec-13	226	11-Mar-13 A	11-Dec-13				
Ground Treatment		11-Mar-13	02-Dec-13	218	11-Mar-13 A	02-Dec-13				
Jet Grouting Treatment for KAT TBM Launch Shaft		11-Mar-13	16-Jul-13	102	11-Mar-13 A	16-Jul-13				
1107.12940	Procurement of Grouting Sub-contractor	11-Mar-13	10-May-13	48	11-Mar-13 A	10-May-13 A				
1107.12950	Submission & Approval of Method Statement	11-May-13	02-Jul-13	42	11-May-13 A	02-Jul-13				
1107.12960	Mobilisation	03-Jul-13	16-Jul-13	12	03-Jul-13	16-Jul-13				
Jet Grouting Treatment for Cross Passage 3		10-Jul-13	12-Sep-13	56	10-Jul-13	12-Sep-13				



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Chun Wo - SELI Joint Venture

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Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
1107.13030	Prepare TTMS & Submit	10-Jul-13	13-Aug-13	30	10-Jul-13	13-Aug-13				
1107.13040	Obtain Approval from SLG	14-Aug-13	12-Sep-13	26	14-Aug-13	12-Sep-13				
Jet Grouting Treatment for Cross Passage 1		15-Jul-13	21-Oct-13	82	15-Jul-13	21-Oct-13				
1107.13238	GI Boreholes 2 nos.	15-Jul-13	25-Jul-13	10	15-Jul-13	25-Jul-13				
1107.13239	Design of Grouting	26-Jul-13	21-Oct-13	72	26-Jul-13	21-Oct-13				
Pressure Grouting Treatment to Pier Z5 Foundation		08-Jul-13	08-Oct-13	78	08-Jul-13	08-Oct-13				
1107.13297	Commence G.I. Boring works	08-Jul-13		0	08-Jul-13*					
1107.13298	GI Borehole 1 no.	08-Jul-13	13-Jul-13	6	08-Jul-13	13-Jul-13				
1107.13299	Design of Grouting	15-Jul-13	08-Oct-13	72	15-Jul-13	08-Oct-13				
1107.13300	Commence Pressure Grouting works	16-Sep-13		0	16-Sep-13*					
1107.13310	Site Clearance Plant set up	16-Sep-13	30-Sep-13	12	16-Sep-13	30-Sep-13				
Pressure Grouting Treatment for DIH TBM Retrieval Shaft		02-Sep-13	02-Dec-13	76	02-Sep-13	02-Dec-13				
1107.13387	1107 Allowed access to Retrieval Shaft area for GI (Subject to Completion Date of Archeological Dig by 1106)	02-Sep-13		0	02-Sep-13*					
1107.13388	GI Boreholes 2 nos.	02-Sep-13	12-Sep-13	10	02-Sep-13	12-Sep-13				
1107.13389	Design of Grouting	13-Sep-13	02-Dec-13	66	13-Sep-13	02-Dec-13				
OPTION 3 - Obstruction Removal		11-Mar-13	11-Dec-13	226	11-Mar-13 A	11-Dec-13				
Removal of Abandoned Airport Admin Bldg 1 Foundations		15-Jul-13	11-Dec-13	126	15-Jul-13	11-Dec-13				
1107.13490	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	15-Jul-13	27-Jul-13	12	15-Jul-13*	27-Jul-13				
1107.13500	Remove Pile Caps (PROVISIONAL, To be Confirmed)	29-Jul-13	07-Sep-13	36	29-Jul-13	07-Sep-13				
1107.13510	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed)	09-Sep-13	11-Dec-13	78	09-Sep-13	11-Dec-13				
Removal of Abandoned Airport Admin Bldg 2 Foundations		09-Sep-13	06-Nov-13	48	09-Sep-13	06-Nov-13				
1107.13540	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	09-Sep-13	23-Sep-13	12	09-Sep-13	23-Sep-13				
1107.13550	Remove Pile Caps (PROVISIONAL, To be Confirmed)	24-Sep-13	06-Nov-13	36	24-Sep-13	06-Nov-13				
Removal of Abandoned Pre-existing Structure Foundations		11-Mar-13	21-Oct-13	182	11-Mar-13 A	21-Oct-13				
1107.13590	Preliminary Discussions with MTR, Engineers	11-Mar-13	25-Apr-13	36	11-Mar-13 A	25-Apr-13 A				
1107.13600	Prepare TTMS & Submit	26-Apr-13	01-Jun-13	30	26-Apr-13 A	01-Jun-13 A				
1107.13610	Obtain Approval from SLG	03-Jun-13	09-Jul-13	30	03-Jun-13 A	09-Jul-13				
1107.13620	Mobilisation (PROVISIONAL, To be Confirmed)	10-Jul-13	23-Jul-13	12	10-Jul-13	23-Jul-13				
1107.13630	Stage 1 TTMS - Trail Pits (PROVISIONAL, To be Confirmed)	24-Jul-13	10-Aug-13	16	24-Jul-13	10-Aug-13				
1107.13640	Stage 1 TTMS - Demolish Planter (PROVISIONAL, To be Confirmed)	12-Aug-13	29-Aug-13	16	12-Aug-13	29-Aug-13				



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Chun Wo - SELI Joint Venture

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Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
1107.13650	Stage 1 TTMS - Extract Old Foundations (PROVISIONAL, To be Confirmed)	30-Aug-13	21-Oct-13	42	30-Aug-13	21-Oct-13				
Removal of Abandoned Blackdown Barracks Foundations		25-Mar-13	09-Oct-13	161	25-Mar-13 A	09-Oct-13				
1107.13710	Prepare TTMS & Submit	25-Mar-13	20-Apr-13	20	25-Mar-13 A	20-Apr-13 A				
1107.13720	Obtain Approval from SLG	22-Apr-13	23-May-13	26	22-Apr-13 A	23-May-13 A				
1107.13730	Stage 1 TTMS & Install New Directional Sign Footings & Posts	24-May-13	22-Jul-13	49	24-May-13 A	22-Jul-13				
1107.13740	Stage 2 TTMS & Relocate Directional Sign Board	23-Jul-13	27-Jul-13	5	23-Jul-13	27-Jul-13				
1107.13750	Stage 3 TTMS & Modify Site Access with Drop Kerbs	29-Jul-13	17-Aug-13	18	29-Jul-13	17-Aug-13				
1107.13760	Stage 4 TTMS & Install Traffic Line Marking	18-Aug-13	19-Aug-13	2	18-Aug-13	19-Aug-13				
1107.13770	Stage 5 TTMS & Install Hoarding & Entrance Gate, Works Area W1A, B ready for use	20-Aug-13	16-Sep-13	24	20-Aug-13	16-Sep-13				
1107.13780	Site Setup of Foundation Removal Plant (PROVISIONAL, To be Confirmed)	17-Sep-13	24-Sep-13	6	17-Sep-13	24-Sep-13				
1107.13790	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	25-Sep-13	09-Oct-13	12	25-Sep-13	09-Oct-13				
Production of Pre - Cast Tunnel Lining		25-May-13	28-Oct-13	129	25-May-13 A	28-Oct-13				
Procurement of SFRC Fibres		25-May-13	28-Sep-13	106	25-May-13 A	28-Sep-13				
1107.18790	Sourcing of Steel Fibre Supplier	25-May-13	28-Jun-13	29	25-May-13 A	28-Jun-13 A				
1107.18795	Submission of Steel Fibre Literature & Samples	29-Jun-13	13-Jul-13	12	29-Jun-13 A	13-Jul-13				
1107.18800	Design of Concrete Mix	29-Jun-13	28-Sep-13	77	29-Jun-13 A	28-Sep-13				
Production of Segments		25-May-13	28-Oct-13	129	25-May-13 A	28-Oct-13				
1107.14660	Moulds Design	25-May-13	11-Jul-13	39	25-May-13 A	11-Jul-13				
1107.14680	Sourcing for Mould Fabricator	25-May-13	11-Jul-13	39	25-May-13 A	11-Jul-13				
1107.14681	Moulds Fabrication - Detail Design	12-Jul-13	15-Aug-13	30	12-Jul-13	15-Aug-13				
1107.14682	Mould Fabrication - Manufacture	16-Aug-13	28-Oct-13	60	16-Aug-13	28-Oct-13				
1107.14760	C1 Submit design and manuf'g data complete & Engr's 'notice of no objection' obtained for mould manufacture		25-Aug-13	0		25-Aug-13*				
Cost Centre D - KAT Cut & Cover Tunnels		11-Mar-13	01-Nov-13	192	11-Mar-13 A	01-Nov-13				
Design Submissions		11-Mar-13	01-Nov-13	192	11-Mar-13 A	01-Nov-13				
Temporary Works		11-Mar-13	28-Sep-13	165	11-Mar-13 A	28-Sep-13				
Temporary Sheet Pile Wall & ELS for C&C Tunnels		11-Mar-13	28-Sep-13	165	11-Mar-13 A	28-Sep-13				
1107.14850	Temp Sheet Pile Wall - AIP Submission	11-Mar-13	12-Apr-13	25	11-Mar-13 A	12-Apr-13 A				
1107.14860	Temp Sheet Pile Wall - MTR & ICE Review	13-Apr-13	26-Apr-13	12	13-Apr-13 A	26-Apr-13 A				
1107.14870	Temp Sheet Pile Wall - Design Report	11-Mar-13	31-May-13	65	11-Mar-13 A	31-May-13 A				
1107.14880	Temp Sheet Pile Wall - 'Approval In Principal' from MTR		26-Apr-13	0		26-Apr-13 A				



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							Jun	Jul	Aug	Sep
1107.14890	Temp Sheet Pile Wall - Detail Drawings	11-Mar-13	31-May-13	65	11-Mar-13 A	31-May-13 A				
1107.14900	Temp Sheet Pile Wall - Review & Comments from BD	01-Jun-13	02-Jul-13	25	01-Jun-13 A	02-Jul-13	█			
1107.14910	Temp Sheet Pile Wall - Issue of Working Drawings	03-Jul-13	16-Jul-13	12	03-Jul-13	16-Jul-13		█		
1107.14920	C&C Tunnels ELS - Design Report	03-Jul-13	16-Aug-13	39	03-Jul-13	16-Aug-13		█		
1107.14930	C&C Tunnels ELS - Detail Drawings	17-Jul-13	16-Aug-13	27	17-Jul-13	16-Aug-13		█		
1107.14940	C&C Tunnels ELS - Review & Comments from BD	17-Aug-13	13-Sep-13	24	17-Aug-13	13-Sep-13			█	
1107.14950	C&C Tunnels ELS - Issue of Working Drawings	14-Sep-13	28-Sep-13	12	14-Sep-13	28-Sep-13				█
Temporary Diaphragm Wall & ELS for Launch Shafts		11-Mar-13	23-Aug-13	135	11-Mar-13 A	23-Aug-13	▶			
1107.14960	Temp D-Walls - AIP Submission	11-Mar-13	12-Apr-13	25	11-Mar-13 A	12-Apr-13 A				
1107.14970	Temp D-Walls - MTR & ICE Review	13-Apr-13	26-Apr-13	12	13-Apr-13 A	26-Apr-13 A				
1107.14980	Temp D-Walls - Design Report	11-Mar-13	03-May-13	42	11-Mar-13 A	03-May-13 A				
1107.14990	Temp D-Walls - 'Approval In Principal' from MTR		26-Apr-13	0		26-Apr-13 A				
1107.15000	Temp D-Walls - Detail Drawings	11-Mar-13	03-May-13	42	11-Mar-13 A	03-May-13 A				
1107.15010	Temp D-Walls- Review & Comments from BD	04-May-13	01-Jun-13	24	04-May-13 A	01-Jun-13 A	█			
1107.15020	Temp D-Walls - Issue of Working Drawings	03-Jun-13	17-Jun-13	12	03-Jun-13 A	17-Jun-13 A	█			
1107.15030	Temp D-Walls - Documentation for sub-contract	11-Mar-13	11-Apr-13	24	11-Mar-13 A	11-Apr-13 A				
1107.15040	Launch Shafts ELS - Design Report	03-Jun-13	12-Jul-13	33	03-Jun-13 A	12-Jul-13	█	█		
1107.15050	Launch Shafts ELS - Detail Drawings	18-Jun-13	12-Jul-13	21	18-Jun-13 A	12-Jul-13	█	█		
1107.15060	Launch Shafts ELS - Review & Comments from BD	13-Jul-13	09-Aug-13	24	13-Jul-13	09-Aug-13		█		
1107.15070	Launch Shafts ELS - Issue of Working Drawings	10-Aug-13	23-Aug-13	12	10-Aug-13	23-Aug-13			█	
Submission & Testing of GFRP		27-Apr-13	09-Jul-13	59	27-Apr-13 A	14-Aug-13	▶			
1107.18890	Sourcing of GFRP Supplier	27-Apr-13	01-Jun-13	29	27-Apr-13 A	01-Jun-13 A	█			
1107.18900	Submission of GFRP Literature & Samples to MTR	03-Jun-13	08-Jun-13	6	03-Jun-13 A	08-Jun-13 A	█			
1107.18910	Testing of GFRP Material	10-Jun-13	24-Jun-13	12	10-Jun-13 A	24-Jun-13 A	█			
1107.18920	Order & Delivery of GFRP Material to Site	03-Jun-13	09-Jul-13	30	03-Jun-13 A	14-Aug-13	█	█		
Cut & Tunnels Permanent Works		03-Jun-13	01-Nov-13	126	03-Jun-13 A	01-Nov-13	▶			
1107.15080	C&C Tunnels - AIP Submission	03-Jun-13	16-Jul-13	36	03-Jun-13 A	16-Jul-13	█	█		
1107.15090	C&C Tunnels - MTR & ICE Review	17-Jul-13	30-Jul-13	12	17-Jul-13	30-Jul-13		█		
1107.15100	C&C Tunnels - 'Approval In Principal' from MTR		30-Jul-13	0		30-Jul-13		◆		
1107.15110	C&C Tunnels - Detail Drawings	31-Jul-13	01-Nov-13	78	31-Jul-13	01-Nov-13			█	█

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		02-Jul-13	0	KCL	

Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
Site Enabling Works for C&C Tunnels		11-Mar-13	11-May-13	49	11-Mar-13 A	11-May-13 A				
Removal of Aircraft Hangar No. 4 Foundations		11-Mar-13	11-May-13	49	11-Mar-13 A	11-May-13 A				
1107.15190	Submission & Approval of Method Statements	11-Mar-13	16-Apr-13	28	11-Mar-13 A	16-Apr-13 A				
1107.15200	Expose Old Foundations in DWall Footprint	17-Apr-13	04-May-13	15	17-Apr-13 A	04-May-13 A				
1107.15210	Remove Abandoned Aircraft Hangar Foundations in DWall Footprint	06-May-13	11-May-13	6	06-May-13 A	11-May-13 A				
Diaphragm Walls		11-Mar-13	30-Sep-13	170	11-Mar-13 A	05-Oct-13				
Mobilisation & Site Enabling Works		11-Mar-13	28-Jul-13	112	11-Mar-13 A	28-Jul-13				
1107.15220	Site Clearance	11-Mar-13	10-May-13	48	11-Mar-13 A	10-May-13 A				
1107.15230	Construct Guide Walls	11-May-13	09-Jul-13	48	11-May-13 A	09-Jul-13				
1107.15240	D2b Pre-drilling for Dwall complete		28-Jul-13	0		28-Jul-13*				
1107.18770	Plant Setup for DWall	03-Jun-13	22-Jun-13	17	03-Jun-13 A	22-Jun-13 A				
1107.18930	Install Settlement Markers	11-May-13	18-May-13	6	11-May-13 A	18-May-13 A				
1107.18940	Install Water Level Observation wells	20-May-13	01-Jun-13	12	20-May-13 A	01-Jun-13 A				
1107.18950	Construction of Haul Road to 1108 Boundary	11-May-13	14-Jun-13	28	11-May-13 A	14-Jun-13 A				
TBM Launch Shafts		12-Apr-13	30-Sep-13	146	12-Apr-13 A	05-Oct-13				
2 Grabs Combination Team		12-Apr-13	30-Sep-13	146	12-Apr-13 A	05-Oct-13				
1107.15250	Temp D-Walls - Tender & Appoint Sub-Con	12-Apr-13	25-Apr-13	12	12-Apr-13 A	25-Apr-13 A				
1107.15260	Temp D-Walls - Mobilisation	26-Apr-13	01-Jun-13	30	26-Apr-13 A	01-Jun-13 A				
1107.15270	MG01 Temp D-Wall Panel 01 Excavation & Rebar Cage Fabrication	24-Jun-13	03-Jul-13	8	28-Jun-13 A	08-Jul-13				
1107.15280	MG01 Temp D-Wall Panel 01 Rebar & Concrete	04-Jul-13	05-Jul-13	2	09-Jul-13	10-Jul-13				
1107.15290	MG02 Temp D-Wall Panel 24 Excavation & Rebar Cage Fabrication	04-Jul-13	12-Jul-13	8	09-Jul-13	17-Jul-13				
1107.15300	MG02 Temp D-Wall Panel 24 Rebar & Concrete	13-Jul-13	15-Jul-13	2	18-Jul-13	19-Jul-13				
1107.15310	MG03 Temp D-Wall Panel 19 Excavation & Rebar Cage Fabrication	13-Jul-13	20-Jul-13	7	18-Jul-13	25-Jul-13				
1107.15319	Mobilise Hydraulic Grab	24-Jun-13	05-Jul-13	10	24-Jun-13 A	05-Jul-13				
1107.15320	HG01 Temp D-Wall Panel 23 Excavation & Rebar Cage Fabrication	17-Jul-13	22-Jul-13	5	22-Jul-13	26-Jul-13				
1107.15330	MG03 Temp D-Wall Panel 19 Rebar & Concrete	22-Jul-13	23-Jul-13	2	26-Jul-13	27-Jul-13				
1107.15340	HG01 Temp D-Wall Panel 23 Rebar & Concrete	24-Jul-13	25-Jul-13	2	29-Jul-13	30-Jul-13				
1107.15350	HG02 Temp D-Wall Panel 20 Excavation & Rebar Cage Fabrication	25-Jul-13	30-Jul-13	5	30-Jul-13	03-Aug-13				
1107.15360	MG04 Temp D-Wall Panel 27 Excavation & Rebar Cage Fabrication	22-Jul-13	27-Jul-13	6	26-Jul-13	01-Aug-13				
1107.15370	HG02 Temp D-Wall Panel 20 Rebar & Concrete	31-Jul-13	01-Aug-13	2	05-Aug-13	06-Aug-13				



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							Jun	Jul	Aug	Sep
1107.15380	HG03 Temp D-Wall Panel 18 Excavation & Rebar Cage Fabrication	31-Jul-13	03-Aug-13	4	05-Aug-13	08-Aug-13				
1107.15390	MG04 Temp D-Wall Panel 27 Rebar & Concrete	02-Aug-13	03-Aug-13	2	07-Aug-13	08-Aug-13				
1107.15400	HG04 Temp D-Wall Panel 21 Excavation & Rebar Cage Fabrication	05-Aug-13	07-Aug-13	3	09-Aug-13	12-Aug-13				
1107.15410	MG05 Temp D-Wall Panel 25 Excavation & Rebar Cage Fabrication	29-Jul-13	03-Aug-13	6	02-Aug-13	08-Aug-13				
1107.15420	HG03 Temp D-Wall Panel 18 Rebar & Concrete	05-Aug-13	06-Aug-13	2	09-Aug-13	10-Aug-13				
1107.15430	HG04 Temp D-Wall Panel 21 Rebar & Concrete	08-Aug-13	09-Aug-13	2	13-Aug-13	14-Aug-13				
1107.15440	HG05 Temp D-Wall Panel 17 Excavation & Rebar Cage Fabrication	08-Aug-13	10-Aug-13	3	13-Aug-13	15-Aug-13				
1107.15450	MG05 Temp D-Wall Panel 25 Rebar & Concrete	10-Aug-13	12-Aug-13	2	15-Aug-13	16-Aug-13				
1107.15460	HG06 Temp D-Wall Panel 22 Excavation & Rebar Cage Fabrication	12-Aug-13	14-Aug-13	3	16-Aug-13	19-Aug-13				
1107.15470	MG06 Temp D-Wall Panel 03 Excavation & Rebar Cage Fabrication	05-Aug-13	10-Aug-13	6	09-Aug-13	15-Aug-13				
1107.15480	HG05 Temp D-Wall Panel 17 Rebar & Concrete	13-Aug-13	14-Aug-13	2	17-Aug-13	19-Aug-13				
1107.15490	HG06 Temp D-Wall Panel 22 Rebar & Concrete	15-Aug-13	16-Aug-13	2	20-Aug-13	21-Aug-13				
1107.15500	HG07 Temp D-Wall Panel 12 Excavation & Rebar Cage Fabrication	15-Aug-13	17-Aug-13	3	20-Aug-13	22-Aug-13				
1107.15510	MG06 Temp D-Wall Panel 03 Rebar & Concrete	17-Aug-13	19-Aug-13	2	22-Aug-13	23-Aug-13				
1107.15520	HG08 Temp D-Wall Panel 15 Excavation & Rebar Cage Fabrication	19-Aug-13	21-Aug-13	3	23-Aug-13	26-Aug-13				
1107.15530	MG07 Temp D-Wall Panel 26 Excavation & Rebar Cage Fabrication	12-Aug-13	17-Aug-13	6	16-Aug-13	22-Aug-13				
1107.15540	HG07 Temp D-Wall Panel 12 Rebar & Concrete	20-Aug-13	21-Aug-13	2	24-Aug-13	26-Aug-13				
1107.15550	HG08 Temp D-Wall Panel 15 Rebar & Concrete	22-Aug-13	23-Aug-13	2	27-Aug-13	28-Aug-13				
1107.15560	HG09 Temp D-Wall Panel 11 Excavation & Rebar Cage Fabrication	22-Aug-13	24-Aug-13	3	27-Aug-13	29-Aug-13				
1107.15570	MG07 Temp D-Wall Panel 26 Rebar & Concrete	24-Aug-13	26-Aug-13	2	29-Aug-13	30-Aug-13				
1107.15580	HG10 Temp D-Wall Panel 16 Excavation & Rebar Cage Fabrication	26-Aug-13	28-Aug-13	3	30-Aug-13	02-Sep-13				
1107.15590	MG08 Temp D-Wall Panel 04 Excavation & Rebar Cage Fabrication	19-Aug-13	24-Aug-13	6	23-Aug-13	29-Aug-13				
1107.15600	HG09 Temp D-Wall Panel 11 Rebar & Concrete	27-Aug-13	28-Aug-13	2	31-Aug-13	02-Sep-13				
1107.15610	HG10 Temp D-Wall Panel 16 Rebar & Concrete	29-Aug-13	30-Aug-13	2	03-Sep-13	04-Sep-13				
1107.15620	HG11 Temp D-Wall Panel 13 Excavation (GFRP) & Rebar Cage Fabrication	29-Aug-13	31-Aug-13	3	03-Sep-13	05-Sep-13				
1107.15630	MG08 Temp D-Wall Panel 04 Rebar & Concrete	31-Aug-13	02-Sep-13	2	05-Sep-13	06-Sep-13				
1107.15640	HG12 Temp D-Wall Panel 09 Excavation (GFRP) & Rebar Cage Fabrication	02-Sep-13	04-Sep-13	3	06-Sep-13	09-Sep-13				
1107.15650	MG09 Temp D-Wall Panel 06 Excavation & Rebar Cage Fabrication	26-Aug-13	31-Aug-13	6	30-Aug-13	05-Sep-13				
1107.15660	HG11 Temp D-Wall Panel 13 Rebar & Concrete (GFRP)	03-Sep-13	04-Sep-13	2	07-Sep-13	09-Sep-13				
1107.15670	HG12 Temp D-Wall Panel 09 Rebar & Concrete (GFRP)	05-Sep-13	06-Sep-13	2	10-Sep-13	11-Sep-13				



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							Jun	Jul	Aug	Sep			
1107.15680	HG13 Temp D-Wall Panel 14 Excavation (GFRP) & Rebar Cage Fabrication	05-Sep-13	07-Sep-13	3	10-Sep-13	12-Sep-13							
1107.15690	MG09 Temp D-Wall Panel 06 Rebar & Concrete	07-Sep-13	09-Sep-13	2	12-Sep-13	13-Sep-13							
1107.15700	HG14 Temp D-Wall Panel 10 Excavation (GFRP) & Rebar Cage Fabrication	09-Sep-13	11-Sep-13	3	13-Sep-13	16-Sep-13							
1107.15710	MG10 Temp D-Wall Panel 02 Excavation & Rebar Cage Fabrication	02-Sep-13	07-Sep-13	6	06-Sep-13	12-Sep-13							
1107.15720	HG13 Temp D-Wall Panel 14 Rebar & Concrete (GFRP)	10-Sep-13	11-Sep-13	2	14-Sep-13	16-Sep-13							
1107.15730	HG14 Temp D-Wall Panel 10 Rebar & Concrete (GFRP)	12-Sep-13	13-Sep-13	2	17-Sep-13	18-Sep-13							
1107.15740	HG15 Temp D-Wall Panel 05 Excavation & Rebar Cage Fabrication	12-Sep-13	14-Sep-13	3	17-Sep-13	19-Sep-13							
1107.15750	MG10 Temp D-Wall Panel 02 Rebar & Concrete	14-Sep-13	16-Sep-13	2	19-Sep-13	21-Sep-13							
1107.15760	HG16 Temp D-Wall Panel 07 Excavation & Rebar Cage Fabrication	16-Sep-13	18-Sep-13	3	21-Sep-13	24-Sep-13							
1107.15770	HG15 Temp D-Wall Panel 05 Rebar & Concrete	17-Sep-13	18-Sep-13	2	23-Sep-13	24-Sep-13							
1107.15780	HG16 Temp D-Wall Panel 07 Rebar & Concrete	19-Sep-13	21-Sep-13	2	25-Sep-13	26-Sep-13							
1107.15790	MG11 Temp D-Wall Panel 08 Excavation & Rebar Cage Fabrication	24-Sep-13	30-Sep-13	6	28-Sep-13	05-Oct-13							
1107.15820	D2a 30% by plan length of Dwalls complete at Kai Tak Box 2A and Box 1A shaft		28-Jul-13	0		28-Jul-13*							
Sheet Piling		27-Apr-13	17-Oct-13	142	27-Apr-13 A	17-Oct-13							
1107.15840	Order sheetpiles First Batch	27-Apr-13	10-Jul-13	60	27-Apr-13 A	10-Jul-13							
1107.15841	Mobilise Sheet Piling 1st Gang	11-Jul-13	29-Jul-13	16	11-Jul-13	29-Jul-13							
1107.15850	Sheet Pile Installation in Strech SD & 1108INT(58m)	30-Jul-13	07-Oct-13	58	30-Jul-13	07-Oct-13							
1107.15859	Mobilise Sheet Piling 2nd Gang	30-Jul-13	07-Aug-13	8	30-Jul-13	07-Aug-13							
1107.15860	Sheet Pile Installation in Strech ND & Removal of Any Left in Foundations (58m)	08-Aug-13	17-Oct-13	58	08-Aug-13	17-Oct-13							
Pump Tests		24-Aug-13	16-Sep-13	20	24-Aug-13	16-Sep-13							
Launch Shafts		24-Aug-13	16-Sep-13	20	24-Aug-13	16-Sep-13							
1107.15910	Install Groundwater pumps 4 nos	24-Aug-13	16-Sep-13	20	24-Aug-13	16-Sep-13							
1107.15920	Install Groundwater Monitoring Points 4 nos	24-Aug-13	11-Sep-13	16	24-Aug-13	11-Sep-13							
Cost Centre F3 - Utilities Protection / Diversion		25-Mar-13	18-Oct-13	168	25-Mar-13 A	18-Oct-13							
Diversion/ Replacement of WaterMains at Choi Hung Road		25-Mar-13	08-Oct-13	160	25-Mar-13 A	08-Oct-13							
1107.17510	Appoint WSD Approved Sub contractor	13-May-13	03-Jun-13	18	13-May-13 A	03-Jun-13 A							
1107.17520	Appoint Asbestos CMR Sub contractor	13-May-13	03-Jun-13	18	13-May-13 A	03-Jun-13 A							
1107.17530	Submission & Approval of TTMS	25-Mar-13	24-Jun-13	72	25-Mar-13 A	24-Jun-13 A							
1107.17540	Stage 1 TTMS - Utilities Scanning & CCTV	19-Aug-13	24-Aug-13	6	19-Aug-13*	24-Aug-13							
1107.17550	Stage 2 TTMS - Trail Pit no. 1	26-Aug-13	07-Sep-13	12	26-Aug-13	07-Sep-13							



DATA DATE: 30-Jun-13
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PROJECT ID: SCL1107 M-3MR-004-1
02-Jul-13

Contract 1107 Diamond Hill to Kai Tak Tunnels
3 Month Rolling Programme -DD 1st JUL 2013
Chun Wo - SELI Joint Venture

Date	Revision	Checked	Approved
02-Jul-13	0	KCL	

Activity ID	Activity Name	BL Start	BL Finish	Original Duration	Start	Finish	2013			
							Jun	Jul	Aug	Sep
1107.17560	Stage 3 TTMS - Trail Pit no. 2	09-Sep-13	23-Sep-13	12	09-Sep-13	23-Sep-13				
1107.17570	Stage 4 TTMS - Trail Pit no. 3	24-Sep-13	08-Oct-13	12	24-Sep-13	08-Oct-13				
1107.17670	F3 TTMS at Choi Hung Road (East) for water main replacement scheme approved		30-Jun-13	0		30-Jun-13*				
Installation of Utilities Monitoring Devices at Prince Edwar...		25-Jun-13	18-Oct-13	96	25-Jun-13 A	18-Oct-13				
1107.17710	Stage 1 TTMS	25-Jun-13	01-Aug-13	32	25-Jun-13 A	01-Aug-13				
1107.17720	Installation of Monitoring Devices	02-Aug-13	18-Oct-13	64	02-Aug-13	18-Oct-13				
Cost Centre F4 - Landscaping		13-May-13	18-Sep-13	108	13-May-13 A	18-Sep-13				
1107.17750	Fell Trees within Cofferdam Footprint	13-May-13	18-Jun-13	30	13-May-13 A	18-Jun-13 A				
1107.17751	Transplant & Fell Trees	19-Jun-13	18-Sep-13	78	19-Jun-13 A	18-Sep-13				
Cost Centre G CEDD Entrusted Works		27-Apr-13	09-Oct-13	136	27-Apr-13 A	09-Oct-13				
Demolition & Diversion of Nullah 2		27-Apr-13	09-Oct-13	136	27-Apr-13 A	09-Oct-13				
1107.17770	Cable Detection / UU Detection	27-Apr-13	11-May-13	12	27-Apr-13 A	11-May-13 A				
1107.17780	Joint Inspection with Utility Companies	13-May-13	20-May-13	6	13-May-13 A	20-May-13 A				
1107.17790	Confirm Scope of Works for Foundation Removal	21-May-13	27-May-13	6	21-May-13 A	27-May-13 A				
1107.17800	Verify feasibility of Diversion Alignment	28-May-13	18-Jun-13	18	28-May-13 A	18-Jun-13 A				
1107.17810	Preparation of Design Submission	19-Jun-13	17-Jul-13	24	19-Jun-13 A	17-Jul-13				
1107.17820	Submission to DSD	18-Jul-13	31-Jul-13	12	18-Jul-13	31-Jul-13				
1107.19350	Approval of Design	01-Aug-13	28-Aug-13	24	01-Aug-13	28-Aug-13				
Downstream Section Pipes		29-Aug-13	09-Oct-13	34	29-Aug-13	09-Oct-13				
1107.17970	Excavation to Base level	29-Aug-13	09-Oct-13	34	29-Aug-13	09-Oct-13				



SELI

DATA DATE: 30-Jun-13

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PROJECT ID: SCL1107 M-3MR-004-1

02-Jul-13

Contract 1107 Diamond Hill to Kai Tak Tunnels

3 Month Rolling Programme -DD 1st JUL 2013

Chun Wo - SELI Joint Venture

Date	Revision	Checked	Approved
02-Jul-13	0	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. MA12051/57/0002

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 13-May-13 Next Due Date: 12-Jul-13
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	299.9	Pressure, Pa (mmHg)	758.3

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	11.4	3.36	57.27	7.3	2.69
2	8.9	2.97	50.66	5.4	2.31
3	7.0	2.63	44.98	4.3	2.06
4	4.6	2.14	36.55	2.8	1.67
5	2.9	1.70	29.12	1.7	1.30

By Linear Regression of Y on X

Slope, mw = 0.0487 Intercept, bw = -0.1230
 Correlation coefficient* = 0.9993

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.92

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 13/5/13
 Checked by: [Signature] Signature: [Signature] Date: 13 May 2013

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0003

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 9-Jul-13 Next Due Date: 8-Sep-13
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	301.3	Pressure, Pa (mmHg)	760.2

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	11.5	3.37	57.45	7.4	2.71
2	8.9	2.97	50.60	5.5	2.33
3	7.2	2.67	45.56	4.4	2.09
4	4.6	2.13	36.51	2.7	1.63
5	2.9	1.69	29.09	1.7	1.30

By Linear Regression of Y on X

Slope, mw = 0.0496 Intercept, bw = -0.1629
 Correlation coefficient* = 0.9995

*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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.92

Remarks: _____

Conducted by: Wk Tang
 Checked by: Wk

Signature: Wk Tang
 Signature: _____

Date: 9/7/13
 Date: 9 July 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
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootmeter 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)]			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/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 59%

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

Remark: 1) This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

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/120901/2
Date of Issue:	2012-09-02
Date Received:	2012-09-01
Date Tested:	2012-09-01
Date Completed:	2012-09-02
Next Due Date:	2013-09-01

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 67%

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/120921/1
Date of Issue:	2012-09-22
Date Received:	2012-09-21
Date Tested:	2012-09-21
Date Completed:	2012-09-22
Next Due Date:	2013-09-21

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	: 24 degree Celsius
Relative Humidity	: 56%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/121005/1
Date of Issue:	2012-10-07
Date Received:	2012-10-05
Date Tested:	2012-10-05
Date Completed:	2012-10-07
Next Due Date:	2013-10-06

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	: 23 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels
Impact Air Quality and Noise Monitoring Schedule for July 2013**

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

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 August 2013**

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

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

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).

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

Appendix E - 24-hour TSP Monitoring Results

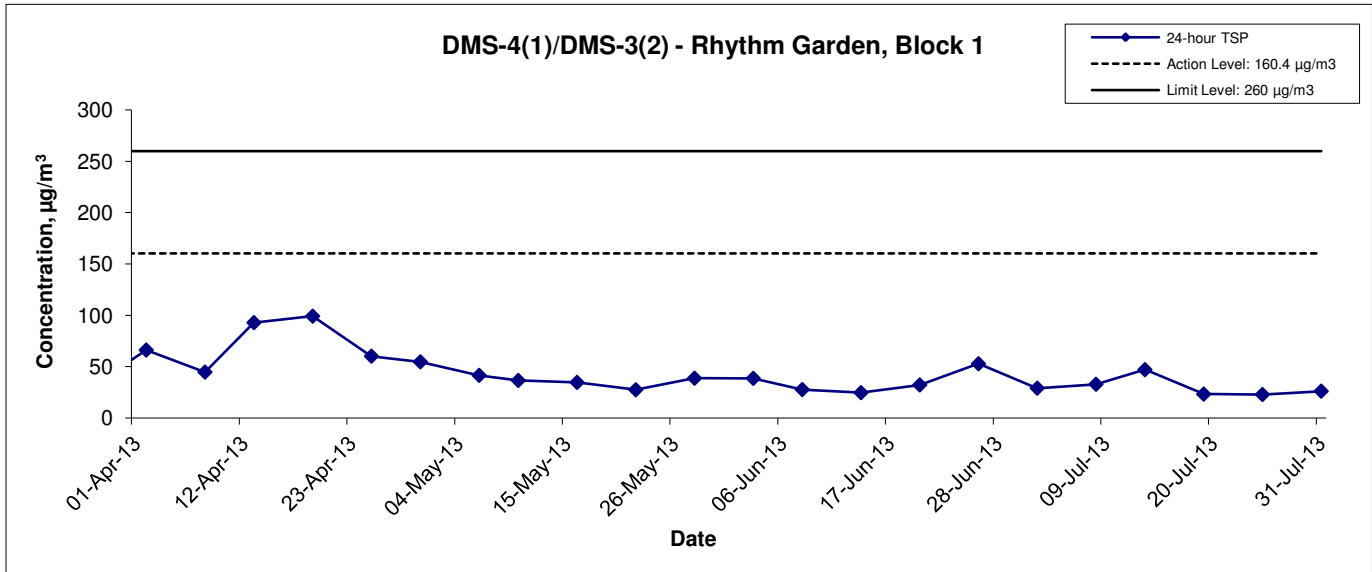
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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			
2-Jul-13	09:00	Sunny	302.1	757.7	3.0394	3.0900	0.0506	1289.9	1313.9	24.0	1.21	1.21	1.21	1741.7	29.1
8-Jul-13	09:00	Sunny	301.1	760.7	3.0583	3.1158	0.0575	1313.9	1337.9	24.0	1.21	1.21	1.21	1747.7	32.9
13-Jul-13	09:00	Sunny	303.6	753.1	3.0318	3.1134	0.0816	1337.9	1361.9	24.0	1.20	1.20	1.20	1734.0	47.1
19-Jul-13	09:00	Sunny	300.1	756.8	3.8808	3.9215	0.0407	1361.9	1385.9	24.0	1.21	1.21	1.21	1747.2	23.3
25-Jul-13	09:00	Cloudy	298.3	755.4	3.0275	3.0676	0.0401	1385.9	1409.9	24.0	1.22	1.22	1.22	1750.7	22.9
31-Jul-13	09:00	Cloudy	301.8	756.1	3.6398	3.6854	0.0456	1409.9	1433.9	24.0	1.21	1.21	1.21	1742.0	26.2
														Min	22.9
														Max	47.1
														Average	30.2

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



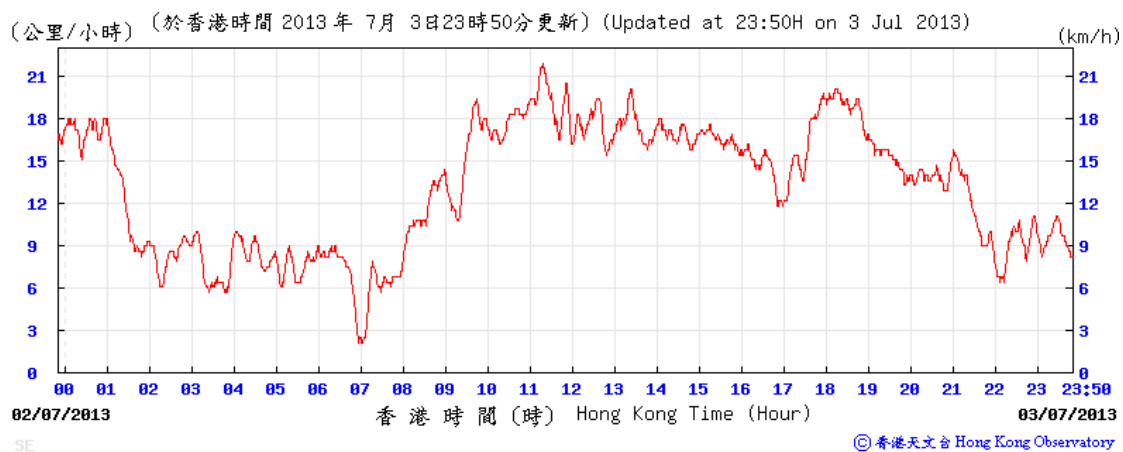
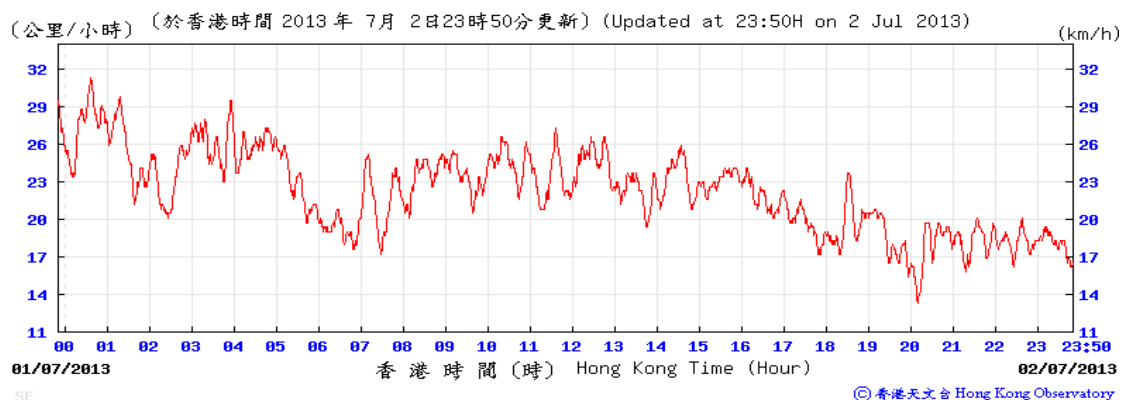
Remarks:

- (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 1107 - Diamond Hill to Kai Tak Tunnels	Scale	N.T.S	Project No.	MA13018	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results	Date	Jul 13	Appendix	E	

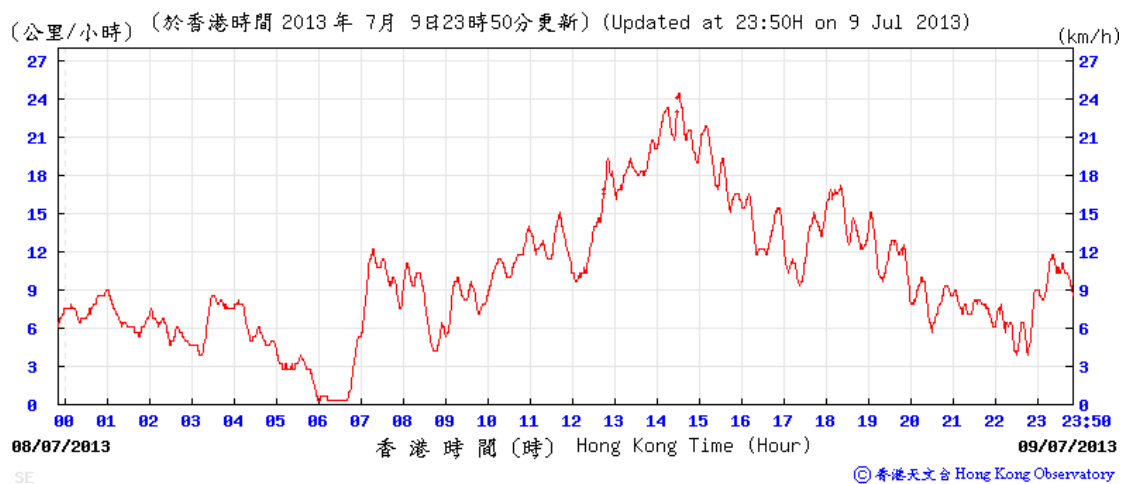
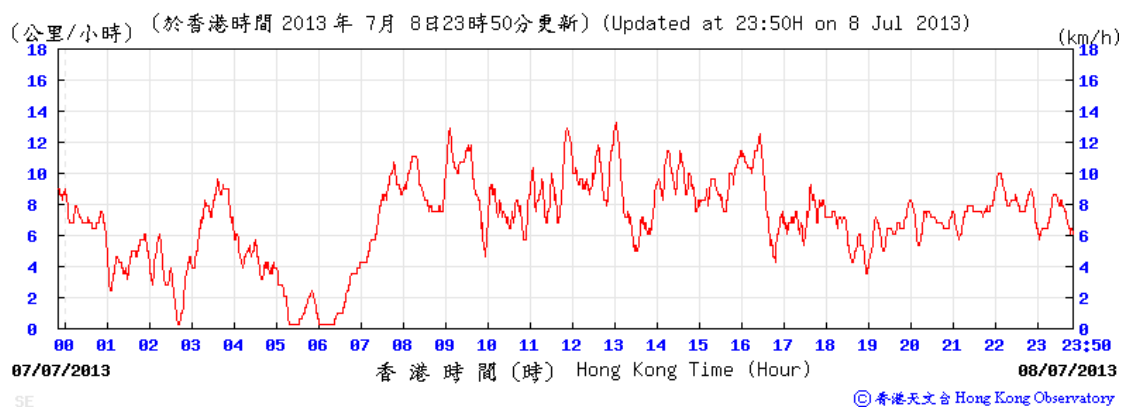
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2013



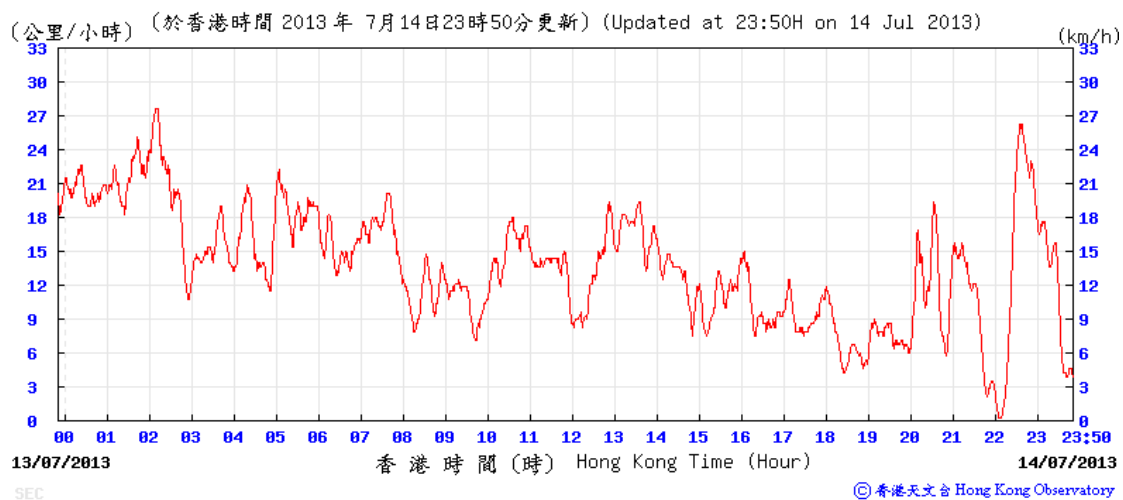
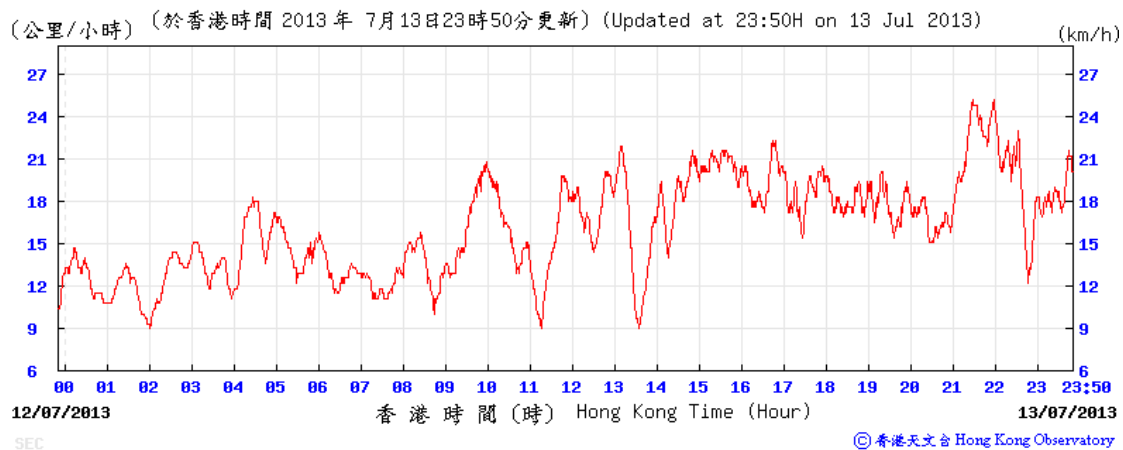
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2013



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

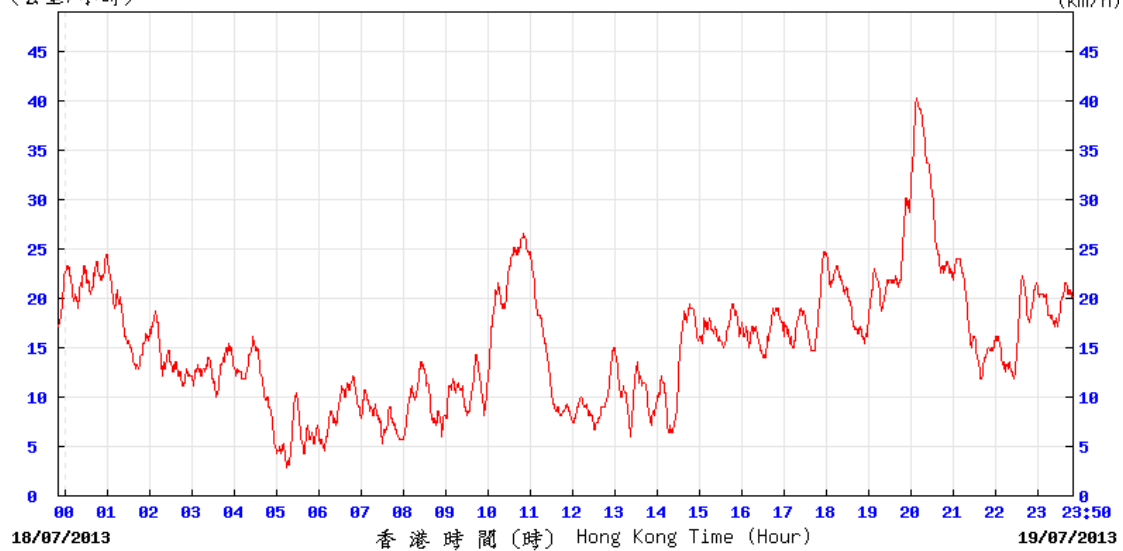
13-14 July 2013



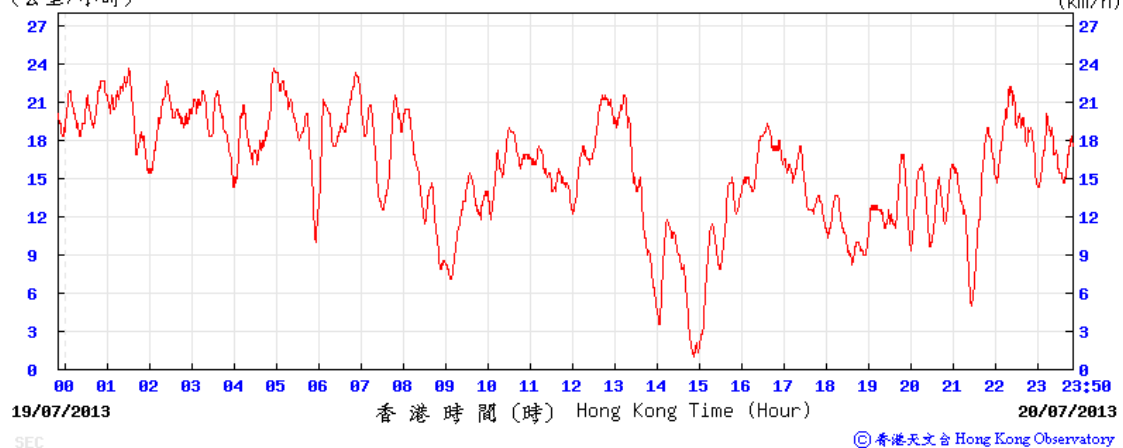
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 July 2013

(公里/小時) (於香港時間 2013 年 7月19日23時50分更新) (Updated at 23:50H on 19 Jul 2013) (km/h)

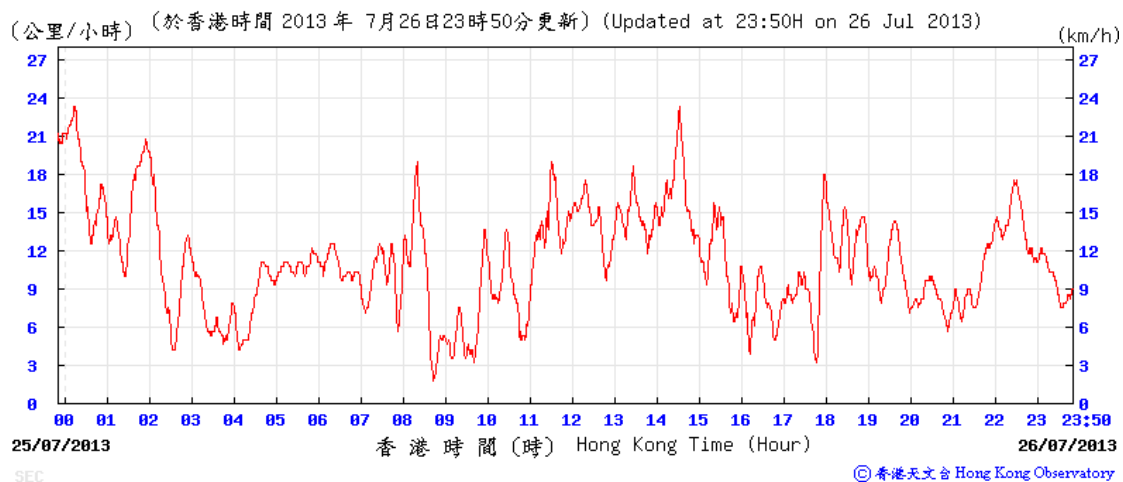
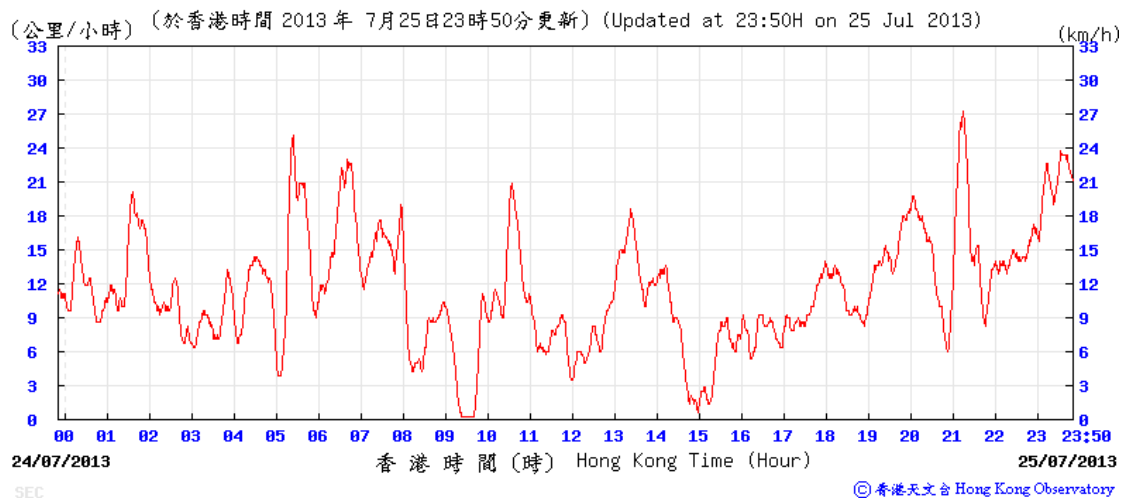


(公里/小時) (於香港時間 2013 年 7月20日23時50分更新) (Updated at 23:50H on 20 Jul 2013) (km/h)



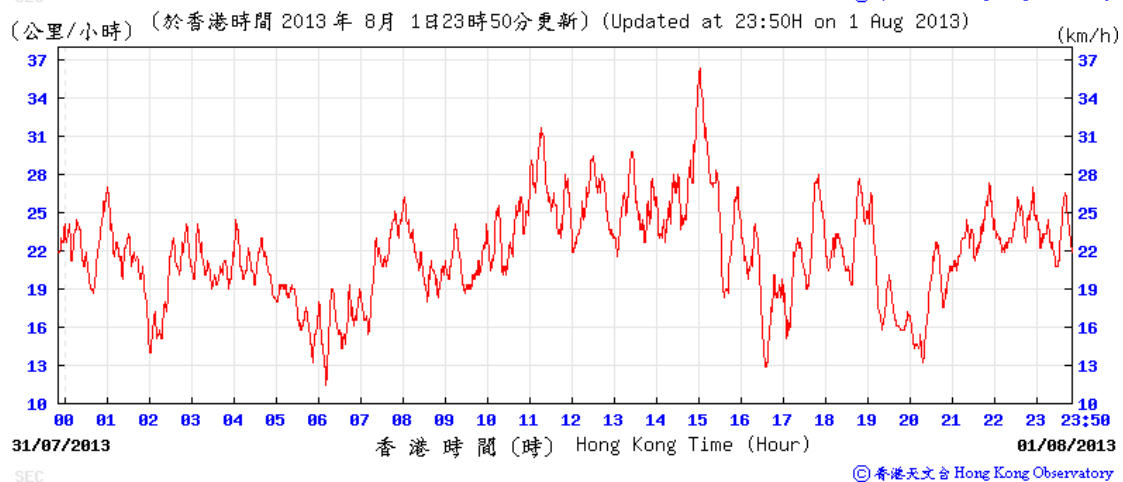
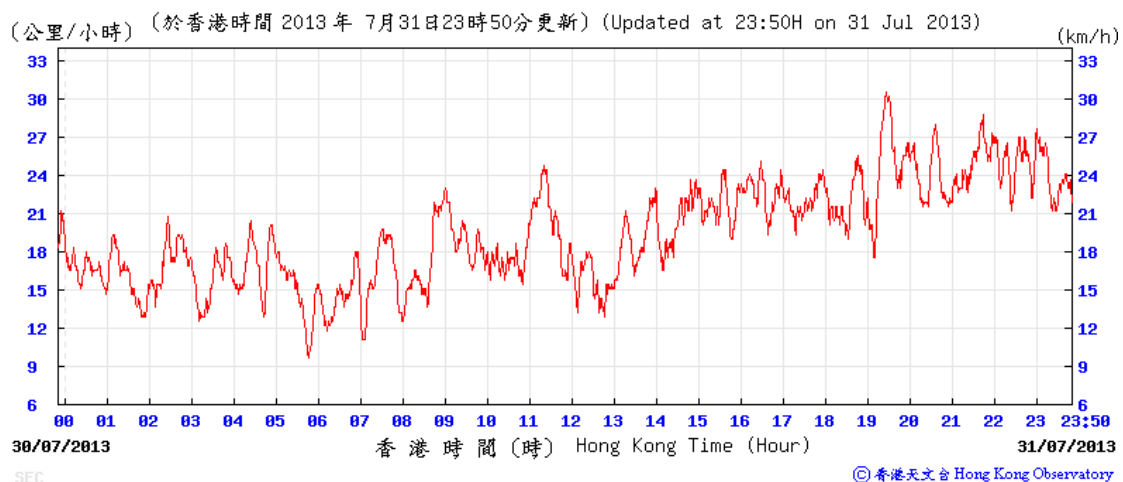
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2013



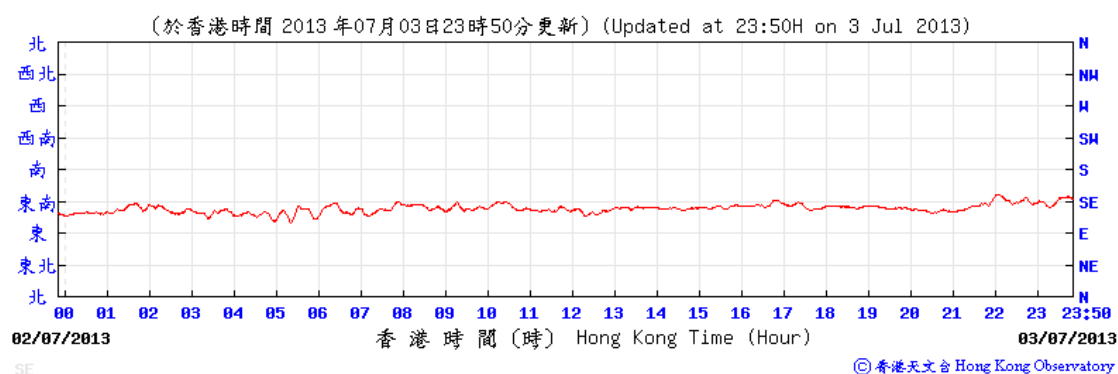
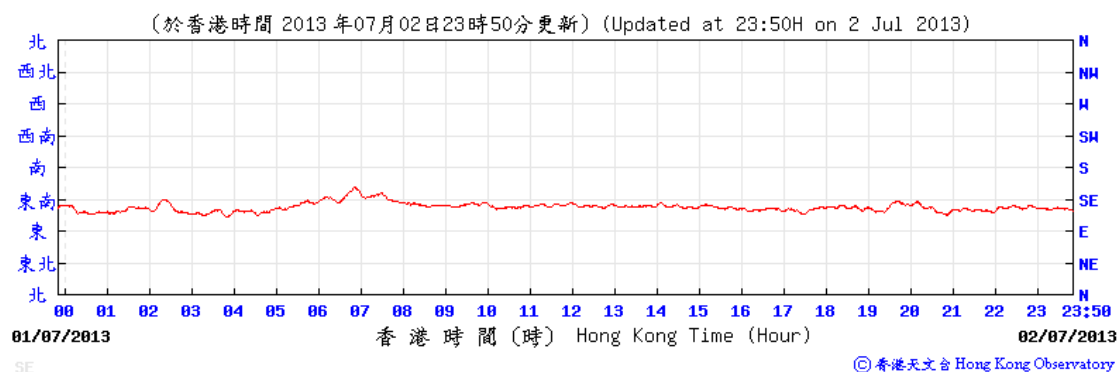
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

31- July to 1 August 2013



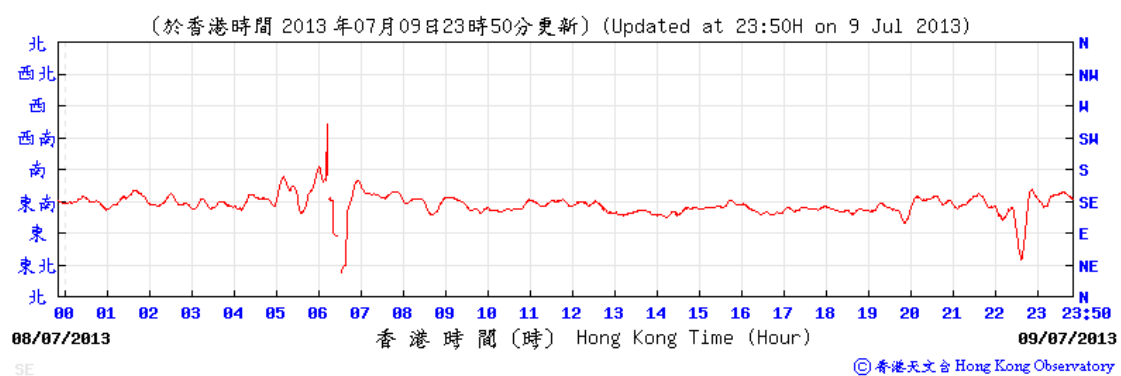
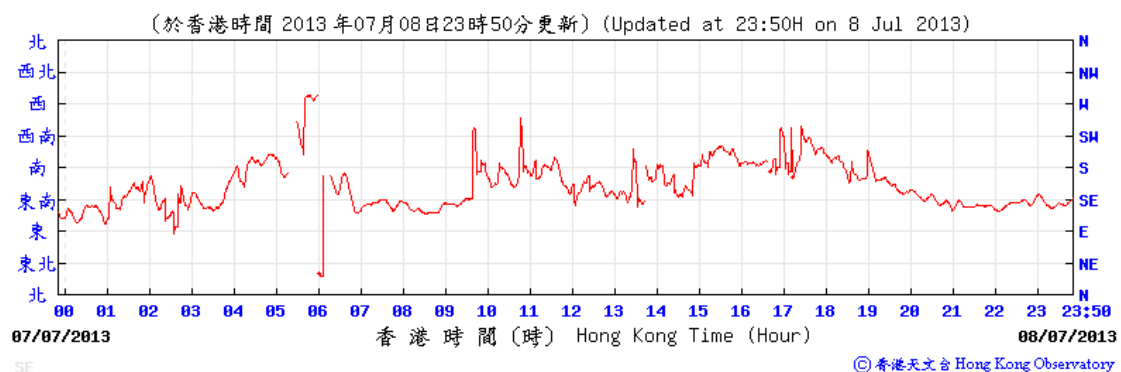
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2013



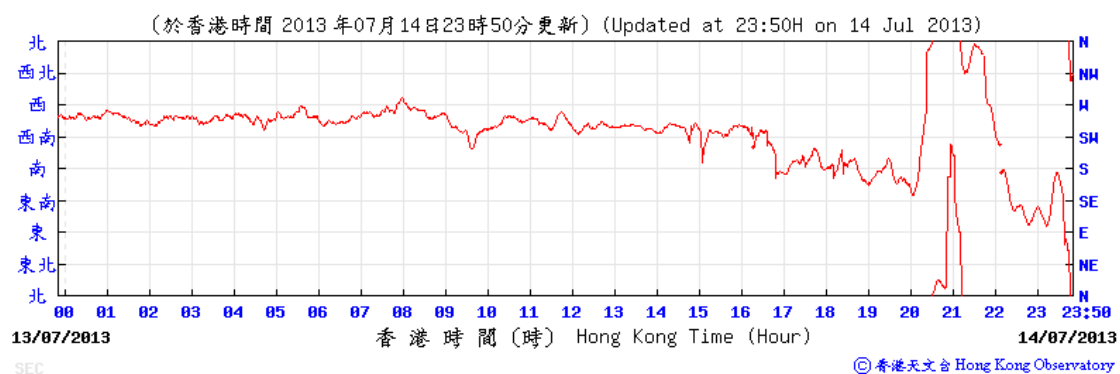
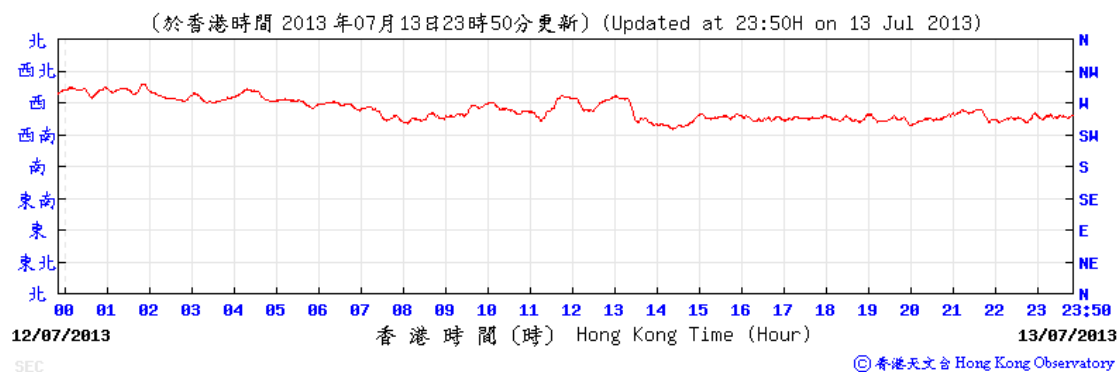
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2013



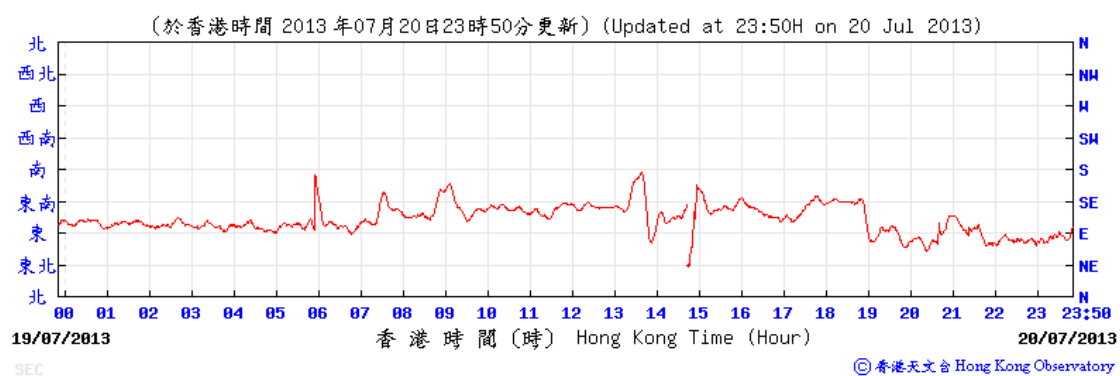
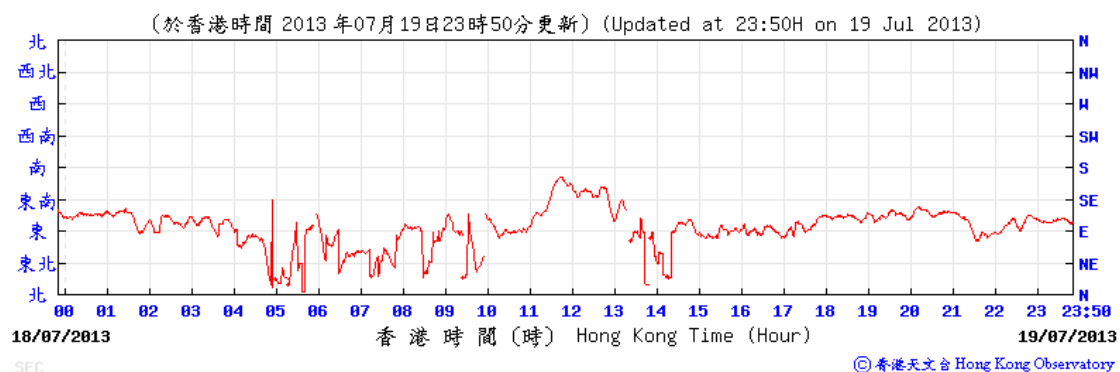
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

13-14 July 2013



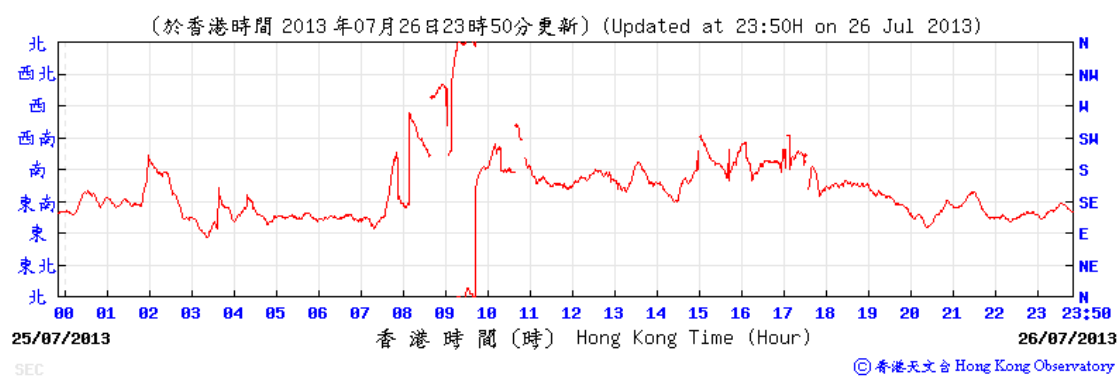
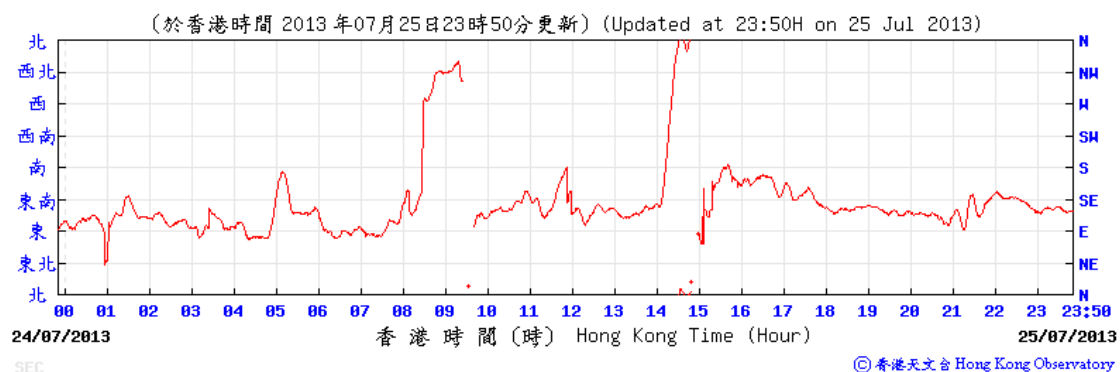
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 July 2013



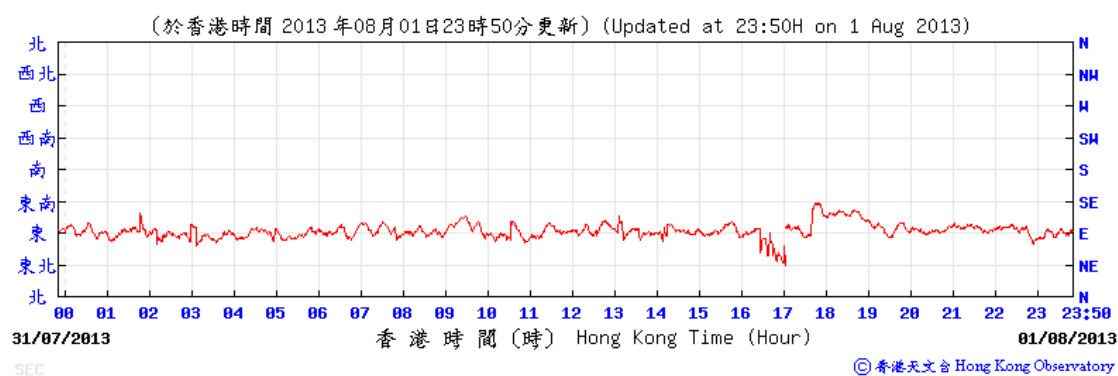
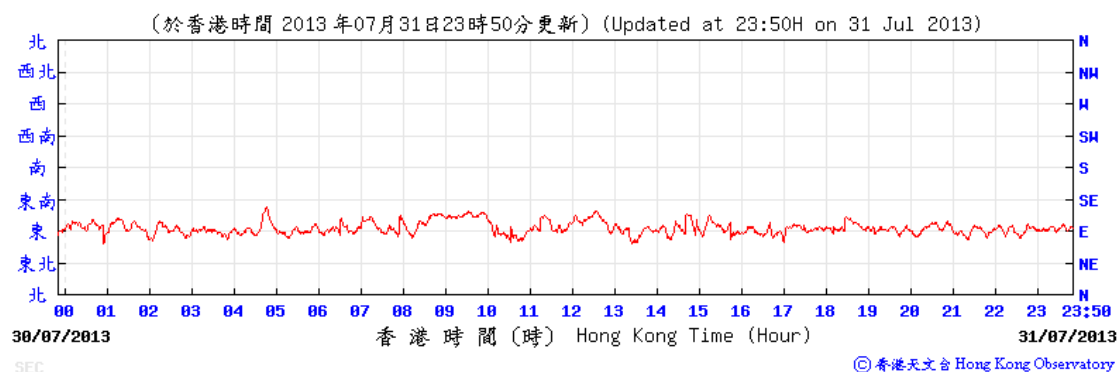
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2013



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

31- July to 1 - August 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}
3-Jul-13	Sunny	13:00	70.1	72.3	68.8	70.3	71	70.3 Measured ≤ Baseline Level
		13:05	70.3	72.7	68.6			
		13:10	70.4	72.8	68.8			
		13:15	70.2	72.7	68.8			
		13:20	70.4	72.7	68.9			
		13:25	70.4	72.8	68.9			
9-Jul-13	Sunny	13:16	71.6	72.7	70.2	71.6	71	62.7
		13:21	71.5	72.7	70.0			
		13:26	71.7	72.8	70.3			
		13:31	71.6	72.7	70.2			
		13:36	71.4	72.5	70.1			
		13:41	71.8	72.7	70.3			
15-Jul-13	Cloudy	13:00	74.5	76.1	71.9	74.5	71	71.9
		13:05	74.5	76.0	72.1			
		13:10	74.7	76.2	72.3			
		13:15	74.4	76.0	71.7			
		13:20	74.2	75.8	71.5			
		13:25	74.6	76.4	72.1			
22-Jul-13	Sunny	14:15	73.7	74.9	72.2	73.5	71	69.9
		14:20	73.5	74.7	72.1			
		14:25	72.9	74.3	72.3			
		14:30	73.4	74.2	72.3			
		14:35	73.6	74.8	72.5			
		14:40	73.6	74.8	72.7			
29-Jul-13	Sunny	13:00	67.4	68.6	66.1	67.6	71	67.6 Measured ≤ Baseline Level
		13:05	67.7	68.7	66.3			
		13:10	67.7	68.7	66.4			
		13:15	67.5	68.6	66.1			
		13:20	67.4	68.5	66.0			
		13:25	67.7	68.8	66.3			

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).

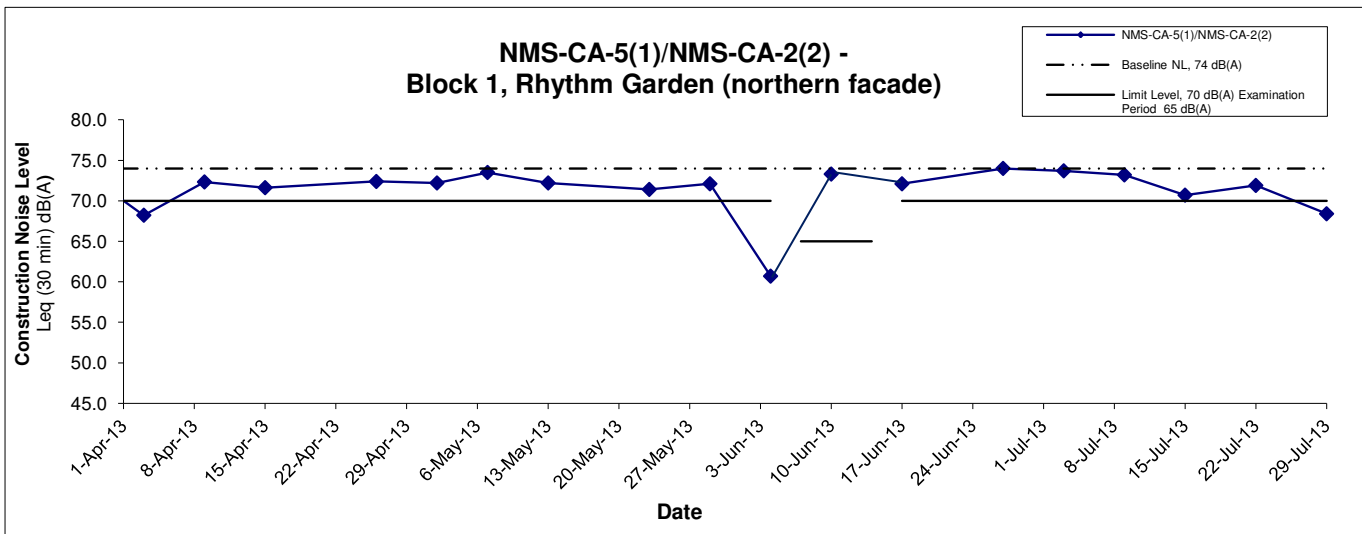
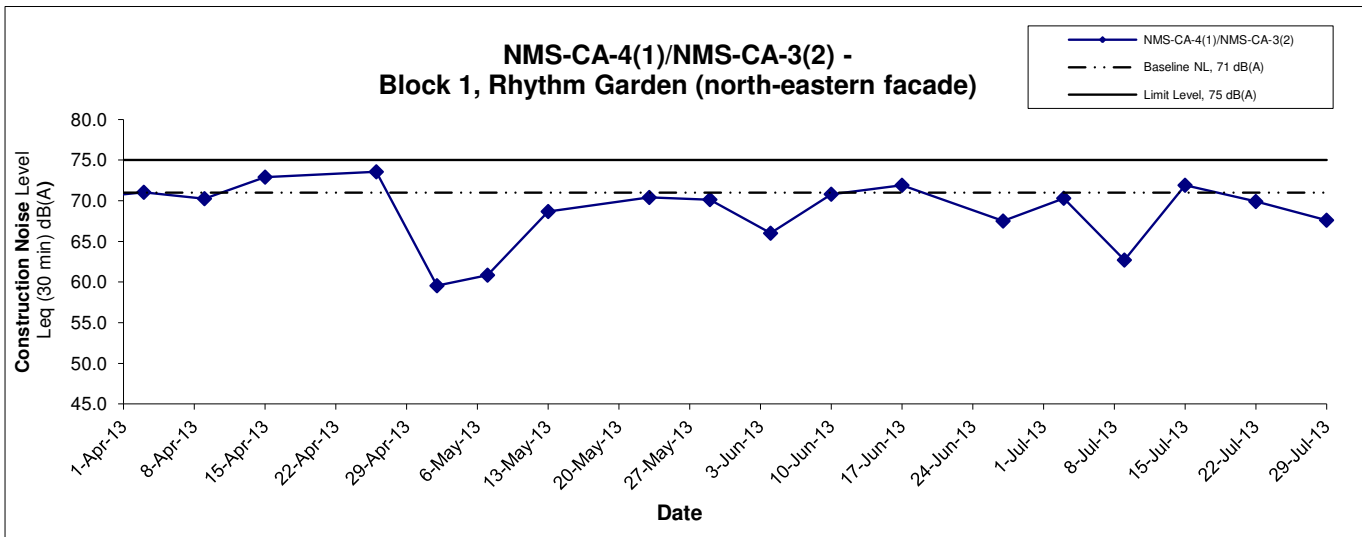
Appendix F - Noise Monitoring Results

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}
3-Jul-13	Sunny	13:35	73.7	74.8	72.1	73.7	74	73.7 Measured ≤ Baseline Level
		13:40	73.6	75.0	72.3			
		13:45	73.7	74.9	72.1			
		13:50	73.7	74.8	72.0			
		13:55	73.8	74.9	72.3			
		14:00	73.7	74.8	72.0			
9-Jul-13	Sunny	15:50	73.1	74.3	71.7	73.2	74	73.2 Measured ≤ Baseline Level
		15:55	73.3	74.5	72.0			
		16:00	73.0	74.2	71.6			
		16:05	73.2	74.5	71.6			
		16:10	73.3	74.5	71.7			
		16:15	73.2	74.3	71.5			
15-Jul-13	Cloudy	11:25	70.8	72.3	68.1	70.7	74	70.7 Measured ≤ Baseline Level
		11:30	70.7	72.5	68.3			
		11:35	70.5	71.9	67.7			
		11:40	70.7	72.3	68.5			
		11:45	70.8	72.5	68.3			
		11:50	70.8	72.4	68.3			
22-Jul-13	Sunny	13:30	71.8	72.8	70.5	71.9	74	71.9 Measured ≤ Baseline Level
		13:35	71.8	72.9	70.4			
		13:40	71.9	72.9	70.5			
		13:45	72.0	73.0	70.5			
		13:50	72.1	73.2	70.6			
		13:55	72.0	73.1	70.7			
29-Jul-13	Sunny	13:40	68.5	69.6	67.2	68.4	74	68.4 Measured ≤ Baseline Level
		13:45	68.0	69.3	67.0			
		13:50	68.3	69.6	67.3			
		13:55	68.3	69.5	67.5			
		14:00	68.6	70.0	67.7			
		14:05	68.4	69.4	67.5			

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 Jul 13	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: July 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

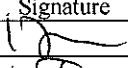

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130705
Date	5 July 2013(Friday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
130705-O02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Sand bag bunding should be provided for all sides of gully to avoid untreated runoff discharge. To provide sand bag bunding to U-channel near site boundary. 	B7
130705-R03		B7
130705-R05	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> Enlarge the tree protection zone and properly maintain the retained trees on-site. 	C3
130705-O01	<p>Part D – Air Quality</p> <ul style="list-style-type: none"> Dust generation observed from grouting plant. The Contractor is reminded to provide a proper enclosure to avoid dust generation. To provide sufficient water spray to haul road and keep the on-site record for water spray. 	D11
130705-R04		D5
	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130628), all environmental deficiency was observed improved/rectified by the Contractor. 	

	Name	Signature	Date
Recorded by	Johnny Fung		5 July 2013
Checked by	Dr. Priscilla Choy		5 July 2013

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130712
Date	12 July 2013(Friday)
Time	09:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
130712-O02	<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 – Landscape & Visual</i></p> <ul style="list-style-type: none"> Construction materials and boulders should be removed from near the tree. The Contractor is reminded to set up a tree protection area. 	C2, 3
130712-R01	<p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none"> Properly cover the stockpile of dusty material. <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.:130705), all environmental deficiency was observed improved/rectified by the Contractor. 	D6

	Name	Signature	Date
Recorded by	Johnny Fung		12 July 2013
Checked by	Dr. Priscilla Choy		12 July 2013

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130719
Date	19 July 2013(Friday)
Time	09:00 – 10:15

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

Ref. No.	Remarks/Observations	Related Item No.
130719-O01	Part B – Water Quality • Stagnant water is observed in the U-channel near the site boundary. The Contractor is reminded to provide sand bag bunding to avoid runoff out of the site.	B7
130719-O03	• Footings of hoarding at the site boundary should be sealed up to avoid surface runoff out of the site.	B2
130719-O02	Part C – Landscape & Visual • Construction materials should be removed from near the tree. The Contractor is reminded to set up tree protection area.	C2, 3
130719-R04	Part D – Air Quality • Properly cover the stockpile of dusty material.	D6
	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection.	
130719-R05	Part F – Waste/Chemical Management • To provide tarpaulin sheets for placing the breaker to avoid chemical leakage to unpaved ground.	F9
	Part G – Permits/Licenses • No environmental deficiency was identified during the site inspection.	
	Part H – Others • Follow-up on previous audit section (Ref. No.:130712), follow up action is needed to be reviewed for item 130712-R01 and 130712-O02.	

	Name	Signature	Date
Recorded by	Johnny Fung		19 July 2013
Checked by	Dr. Priscilla Choy		19 July 2013

*Shatin to Central Link -
Contract 1107 Diamond Hill to Kai Tak Tunnels*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130726
Date	26 July 2013(Friday)
Time	9:45 – 11:30

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

Ref. No.	Remarks/Observations	Related Item No.
130726-001	Part B – Water Quality • Muddy water observed discharged to U-channel out of the site. The Contractor is reminded to avoid surface runoff out of site.	B5
130726-R03	• Footings of hoarding at the site boundary should be sealed up under good weather conditions to avoid surface runoff.	B2
130726-R04	Part C – Landscape & Visual • No environmental deficiency was identified during the site inspection. Part D – Air Quality • Properly cover stockpile of dusty material.	D6
130726-002	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection. Part F – Waste/Chemical Management • Chemical leakage observed on unpaved ground. The Contractor is reminded to provide a plug to drip tray to avoid further leakage. Part G – Permits/Licenses • No environmental deficiency was identified during the site inspection. Part H – Others • Follow-up on previous audit section (Ref. No.:130719), follow up action is needed to be reviewed for item 130719-001, 130719-R03 and 130719-R04.	F9, 10

	Name	Signature	Date
Recorded by	Johnny Fung		26 July 2013
Checked by	Dr. Priscilla Choy		26 July 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
		<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 	Minimize the visual and landscape impact of the Project during construction phase	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 	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
		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 						<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;">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>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: right;">^</p> <p style="text-align: right;">N/A</p> <p style="text-align: right;">N/A</p> <p style="text-align: right;">^</p> <p style="text-align: right;">^</p> <p style="text-align: right;">^</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	N/A
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>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
		<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;">N/A</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>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 	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>the locations should be located 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>

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

CW - SELI Joint Venture

Name of Department: MTRC

Contract No.:1107

Appendix C1

Monthly Summary Waste Flow Table for 2013

Year	Estimated Quantities of Inert C&D Materials (in '000m ³) (see Note 4)										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 3)		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 '000m3)	
	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		0.000		0.000		0.000		1.800		0.000		0.100		0.000		0.000		0.100	
September	1.800		0.000		0.000		0.000		1.800		1.000		0.100		0.000		0.000		0.100	
October	1.000		0.000		0.000		0.000		1.000		1.000		0.100		0.000		0.000		0.100	
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	0.880	0.000	0.000	0.000	0.000	0.000	0.255	19.300	0.625	2.000	1.880	0.700	0.000	0.200	0.000	0.100	0.000	0.740	0.065

- 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 multiply 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

**2nd Monthly EM&A Report for Works Contract 1112 –
Hung Hom Station and Stabling Sidings**



2nd Monthly EM&A Report for July 2013

Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings

August 2013

Project/Deliverable No.	7076187 04/01
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	2 nd Monthly EM&A Report for July 2013
Report Date	August 2013
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	August 2013	Winnie MA	Vivian CHAN	Alexi BHANJA
2.0 (Final)	August 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 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 2nd monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 July 2013 in accordance with the EM&A manual.

During the reporting month, the following activity took place for the Project:

- Site clearance and set up at HUH
- D-wall construction at HUH
- Equipment mobilization at HUH
- Ground investigation works at HUH
- Underpinning at HUH
- Initial excavation at HUH
- Demolition of building services system at HUH

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 9 and 23 July 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 27 July 2013. No exceedance of Action and Limit Level of 24-hour TS 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, 16,870 kg of general refuse was generated from the Project and disposed of at NENT landfill. 365,335kg of metals was recycled from the Project. 238m³ inert construction and demolition (C&D) materials, no chemical waste or other recycled non-inert C&D material was generated during the reporting month.

Environmental Auditing

A total of 4 weekly environmental site audits were conducted on 4, 11, 18 and 25 July 2013. The IEC joint site audit was undertaken on 18 July 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:

- Initial excavation at HUH
- D-wall construction at HUH
- Underpinning at HUH
- Demolition of Wagon Examination Office / Freight Document Store Room / BS Store Room / Amenity Building
- Bored piling for Diversion of Cheong Wan Road Viaduct

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-438/2012/C) was issued on 30 April 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 2nd EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 July 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 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 EAL and EWL of SCL, and between NSL and EWL comprising alteration and addition works at podium level, mid-level, and platform level.
- Running tunnels of the EWL at the south and north ends of the new HUH to the existing stub tunnel of WRL and interface with Works Contract 1111.
- Running tunnels of the NSL 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 EWL 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:

- Site clearance and set up at HUH
- D-wall construction at HUH
- Equipment mobilization at HUH
- Ground investigation works at HUH
- Underpinning at HUH
- Initial excavation at HUH
- Demolition of building services system 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/C	30 Apr 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-RE0705-13	15 Jul 2013	30 Sep 2013	Valid	Relocation of overhead line mast A0370
GW-RE0761-13	26 Jul 2013	31 Aug 2013	Valid	Delivery of heavy vehicles
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	-

3 ENVIRONMENTAL MONITORING PARAMETERS

3.1 Air Quality Monitoring

Parameter, Frequency and Duration

3.1.1 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	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

3.1.2 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

3.1.3 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

3.1.4 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

3.1.5 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.

3.1.6 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.

3.1.7 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 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.

Wind Data Monitoring

- 3.1.8 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

- 3.1.9 The schedule for environmental monitoring in July 2013 is provided in **Appendix G**.

3.2 Construction Noise Monitoring

- 3.2.1 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).
- 3.2.2 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.

3.3 Landscape and Visual Impact

- 3.3.1 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.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 All environmental mitigation measures and requirements as started in EIA Reports, Environmental Permit and EM&A Manual 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	12 July 2013	Submitted
	EP-438/2012/C	12 July 2013	Submitted

5 MONITORING RESULTS

5.1 Air Quality Monitoring

- 5.1.1 The monitoring results for 24-hour TSP are summarized in **Table 5-1** Summary of 24-hour TSP Monitoring Results . Detailed air quality monitoring results are presented in **Appendix I**.

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	26.1	16.4 – 32.8	182	260

- 5.1.2 No Action and Limit Level exceedanced was recorded in the reporting month.
- 5.1.3 The Event and Action Plan is provided in **Appendix J**.

5.2 Regular Construction Noise Monitoring

- 5.2.1 Construction airborne noise monitoring results in the reporting month can be referred to the Monthly EM&A Report for Contract 1111.

5.3 Waste Management

- 5.3.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 16,870 kg of general refuse was generated from the Project and disposed of at NENT landfill. 238 m³ inert construction and demolition (C&D) material was generated for disposal or reuse at site during the reporting month. No paper/cardboard packaging, plastic, but 365,335 kg metals 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**.
- 5.3.2 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.

5.4 Landscape and Visual

- 5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 9 and 23 July 2013. All necessary mitigation measures have been implemented by the Contractor.
- 5.4.2 The Event and Action Plan for Landscape and Visual Impact Monitoring is provided in **Appendix J**.

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. 4 site audits were carried out on 4, 11, 18 and 25 July 2013 during the reporting month. Representative of the IEC joined the site inspection on 18 July 2013. A summary of the implementation schedule of environmental mitigation measures is provided in *Appendix H*.

6.1.2 No site inspection was conducted by EPD during the 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	Date	Description	Status
Water Quality	27 June 2013	Sand/silt was observed near surface drainage channel. Sand bags should be provided to prevent surface runoff.	The item was observed to be rectified by the Contractor on 11 July 2013.
Noise	11 July 2013	No noise shield or barrier provided to ground breaker. Noise shield/barrier should be provided.	The item was observed to be rectified by the Contractor on 18 July 2013.
Air Quality	11 July 2013	Dusty ground at worker access roads and works areas were found to be dry. More frequent and extensive watering to cover all unpaved and paved area should be implemented.	The item was observed to be rectified by the Contractor on 18 July 2013.
Landscape and Visual	N/A	N/A	N/A
Waste/Chemicals Management	4 July 2013	Oil leakage of lighting generator was observed.	The item was observed to be rectified by the Contractor on 11 July 2013.
	11 July 2013	Oil stain was observed under a crane outside International Mail Centre. Drip tray or floor covering should be provided during lube oil changing processing.	The item was observed to be rectified by the Contractor on 18 July 2013.
		Garbage bins should be provided and housekeeping should be enhanced. Garbage should be removed and disposed of by licensed waste collector.	The item was observed to be rectified by the Contractor on 18 July 2013.
18 July 2013	Oil leakage was observed from backhoe and mobile crane. The Contractor should clear oil leakage properly and was reminded to provide	The item will be followed up in August.	

Parameters	Date	Description	Status
		measures to prevent such issue to occur during machine maintenance.	
		Some oil drums were observed without drip tray. The Contractor should provide drip tray to prevent contamination and remove stagnant water inside the drip tray.	The item was observed to be rectified by the Contractor on 25 July 2013.
Permits/License	N/A	N/A	N/A

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:

- Initial excavation at HUH
- D-wall construction at HUH
- Underpinning at HUH
- Demolition of Wagon Examination Office / Freight Document Store Room / BS Store Room / Amenity Building
- Bored piling for Diversion of Cheong Wan Road Viaduct

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 August 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 2nd monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 July 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:

Construction Dust Impact

- Implement effective measures to avoid dust impact.

Airborne Noise Impact

- Ensure acoustic barrier and other mitigation measures are fully implemented.

Water Quality Impact

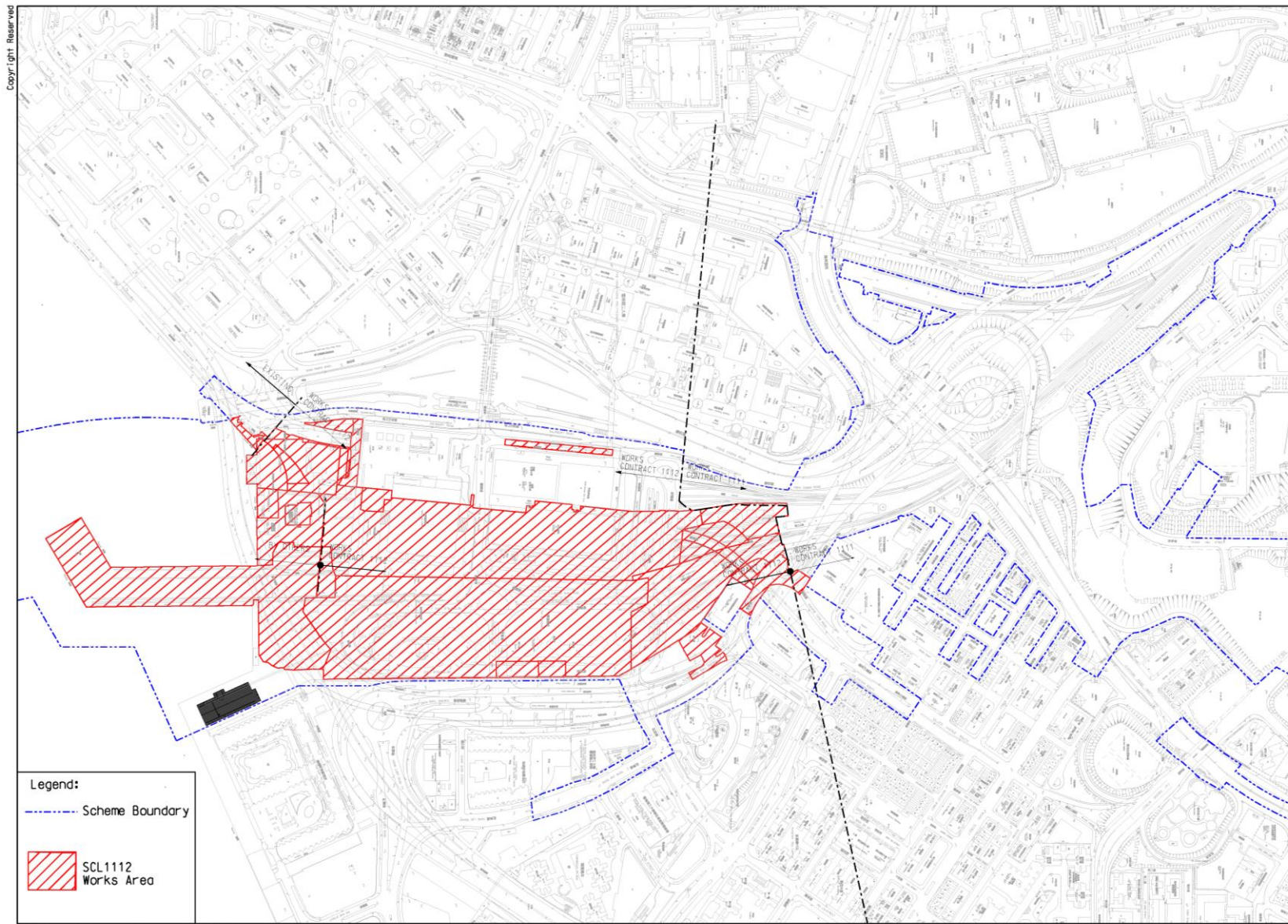
- Implement effective measures to avoid surface runoff into drainage system.

Chemical and Waste Management

- Provide drip trays to all lighting generators and oil drums 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



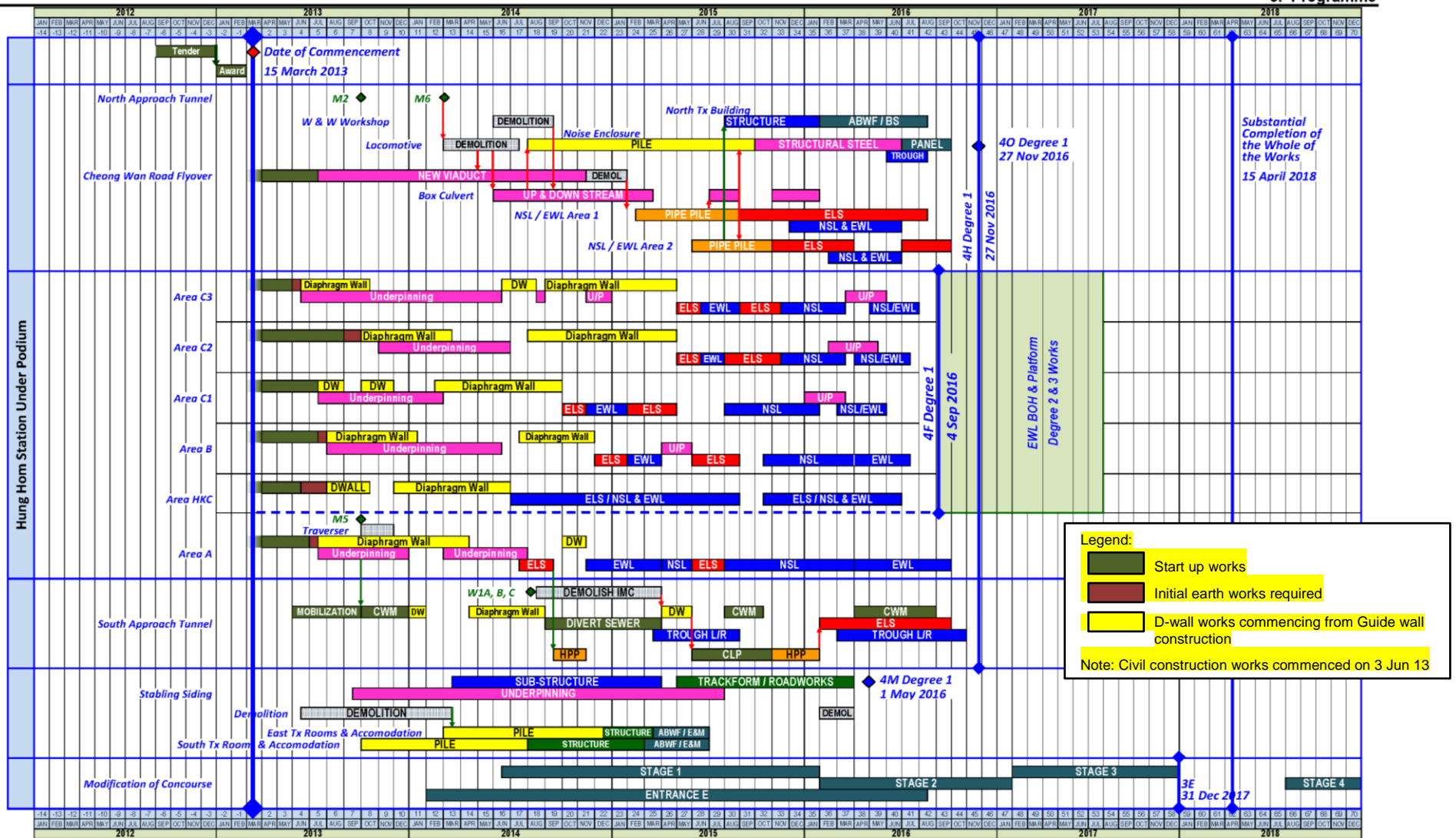
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03-Jul-13 1:4000(A3) CKL / ALBERT / TAT / HKW / SHEK

APPENDIX B

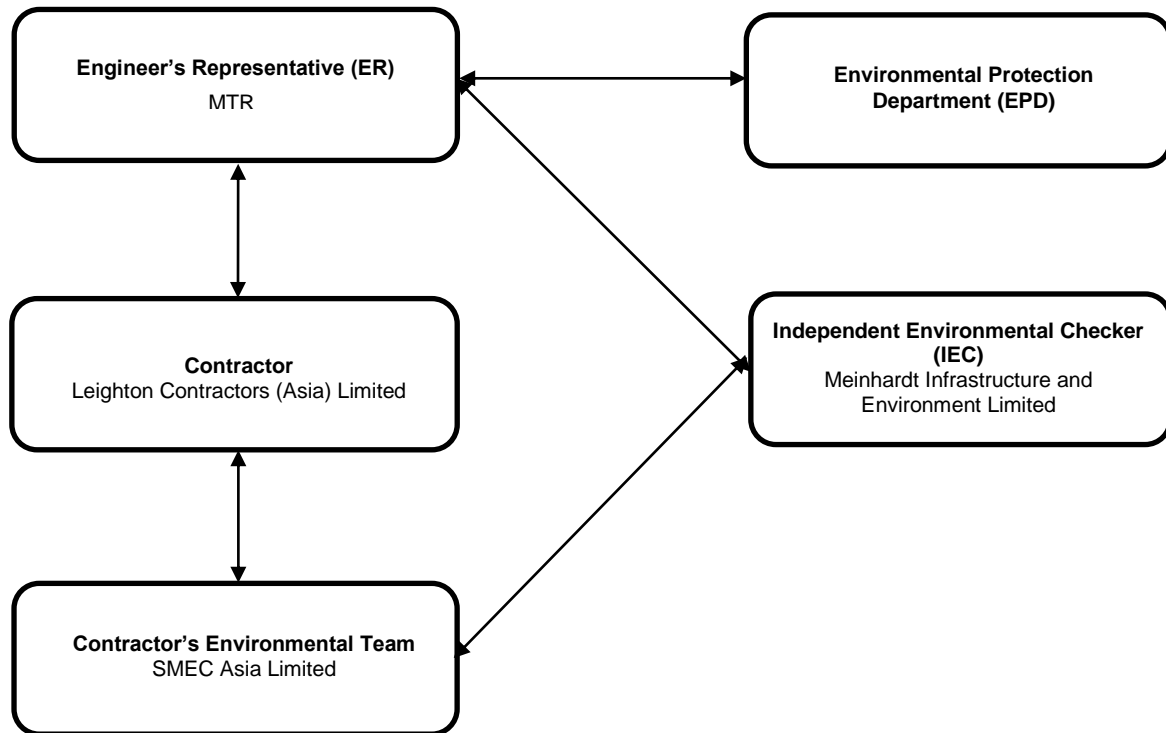
Construction Programme

3. Programme



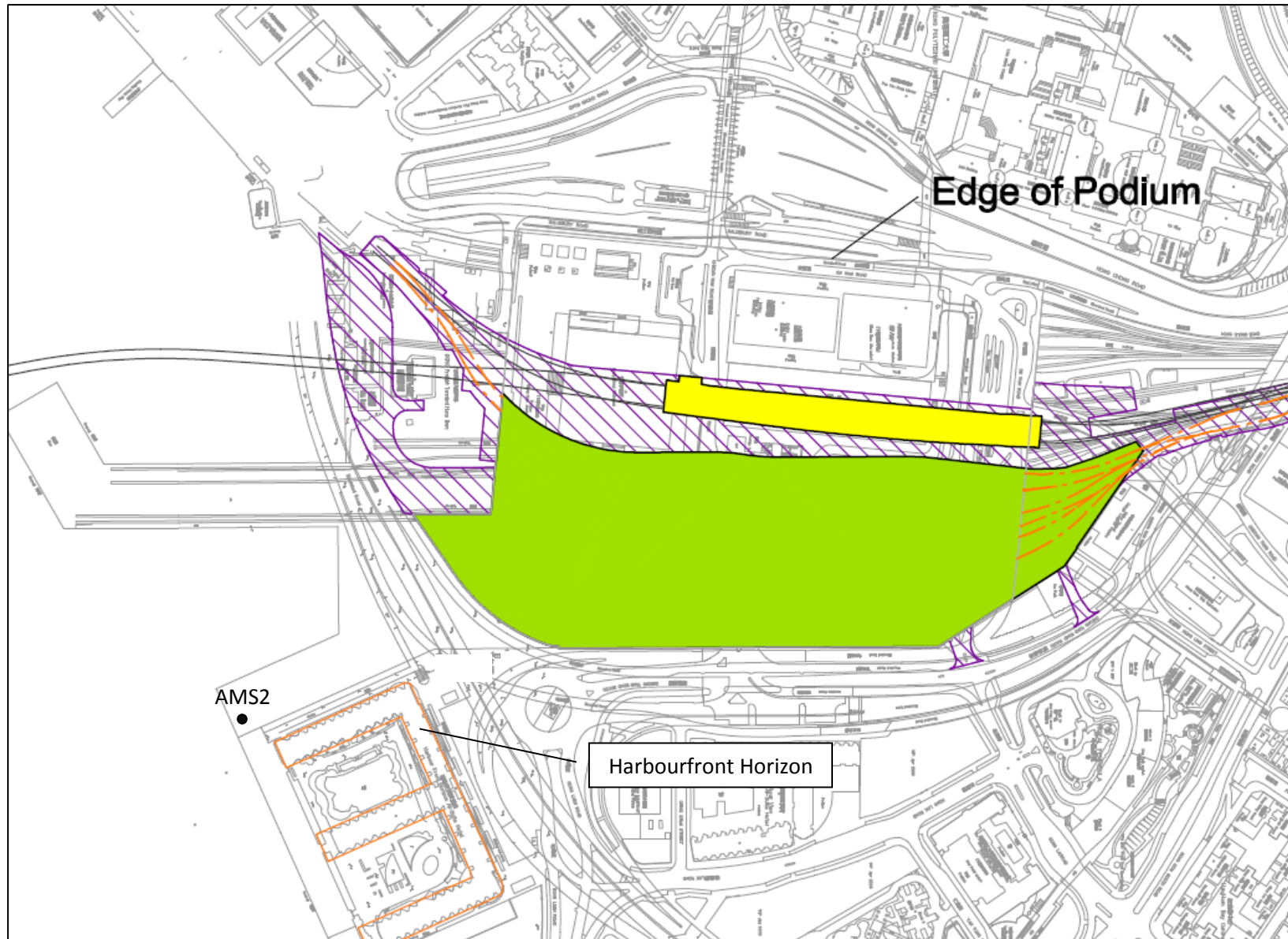
APPENDIX C

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: June 5, 2013
Sampler: Hunghom MTR TSP	Next Calibration Date: August 5, 2013
Serial No 694-0665	Tech: Sam Wong

CONDITIONS			
Barometric Pressure (in Hg):	39.64	Corrected Pressure (mm Hg):	1007
Temperature (deg F):	85	Temperature (deg K):	302
Average Press. (in Hg):	39.64	Corrected Average (mm Hg):	1007
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	12.00	1.878	58.0	66.27	Slope =	36.1714
2	10.40	1.749	53.0	60.55	Intercept =	-2.1805
3	7.80	1.516	46.0	52.56	Corr. coeff. =	0.9996
4	5.40	1.262	38.0	43.42		
5	3.40	1.003	30.0	34.28	# 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:

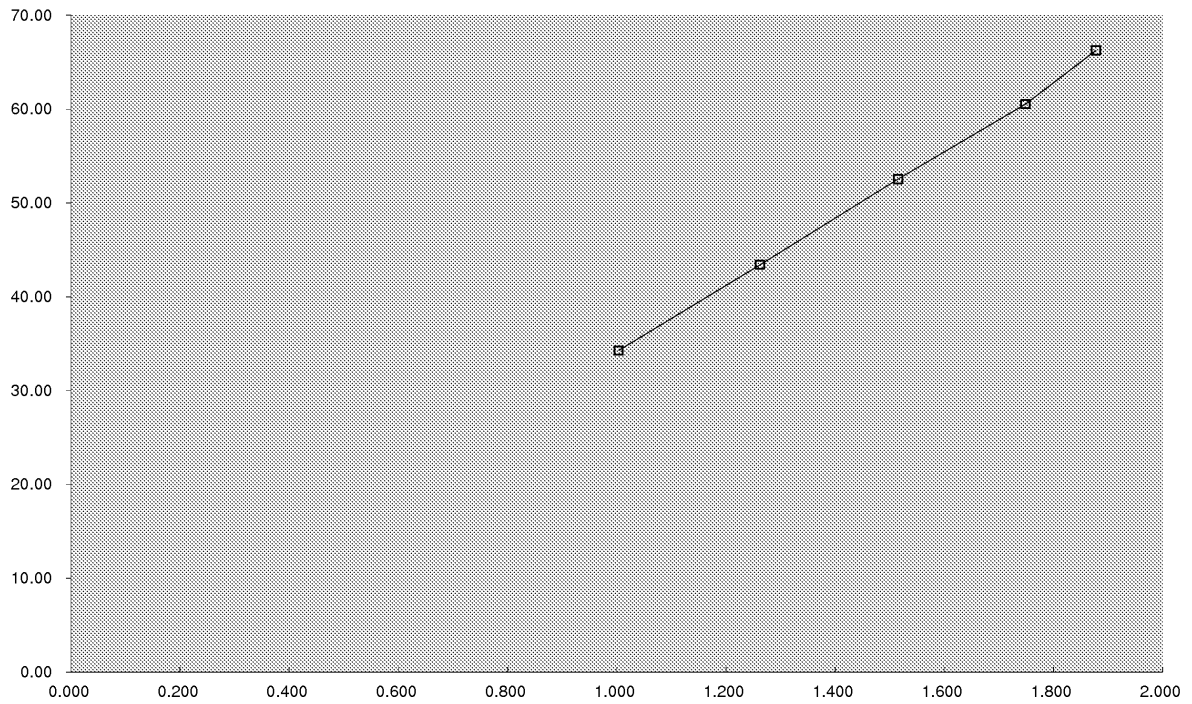
$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure

Reviewer: Sam Wong

Signature: 

Date: June 5, 2013





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AIR POLLUTION MONITORING EQUIPMENT
 ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 09, 2013 Rootmeter 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:

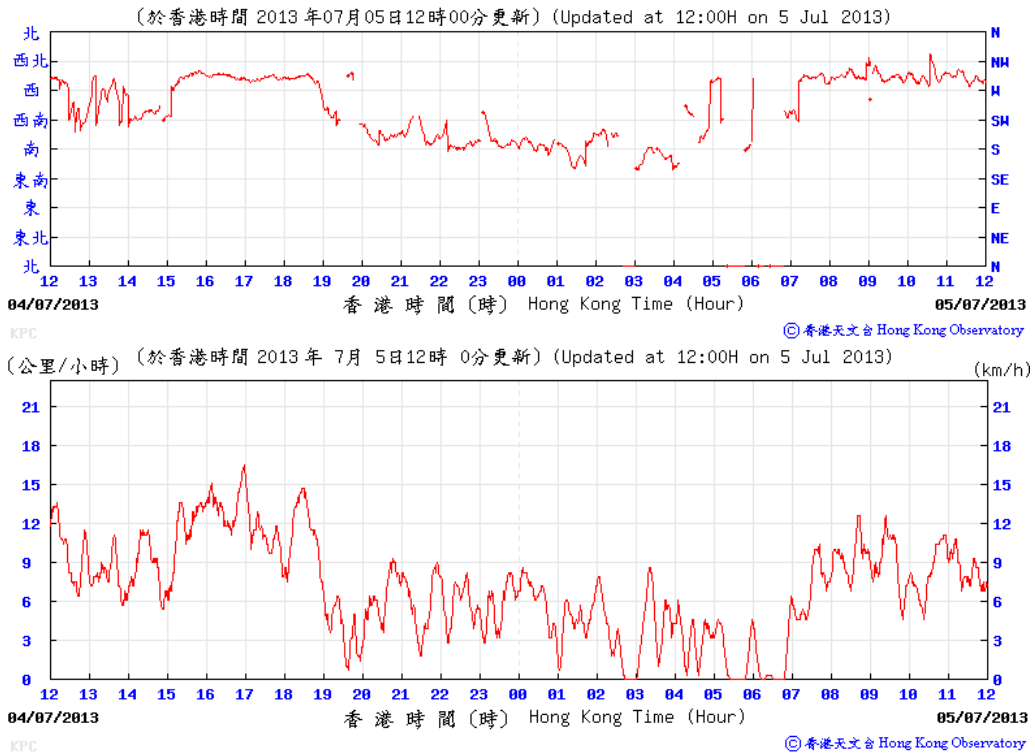
$$Qstd = 1/m \{ [\text{SQRT}(H2O(Pa/760)(298/Ta))] - b \}$$

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

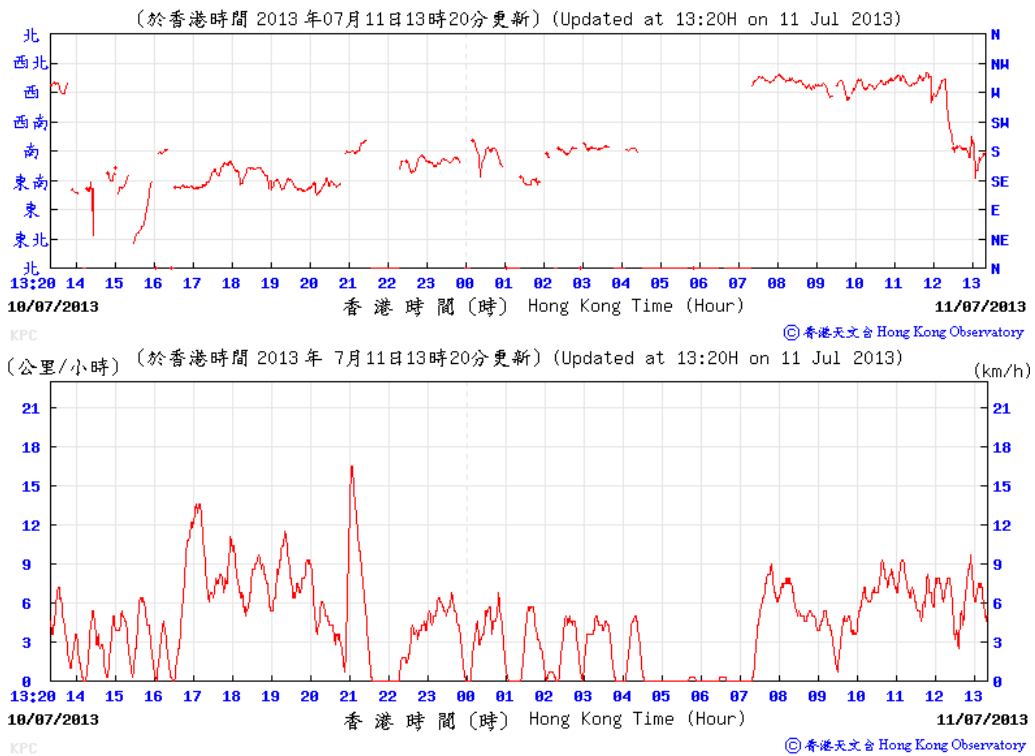
Appendix F

Wind Data

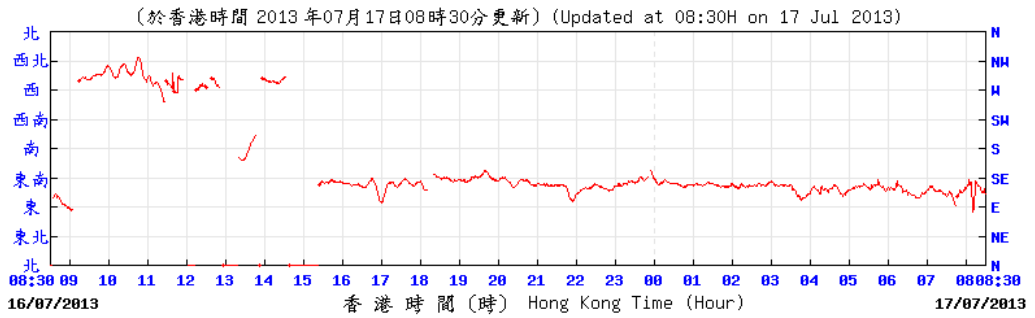
4 July 2013



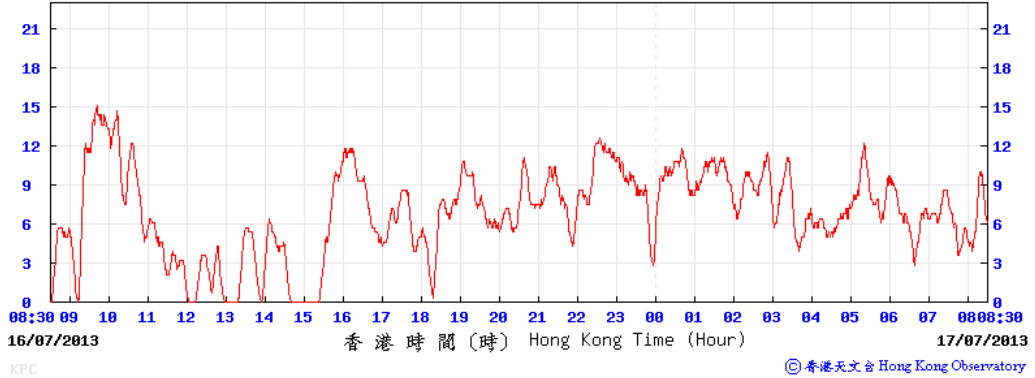
10 July 2013



16 July 2013

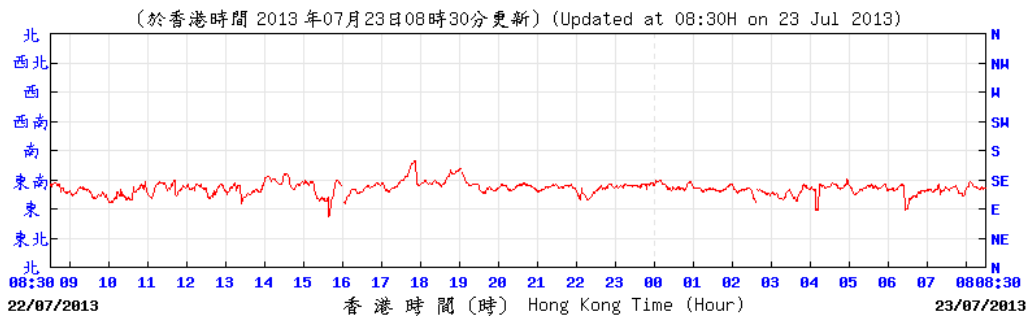


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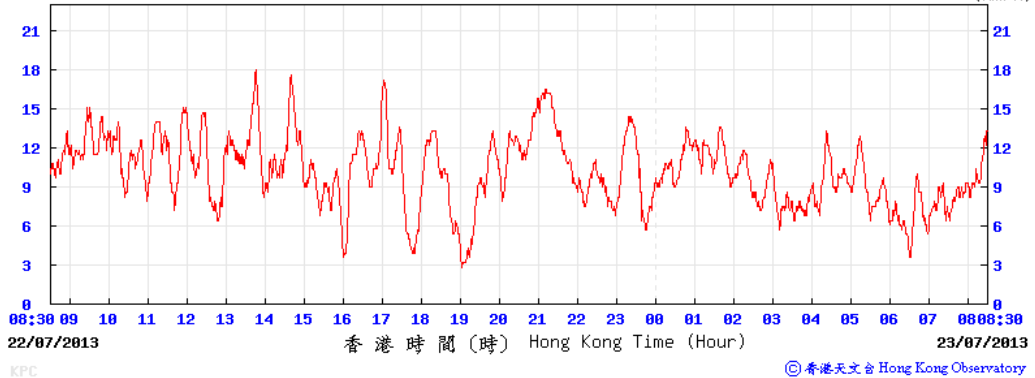


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22 July 2013

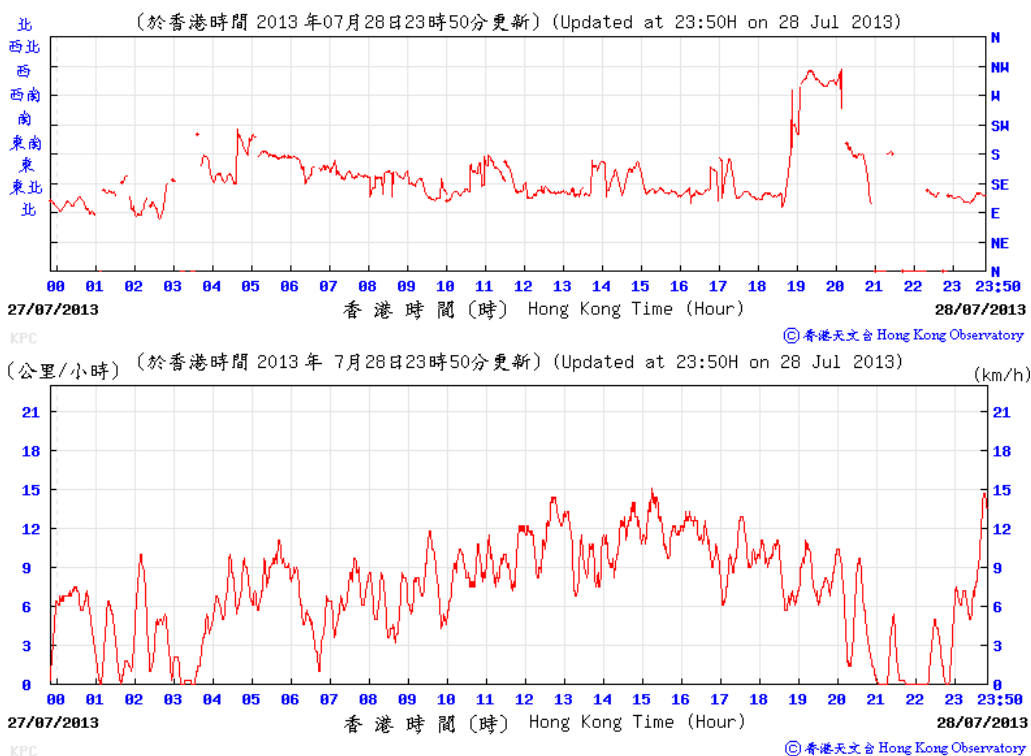


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 (公里/小時) (於香港時間 2013 年 7 月 23 日 8 時 30 分更新) (Updated at 08:30H on 23 Jul 2013) (km/h)



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27 July 2013



Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in July 2013

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

Environmental Monitoring Schedule for SCL1112 in August 2013

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

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>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>
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<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. 	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

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
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

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>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	^

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
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	^

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
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	<u>Onsite sorting of C&D material</u> 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.	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	<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 onsite sorting. Make provisions in the Contract documents to allow and promote <ul style="list-style-type: none"> 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	^ ^ ^ ^ ^ ^ ^

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
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

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>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>
<p>S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3</p>	<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; 	<p>Control the chemical waste and ensure proper storage, handling and disposal.</p>	<p>Contractor</p>	<p>All construction sites</p>	<p>Construction stage</p>	<p>Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</p>	<p>^</p> <p>^</p> <p>N/A</p>

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
	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

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
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> <p>N/A</p>

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"> 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)”	^

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
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

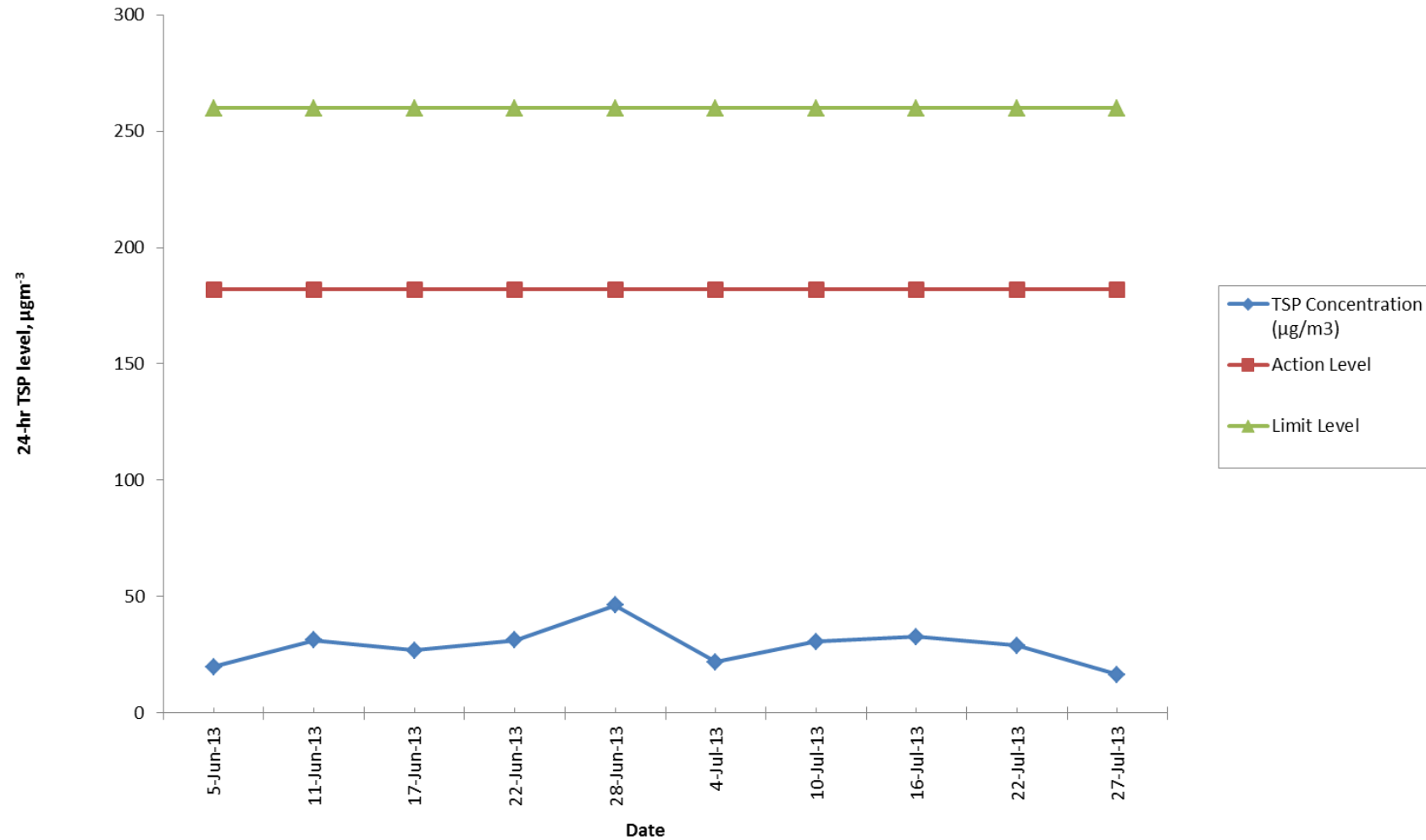
APPENDIX I

Monitoring Results and their Graphical Presentations



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				
04/07/13	205033	3.5713	3.6068	0.0355	9726.15	9750.15	24.00	40	40	40.0	1631.05	21.7651	Sunny	-
10/07/13	205034	3.5579	3.6078	0.0499	9750.15	9774.15	24.00	40	40	40.0	1631.05	30.5938	Sunny	-
16/07/13	205035	3.5706	3.6241	0.0535	9774.15	9798.17	24.02	40	40	40.0	1632.41	32.7736	Cloudy	-
22/07/13	205036	3.5594	3.6067	0.0473	9798.17	9822.17	24.00	40	40	40	1631.05	28.9997	Rainy	-
27/07/13	205037	3.5549	3.5817	0.0268	9822.17	9846.17	24.00	40	40	40.0	1631.05	16.4311	Sunny	-

Construction Dust Monitoring Results for AM2 (Harbourfront Horizon)



APPENDIX J

Event and Action Plan

Event and Action Plan for Air Quality

Event	ET	IEC	ER	Contractor
Action level				
1. Exceedance for one sample	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	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
2. Exceedance for two or more consecutive samples	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	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	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	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

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.

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	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)
Jun-13	0	0	0	0	0	0	0	137.301	0	0	0	6.55
Jul-13	0.238	0	0	0	0	0	0.238	365.335	0	0	0	16.87
Aug-13												
Sep-13												
Oct-13												
Nov-13												
Dec-13												
TOTAL	0.238	0	0	0	0	0	0.238	502.636	0	0	0	23.42

Note:

1. Assume the density of fill is 2ton/m³.
2. Refuses disposed of at NENT landfill.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Exceedances, 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

**2nd 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 July 2013]

**Works Contract 1108 –Kai Tak Station and
Associated Tunnels**

(July 2013)

Certified by: Goldie Fung



Position: Environmental Team Leader

Date: 12 August 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

July 2013

The Contents of this report have been certified by:



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Executive Summary

This is the second 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 July 2013 to 31st July 2013.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Station Area (Area 3)
 - General site clearance and removal of existing stockpile
 - Cut-off sheetpiling works commenced
 - Dewatering wall drilling commenced
 - Additional boreholes drilling and piezometer installation
 - Construction of temporary haul road near Gate 1
- Cut & Cover Area (Area 2)
 - General site clearance was completed
 - Trial excavation for existing old seawall
 - 6 nos. of additional piezometers were completed in this area
- Open cut Area (Area 1)
 - Breaking up of existing concrete pavement
 - All at-grade settlement markers were completed in this area

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, 7,256 m³ of inert C&D materials were generated during this reporting month and were disposed to the receiving facility of Contract 1108A. 2,370m³ 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 5th, 11th, 18th, 23rd, and 30th July 2013. The representative of the IEC jointed the site inspection on 5th July 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:

- Driving of extended cut-off sheet pile wall
- Installation of dewatering wells and observation wells will continue
- Additional boreholes drilling and piezometers installation will continue
- Hoarding works at newly occupied Works Area W4 will commence
- Gate 1 Control by KCJV will be implemented in early August 2013. All relevant sections of new temporary haul road will be completed

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 second monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st July 2013 to 31st July 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**.

- Station Area (Area 3)
 - General site clearance and removal of existing stockpile
 - Cut-off sheetpiling works commenced
 - Dewatering wall drilling commenced
 - Additional boreholes drilling and piezometer installation
 - Construction of temporary haul road near Gate 1
- Cut & Cover Area (Area 2)
 - General site clearance was completed
 - Trial excavation for existing old seawall
 - 6 nos. of additional piezometers were completed in this area
- Open cut Area (Area 1)

- Breaking up of existing concrete pavement
- All at-grade settlement markers were completed in this area

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. Application for Effluent Discharge License under WPCO is under approval.

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	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	31/12/2013	Valid
Construction Noise Permit for General Works			
GW-RE0720-13	12/07/2013	08/01/2014	Valid
Effluent Discharge License			
N/A	N/A	N/A	Application was made on 5 th June 2013 and is pending for EPD's approval
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	First Monthly EM&A Report	12 th July 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
July 2013	7,256m ³	2,370 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 5th, 11th, 18th, 23rd and 30th July 2013. The representative of the IEC joined the site inspection on 5th July 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.

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	30 Jul 13	Mitigation measures on noise for concrete breaking was insufficient.	Contractor was reminded to properly wrap the breaker tip with sound absorbing material.	Follow up action will be reported in next reporting period.	N/A	/
Air Quality	25 Jun 13	Stockpiles of excavated material were observed without covering.	Contractor was reminded to cover the bared stockpiles with tarpaulin to avoid erosion and dust generation.	The stockpiles of excavated material were removed.	5 Jul 13	/
	5 Jul 13	The pressure of the water jet for water spraying during concrete breaking was insufficient.	Contractor was reminded to enhance the pressure of the water jet or mount the water jet to the breaker tip to ensure the efficiency of dust suppression during concrete breaking.	Water jet was mounted with the breaker tip for more efficient dust suppression during concrete breaking.	18 Jul 13	/
	5 Jul 13	Although watering by water spraying truck was observed during this inspection, the site was dry and dusty.	Contractor was reminded to provide more frequent watering to reduce the dust impact.	Water spraying was provided by water spraying truck every working hour. A logbook was kept for recording watering frequency.	23 Jul 13	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
	5 Jul 13	Wheel washing facilities were missing at main site exits.	Contractor was reminded to install wheel washing bay and water jet for vehicle washing to avoid dust generation.	Follow up action will be reported in next reporting period.	N/A	/
	11 Jul 13	Unloading of excavated material was observed without dust suppression measures and the stockpile of excavated material was observed without covering.	Contractor was suggested to provide watering during unloading of excavated material to avoid dust generation. Contractor was reminded to cover the remaining surface with impervious material entirely to avoid dust generation.	Some part of the earthy stockpile has been covered with tarpaulin on 30 Jul 13. The status of follow up action will be reported in next reporting period.	N/A	/
	30 Jul 13	Dust suppression measure for concrete breaking was not observed.	Contractor was reminded to provide water spraying during concrete breaking.	Follow up action will be reported in next reporting period.	N/A	/
	30 Jul 13	Although regular watering by water spraying truck has been provided by Contractor, the haul road was dry and dusty.	Contractor was reminded to provide more frequent watering to avoid dust generation.	Follow up action will be reported in next reporting period.	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.	N/A	/
Waste / Chemical Management	25 Jun 13	Accumulated water was observed inside a drip tray.	Contractor was reminded to remove the accumulated water maintain sufficient capacity of the drip tray for storing the leaked oil.	The accumulated water inside the drip tray was removed.	5 Jul 13	/
	25 Jun 13	A paint container was observed without secondary containment.	Contractor was recommended to provide a drip tray for storing the chemicals to avoid land contamination as if leakage.	The paint container without secondary containment was removed.	5 Jul 13	/
	25 Jun 13	Oil stain was observed on the ground	Contractor was advised to remove the oil stain and contaminated soil as chemical waste with proper storage and disposal method. Contractor was also reminded to regularly check and maintain the equipments to prevent oil leakage.	The oil stain on the ground was removed by Contractor.	5 Jul 13	/
	5 Jul 13	A paint container was observed without secondary containment.	Contractor was advised to provide drip tray underneath the container for chemical storage. It is reminded that the outlet of the drip tray should be plugged and accumulated water should be removed.	A drip tray was observed for storage of paint containers during the inspection on 11 Jul 13. However, the outlet of the drip tray was not enclosed and accumulated water was observed inside the tray. As reported by Contractor on 18 Jul 2013, the accumulated water was removed, covering was provided and the outlet was enclosed.	18 Jul 13	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
	5 Jul 13	A temporary chemical waste storage container was observed to be stored with other construction material, without proper labeling and not covered properly.	Contractor was reminded that chemical waste should be stored in a totally enclosed container with proper warning label and only chemical waste should be allowed to be stored inside the container. Contractor was advised to remove the accumulated water.	Accumulated water was observed inside the container during the inspection on 18 Jul 13. The paint containers inside the temporary storage container were removed on 30 Jul 2013. The rectification for removal of accumulated water will be reported in next reporting period.	N/A	/
	5 Jul 13	Green waste was stockpiled on bared ground.	Contractor was reminded to store the waste in a container properly to maintain good environmental condition within the site.	The stockpile of green waste was removed.	11 Jul 13	/
	11 Jul 13	General refuse and accumulated water was observed on the drip tray.	Contractor was advised to remove them to maintain sufficient capacity for storage of leaked oil.	The power generator has been removed. As reported by Contractor, the general refuse and accumulated water on the drip tray were removed	18 Jul 13	/
	18 Jul 13	Secondary containment was missing for storage of paint containers at Area 1.	Contractor was advised to provide drip tray for storage of chemical to avoid land contamination.	The paint containers at Area 1 were removed.	30 Jul 13	/
	30 Jul 13	Secondary containment was missing for storage of fuel containers.	Contractor was advised to provide drip tray for storage of chemical to avoid land contamination.	Follow up action will be reported in next reporting period.	N/A	/
	30 Jul 13	The outlet of drip trays was not plugged.	Contractor was reminded to plug the outlet to avoid land contamination in case of leakage.	Follow up action will be reported in next reporting period.	N/A	/
Cultural Heritage	25 Jun 13	Installation of hoarding for setting up the buffer zone of the Lung Tsun Stone Bridge was being carried out	Contractor was reminded to provide temporary fencing and proper signage to restrict construction vehicles and workers entering the buffer zone before the completion of the installation work.	Installation of hoarding was completed. Signage for restricting construction vehicles and workers entering the buffer zone were attached around the buffer zone.	11 Jul 13	/
Landscape and Visual	N/A	N/A	N/A	N/A	N/A	/
Permits/ Licenses	11 Jun 13	The environmental permit was not properly displayed at the site entrance.	Contractor was reminded to display the updated environmental permit as soon as possible.	The environmental permit was displayed at the site entrance.	5 Jul 13	/

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:

- Driving of extended cut-off sheet pile wall
- Installation of dewatering wells and observation wells will continue
- Additional boreholes drilling and piezometers installation will continue
- Hoarding works at newly occupied Works Area W4 will commence
- Gate 1 Control by KCJV will be implemented in early August 2013. All relevant sections of new temporary haul road will be completed

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 second monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st July 2013 to 31st July 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/C.

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:

Noise Impact

- Provide sufficient mitigation measures for noisy activities.

Dust Impact

- Regularly spray water and cover the dusty surface to minimize the dust impact.
- Provide wheel washing facilities for vehicle washing to avoid dust generation.

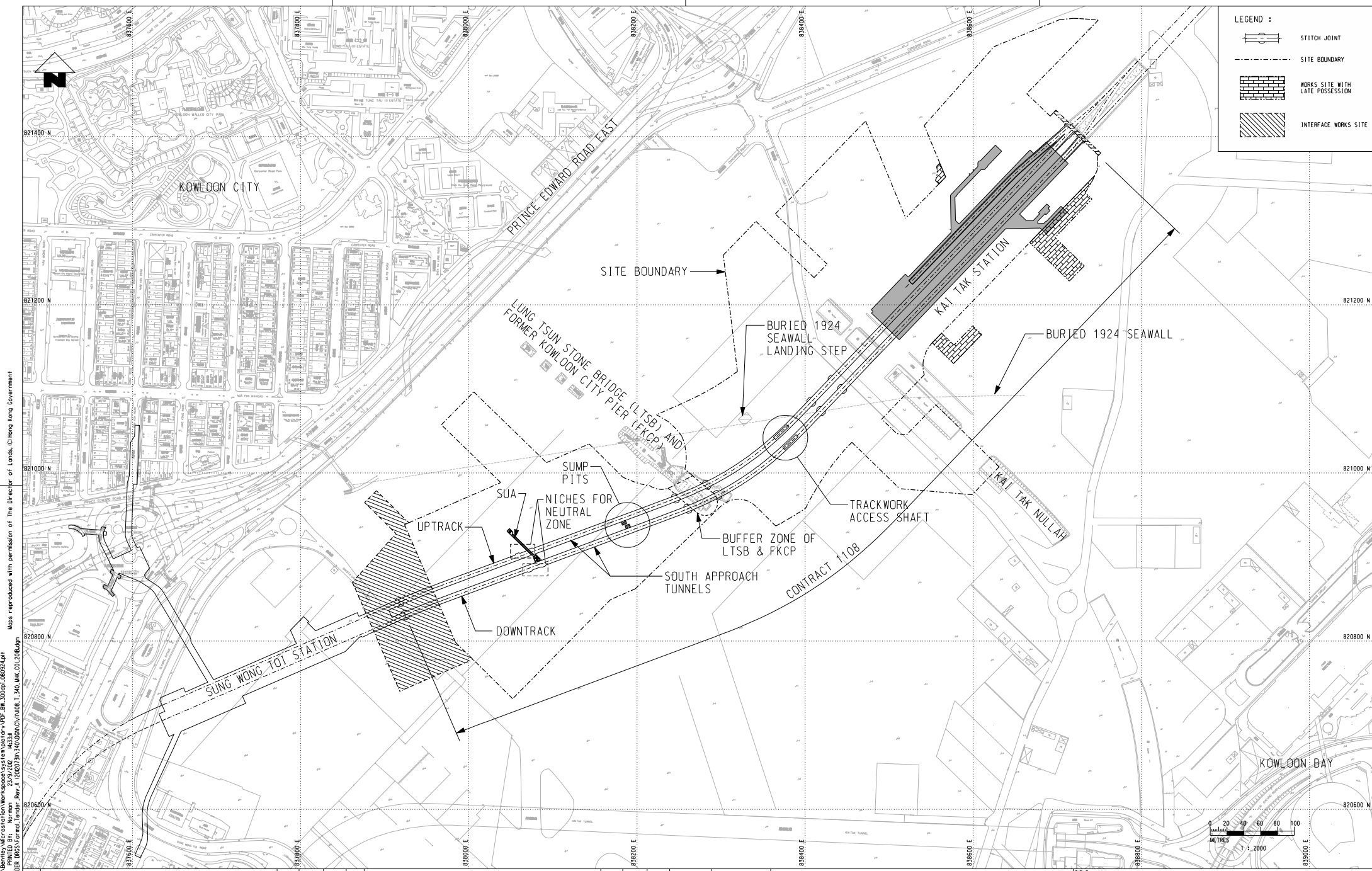
Water Quality Impact

- Provide sandbags to avoid surface runoff entering into existing drainage.
- Remove stagnant water regularly.

Waste / Chemical Management

- Provide drip tray with adequate capacity for fuel-powered equipment and fuel/chemical containers.
- Store chemical waste in a proper container with warning labels.

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/CV/AN/08.T_340_MHK_C01_2018.dgn

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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		

DESIGNED	TWY	CC
CHECKED	NN	AN
APPROVED	FK	FK
DATE		31 JAN 12

MTR

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	Dur (day)	Start	Finish	2013					
					May 2	Jun 3	Jul 4	Aug 5	Sep 6	Oct 7
Contract 1108 Kai Tak Station and Associated Tunnels										
A - Preliminaries										
Hoardings and Temporary Power & Utilities										
01108.HPU.0010	Erection of hoarding, haul road, condition survey, incl. utility survey	28	16/05/13 A	27/06/13						
01108.HPU.0020	Temporary Site Drainage	90	08/06/13 A	24/09/13						
01108.HPU.0030	Temporary Site Power	90	08/06/13 A	24/09/13						
01108.HPU.0040	Temporary Site Water Supply	90	08/06/13 A	24/09/13						
B - Kai Tak Station, Entrances and Adits										
B1 KAT Station										
B1.2 Station - Excavation										
B1.2.1 General Items										
01108.STN.HR0010	Erection of hoarding, haul road, condition survey, incl. utility survey	28	16/05/13 A	27/06/13						
B1.2.2 Temporary Works										
Temporary Works Design, Review & Approval										
01108.STN.DN04.1.1	Open Cut Design, ICE & Submit to MTRC for review	39	25/04/13 A	18/06/13						
01108.STN.DN04.1.2	Open Cut Design - Revision, if required, & Submit to RDO/ BD/ GEO	6	19/06/13	25/06/13						
01108.STN.DN04.1.3	Open Cut Design - No-adverse-comment by RDO/ BD/ GEO	17	26/06/13	16/07/13						
01108.STN.DN09.1.1	Hydraulic Cut Off - Design, ICE & Submit to MTRC for review	39	25/04/13 A	19/06/13						
01108.STN.DN09.1.2	Hydraulic Cut Off - Revision, if required, & Submit to RDO/ BD/ GEO	2	20/06/13	21/06/13						
01108.STN.DN09.1.3	Hydraulic Cut Off - No-adverse-comment by RDO/ BD/ GEO	14	22/06/13	09/07/13						
01108.STN.DN09.2.1	Advance Open Excavation - Design, ICE & Submit to MTRC for review	30	25/04/13 A	31/05/13 A						
01108.STN.DN09.2.2	Advance Open Excavation - Revision, if required, & Submit to RDO/ BD/ GEO	10	01/06/13 A	11/06/13 A						
01108.STN.DN09.2.3	Advance Open Excavation - No-adverse-comment by RDO/ BD/ GEO	12	17/06/13	29/06/13						
Dewatering Wells & Observation Wells										
01108.STN.DW10-19	GL 10-19 Dewatering wells, 32 nr PW115-PW146; Observation wells, 7 nr OW3	31	17/07/13	21/08/13						
01108.STN.DW10-19t	GL 10-19 Pumping tests	21	22/08/13	11/09/13						
01108.STN.DW19-24	GL 19-24 Dewatering wells, 15 nr PW147-PW161; Observation wells, 2 nr OW3	27	22/08/13	23/09/13						
01108.STN.DW19-24t	GL 19-24 Pumping tests	21	24/09/13	14/10/13						
01108.STN.DWAN-10	Adj.Nul-GL10 Dewatering wells, 35 nr PW80-PW114; Observation wells, 6 nr O	65	24/09/13	10/12/13						
Sheet Piles										
Cut-off Wall at NW Side										
01108.STN.SP10-19w	GL 10-19 Sheet piling, 304 nr x 18.5m (5624m, 372t, total) (2 Rigs)	16	10/07/13	27/07/13						
01108.STN.SP19-22w	GL 07-10 & GL 19-22 Sheet piling, 191 nr - 15 x 12.5m, 25 x 15.5m, 151 x 18.5m	10	29/07/13	08/08/13						
01108.STN.SP22-STw	GL 22-Stub Tunnel Area - Sheet piling, 137 nr - 95 x 18.5m, 42 x 20.5m (2619m,	15	09/08/13	26/08/13						
01108.STN.SPAN-10w	GL 01-10 Sheet piling, 223 nr - 50 x 12.5m, 25 x 15.5m, 43 x 18.5m, 70 x 21.5m,	25	27/08/13	25/09/13						
Cut-off Wall at SE Side										
01108.STN.SP10-19e	GL 10-19 Sheet piling, 295 nr x 23.5m (6933m, 459t, total) (2 Rigs)	20	10/07/13	01/08/13						
01108.STN.SP19-22e	GL 07-10 & GL 19-22 Sheet piling, 190nr x 23.5m (4465m, 295t, total) (2 Rigs)	13	02/08/13	16/08/13						
01108.STN.SP22-STe	GL 22-Stub Tunnel Area - Sheet piling, 176 nr x 23.5m (4664m, 308t, total)	26	17/08/13	16/09/13						
01108.STN.SPAN-10e	GL 01-10 Sheet piling, 223 nr - 16 x 23.5m, 25 x 26.5m, 182 x 28.5m (6226m, 41	35	17/09/13	30/10/13						
B1.2.3 Earthworks										
General Site Clearance & Trim to +3.5mPD										
01108.STN.EX0000	Coconstruct station drainage protection system	14	17/06/13	05/07/13						
01108.STN.EX1.10-19	GL 19-10 General clearance & trim existing ground to +3.5mPD, 17850 m3	30	08/07/13	16/08/13						
01108.STN.EX1.19-24	GL 19-24 General clearance & trim existing ground to +3.5mPD, 10082 m3	17	19/08/13	10/09/13						
01108.STN.EX1.AN-10	GL 10 to adj. Nullah 10 General clearance & trim existing ground to +3.5mPD, 1	33	11/09/13	25/10/13						
Excavation to Formation Level										
01108.MSB01P	Commencement of excavation after pumping test for area from GL 10-19	0		11/09/13						
01108.STN.EX2.10-19	GL 19-10 Excavation, 86938 m3	54	12/09/13	20/11/13						
C - South Approach Tunnel										
C1 Open Cut Tunnels (U=341m; D=340m)										
C1.2 Excavation										
C1.2.1 General Items										
01108.OCT.HR0020	Haul road, condition survey, incl. utility survey	21	08/06/13 A	04/07/13						
C1.2.2 Temporary Works										
Temporary Works Design & Approval										
01108.OCT.DN04.1.1	Open Cut Design, ICE & Submit to MTRC for review	39	13/05/13 A	09/07/13						
01108.OCT.DN04.1.2	Open Cut Design - Revision, if required, & Submit to RDO/ BD/ GEO	6	10/07/13	16/07/13						
01108.OCT.DN04.1.3	Open Cut Design - No-adverse-comment by RDO/ BD/ GEO	18	17/07/13	06/08/13						
01108.OCT.DN09.1.1	Hydraulic Cut Off - Design, ICE & Submit to MTRC for review	39	25/04/13 A	19/06/13						
01108.OCT.DN09.1.2	Hydraulic Cut Off - Revision, if required, & Submit to RDO/ BD/ GEO	2	20/06/13	21/06/13						
01108.OCT.DN09.1.3	Hydraulic Cut Off - No-adverse-comment by RDO/ BD/ GEO	14	22/06/13	09/07/13						
Dewatering and Observation Wells										
01108.OCT.DW9080	To Ch 99080 Dewatering, 22 nr PW40-61; Recharge 10 nr RW1-10; Observatio	45	07/08/13	28/09/13						
01108.OCT.DW9080t	To Ch 99080 Pumping tests	21	30/09/13	25/10/13						
01108.OCT.DW9185	Ch 99080-99185 Dewatering wells, 21 nr PW19-PW39; Observation wells, 6 nr	51	30/09/13	29/11/13						
Sheet Piles										
Water Cut-off Wall at NW Side										
01108.OCT.SP9080w	To Ch 99080 Sheet piling, 329 nr x 21.5m (7074m, 468t, total)	40	10/07/13	24/08/13						
01108.OCT.SP9185w	Ch 99080-99185 Sheet piling, 238 nr - 120 x 18.5m, 25 x 20m, 93 x 21.5m (4720	27	26/08/13	26/09/13						
01108.OCT.SP9258w	Ch 99185-99258 Sheet piling, 382nr - 340 x 12.5m, 42 x 15m (4880m, 323t, total)	28	27/09/13	31/10/13						
Water Cut-off Wall at SE Side										
01108.OCT.SP9080e	To Ch 99080 Sheet piling, 316 nr - 215 x 12.5, 37 x 15m, 64 x 18.5m (4427m, 295	25	10/07/13	07/08/13						
01108.OCT.SP9185e	Ch 99080-99185 Sheet piling, 238 nr x 12.5m (2975m, 197t, total)	17	08/08/13	27/08/13						
01108.OCT.SP9258e	Ch 99185-99258 Sheet piling, 188 nr x 12.5m (2350m, 155t, total)	13	28/08/13	11/09/13						
Water Cut-off Wall Enclosure at C1109										
01108.OCT.SP9258	At Ch 99258 Sheet piling, 230 nr x 12.5m (2875m, 190t, total)	16	12/09/13	02/10/13						
C1.2.3 Excavation CH 98975 to CH 99217										
General Site Clearance										
01108.OCT.EX0010	Construct drainage protection system	14	10/06/13 A	28/06/13						
01108.OCT.EX0015	General clearance & trim existing ground by +3.5mPD	54	02/07/13	13/09/13						

- ▼ Milestone
- ▼ Critical Milestone
- █ Critical Work
- █ Planned Work

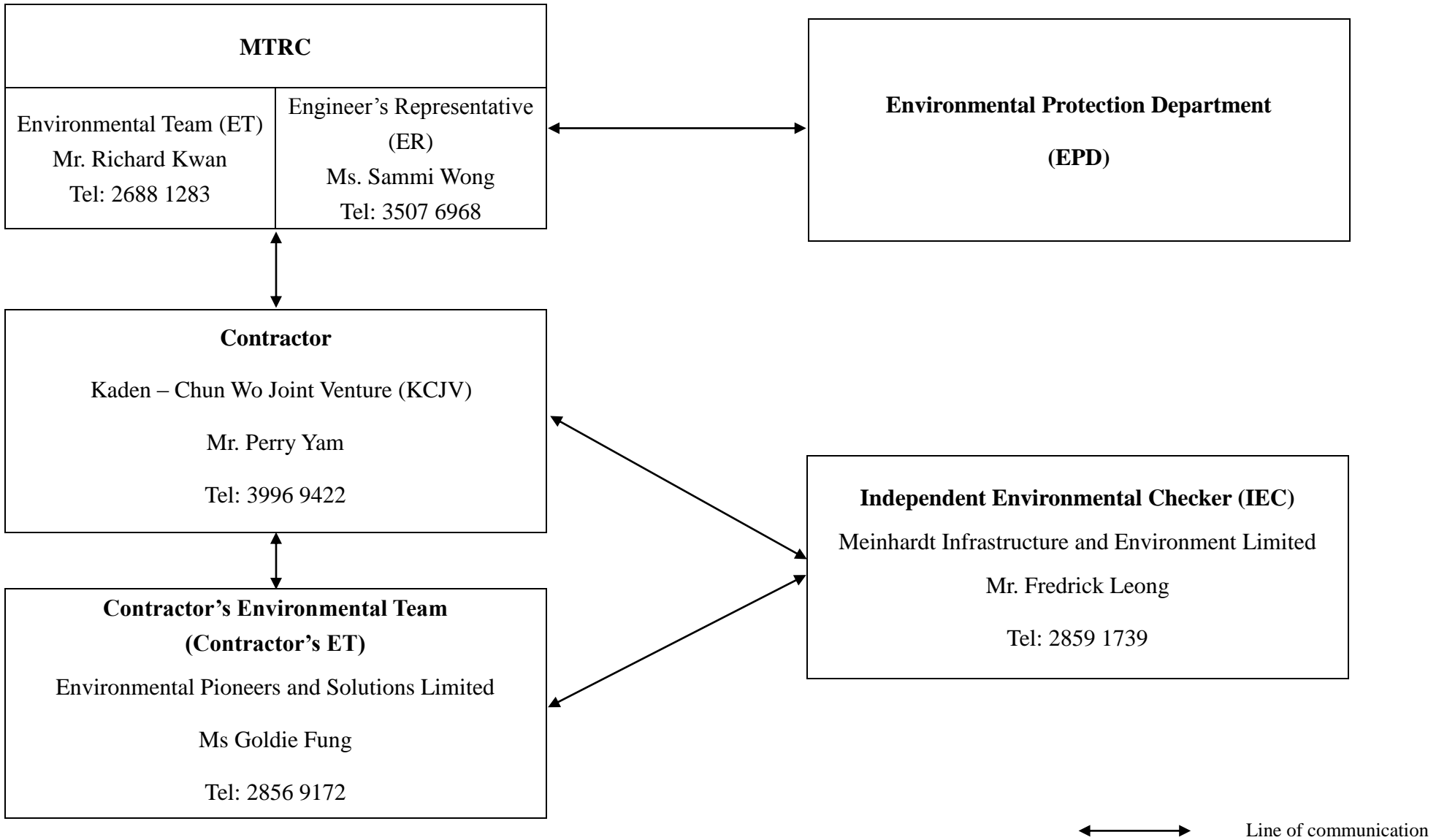
MTR Contract 1108 Kai Tak Station and Associated Tunnels
Three-Month Rolling Programme (17-Jun-13)

Activity ID	Activity Name	Dur (day)	Start	Finish	2013						
					May 2	Jun 3	Jul 4	Aug 5	Sep 6	Oct 7	
C2 Mined Tunnels (U=41m; D=39m)											
C2.1 Excavation											
C2.1.1 General Items											
Design, Approval, Fabrication & Installation of Tunnel Formwork											
01108.MIT.DN07.1.1	MIT Shaft ELS - Design, ICE & Submit to MTRC for review	46	08/06/13 A	02/08/13							
01108.MIT.DN07.1.2	MIT Shaft ELS - Revision, if required, & Submit to RDO/ BD/ GEO	13	03/08/13	17/08/13							
01108.MIT.DN07.1.3	MIT Shaft ELS - Design - No-adverse-comment by RDO/ BD/ GEO	16	19/08/13	05/09/13							
01108.MIT.DN07.2.1	MIT Temporary Support - Design & Method statement, ICE & Submit to MTRC f	66	09/07/13	12/09/13							
01108.MIT.DN07.2.2	MIT Temporary Support - Revision, if required, & Submit to RDO/ BD/ GEO	21	13/09/13	03/10/13							
01108.MIT.DN07.2.3	MIT Temporary Support - No-adverse-comment by RDO/ BD/ GEO	28	04/10/13	31/10/13							
01108.MIT.DN07.3.1	Tunnel formwork design - Design, ICE and submission	36	02/08/13	12/09/13							
01108.MIT.DN07.3.3	Tunnel formwork design - No adverse comment	36	13/09/13	28/10/13							
C2.1.2 Temporary Works and ELS											
Temporary Works and ELS from Eastside (2 Workfronts, each 20mL)											
01108.MIT.TW005e	CH98866 Buffer zone of LTSB & FKCP: Grouted soil blocks (from ground level)	36	03/09/13	08/10/13							
01108.MIT.TW010e	3mT TAM Grout to 2m-extent from tunnel temporary extrados	24	09/10/13	01/11/13							
Temporary Works and ELS from Westside (2 Workfronts, each 20mL)											
01108.MIT.TW008w	CH98907 Buffer zone of LTSB & FKCP: Grouted soil blocks (from ground level)	36	07/09/13	12/10/13							
C3 Cut and Cover Tunnels (U=297m; D=307m)											
C3.2 Excavation CH 98636 to CH 98866 and CH 98907 to CH 98975											
C3.2.1 General Items											
01108.CCT.HR0010	Erection of hoarding	28	16/05/13 A	03/07/13							
01108.CCT.HR0020	Haul road, condition survey, incl. utility survey	21	28/06/13	23/07/13							
C3.2.2 Temporary Works and ELS											
Temporary Works Design & Approval											
01108.CCT.DN05.1a.1	CCT Cofferdam at KTND - Design, ICE & Submit to MTRC for review	36	06/05/13 A	18/06/13							
01108.CCT.DN05.1a.2	CCT Cofferdam at KTND - Revision, if required, & Submit to RDO/ BD/ GEO	15	19/06/13	06/07/13							
01108.CCT.DN05.1a.3	CCT Cofferdam at KTND - No-adverse-comment by RDO/ BD/ GEO	18	08/07/13	27/07/13							
01108.CCT.DN05.1b.1	CCT ELS/ Hydraulic - Design, ICE & Submit to MTRC for review	36	13/05/13 A	02/07/13							
01108.CCT.DN05.1b.2	CCT ELS/ Hydraulic - Revision, if required, & Submit to RDO/ BD/ GEO	30	03/07/13	06/08/13							
01108.CCT.DN05.1b.3	CCT ELS/ Hydraulic - No-adverse-comment by RDO/ BD/ GEO	52	07/08/13	08/10/13							
Dewatering and Observation Wells											
01108.CCT.DW0030	Install dewatering wells, 51 nos. and observation wells, 10nr (3 Rigs)	61	29/07/13	09/10/13							
01108.CCT.DW0040	Pumping tests	21	10/10/13	04/11/13							
Sheet Piles											
Partial Open Cut											
01108.CCT.SP0000	Sheet piling as cut-off walls, 2 x 446nr x 12mL, 2 x 5356m total, partially preboi	72	29/07/13	23/10/13							
Full Height Cofferdam											
01108.CCT.SP010	Sheet piling, M3-Q3-Q3a, FSP V Type C1- 51nr x 34.2mL (1733m total) & FSP \	12	29/07/13	10/08/13							
01108.CCT.SP020	Sheet piling, M3-G3-F3a, FSP V Type C1- 68nr x 34.2mL (2334m total) & FSP \	16	12/08/13	29/08/13							
01108.CCT.SP110	Sheet piling, H4-F4-D4', FSP V Type C2- 36nr x 33.2m (1191m total) & FSP IV 1	7	30/08/13	06/09/13							
01108.CCT.SP120	Sheet piling, H4-K4-L4', FSP V Type C2: 39nr x 33.2m (1279m total) & FSP IV 1	8	07/09/13	16/09/13							
01108.CCT.SP130	Sheet piling, D4-A4, FSP IV Type D2, D1: 108nr x 27.2-33.2m, 3456m total	19	17/09/13	10/10/13							
01108.CCT.SP140	Sheet piling, L4-R4, FSP IV Type D2, D1: 199nr x 33.2 to 27.2m, 3381m total	19	11/10/13	02/11/13							
C3.2.3 Earthworks											
Partial Open Cut											
Full Height Cofferdam Adjacent Mined Tunnel											
01108.CCT.EX8866	CH 98846-98866 Excavation & struts, 2 x 10.5+9.5mL	28	09/10/13	11/11/13							
Open Cut from Existing Ground Level to -5.0mPD											
01108.CCT.EX8636.1	CH 98636-98866 Clearance & trim ground level to +3.5mPD, 18480 m3	36	06/08/13	25/09/13							
01108.CCT.EX8636.2	CH 98636-98866 Excavation from +4-+3mPD, 14720 m3	24	15/10/13	11/11/13							
Full Height Cofferdam											
Excavation & ELS from Existing Groud Level to Formation Level											
01108.CCT.EX8928	CH 98906-98928 Excavation & struts, 2 x 10.5mL	28	15/10/13	15/11/13							
D - Associated Works											
D5 Utilities Diversion											
Diversion of Existing Nullah											
Preliminaries											
01108.AWD.DNA1.1	KTND Hydraulic Assessment, incl. pre-construction CCTV, as-built survey - De	36	25/04/13 A	22/07/13							
01108.AWD.DNA1.2	KTND Hydraulic Assessment - Revision, if required, & Submit to DSD	18	23/07/13	12/08/13							
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No-adverse-comment by DSD	68	13/08/13	02/11/13							

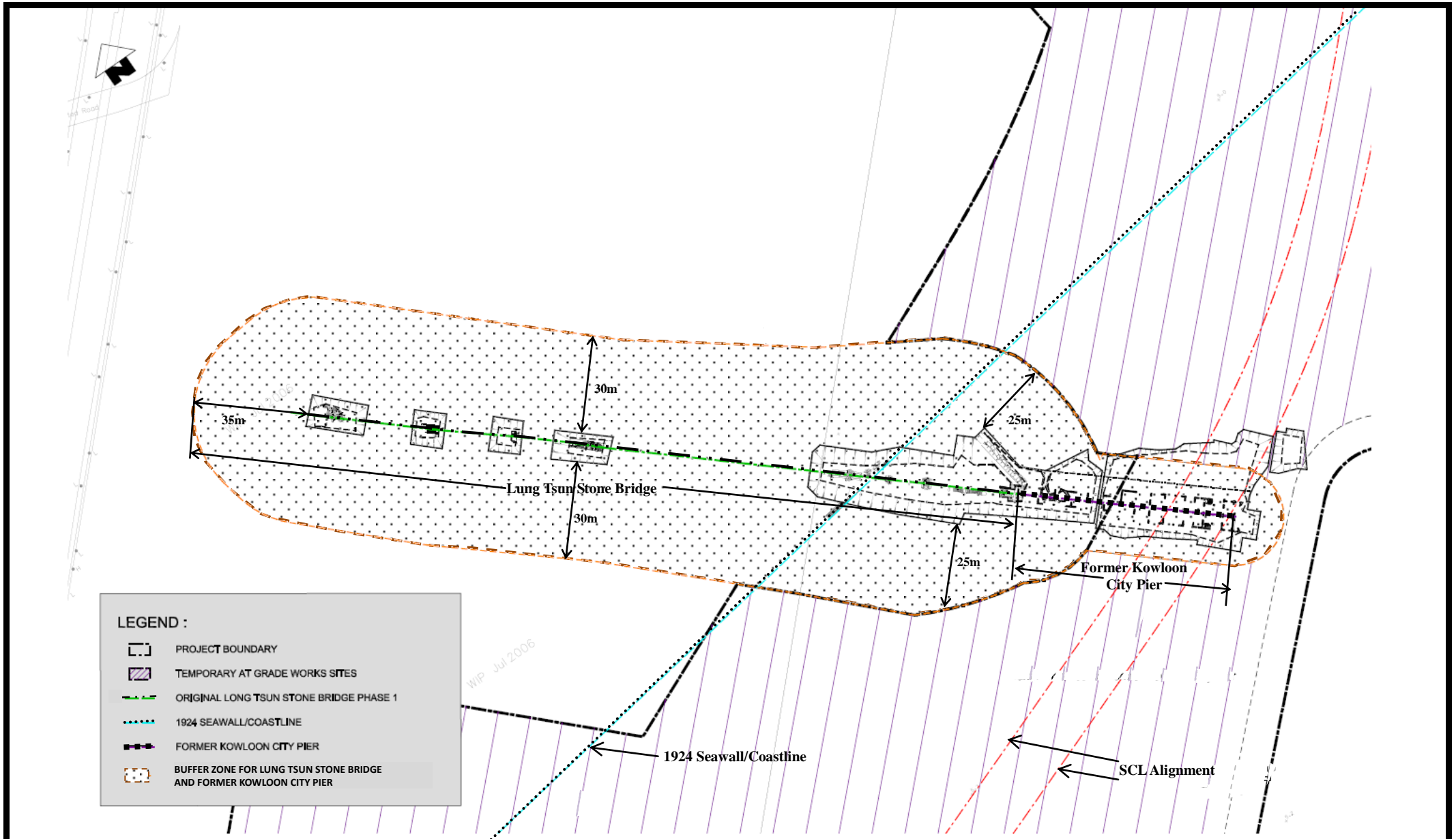
- ▼ Milestone
- ▼ Critical Milestone
- █ Critical Work
- █ Planned Work

MTR Contract 1108 Kai Tak Station and Associated Tunnels
Three-Month Rolling Programme (17-Jun-13)

Appendix C –Project Organization Chart & Contact Details



***Appendix D – Buffer Zone for Lung Tsun Stone Bridge & 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/C
環境許可證編號：EP-438/2012/C

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

***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	<ul style="list-style-type: none"> <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off 	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>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> <ul style="list-style-type: none"> • <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> 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	
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	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
		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.					
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; • When there are open excavation and reinstatement works, hoarding of 	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>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> <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 					

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		<p>(PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</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. 					
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, 	Control construction airborne noise	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>be orientated so that the noise is directed away from nearby NSRs;</p> <ul style="list-style-type: none"> • 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. 					
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	N/A
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	✓

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>Water Quality (Construction Phase)</i>							
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 	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
		<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, 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. 					

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		<p>Deposited silt and grit should be removed regularly 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 attention should be paid to the control of silty surface runoff during storm events, 					

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		<p>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 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 					

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		<p>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 					
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 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	N/A

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		<p>construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</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	✓
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 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	N/A

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		<p>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. 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 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 					

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		apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.					
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 	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>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.</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; 	<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	✓

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		<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; 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 					
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 	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	✓

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		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 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> <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; 	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	N/A

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		<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 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 					

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		<p>than 750m³ capacity and capable of rapid opening and discharge at the disposal site;</p> <ul style="list-style-type: none"> 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	<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 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	*

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		<p>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.</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. 					
EM&A Project							
S14.2 – 14.4	EM2	<ol style="list-style-type: none"> 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 	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	✓

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		Manual are fully complied with.					

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
Total	0	0	0	0